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CHAPTER I

THE PROBLEM

The quest for information is a universal one. An infant begins this search at birth and continues it for a lifetime. Yet, in spite of one's best efforts, success in retrieving information and turning it into useful knowledge is never guaranteed. This study is about three classroom teachers and one library media specialist who attempted to facilitate the transformation of information into knowledge by their fifth grade students. They operated under the assumption that something could be done to improve the chances that their pupils had for retrieving information.

The observer joined these professionals and their pupils in an effort to make meaning out of the interaction between classroom and library media center. The task of the classroom teacher was to instruct. The role of the library media specialist was to supervise the collection, organization and utilization of instructional media. The pupils' assignment was to experience library media skills
Such instruction occurs because of a need for information retrieval in society.

**FRAME OF REFERENCE**

Schooling is one dimension of the process of achieving adulthood. The education process is a means by which society transmits its culture from one generation to the next. The library media center, a place where the collection, organization and utilization of media occur, becomes a microcosm which reflects the information needs of society as a whole.

**ROLE OF INFORMATION IN SOCIETY**

Learning how to retrieve information is a lifelong endeavor and "the little community of library users in a particular school library grows up to become members of the clienteles of the public library and academic library" (OhloneT, 1979, p.4).
Transmission of Information

Man depends upon information to achieve success in his continual interaction with the surrounding environment. This viewpoint is in contrast to a long held belief that it is the use of tools which distinguishes men and women from other members of the animal kingdom. In fact, evidence suggests "that what is characteristic of human beings is not so much the devising of tools as the communication from one human to another of the know-how to make them" (Medawar, 1973, p.22). Communication can be stored in various forms of media and made available as needed.

The library media specialist selects instructional media for the library media center. Some educators believe that the library media center which best meets the information needs of its users is one which provides a veritable "smorgasbord" of educational resources. The comprehensiveness of the center's collection thus determines the extent to which pupils have access to information which answers the questions derived both from curricular and out-of-school experiences.
Organization of information

Information is transformed into knowledge as it is organized and systematized. However, the organization of library media is not a prerequisite to their use by students. A pupil may consume a portion of the library media center's "smorgasbord of experiences" through sheer physical contact. The importance of this approach to media selection should not be underrated. It is commonly known as the "browsing" function. However, for many library media center experiences the pupil needs to approach his or her selection task with the assurance that the collection of information located in the center has already been organized to meet his or her present information needs. The organizing process is called cataloging.

In addition to the student's drawing upon his or her previous experiences for the internal conditions of learning, the student must depend upon the library media specialist to organize an information retrieval system. Williams (1980) states that it is the major task of library media specialists and teachers to train students to understand why and how the library media center has been organized.
Selection of information

Much has been said about the information explosion. Little has been said about the need to organize this information so that it can be useful. Information, if it is to be of benefit in the learning process, must not only be collected and stored, it must also be used. The challenge of high technology with its accompanying delivery systems is often met with resistance. The efforts of the scientist has failed to fulfill the needs of the consumer. The information broker must be called upon to provide access to the treasures of the inventors. Such a call was made by Vannevar Bush at the end of World War II.

Bush was director of the Office of Scientific Research and Development during the war. It was his job to coordinate the efforts of scientists across the United States and to relate these endeavors to the war effort. By the end of that conflict he had come to the conclusion that science could provide very swift communication between individuals. He stated that science, up to that point, had provided a record of ideas that "enabled man to manipulate and to make extracts from that record so that knowledge evolves and endures throughout the life of a race rather than that of an individual" (Bush, 1945, p.101). Access to
data is thus seen to be just as important as its collection. The process whereby a student benefits from his or her inheritance of acquired information is called student information retrieval. This study will focus upon student information retrieval behaviors that have as their goal specific kinds of learning.

ROLE OF LIBRARY MEDIA SKILLS IN SCHOOLING

Information is retrieved in varying contexts. The same variables will not be observed in each setting. This study proposes to investigate information retrieval within an elementary school context. Its most narrow focus will be upon the interaction between the classroom teacher and the library media specialist as they both endeavor to elicit information retrieval behaviors from their students.

A study of school library media skills instruction necessitates taking into consideration the contributions of many disparate, but related, disciplines. The training of school library media specialists is shared by two disciplines in the social sciences, education and library science. The latter is traditionally divided into technical and public services. Technical services includes what has elsewhere been described as the collection and
organization of information. Public, or user, services is
the domain which supports, although occasionally
reluctantly, school library media skills instruction.
Three branches of education, educational communications or
technology, curriculum, and teaching, are related to
library media skills instruction. Educational
communications includes the preparation, production and
utilization of educational media which are organized to
form the school library media center. The focus
upon curriculum is a focus on the subjects taught in the
classroom. Teaching includes planning, evaluation and
instruction. A program for school library media skills
instruction develops from the coming together of these
various educational components along with those of library
science.

JUSTIFICATION FOR RESEARCH

An examination of the literature related to school
library media skills instruction reveals the paucity of
research in the area. Chapter two will deal more
specifically with the literature of the field. In this
chapter several reasons for undertaking the investigation
will be outlined.
Kuhn's model of scientific revolutions (Kuhn, 1970) has received attention from both an educator (Heinich, 1970) and a library scientist (Houser, 1978). Kuhn had argued that anomalous situations arise which cannot be resolved within the contexts of the paradigm then in force for a particular discipline. The result was that a new paradigm would eventually emerge. This new paradigm would appear to incorporate within its structure a resolution for the anomaly.

Heinich (1970) believed that developments in instructional technology which had resulted from the information explosion had created an intolerable anomaly. The emergence of audiovisual materials had had a significant impact upon the role of the classroom teacher. Traditionally these materials were viewed merely as "aids" to the classroom teacher. As such they supplemented, but did not replace, traditional classroom instruction. When instructional technology reached the level where it could furnish a mediated teacher, media began to be viewed as a replacement for the classroom teacher. Corresponding adjustments have had to be made to allow for this change in educational communications.
The usual custom in the classroom from time immemorial has been that the teacher was considered the source and authority for information. Later textbooks took on this same aura of respect. With the growth of the elementary school library media center there has arisen the need to reevaluate the role of the classroom teacher in regards to the use of media and to the need to retrieve information from them. Eventually, when students have mastered the skills of information retrieval, they can become independent users of information.

Houser's (1978) utilization of the Kuhn model was a plea for scientific professionalism within the library science discipline. The field was so fragmented that there was not even a hint of a common paradigm. This study will place itself within the tradition of library science research. The use of a research methodology which results in a grounded theory should make a contribution to library science which will strengthen its scientific base.
Library media skills instruction grew out of an expanded effort to educate the library user. Library reference services have focused upon a one-on-one relationship between the reference librarian and the particular library patron needing assistance. The early literature of school library media skills instruction consisted of narrative accounts of programs set up to provide this type of assistance to the students planning to use the school library media center. Instructional programs were developed to meet very practical needs. Common elements of these programs still persist today. Among these efforts is the perennial focus upon the card catalog as the basic tool for information retrieval. Related to the study of the card catalog was a presentation on the Dewey Decimal System. Also considered were presentations on the encyclopedia and other reference works.

If school library media skills instruction, as well as the broader-based library media center program, are to be developed on a firm scientific basis, the emphasis upon practice must be amalgamated with a consistent research program that emphasizes theory. One must not replace the
other. In the early stages of such a library media skills instructional program, research must be based upon controlled observations of library media skills instructional events. Out of this, further replications and possible experiments can develop.

INDIVIDUALIZING INSTRUCTION

The need to individualize school library media skills instruction grows out of an emphasis upon developmental differences among students who frequent the library media center. Not only does the classroom teacher have to cope with student differences in the classroom, they must also deal with these differences in the library media center. Considerable research has gone into an analysis of how to individualize the teaching of reading and mathematics. The same emphasis must be placed upon studying the individualizing of school library media skills instruction. Not every student learns how to use the card catalog in the same manner. He or she does so differently and has a different degree of success in retrieving information from it. Observations will be made in this investigation to determine how these different degrees of success are planned for and evaluated.
INCREASING THE CHANCES FOR SUCCESS.

Sophisticated computerized systems for information retrieval are often evaluated in terms of the number of "hits" that users can obtain from them. A hit is the citation of an information source which meets the requirements set up for the user by the information broker. The patron needing information has been encouraged to describe his or her needs in as precise terms as possible. Often the user has to throw away more citations than he or she finds useful.

This "waste" of information is time consuming and costly. While one would not expect to find mechanized information retrieval capabilities in an elementary school library media center, students there are still frustrated at finding "irrelevant" information. One of the goals of library media skills instruction is the development of student skill in decreasing the rate of failure and increasing the chance for success in retrieving appropriate information that will meet the student's learning needs.
AGENDAS FOR THE EIGHTIES

Both education (Reisler, 1981) and library science (Cuadra, 1982) have developed agendas for the 1980's. Reisler cites the necessity for a minimum level of basic skills proficiency, for training necessary for an increasingly complex and changing job market and for proficiency in the skills required to attend institutions of higher education. In each of these three areas there is evidence for needed development in the skills required for retrieving information.

Cuadra cites the importance of direct and quick information retrieval services in school settings. He mentions the discovery of differences in the information-seeking behavior found in different content areas as an important area of research. Finally, he proposes a study of the changing information needs from childhood to adolescence.
STANDARDS ON LIBRARY MEDIA SKILLS INSTRUCTION

The guide for practice in elementary school library media centers is *Media Programs: District and School*, a joint endeavor of the American Association of School Librarians, the American Library Association and the Association for Educational Communications and Technology. The book reflects the opinions of a diverse group of professionals and "represents a consensus of their perception of school and district media programs" (AECT, 1975, p. viii).

It is of value to teachers as they work with media professionals to provide the best instructional technology for learning activities. It serves students seeking to identify their role and their relationship to the human, ideological, and technical resources with which they interact... The school media program recognizes the need for helping learners acquire and maintain skills in researching, choosing, and using all forms of media. Such skills are cumulative, and, as students progress every media program shares the responsibility to develop and extend them (AECT, 1975, p. 15).

The American Library Association Committee on Instruction in Library Use recently issued a policy statement which was subsequently adopted by the ALA.
Utilization of information is basic to virtually every aspect of daily living in a democratic society, whether in the formal pursuit of educational goals or in independent judgment and decision making. In our post-industrial, increasingly complex society, the need for information daily becomes greater. Libraries are a major source of information; however, their effective use requires an understanding of how information is organized and how individuals can retrieve that information. Many individuals have an inadequate understanding of how to determine the type of information needed, locate the appropriate information, and use it to their best advantage. Instruction in the use of libraries should begin during childhood years and continue as a goal of the formal educational process in order to prepare individuals for the independent information retrieval essential to sustain life-long professional and personal growth. It is essential that libraries of all types accept the responsibility of providing people with opportunities to understand the organization of information. The responsibility of educating users in successful information location demands the same administrative, funding and staffing support as do more traditional library programs. The American Library Association encourages all libraries to include instruction in the use of libraries as one of the primary goals of service (Boisse, 1981, p. 2342).

It is hoped that the research proposed in this study can carry through with a design that will satisfy these expectations.
STATEMENT OF THE PROBLEM

The role that information plays in society and in schooling as well as the justification for pursuing the matter further have been dealt with. At this juncture it is necessary to delimit the boundaries for the proposed study and to detail the course of action to be undertaken.

PROBLEM CONCEPTUALIZATION AND EVOLUTION

A "hitch" is an anomaly or uncertainty perceived by an investigator, often in the form of a discrepancy between what exists in the perceived world and what is expected or projected on that world by the one undertaking the investigation (Sanders, 1980). The concern with teaching media skills to fifth graders grew out of the researcher's own frustrations as a library media specialist.

The researcher was newly certified and had just graduated from library school. His student teaching experience had been successful, but he was apprehensive about classroom management. He expected that the cooperation of the classroom teachers would make the difference. In this expectation he was badly mistaken.
What happened was that all of the teachers "dumped" their students on him to "baby-sit" while they had their "free-time." He struggled along the best that he could. Sometimes he had seven classes in a row without a break. Fortunately, the presence of a large film library in the school district made the difference between chaos and adequate classroom management.

Later in the year several teachers, realizing the researcher's predicament, decided to remain in the media center and work with him in teaching library media skills. The sudden change that took place in these classes convinced him that the classroom teacher had something to contribute to the teaching of library media skills that the library media specialist alone could not provide. But was this contribution managerial or substantive? Was the difference due to the finely honed classroom management skills of the seasoned classroom teacher or to the classroom teacher's acquaintance with the curriculum program and with the individual learning characteristics of his or her students? The researcher was determined to find out.

The quest for a solution to the perceived "hitch" led to the researcher's enrollment in a graduate program in education at a major university. While there the
researcher became acquainted with a study directed by Belland. The study investigated the teaching of library media skill lessons to third graders by the classroom teacher and the library media specialist. The unpublished results showed that the classroom teacher succeeded in motivating her pupils to use media more than did the library media specialist.

PROBLEM STATEMENT

How does the instruction of the classroom teacher interact with that of the library media specialist as they instruct fifth graders in the media skill of retrieving stored information?

This study will attempt to describe and explain some of the ways in which the classroom teacher and the library media specialist facilitate the learning of information retrieval skills by their students. Other library media skills, besides those related to information retrieval, operate in the classroom and in the library media center. Information retrieval, the recovery of information that has been stored, has, however, been chosen as the focus of this study because it represents a crucial component in the process of making accessible to students the contents of
the instructional media which are available to them in the school environment.

The definition of instruction used in this study, the process of arranging human, material, temporal and spatial resources with the intention of facilitating one's own learning or the learning of others, hints at the kinds of data that may possibly warrant the findings of the study. Human, material, temporal and spatial resources should be easily identifiable, given the instrument for measurement that the chosen research design will be using. The discovery of how these resources are arranged will be of benefit to those who design and carry out library media skills instruction.

Two other elements of instruction, intention and facilitation, may prove more elusive to the researcher. Their importance, however, is no less crucial. The existence of pertinent library media skills learning which is accidental or serendipitous, that is, not intentional, will have to be explained in order to account for the operation of some instances of information retrieval behaviors. The occasions for information retrieval experiences which are not planned for by the classroom teacher and the library media specialist may prove to be as useful for student retrieval of information as those which
are intentional. In other words, both approaches can facilitate the learning of the desired behaviors.

The decision to focus on the interaction, that is, the relationship between the media center teacher and the classroom teacher in which one adds to, subtracts from or has no effect upon the teaching of library media skills by the other, dimension as the central variable to be investigated must be explained at this point. Students develop competence in retrieving information as a result of learning the skills needed for carrying out that kind of activity. But the meaning of interaction is not to be limited to face-to-face contact.

The classroom teacher and the library media specialist may often interact in teaching information retrieval skills without being physically present in the same learning environment. This study will accept as instructional interaction episodes when the effects of prior instruction by the classroom teacher and the library media specialist react with each other as well as episodes when the instruction of these two individuals is taking place at the same time. Interaction between the two teachers may occur through the agency of the products of their student's learning. The definition of interaction given above distinguishes teaching, not instruction, as its main
ingredient. Instruction as well as planning and evaluation compose teaching. It may be that interaction between the classroom teacher and the library media specialist in terms of information retrieval skills may take place on the planning and evaluation levels and not during ongoing instruction.

What is in operation here may be the principle of "learning by doing." Students develop competence in retrieving information both as a result of formal instruction in a particular skill by the classroom teacher and the library media specialist and as a result of their practice of that skill on their own without the active intervention of either teacher. This practice may be the result of planned instruction or of independent initiation. The two phenomena may not be easily distinguished from each other because of mutual influence, but for the sake of analysis, the difference between them will be maintained. The goal of training independent information retrievers may well depend upon an appreciation of this differentiation. Students can learn to facilitate their own learning of information retrieval skills as well as their being taught these same skills by either the classroom teacher or the library media specialist.
RESEARCH QUESTIONS

Six questions grew out of the original one given above. They reflect different aspects of the fifth grade information retrieval process and find their roots in the basic structure of the research endeavor. These questions arose during the data collection phase of the research process and were used to guide the analysis. Since then they have been further refined to provide a logical structure for the final presentation. The questions follow:

Information Retrieval Potential

How can the opportunities for retrieving information in the classroom and in the library media center be characterized?

It was necessary to focus on opportunities for information retrieval before focusing on the main target of the study, library media skills instruction. A look must be taken at the situations which provide the potential for information retrieval as well as at the instructional processes that permit students to exploit them. This first
research question is one that will allow an analysis of information retrieval behaviors separate from a consideration of the conditions developed by the classroom teacher and the library media specialist for instructing students in how to use information retrieval potentials to their best advantage.

Information retrieval is the recovery of information that has been stored in an information storage system. Instructional media are the components of such a system that are used to store and/or distribute human experiences for instructional purposes. The encounter of a student with human experience, then, is what creates an information retrieval potential. Some anomaly related to this encounter can motivate the student to seek further information. The researcher contended that such opportunities for finding information occur frequently in the classroom and in the library media center. A beginning task would be to characterize these experiences in such a way that an inquiry can later be made into the instructional strategies used by the classroom teacher and the library media specialist to exploit their occurrence for learning purposes. The inventory of information retrieval potentials will include some phenomena which occur with the apparent absence of any classroom teacher and library media specialist interaction. Future research may be able to detect the presence of such interaction.
Human experiences can be characterized by their diversity. Historically disciplined inquiry has divided these experiences into different branches of knowledge. This division is reflected in the various subjects of an elementary grade's curriculum. How are the opportunities for information retrieval in the various subject areas different and alike? Does the subject approach to information retrieval carry over into the library media center from the classroom? These and other questions were dealt with in the effort to characterize those behaviors which library media skills instruction is supposed to facilitate.

Hidden Curriculum

How can the planning for, instruction in and evaluation of the library media skill of information retrieval by the classroom teacher be characterized?

Data not strictly characterized as relating to ongoing classroom instruction were obtained by this study. It was decided that a better understanding of the role of the classroom teacher in the instruction of library media skills for information retrieval would result from the gathering of data that described the processes of teacher
planning and evaluation. How does the classroom teacher develop strategies for instructing students in the skills relevant to this study? Can the classroom teacher measure the results of his or her instruction in information retrieval skills?

The behaviors, however, that received the most attention in the answering of the above research question were those episodes containing instructional variables. The fact that behaviors relating to the instruction of library media skills for information retrieval could be so designated gave rise to the hope that these instructional variables could be analyzed so as to provide warrant for the findings of the study. A better understanding of these variables and how they relate to each other made possible the development of a theory of library media skills instruction that might allow educators to better advance information retrieval in the classroom.

The library media specialist is usually viewed as the person delegated the task of teaching library media skills, especially the ones relating to information retrieval. Is it possible that the classroom teacher could be a partner with the library media specialist in the instruction of information retrieval skills?
Course of Study

How can the planning for, instruction in and evaluation of the library media skill of information retrieval by the library media specialist be characterized?

In what ways is the library media center like a classroom? Before library media centers emerged as places where students could interact with instructional media, these materials were usually stored in the classroom. The library media specialist may have unique training and experiences which cause him or her to plan for and evaluate information retrieval skills instruction differently from the classroom teacher. If a particular information retrieval experience takes place in both the classroom and in the library media center, what happens in terms of the needed planning and evaluation?

Material, temporal and spatial resources have an impact upon library media skills instruction as well as do the human resources. How closely will the library media specialist follow in his or her instructional program the dictates of the prescribed curriculum course of study? When are students allowed to visit the library media center? Does the layout of the library media center influence the facility for retrieving information? These
are a few of the questions that need to be asked in regards to library media skills instruction by the library media specialist. This study intended to focus on the division of labor between the classroom teacher and the library media specialist as they interacted with each other in the common objective of instructing students in how to retrieve information.

Important Stuff

How does a student progress from an information retrieval opportunity to the selection of information which is relevant to that opportunity?

A student seeking information to answer a question is often confronted with more information than he or she can adequately process. The student needs to be selective in choosing the data which he or she will shape so as to form an answer to his or her question. What criteria does a student use for determining the relevancy of the instructional media with which he or she comes in contact?

The classroom teacher and the library media specialist typically take part in this selection process. They are most likely to do so in the case of an information
opportunity which one or the other of them has generated. In such an instance what becomes "important" to the student is what is "important" to his or her classroom teacher or library media specialist. On other occasions students generate their own opportunities.

The selection process cannot be separated from the translation or "touching base" process whereby the information need is transformed so as to be compatible with the language or dialect of the information retrieval system. Can fifth graders handle these selection and translation processes? How does the classroom teacher interact with the library media specialist so as to guarantee that students have a degree of certainty that the instructional materials they select contain the answers for which they are looking?

Touching Base

How does a student translate the dialect of the information retrieval opportunity into the dialect of the information retrieval system so as to develop an information retrieval search strategy?
The information retrieval potential or opportunity can be described in various ways. A student has his or her own unique way of relating the situation which has aroused his or her curiosity to the degree that he or she wishes to seek out information that might satisfy it. The classroom teacher can create an information retrieval potential in many ways. It can be the result of planning that uses the course of study for a particular subject matter. It can be derived from interaction with instructional media or from the instructional events as they unfold in the classroom. Sometimes an information opportunity arises in the context of the library media center, from contact with the library media specialist or the instructional media stored in the center.

A discrepancy very often exists between the descriptions of the information retrieval opportunity and the instructional resources that can fulfill this potential. Describing instructional resources for learning purposes is the job of the catalog librarian. Usually this is one of the many responsibilities of the library media specialist. Official standards exist for cataloging material resources and the language or dialect of these standards may not always be in harmony with the language or dialect of the information seeker.
Developing an information retrieval search strategy is a matter of harmonizing the dialect of the classroom with the dialect of the library media center. This study took a look at how students, with information retrieval opportunities that very often grew out of the classroom context, came to the library media center to attempt to translate opportunity into satisfaction, potential into realization.

Method In His Madness

Does the selection of instructional resources ever precede the decision of how to use them?

The popularity of instructional objectives during the 1970's led one to believe that instructional interactions between classroom teacher and student were the result of carefully formulated instructional intentions. A recent study (Taylor, 1980) has shown that the selection of instructional resources is not always in response to educational goals but to the demands of effective classroom management. If the selection of material resources that will support the learning process is made prior to explicit decisions as to how they will be used in the classroom, how will the information retrieval process be affected? This
study includes a detailed summary of just such a series of interrelated events that took place in one of the classrooms and in the library media center at Midland Elementary School.

STRATEGY FOR IMPLEMENTATION

The research concerns which have been detailed up to this point must be operationally defined so as to guarantee valid and reliable results.

DEFINITION OF TERMS

*Association* is the linking together of two or more phenomena as a result of internal cognitive relationships.

*Cataloguing* is the library process whereby a bibliographical description of a media item is prepared to serve as a link between the item and a potential user of it. It forms part of the information delivery system.

The *classroom* is a location where teacher and students engage in the learning of content areas as a result of classroom teacher instruction.
The classroom teacher is one who has completed and who has been certified for completing a college-level program designed to prepare him or her for teaching a particular grade level. In this project the fifth grade, in a particular classroom setting.

A content area is a particular subject matter which together with other content areas composes the curriculum.

The curriculum is composed of the various content areas and determines what students will be taught.

An information need is the occasion when a "hitch" arises either in the classroom or out of it and which could result in a search for locating information that would resolve the anomaly.

Information retrieval is the recovery of information that has been stored in various media.

Interaction is the relationship between the media center teacher and the classroom teacher in which one of them adds to, subtracts from or has no effect upon the teaching of library media skills by the other.

Instruction is the process of arranging human, material, temporal and spatial resources with the intention of facilitating one's own learning or the learning of others.
**Instructional media** are the components of a system that stores and/or distributes human experiences for educational purposes.

A **key word** is a significant word from the curricular context which is used by a student in his or her search for information. Key words may or may not be used in relationship to the cataloging system.

The **library media center** is where instructional media are stored by a library media specialist according to a cataloging system. Students are encouraged to retrieve and interact with instructional media made available through their information retrieval searches.

A **library media skill** results from learning how to produce, store, retrieve or utilize information.

**Library media skills instruction** occurs when the classroom teacher or the library media specialist arranges human, material, temporal and spatial resources with the intention of facilitating student learning of library media skills.

A **library media specialist** is one who has completed and been certified for completing a college-level program designed to prepare him or her for administering a media center and for teaching library media skills at all grade levels, K-8, in a library media center.
An opportunity is an occasion when an anomaly exists in the curricular setting which causes a student, either as a result of teacher instruction or as a result of independent motivation, to resolve the anomaly through the construction of an information retrieval strategy. Thus, an information retrieval potential can exist as either a planned or a spontaneous opportunity for information retrieval.

Fifth graders are students who have been evaluated as having successfully completed the first four levels of the elementary school curriculum.

A search strategy occurs when a student develops a plan for retrieving information as a result of exposure to various key words in the curricular context that give directions for such a plan. These key words can be the result of either instruction or the student's own cognitive processes.

Teaching consists of instruction, teacher planning and student evaluation.
DESCRIPTION OF THE RESEARCH

The researcher assumed the role of participant observer in three fifth grade classes and a library media center at an elementary school in a rural setting. The school will be called "Midland Elementary School" and principal, teachers, library media specialist and students will be given fictitious names. The investigator spent varying amounts of time at the school over a nine month period. During two of these months he was at the site five days a week. The rest of the time he was there either one or two days during the week.

The researcher would develop a "hunch" about a particular phenomenon that he was observing and would go to the data that had already been collected to look for a confirmation of his conjecture.

The researcher entered the research setting under the assumption that classroom media skills instruction was related to library media skills instruction. In his initial conversations with the classroom teachers the researcher conveyed to them an interest in observing the information retrieval behavior of their students. During the early months of the project the researcher selected classroom settings to be observed on the basis of the
classroom teachers' descriptions of "Information retrieval potentials" occurring in their classrooms. During the month of January, however, the observer chose to observe all of the instruction that took place in one of the classrooms. Since each fifth grade classroom had only one scheduled visit to the library media center each week, there was no need to be selective in what was to be observed there.

DELIMITATIONS OF THE RESEARCH

The major reason for selecting Midland Elementary School as the site for this investigation was that it was the only school in the area which had a library media skills program taught under the supervision of a locally based certified library media specialist. Furthermore, Midland was located only ten miles from the home of the researcher and thus met a criterion for minimal travel distance. Mrs. Louise Brown, the principal, had granted permission for the study to be undertaken at the school which she directed. Miss Donna Lashley, library media specialist, gave assurance of her cooperation. Miss Lashley was certified in educational media, K-12. A satisfactory meeting had been held with the fifth grade
classroom teachers, Mr. Donald Cooper, Mr. Brad Jones and Mrs. Roxanne Thompson. A formal letter was written to the Midland Board of Education requesting permission to undertake the research. The request was granted.

A single investigator undertook this project and to the extent that it only reflects his perspective, the findings are limited. However, the researcher has in fact incorporated into his presentation the views of all involved, classroom teachers, library media specialist and students. Extensive interaction of the researcher with faculty and graduate students also continued to place this study in the context of a community of scholars.

The variety of data collected appears below. It varies in content from the subjective to the objective. What is significant for this study is the availability of complete transcripts of classroom and library media center instructional interaction. This is in addition to detailed notes taken by the observer. The transcripts were utilized in a qualitative way in keeping with the basic methodology that was adopted by the researcher. The constant comparative method of analysis guided the participant observation approach taken by the researcher. The methodology used will be discussed in more detail in chapter three.
METHODOLOGICAL IMPLICATIONS

The intention of this research is not to count the frequency of the various phenomena related to library media skills instruction, but rather to determine their existence and the nature of their interrelationships. The rigor called for is not one of measurement, but of detailed analysis. Thus, control groups with laboratory settings are unnecessary. The richness of the results will lie in their faithfulness to a "real" environment rather than to an "artificial" setting.

An attempt was made to get inside the "skin" of the classroom teachers, the library media specialist and the students in order to see library media skills instruction as they saw them and thus support the validity of the findings. An experimental approach will not provide that kind of insight. What is called for is a qualitative methodology patterned on the ethnographic techniques used by anthropologists and sociologists.
GATHERING OF DATA

Eight types of data were collected in order to provide warrant for the problem statement and the investigator's research questions.

(1) Transcripts of classroom and library media center instruction.

(2) Lesson plans prepared by the classroom teachers and the library media specialist.

(3) Copies of textbook pages used during the recorded classroom sessions.

(4) Handouts or dittos distributed to students by the classroom teachers and the library media specialist.

(5) Student work as products of the instructional process.

(6) Miscellaneous materials, such as classroom seating charts, layout of the library media center and class schedules.

(7) Analytic notes taken by the researcher during observation.
(8) *Journal kept by the researcher in which he recorded his reflections on the research process.*
Library media skills instruction is an interdisciplinary concept. Although several different fields of inquiry are relevant to its research, its immediate precursors are education and library science. Each of these two disciplines branches into various subordinate fields of study, some of which are more closely related to library media skills instruction than are others. The reluctance of researchers to investigate library media skills instruction is perhaps due to the numerous fields of literature that must be investigated.

CONCEPTUAL FRAMEWORK

The review of educational literature will begin with a reference to educational research of the past forty years. A brief inquiry into the three subordinate fields of education whose research is most pertinent to a study of
library media skills instruction will follow. The researcher concentrated his efforts on observing library media skills instruction in the classroom. He spent most of his time following the ebb and flow of different subject matters, the content areas. Another aspect of educational research to be examined is that of teaching. Presented next is research in educational communications. Educational communications grew out of the development of instructional technology and will provide insight into the ways media support library media skills instruction.

The plea for a paradigm to support library science research that was made by Houser (1978) resulted from the lack of a clear mandate for research in graduate library science education. The section on librarianship will begin with a reference to library science research of the past forty years. An investigation of the literature dealing with the relationship between the librarian and the classroom teacher will follow. Instruction in library media skills grows out of library user services and a brief survey as to how this occurs follows. Finally, the research on the library media center and upon library media skills themselves will be scrutinized.
FIELDS OF STUDY

The setting for the research was three classrooms and a library media center. A body of research exists which can describe and explain what goes on in the classroom and in the library media center.

CLASSROOM

Research into the classroom begins with a general overview of educational research and is followed by descriptions of the literature in the fields of the content areas, teaching, and educational communications.

Research in Education

Benjamin S. Bloom (1981) in his Presidential address to the American Educational Research Association mapped out a retrospective view of the previous twenty-five years of educational research. A study of this overview of both methodological and substantive contributions can add to an understanding of the ways in which educational research can benefit research in library media skills instruction.
Research in the Content Areas

The speculation at the beginning of this chapter that at least one of the reasons so little research has been completed in the area of library media skills instruction was the need to consider so many disparate disciplines, each having materials needing to be retrieved. An examination of the most recent literature in the six content areas which the researcher had observed being studied by fifth graders at the Midland Elementary School covered the following areas: reading, social studies, science, health, mathematics and language arts. The review was made using the ERIC system. Materials of the Educational Resources Information Center can be accessed by either machine or manual searches. Numerous citations in all six subject fields are given in the bibliography of this study.

Research in Teaching

Elsewhere teaching has been defined as consisting of planning, instruction and evaluation. These are not discrete steps but overlap and take place simultaneously.
Recent research on teacher planning can assist the researcher in library media skills instruction by aiding his or her understanding of how teachers plan lessons and units for their classrooms. William Taylor (1980) summarized this research and a perusal of his contribution will provide suggestions as to how teacher planning for classroom lessons can be understood to include the planning of lessons on how to retrieve information.

A promising field of study came to light in the 1950's. It included the promotion of research designs that emphasized classroom observations. Researchers such as Lewin (1939) and Anderson (1939) explored the impact of such variables in the classroom as democracy and autocracy. But it was Ned Flanders who eventually developed the Flanders System of Instructional Analysis which changed the complexion of research on the classroom. His initial focus was on the indirectness of the teacher. Eventually, he selected ten different behaviors, both of the classroom teacher and the student, which one could observe in the classroom. Other systems have been designed based upon the original one. The Observational System for Instructional Analysis (OSIA) will be used to support the analysis of this study. It operates on nine levels and provides a breadth of research variables which theoretically could reach as many as 13,500 different behaviors.
Hansra (1978) outlined the development of the Observational System for Instructional Analysis, which was developed by Hough in 1965. It was modified by Hough and Duncan in 1970, revised in 1972, and again in 1975 and in 1980 with Belland. During this time the system was adapted for the computer processing of data. OSIA has played a major role in several research projects. These include Hansra (1978), Broadwater (1972), Ebro (1977), Feldens (1976), Kaiser (1974), Layne (1974), Sevigny (1977), Lorish (1980) and Reynolds (1974).

The Observational System for Instructional Analysis provides a "perceptual framework" for viewing instructional events (Hough, 1980). The categories and other conventions of the system delineate these instructional events. Its authors consider it an "Instructional event organizer." They see two approaches to the gathering of information about instructional situations.

One approach was largely developed by anthropologists. To date this approach has had limited use in the study of instruction, but it has been used extensively to study other social settings. This approach is the field or ethnographic method. The second approach stems largely from an education research tradition and is referred to as the interaction analysis approach (Hough, 1980, p. 51).
Research on Educational Communications

Educational media both store and distribute human experience. Students retrieve information from media both in the classroom and in the library media center. Although book media predominated at Midland Elementary School, students also made use of other media formats, such as filmstrips, films, models, and television.

Studies of film covering the period from 1920 to 1950 are dealt with in works by Hoban and Van Ormer (1950), Saettler (1968) and Allen (1960). The period since then has been chronicled by Kemp (1980) and Schramm (1977). Filmstrips have often been treated as visuals and Allen (1980), Kemp (1980) and Wilkinson (1980) report on them in their works. Their treatment has dealt with the post 1950 period. Television was developed largely in this same time frame and works by Salomon (1970), Saettler (1968), Wilkinson (1980) and Schramm (1977) reflect on their utilization in educational settings.
LIBRARY MEDIA CENTER

The initial review will be on research in librarianship. An investigation of the literature relating to the classroom teacher-library media specialist relationship will follow. Next, a brief summary of users services, the context for library media skills instruction, will be made. Studies of the school library media center and school library media skills instruction will then be considered. Finally, an introduction to the Annehurst Curriculum Classification System provides an example of an innovative method for retrieving information.

Research in Librarianship

Busha (1980) traces the historical development of research in librarianship. The American Library Association was organized in 1876 and the first library school affiliated with an institution of higher education was established at Columbia University in 1887. When the Association of American Library Schools was founded in 1915, there were already ten academic institutions committed to library education. The Williamson Report "stimulated considerable interest in the improvement of the
quality of education for librarianship among progressive librarians (p. 5) and led to the establishment of the Board of Education for Librarianship in 1924. In spite of these early efforts, it was not until 1927 that a Committee on Research was appointed.

The founding of the Graduate Library School at the University of Chicago as a result of a million-dollar grant from the Carnegie Corporation "has generally been associated with the origins of research scholarship in American librarianship" (Busha, 1980, p. 5). Houser (1978) has pointed out the early failure of the Graduate School to produce a body of systematic knowledge about librarianship. It appears that Louis R. Wilson, shortly after he assumed the deanship of the Chicago school in 1932, abandoned an early interest in developing a theoretical base for librarianship. His major preoccupation was with library administration and this proved to be a deterrent to the establishment of librarianship as a scientific profession.

Stimulated in part by Vannevar Bush's provocative piece entitled "As We May Think" (1945), more scholars and research workers began, after 1945, to investigate methods whereby technological innovations, particularly automation, could be applied more advantageously to communication and information operations (Busha, 1980, p. 10). There was a
shift in research from inquiries that were primarily descriptive or historical in nature to those that were more "rigorous" in methodology. Throughout the 1950's and 1960's the funding and growth of new library science doctoral programs at a number of American universities further stimulated research activities. The establishment of the Council on Library Resources in 1956 opened the door to new avenues of funding for library research.

Several events have characterized the support for library research during the past twenty years. The establishment of research centers in conjunction with programs of doctoral education in librarianship has done much to stimulate the relationship between research and professional education. Increased funding by the Federal government for education also benefited these centers. Associations such as the Library Research Round Table of the American Library Association sprang up across the country. Automation had its impact with the establishment of OCLC (Online Computer Library Center), RLG (Research Libraries Group) and WLN (Washington Library Network). There arose a debate in library research circles concerning methodological issues. Some, such as Wynar (1970), advocated the increased use of statistical methods to follow the trend of the social sciences. Finally, new avenues were opened for the dissemination of library
research. These included journals such as *Library Trends*, monographs such as Herbert Goldhor's *An Introduction to Scientific Research in Librarianship* (1972) and numerous conferences, symposia and workshops.

The content and methodology of library research is diversified. In 1968 McMullen reported that forty-two percent of dissertations written in thirty-three American universities were historical in nature or about "background" materials (Boaz, 1979). Furthermore, the issue of replication is a factor. Also, no discernible pattern of development in library research exists.

The fragmentary nature of a good deal of library research is attested to by the fact that it so often fails to grapple wholistically with an issue or problem. Frequently, too small a piece of a problem is attacked, or a problem is clearly defined but an insufficient number of variables are studied (Shaughnessy, 1976, p. 49).

The present research is attempting to avoid the drive towards experimental research in librarianship in order to provide for an holistic approach. A number of sources provide bibliographical control over library research literature. These include *Dissertation Abstracts*, Davis (1980) and Busha (1980).
The future of research in librarianship has been enhanced through the publication of *A Library and Information Science Research Agenda for the 1980's* (Cuadra, 1982). The report is designed to assist the Department of Education, Office of Libraries and Learning Technologies and the library community as a whole in prioritizing research for the 1980's. The agenda, consisting of twenty projects in four broad areas, covers: (1) Information generation and provision of library and information services, (2) Information users and uses, (3) Economics of information and of library and information services, and (4) Education and professional issues. The endeavor will prove useful for future library research if, as Shaughnessy (1976) has pointed out, it leads to the establishment or development of "a body of theory on which to base our practice, and perhaps even to provide us with paradigms, radically new conceptualizations of the library phenomena" (p. 51).

Library media specialist-classroom teacher relationship

The study of cooperation between the classroom teacher and the library media specialist begins with an understanding of the communication channels that exist
between these two respective professionals and with an understanding of the teaching role of the library media specialist.

Pierce (1981) sees students as caught in the middle between the concerns of the classroom teacher and those of the library media specialist. On the one hand, library media specialists often do not take seriously their obligation to communicate with the classroom teacher. On the other hand, the classroom teacher's lack of awareness of what is taking place in the library can be detrimental to his or her class.

One could speculate at length as to reasons, but a solution is clear. Librarians and teachers must talk and work together much more than has been customary, and to do so in the context which is most immediate to students—the course, its assignments, and the classroom itself. It is important that this collaboration take place in the presence of the students, so that they see both the knowledge of the teacher and the knowledge of the librarians as parts of one whole. So-called "library skills" are not in reality separable from subject matter, and exploration of a discipline is not separable from a lively and independent discovery of its literature...the first step is for the librarian to discuss the research assignment with the teacher. The librarian needs to know the teacher's purpose and expectations for the assignment: what are students to accomplish, how much research are they to do, using what kinds of resources. In return, the librarian
responds with his own analysis: what other resources might be of use, how well the collection will be able to support the assignment, what research methods will be necessary to do the assignment successfully (p. 165-66).

Pierce assumes that library media skills instruction will be integrated into the content areas and that the library media specialist-classroom teacher relationship will grow out of this course-related bibliographic instruction orientation. In recent years Evan Farber and his colleagues at Earlham College have actively promoted course-related library media skills instruction. James Kennedy (1970, 1971) has written several articles about their program.

Earlier in this chapter mention was made of the role of planning in the teaching process. Fast (1966) advocates the participation by the library media specialist in this activity. It is at this stage in the educational program that effective classroom teacher-library media specialist cooperation can begin.

Little attention in the literature has been given to the promotion of library media skills for the retrieval of nonbook materials. Rather the emphasis has been upon the retrieval of book materials. Schmid (1976) has some suggestions for both the library media specialist and the
classroom teacher that should facilitate successful communication between them in this regard.

The teaching role of the library media specialist has been well documented by Hodges (1918), Grazier (1979), Sullivan (1967), Peterson (1979), Vandergrift (1979) and most recently by Taylor (1983). As a teacher, the library media specialist instructs students, whether individually, in small groups, or as an entire class. When these authors discuss library media skills instruction, the library media specialist as teacher is distinguished. But, there is more to teaching than instructing. It includes planning and evaluation as well. As an educational planner the library media specialist becomes involved in the design and development of curriculum. Various curriculum development models have appeared in the past and most of them have a component which includes the integration of materials into the learning process. The degree to which the library media specialist is prepared to assume this responsibility will determine the nature of his or her relationship with the classroom teacher.
Library media skills instruction has grown out of the traditional reference function of the library. Reference service has three levels.

First is the personal assistance to users with information needs. Second is the formal and informal library use instruction designed to provide users with guidance and direction in the pursuit of information. Third is the indirect reference service which provides the user with access to information and bibliographical sources through interlibrary loan and interagency cooperation. These are the latest guidelines for reference service as developed by the Standards Committee of the American Library Association Reference and Adult Services Division. They include the teaching function as a major part of the total reference service (Rader, 1980, p. 95).

Like library research, the beginning of reference service parallels the organization of the American Library Association in 1876. According to Rothstein (1961), reference service was either aimed at teaching the library user how to locate information for himself or herself or to directly provide the information itself. Recent developments, such as computerized literature searching, the revised version of the Anglo-American Cataloging Rules
(ALA, 1978) and the closing of card catalogs, will have an impact upon reference, and ultimately library media skills instruction, services. Instead of providing services on an individual basis, the traditional mode of reference services, the library media specialist will find him or herself increasingly in need of economizing through the utilization of library media skills instruction for groups.

Research on the School Library Media Center

The role of nonprint, or more accurately, nonbook, materials has been dealt with earlier in this chapter under the heading, Research on Educational Communications. This section of the chapter will deal with the research on the school library media center from all other perspectives. Gaver (1969) has pointed out that "the research that is focused on the school environment frequently has as much, if not more, significance for school libraries as the research focused on school libraries per se." (p. 764). Another reiteration of the fact that a study of school library media skills instruction must draw upon a variety of research sources for its sustenance is thus established.
Loertscher (1982) has recently proposed a school library media center research program. He states that there are three interacting components of such a program: conducting research, synthesizing and evaluating research efforts and disseminating research results. One of his major recommendations is that researchers on the school library media center should look to other disciplines for models for their own research. He sees several trends in these other fields that are worth emulating. One is the tendency in the natural sciences towards more interdisciplinary research. Another is the study of many variables at one time. Loertscher points out, furthermore, that the social sciences are now accepting the need for the replication of research studies. Finally, he emphasizes the need for greater variety in the research methodologies being used.

Stroud (1982) surveys the research methodologies used in school library dissertations. She states that survey research is the most widely used research methodology. Her criticism of this approach to research on the school library media center is that, while it reflects current conditions or describes the status quo, it fails to explain why the situation is as it is. Stroud mentions one dissertation that utilized an ethnographic research methodology. While the content of the study did not relate
to library media skills instruction, it is significant that the author discusses a qualitative methodology in this report. Troutner (1978) suggests that school library media center research can be rejuvenated with an increase in action research whereby building-level library media specialists are encouraged to conduct research in their own centers. Qualitative techniques, such as participant observation and developmental research, may be useful tools for the novice researcher.

School library media center research has been well documented. Listed below are thirteen studies completed between 1962 and 1982. These surveys of the literature are in chronological order. Included are comments regarding their treatment of research on library media skills instruction. Studies listed once will not be repeated.

Gaver, Mary Virginia. "Research on elementary school libraries." (1962) Lists no studies dealing with library media skills.


Lowrie, Jean E. "A review of research in school librarianship." (1968) Lists three studies dealing with library media skills. (Gengler, 1965), (Stull, 1962), (Emery, 1965)


Aaron, Shirley Louise. "A review of selected research studies in school librarianship 1967-1971: Part II." (1972b) Lists no studies dealing with library media skills.


Loertscher, David V. "School library media centers: research studies and the state-of-the-art, six research briefs collected and edited." (1980) Lists no studies dealing with library media skills. This item is more of a guide to research than a bibliography of completed research.

Wilkinson, Gene L. "Media in instruction: 60 years research." (1980) Lists no studies on library media skills.

In all, there are eighteen different studies that have investigated the subject of school library media skills.

Research on School Library Media Skills

Muriel Bart (1980) is a high school library media specialist at Automotive High School in Brooklyn, New York. Her letter to the editor of *Library Research* provokes the same response that would come if she were an elementary school library media specialist. She bemoans the fact, justly or unjustly, that she has not heard of any dissertations which researched solutions to the professional problems school librarians encounter. Her question is this, "Does more effective teaching/learning result when students are in the library in response to teacher-initiated instructional needs" (p. 191)? Would corollary research "determine whether equally effective teaching/learning occurs if the library lesson is related to life experiences rather than to classroom activity" (p. 191)? These questions are closely akin to those raised in the first chapter of this study. An examination of the eighteen research studies referred to in the previous
section of this chapter will demonstrate that little has been done at this stage of research activity to answer Ms. Bart’s questions.

A lot is currently being done to rectify this lack of support. One library media specialist has noted:

Well, we are talking to each other a lot. We are conferring, convening, organizing, and meeting each other at a dizzingly escalating pace. There are thirteen distinct American Library Association groups concerned with library instruction, including sections, committees, and round tables. There are local, state, regional, national and now even international, annual, or bi-annual conferences on library instruction. There are studies, surveys, questionnaires and dissertations by the pound on the subject. It would be hard to find a month in the year or a state in the union without a workshop in some aspect of library instruction (Dudley, 1980, p. 18).

What is being attempted is not a definitive state-of-the-art of school library media skills instruction. What will be done is the identification of where the literature in the field might be located.
During her keynote address to the American Association of School Librarians preconference on library skills in Philadelphia, Mildred Laughlin (1982) mentioned six items as being the precursors of library media skills as they are known today:

(1) *Library Journal Report* (1909)

(2) *Elementary School Library Standards* (Certain, 1925)

(3) *School Libraries for Today and Tomorrow: Functions and Standards* (ALA, 1945)

(4) *The Library in the School* (Fargo, 1947)

(5) *Standards for School Library Programs* (AASL, 1960)

(6) *Media Programs: District and School* (AASL, 1975)

Young (1974, 1978) has produced two reviews of the research on library media skills. While dealing with broader issues than just library media skills instruction, these two essays help fill the gap caused by the absence of a work providing for a state-of-the-art presentation. In addition several bibliographies which list...
practice-oriented as well as research-oriented literature are available. Lockwood (1979) has a section on elementary school libraries which contains references to items on school library media skills education. Library Literature has listed items since 1921 under the headings "library instruction" and "Instruction in library use." Education Index since 1929, Research in Education (ERIC) since 1956, and Current Index to Journals in Education (CIJE) since 1969 have items under similar subject headings. Two other data bases containing materials relating to school library media skills instruction are Dissertations Abstracts and Library and Information Science Abstracts (LISA).

School Library Media Skills Education: An Example

The different subjects studied by elementary students have prompted the development of numerous instructional media, for use by teacher and by student. Bibliographical control over these areas has been a challenge to the school library media specialist. Many have felt that existing cataloging practices were inadequate to the task. Dr. Jack Frymier, The Ohio State University, is one of these. He wanted to do something that would better match curriculum materials with the individual learning needs of pupils.
When an innovative school, Annehurst in Westerville, Ohio, opened its doors, he had his opportunity.

The Annehurst Curriculum Classification System (ACCS) is "a linking mechanism, in other words; a connecting device; a way of bringing learners and curriculum materials together in precise and meaningful ways in order to help each individual learner achieve those objectives that have been decided upon as especially appropriate in terms of his or hers expectations, intellectual development, motivational patterns, emotional qualities, and social characteristics, to cite just five of the twelve that are involved" (Frymler, 1980, p. 20).

Much has been written about Annehurst and ACCS (Frymler, 1977, 1980a, 1980b; Langrehr, 1978; Mills, 1981; Davis, 1977, 1981; Sanders, 1981). Several dissertations and reports have been written about its impact and some research has been done to test its assumptions (Berneman, 1980; Schwab, 1979; Cornbleth, 1978, 1981; Clinefelter, 1978; Denton, 1978; Wade, 1977; Kyslika, 1981).
CHAPTER III

THE METHODOLOGY

Over the past several years, library media skills instruction has received substantial attention at library conferences and in library journals. Many schools across the nation have hastily developed curricular programs aimed at teaching students how to utilize the information resources that are being made available to them.

CLAIM TO KNOW

The question, then, is, are these programs based upon a foundation of reliably grounded knowledge or upon the vagaries of practice? Many claims have resulted from various library media skills programs. How can the classroom teacher and the library media specialist be certain about the library media skills they are teaching their students?
RESEARCH PROCESS

One benefit that arises from the present lack of research effort in library media skills instruction is the opportunity for all to engage in research which utilizes compatible methodologies. The resulting knowledge can be generated in such a fashion that it will permit the construction of a discipline which is unified and coherent. To do so requires an understanding of research, and more particularly, educational research methodology.

The researcher has consistently recorded evidence to demonstrate how the classroom teacher and the library media specialist interact in the instruction of library media skills. The focus, however, has not been just upon the existence of such cooperation, but also upon its broader ramifications. The initial chapters of this dissertation form an integral part of the research process through their answering of certain traditional questions. Is this a subject which is worthwhile investigating? How best can the problem be stated so as to be researchable? What is the nature of the scholarly work which has already been performed upon this topic? And, then, is there a methodology which lends itself to the unique characteristics of library media skills instruction?
The methodology does not need to "follow well established, formal procedures" (Shulman, 1981, p. 6). It can provide an opportunity to grasp for new ideas when the climate proves the need for them. As is the case here, the use of a qualitative methodology is relatively new to educational research and probably finds its genesis in library media skills research, if not in library research in general, with this particular investigation.

NATURE OF THE EVIDENCE

The appeals for evidence in this case are included in chapter one. The raw materials are the facts which warrant the claim that the classroom teacher and the library media specialist have indeed interacted in certain specific ways. The facts not only indicate the existence of such a claim, but provide warrant for the development of an explanation of the nature of such a relationship.

The basic evidences are the transcripts of classroom and library media center interaction. An audio recorder captured the dialogue in the library media center and the interaction between the classroom teacher and students in the classroom. However, audio recordings, accurate in terms of verbal content, are limited in capturing visual
and nonverbal detail. To control for this lack of evidence, the investigator kept field notes and, with lesser emphasis, took photographs of some of the events as they were transpiring. The reliance upon transcripts of verbal interaction emphasizes the intellectual content of the study.

Interviews were conducted with classroom teachers, the library media specialist and the students in order to examine some of the deeper levels of meaning of the research questions. The meaning that the events held for the just mentioned participants was determined through the use of both structured and unstructured interviews. There was more flexibility in the interviews with the classroom teachers and the library media specialist than those with the students. Teachers and specialist were encouraged to expound upon subjects broached only casually by the interviewer. This approach brought to light many information retrieval experiences which might have been otherwise overlooked. The conversations with the students were more structured, since it was observed that fifth graders have yet some difficulty in expressing themselves abstractly. Whether student, classroom teacher or library media specialist, these data proved to be very valuable in ensuring that the interpretations held by these persons, that is, the meanings of the actors involved in each episode, had been accurately recorded.
The interpretations of the observer were recorded in a daily field journal kept by the investigator. His viewpoints were recorded either on site, on route to or from the site or at the home of the participant observer. The journal proved useful as a source of theoretical data which were later tested out in the research setting.

Three other types of evidence have become a basis for establishing the claims to know how the classroom teachers interacted with the library media specialist. Among these were the availability of copies of the textbooks used by the fifth grade at Midland Elementary School. On numerous occasions involvement by students in information retrieval activities was triggered by the use of textbook materials. When textbooks were not used, teachers often distributed ditto sheets. Copies of these became parts of fieldwork files. Finally, samples of student work were kept as evidence of the products of library media skills instruction.
Qualitative and quantitative research are two foci on the same research continuum. Quantitative methodologies must at some point take into consideration the qualitative aspect of identifying phenomena before they can be counted. Another way of looking at this research continuum is in terms of descriptive, explanatory and developmental research. The present endeavor will be descriptive in nature with some exploratory, theoretical explanations. If a developmental approach were possible, the study would deal with areas relating to more desirable library media skills instruction.

The teaching/learning process is an organic whole and each of its units bear study. An advantage in using a qualitative approach is that the nature of a complex educational setting is more fully appreciated than it is with a quantitative design. Yet, there exists in this present study the precursors of such a quantitative approach. As the various theoretical components are identified, and related, there exists the possibility of counting the frequency of their occurrence. Malitz (1980) demonstrates the combination of the two approaches. Perhaps, Ross Mooney expresses it best when he refers to a
qualitative approach as the "one in many" and a
quantitative agenda as the "many in the one."

QUALITATIVE RESEARCH DEFINED

A paradigm, an accepted model, pattern or mode of
perceiving, governs one's thinking and helps one to make
meaning out of one's experiences. It is the frame of
reference out of which the researcher operates (Kuhn,
1970). At present there are no paradigms for the fields of
education and library science, much less for the area of
library media skills instruction. Basically, a paradigm
sets the rules and standards for research practice. Though
it is broader than a theory and a claim to know, it does
have its roots in theoretical constructs. It is
intertwined among the methodological beliefs held by the
researcher. One reason for the lack of a paradigm in
library media skills instruction is the emphasis upon
specialization. It is practice oriented and has made
little provision for theoretical ruminations. Despite this
lack, the researcher has several models which he has used
as frames of reference for pursuing this investigation.
These were delineated in chapter one.
Occasionally, an anomaly will appear somewhere against the background of the paradigm. This anomaly, or hitch, needs to be checked out and tested. The meaning of the hitch must be determined and then it is connected with what the researcher already knows. The process is a natural human one. It is a public act as well as a personal one. By satisfying oneself, as well as the members of the community to which one belongs, one is able to discover how the paradigm must be altered to make room for the new claim to know.

The researcher sensed an anomaly in the process of information retrieval. Students spent the majority of their time in the classroom with their classroom teachers. Yet, they were expected to go to the library media center already prepared to select materials for use in their studies. How had they learned to maneuver through this retrieval maze? What was the nature of the roles played by the classroom teacher and the library media specialist as they interacted in instructing fifth grade students as to how they could retrieve information? These questions prompted a qualitative methodology. As Shulman (1980) puts it, "We must first understand our problem, and decide what questions we are asking, then select the mode of disciplined inquiry most appropriate to those questions" (p. 12).
Upon what grounds is such a claim as outlined above going to be established? What is the warrant that establishes the truthfulness of the claim to know how the classroom teacher interacts with the library media specialist in promoting student success in information retrieval? Judgments, such as these, are made in the form of statements. The statements are framed in ways that allow their being checked both analytically and empirically.

Analytical claims are those that demonstrate the logic of consistency and which conform to the rules of the formal system being investigated. Empirical claims are those which can be checked out by other researchers. All claims must be tested to see if they might be falsified in the empirical world and to see if they can withstand the rigors of logical consistency in the rational world. The researcher will keep the data upon which his claims are made for a reasonable period of time. They will be made available to scholars desiring either to verify his contentions or to replicate and extend the significance of his findings.

These rigorous tests are a means of substantiating claims to know how the classroom teacher interacts with the library media specialist. The facts of the case are being
tested. A major weakness of educational theory is its lack of facts, something known through one's experience. The researcher's facts are influenced by his paradigm. He will project concepts and meanings to arrive at facts through observation of the classrooms and the library media center. Every observation will be made through active choice. If library science, and education for that matter, are to be truly scientific, these kinds of observations must take place. The aim of observation is to acquire materials that can be used in other parts of the investigation. Finally, facts in the form of hypothetical statements will be tested to see if they hold true.

THEORY BASED ON DATA

As has been shown, the literature of library media skills instruction consists largely of accounts of library media skills practice. Such a fact need not be considered detrimental if practice meets the criteria necessary for its transformation into theory. For the job of the researcher of library media skills instruction "is not to provide a perfect description of an area, but to develop a theory that accounts for much of the relevant behavior" (Glaser, 1967, p. 30). The discovery of this theory is
from data that has been systematically obtained from and analyzed in the light of the research setting. The generation of a theory is an integral part of the process of the research being undertaken. "Generating a theory from data means that most hypotheses and concepts not only come from the data, but are systematically worked out in relation to the data during the course of the research" (Glaser, 1967, p. 6).

In order to be useful for practical applications, the theory "must fit the situation being researched, and work when put into use" (Glaser, 1967, p. 3). To be "fit" means that the categories derived from an analysis of the data must readily, and not forcibly, be applicable to the data gathered by the researcher at Midland Elementary School. To "work" means that the theory must be understandable by laymen, be generalizable to a variety of library media skills instructional behaviors so as to promote the prediction of others, and to allow the future user of this research control over the phenomena as they may occur at any time. A major purpose of this research project is to provide a guide for future research on library media skills instruction. It is both a theoretical enterprise based upon a "thick" description of the phenomena observed by the researcher at Midland Elementary School and, it is hoped, an incentive for future replication of the same.
The task of the researcher is to "generate categories and their properties for general and specific situations and problems" (Glaser, 1967, p. 30). He generates conceptual categories and their properties from the evidence. He uses the evidence from which the category emerged to illustrate the concept. There is a bonus in this approach. According to Glaser "since the categories are discovered by examination of the data, laymen involved in the area to which the theory applies will usually be able to understand it" (p. 3-4). Specific steps were taken to allow the classroom teachers and the library media specialist at Midland Elementary School to interact with the data. The development by the researcher of these categories and their interrelationships was the heart of the qualitative methodology used for this study.

SELECTED PARTICIPANT OBSERVATION STUDIES

As stated by Homans (1962, p. 257) "there are neither good nor bad methods, but only methods that are more or less effective under particular circumstances in reaching objectives on the way to a distant goal." Participant observation, or qualitative, studies, have come to find a legitimate role among educational methodologies even to the
point that at least one writer was somewhat disquieted by their abundance (Rist, 1980). Some of the studies which have had an influence on the development of this research bear directly upon the discussion.

The title of the 1968 study by Smith and Geoffry, *The Complexities of an Urban Classroom: an Analysis toward a General Theory of Teaching* reflects an interest in grounded theory even though its authors did not use that terminology. The purpose of the research was to describe the everyday events of an urban lower-class school and, then, to interpret this description in such a consistent way that a theoretical model would be generated. The book tells the "theoretical" story of one middle-class teacher, Mr. Geoffry, and a changing population of lower-class students. Smith, the participant observer, took his place in one corner of the room, where, ensconced at a table on a raised dias, he observed the events of the first six months of the school year. At frequent intervals, Smith and Geoffry would compare notes and share ideas.

The problem statement was how a middle-class teacher could cope with a group of lower-class students. The authors wrote a description of the classroom culture using the language of the setting. They then developed a scientific language which was both non-judgmental and
conducive to the intention of model-building. As they
developed this structure and as the research process
continued, hypotheses arose which could be tested using the
data that they were continuously gathering. There was no
serious attempt to verify the hypotheses that developed and
so the study was one of discovery rather than of
verification. It was this study which motivated this
researcher to select the classroom as the locus for his
study and to use a qualitative approach in his
investigation of its interaction with the library media
center.

It was not the intention of Goodlad and Klein (1974),
as they began their study, Looking Behind the Classroom
Door, to do a descriptive study of classroom phenomena.
They had developed checklists for observers to use in
recording classroom behavior. Problems arose when the
research assistants discovered that what they were
recording before and after the recording sessions was
substantially different from the data in the
questionnaires. Goodlad and Klein redesigned their
checklists to include categories that covered every
dimension of the school. They wanted to ensure data that
would reflect a holistic view of the classroom.
The work by Goodlad and Klein is not strictly participant observational in nature. Rather, it reflects a research process that was evolving naturalistically in that direction. During the initial phases of this researcher's experience at Midland Elementary School, he used several of the Goodlad and Klein checklists to provide some structure to the interviews with the classroom teachers, principal and library media specialist. As the researcher gained more confidence in constructing his own interview guides, he discontinued this practice.

Schwab's *A Qualitative Study of Educational Program Development* (1979) is a precursor of this research project. Schwab tells the story of the development of the academic program at a "model" school in central Ohio. The program described is from the perspectives of insiders as well as from those of the outsider, the participant observer.

While Schwab's findings are pertinent to one seeking to understand the development of educational communities, her study is relevant to the present research through one of its corollary developments. It was at this "model" school that the Annehurst Curriculum Classification System was developed and it was also here that this researcher conducted his first field test which led to this present project. The researcher had an opportunity to observe the
school's library media specialist teach a library media
skills lesson to a group of elementary school students. He
still remembers the generation of a conceptual category
that arose, in a true grounded theory fashion, from the
notes that he took while observing at the school that day.

TRUSTWORTHINESS OF THE STUDY

There are two judges of the trustworthiness of a piece
of naturalistic inquiry. The researcher himself must trust
what he knows about his own data, how he collected them and
how he analyzed his findings (Glaser, 1967, p. 225). In
addition, his audience must decide whether the propositions
offered by the researcher do or do not empirically
contradict their own understandings of the situation
(Schatzman, 1973, p. 134). At several stages in the
research process those being observed at Midland Elementary
School were encouraged to react to the data being collected
and interpreted by the researcher.

The self-confidence of the researcher in his data and
in his own interpretation of it is not based on mere
intuition. It is true that he or she has feelings akin to
the person who has just put in place the last piece of a
jigsaw puzzle. However, viewing for the first time the
intricate interrelationships of a participant observation study is more than mere sight. The study has required a great deal of intellectual work. What the researcher "has confidence in is not a scattered series of analyses, but a systematic ordering of them into an integrated theory" (Glaser, 1967, p. 225). What the researcher has seen is a substantive theory derived from carefully selected data and which he is now ready to share with the rest of the academic community.

To continue the metaphor of the Jigsaw puzzle, the researcher's hypotheses are not obtained ready made from a container, nor even from an already existing theoretical framework, but rather from the field of observation in which he has been involved. His problem now is to convey this same sense of confidence to the readers of his handiwork. The theoretical framework which he has so carefully constructed must be conveyed to the audience. At some point in his writing the researcher needs to include "an extensive abstract presentation of the overall framework and its principal associated theoretical statements" (Glaser, 1967, p. 228). A statement of this kind is included in chapter six of this dissertation. The researcher also needs "to describe the data of the social world so vividly that the reader, like the researchers, can almost literally see and hear its people—but always in
relation to the theory" (p. 228). The ultimate compliment that can be paid to a piece of research is that the reader becomes so motivated that he or she designs a study of his or her own which will extend or replicate some aspect of the original work.

Up to this point the trustworthiness of the research report has been judged in a general way. In addition to this broad perspective there are specific concerns that must be dealt with in order for trustworthiness to be assured. Guba (1981) has labelled these as credibility, transferability, dependability and confirmability.

CREDIBILITY

The meaning of trustworthiness for this study can be revealed through the answering of several questions. "How can one establish confidence in the 'truth' of the findings of a particular inquiry for the subjects with which and the context in which the inquiry was carried out" (Guba, 1981, p. 79)?

The test of truthfulness, or credibility, of this study was based upon an isomorphism between the data of inquiry collected in the classrooms and the library media
center and the perceptions of the subjects of the inquiry. The subjects were the classroom teachers, the library media specialist and the students. The concern of this qualitative inquirer was that he check out his findings and interpretations, and even his theoretical framework, with the various sources from which the data were collected.

The researcher's extended stay at the school in Midland prevented any distortion caused by his presence. His lengthy stay in the setting also allowed him to be sure that the continuing cycle of events in the classrooms and the library media center repeated themselves enough times to guarantee that he had gotten the "total picture."

The collection of a variety of data sources ensured the credibility of the study. The documents, photographs, journals, student work and audio recordings derived from the research milieu did much to maintain the unity of the study in the midst of a complex research setting.

TRANSFERABILITY

"How can one determine the degree to which the findings of a particular inquiry may have applicability in other contexts or with other subjects" (Guba, 1981, p. 79-80).
An ultimate goal of research is the transferability of meaning from one context to another. It depends upon the degree of similarity between the two settings. Certain steps were taken by the researcher to ensure that transferability was possible for his particular qualitative research inquiry.

Throughout the researcher's stay at Midland Elementary School he collected data from an informal sample of students who differed according to level of general ability. By ensuring that copies of student work used to develop the explanation of the findings, a similarity with fifth grades other than those studied was approximated. Another step was the preparation of a full description of all contextual factors impinging on the inquiry. This allows for a comparison between the classrooms and library media center of Midland Elementary School and the same facilities elsewhere.

DEPENDABILITY

"How can one determine whether the findings of an inquiry would be consistently repeated if the inquiry were replicated with the same subjects in the same context" (Guba, 1981, p. 80)?
When persons are used as instruments of research, whether they be the researcher or subjects, dependability, or consistency, becomes a complicated matter. The teachers and students at Midland Elementary School changed during the researcher's stay on that site. The researcher also changed and since the investigator-as-instrument was an integral part of the methodology, allowances were made to account for instrumental shifts. Multiple methods were used whereby a weakness in one methodology was complemented by the strength of another one. This triangulation approach involved the description of a particular event by means of notes, interviews and audio recordings. The researcher also established an "audit trail" in which someone apart from the research setting was allowed to "examine the processes whereby data were collected and analyzed, and interpretations were made" (Guba, 1981, p. 87). Professional colleagues at the university where the research originated facilitated this process.

CONFIRMABILITY

"How can one establish the degree to which the findings of an inquiry are a function solely of subjects and conditions of the inquiry and not of the biases,
motivations, interests, perspectives, and so on of the inquirer" (Guba, 1981, p. 80)?

Since the qualitative researcher of this study was aware of the effects of using himself as an instrument, he shifted the burden of confirmability from himself to the data. He took two steps during the study to enhance interpretational confirmability. His biases were tested through triangulation when the data was collected "from a variety of perspectives, using a variety of methods, and drawing upon a variety of sources" (Guba, 1981, p. 87). He maintained a daily journal in which he could document his changes in perspective and attitude.
CHAPTER IV

THE DESIGN

An earlier chapter stated the research problem. The literature that has developed in relationship to this problem has been explicated. Most recently, a methodology for resolving this problem has been outlined. The task, now, is to develop instrumentation that will detect how the classroom teacher interacts with the library media specialist in the instruction of library media skills. Instruction in specific contexts. Only then will an explanation of the nature of these library media skills instructional events be possible and the implications of this analysis be forthcoming. The framework containing the instrumentation is known as the design.
DESIGN OF THE STUDY

What is needed is a design for the study of the instructional conditions that facilitate the learning of library media skills by students in the classroom and in the library media center. It is necessary, however, to avoid a cookbook approach, that is, simply listing the strategies and instruments useful in this approach. The techniques that the researcher used will be discussed in relationship to the context in which the investigation took place.

According to Dunkin and Biddle (1974) "most studies of teaching feature field surveys of naturally occurring classroom events" (p. 82). A field survey implies the observation of phenomena in their natural settings. For the purposes of this study, the term used to describe its design will be the parallel one of participant observation. Studies of this kind imply the minimal disruption of the regular schedule of events.
Three fifth grade classrooms and the library media center of a single elementary school served as the centers of attention for this project. The naturalistic methodology of the study necessitated a focus upon the description of the way things were in the classrooms and in the library media center rather than upon possible improvements in their activities. Hinley and Ponder (1979) explain the difference between the two and tell how this difference has affected research on the classroom.

Until recently, researchers considered classrooms almost exclusively as laboratories in which to do experimental research. Increasingly now, classrooms are viewed as busy, complex, multidimensional ecological systems and, as such, worthy of being the object of study rather than only the setting for it. In like manner, teachers who were once seen as often resistant targets for change efforts or as variables to be controlled for are now valued as contributing partners in the research enterprise (p. 136).
In a research setting such as has just been described, an investigation is facilitated when the researcher views the teachers as collaborators and not just as participants. The school which was selected as the site for this investigation was chosen because it afforded the maximal cooperation from the staff. The major factor, however, was that the library media specialist was the only one within a radius of twenty-five miles who was certified while having at the same time responsibility for a single library media center. The fifth grade was selected because the average intellectual ability of a fifth grade student falls within the range of development which the researcher wished to observe. Altogether, this school met the criteria needed for a study which investigated how the classroom teachers interacted with the library media specialist in teaching library media skills to fifth graders.

The school is situated in a small-town, rural community in the heart of midwestern United States. The school is located within fifteen miles of a major city and many residents who live in the school district commute back and forth to that city. Thus, the school district has not experienced substantial decreases in enrollment as have urban school districts. The school was organized to handle
grades kindergarten through sixth with four hundred and seventy nine students being enrolled at the school at the beginning of the fall term when the research project began. Nineteen classroom teachers and nine special teachers staff the school. Three of the teaching staff are male, the rest, including the principal, are female. As stated earlier, in this report the school will be called "Midland Elementary School" and the teachers and students will be given fictional names.

PERSONNEL

Mrs. Louise Brown, beginning her sixth year as principal of Midland Elementary School, had been a classroom teacher for sixteen years. She had obtained her masters degree and was certified in elementary school administration. According to Mrs. Brown, the objectives for each subject at each grade level in Midland Elementary School were written in the Scope and Sequence. These curriculum guides had been developed by the teachers of the entire county. When questioned as to how the Scope and Sequence was implemented in the classroom, she candidly replied that "there is really not any way that I can evaluate what each teacher does each day." She evaluated
the teachers on what she saw when she went into a classroom. During the sixty or more days that the researcher spent in the classrooms at the Midland Elementary School, he encountered Mrs. Brown only once evaluating a classroom teacher. As to the library media center, Mrs. Brown saw herself as having a broad role in its operation. The most important factor for the library media center, in her opinion, was the instillation into the students of a desire for reading.

Miss Donna Lashley, the library media specialist, grew up with an affinity for reading and for books. She and her brothers and sisters were always surrounded by books; and as young children they enjoyed having stories read to them. When Miss Lashley was about sixteen, the high school librarian asked her if she would direct the library during the summer months. That was her first experience as a librarian. She attended a university where her major was in English with a minor in library science. During her junior year she did her practicum in library work at another public library. By that time she had decided that she wanted to seek employment in an elementary school library. The public library was the only place where she could gain experience working with children. Storytelling was the activity which she enjoyed most. After graduating from the university, her first job interview was for a
position with the Midland Public School District. She remained in that district from the year of her graduation until the end of the school year when this study was completed.

Since beginning to work at the Midland Elementary School, Miss Lashley had engaged in a number of professional activities. She had taken additional coursework in media at her alma mater. She had attended several workshops on educational media and media equipment. She had attended conferences of the State Educational Library Media Association and the State Council of Teachers of English Language. She had maintained a continual interest in the relationship between the library media specialist and the classroom teacher. In this regard she had succeeded in having published an article entitled, "Sisters: English teachers and librarians." In the article she emphasized that the English teacher and the librarian had a common goal, the enjoyment of reading. She outlined several avenues towards obtaining reading enjoyment. These included storytelling, a course on children's literature, book writing and puppetry. For her, reading was one of the basic courses of the school curriculum.
Mr. Brad Jones graduated from college with a major in elementary education and a minor in physical education. In addition to his classroom duties he served as a coach for the high school wrestling team. He had always taught the fifth grade and this included teaching that grade for four years at the Midland Elementary School, his first appointment. He saw the classroom teacher as a presenter of information, presenting it in whatever way was necessary to help the student remember it. He believed that it was his responsibility to place road signs to point the student's way to information and to the answers to his or her questions. He regarded reading as the most important subject, partly because students have a hard time in social studies, science and math without it. He believed that schools have accepted too much responsibility in trying to teach everything from sex education to nutrition. As a result he found himself working as a father, mother, counselor and clergyman, as well as a school teacher.

Mr. Jones has a reputation for designing and putting together exceptionable bulletin boards. Occasionally, when he had put one up, one of his students would say that it was "neat." The student might go over and work with the learning center that it contained. This action inspired Mr. Jones to design and put in place another one.
Mr. Donald Cooper was a graduate of City University. Although he had taught the sixth grade one year, his experience was mainly with the fifth grade. He was enrolled in graduate school at his alma mater and was working on a degree in educational administration. His experiential view of education and learning was reflected in a comment on field trips. He believed that if it were for him to decide, students would have a field trip every week. His views on the Course of Study, which was derived from the curriculum guide Scope and Sequence, were shared by his colleagues. It was merely a basic skeletal guideline. As he gained more experience, added materials to his repertoire, and tried to keep abreast with current curriculum changes, he would have to act accordingly and move away from rigid guidelines.

According to Mr. Cooper, the teacher had to decide what was important and what he could accomplish with the materials with which the students were working. His greatest inspiration was the "kids." "Some days they drive me crazy, but the bottom line is just to enjoy them. I do. I like being around them. I like working with them. I just like being a teacher."
Mrs. Roxanne Thompson felt that she had the reputation for being a "tough" teacher. To get her students to do assignments she sometimes had to threaten them. She believed that she had to do this in order to prepare her students for junior high school. She had taught sixth grade once and believed that a teacher needed to start as early as the fifth grade in order to prepare his or her students for the rigors of the grading system in junior high school.

Into this research setting came the researcher with his problem.

RESEARCHER

In a participant observation study the observer's essential instrument is him or herself. Thus the perspective that the researcher has on the research site must be given careful consideration.

The staff at Midland Elementary School and several of the students were aware that the researcher was a library media specialist as well as a doctoral student in educational communications at State University. On a few occasions the role of the researcher merged with that of
the classroom teacher when he was asked to "baby-sit" students while the classroom teacher went on an errand. Since this did not occur frequently, the role of the researcher as an observer was never seriously threatened.

A threat to the independence of the researcher did occur on other occasions, but always as a result of the fieldworker's choice. In these instances he had observed students having difficulties carrying out learning tasks, either in the classroom or in the library media center. When it seemed that a particular student was hopelessly stymied in his or her effort to complete an assignment, the researcher intervened with a suggestion as to how the student might successfully continue with his or her project. This involvement by the researcher enabled him to observe the outcome of an information retrieval activity.

When the classroom teacher or the library media specialist was instructing students, the researcher maintained a strictly observational stance. While students were engaged in individual or group projects, at their desks or in the library media center, the researcher was free to interact with them, both asking and answering questions. This access to the students was a crucial aspect of the ability of the observer to obtain student meanings of the events in which they were participating.
Furthermore, during and between classes, the researcher was able to elicit from the classroom teachers and the library media specialist the meanings that they held in respect to these same instructional events. The winning of such confidence was a key element in the development of rapport at the site.

The researcher had various biases and assumptions when he entered the research setting. He strongly supported the "media concept" of integrated book and nonbook materials in the library media center as espoused by the American Library Association and the Association for Educational Communications and Technology (1975). He believed that the classroom teacher should become involved in the library media programs of his or her students. The researcher had learned during his term as an elementary school library media specialist that teachers often use the library media center program as a further occasion for free time. He supported an aggressive library media center program. In other words, he believed that library media skills were something that should be "taught", not "caught."
Midland prides itself upon being located in the heartland of a midwestern state. The elementary school is located in a nine year old building adjacent to the high school in the southeast sector of that rural community. After learning that Midland Elementary School might be a good location for his study, the researcher telephoned the school and talked with Miss Donna Lashley, the school's library media specialist. He told her that he was "interested in studying the relationship between the classroom and the library media center in the teaching of media skills." He made an appointment for a visit to the school.

The researcher visited the site four times before beginning his study. The first visit was to the library media center for a conversation with Miss Lashley regarding the feasibility of conducting research in that facility.

A month later the researcher met with both Mrs. Brown, the principal, and Miss Lashley. Mrs. Brown requested that the researcher write a formal letter requesting permission to conduct the study that he had planned. She also asked him not to give the students any tests. The principal was reluctant to permit any treatments that would affect the
students in any way except for their regular educational evaluations.

The researcher's third visit to Midland brought him in contact for the first time with the fifth grade classroom teachers. At this meeting a letter was drafted that would be distributed to the parents of the students involved in the researcher's observations. The fourth and final visit prior to the beginning of observations was at the end of August. The researcher attended two meetings, one for all of the teachers of the school district and one for just the teachers of the elementary school. He secured a list of the teachers' names and a map of the school layout. The next day he was to make maps of the three fifth grade classrooms and the library media center. The latter facility was known officially as the library. In this study it will be referred to as the library media center. The researcher wrote out a schedule that he intended to follow each day while he was at the school in September.

The researcher spent most of the first day of observations in the library media center. Miss Lashley stated that the first part of the school year would be devoted mainly to storytelling, book selection and utilization of materials. Library media skills would be taught starting in December and would continue for the rest
of the school year. The researcher realized at this point that, although there would be no active library media skills instruction in the library media center until the next calendar year, students would still come to the library media center to retrieve information. At the end of the first day of full-time observations at Midland Elementary School, the researcher recorded his impressions of the day into an audio recorder as he drove back to his residence.

The main item on the researcher's agenda at this time was the establishment of procedures for gathering reliable and valid data. His strategy involved taking notes describing his observations in the classroom and the library media center. He derived information from seven different sources. The researcher would be able to find answers to the research questions from the notes that he took while observing, the daily journal that he kept, the transcripts of interviews with teachers and students, the transcripts of classroom or library media center instructional interaction, the textbooks, the copies of lesson plans, and student work. For the researcher, the most important task that he had during the early days of the study was securing useful data. This was accomplished through careful scheduling. It meant that he had to be in the "right place at the right time" in order to gather
appropriate information. At one point the researcher likened the process to that of being an "Investigative reporter." He had to learn to sense when something appropriate to his research topic was going to take place, and then make sure that he got there on time. Later, during the final months of the study, scheduling was not as important an issue because by then the researcher spent long periods of time in one classroom observing continuous instructional interaction.

Not everything that happened in the classroom or in the library media center was pertinent to the interests of the researcher. As his research interests came more sharply into focus, he learned to discern and to record those behaviors relating to information retrieval. He found himself recording information about phenomena that, at the beginning of the study, would not have appeared relevant.

During the first several months of study at Midland Elementary School, visits to the classroom were decided upon during conversations with the fifth grade classroom teachers. The researcher shared with them the kinds of behaviors that he was interested in observing and after some trial and error visits, the classroom teachers developed an awareness of the types of experiences that the
investigator wanted to see and told him about them in advance. With the passage of time, a number of the classroom experiences spilled over into use of the library media center and the relationship between classroom and library media center became more apparent.

The remainder of this chapter will deal with how the observations of the researcher came to be validated and thus trustworthy. Included will be discussions of the design for an analysis and a theory which are intended to reveal how the classroom teacher interacts with the library media specialist in instructing fifth graders in the media skill of Information retrieval.

TRUSTWORTHINESS PROCEDURES

Criteria for assessing the trustworthiness of a qualitative study received attention in the previous chapter. The task, now, is to apply these criteria to the present study in order to determine whether it can be called credible, transferable, dependable and confirmable. In addition to these aspects of trustworthiness, the study will address the issues of bounding, focusing and competence.
CREDIBILITY

The researcher adopted certain procedures which helped to preserve the holistic nature of the research setting he was investigating. He wanted to make certain that the complexity of the setting would be taken into account in such a way that he might maintain the "reality" of the situation.

The researcher spent approximately sixty-eight days at Midland Elementary School. Shortly before the Christmas holidays the researcher conducted an initial analysis of his data. Approximately one hundred categories emerged. As a result, the inquirer was able to narrow his focus and concentrate on a smaller number of categories.

By an arrangement with the school secretary the researcher had photocopies made of primary source materials. A complete set of textbooks used by the fifth grade was loaned to the inquirer. Added to the previous data were copies of student work that reflected information retrieval activities.

Numerous interviews were held with teachers, library media specialist and students. A log consistently recorded who was being interviewed and the date on which the
Interview was held. The interviews, on occasion, were unstructured to allow participants the opportunity to express their viewpoints freely. On other occasions, the interviews were structured in ways that allowed the researcher to test his interpretations on the subjects of the study.

TRANSFERABILITY

Inasmuch as an elementary school library media skills program is similar to the one at Midland Elementary School there is an occasion for generalization. To facilitate this possible comparison the researcher carried out certain steps both during and after the research process.

The selection of Mr. Cooper as the classroom teacher to be observed during the month of January, and the resulting observations of his class in the library media center for the duration of the school year, indicate a decision to observe one representative class. This indepth study invites comparisons with similar settings in other schools. Detailed descriptions of the students in Mr. Cooper's classroom will most adequately allow for these comparisons.
DEPENDABILITY

When the researcher is his own research instrument, there is the danger that measurements will not be the same over a period of time due to shifts in the inquirer's perspectives and outlook. Several overlapping methodological approaches, such as interviewing techniques and unobtrusive measures, were selected to provide balance for the research design.

CONFIRMABILITY

Earlier in this chapter, under the heading "Researcher," a description set forth the inquirer's biases as he entered the research setting. He maintained a daily journal and this tool reflected changes in perspective as the project unfolded. These changes were also reflected in the analysis of the data gathered at the site.
The problem statement given in chapter one became the initial criterion for determining what to include and what to exclude from the research project. There were educational activities that took place in the classroom and in the library media center which did not involve library media skills instruction. Though some of these events were part of the research record, particularly at the beginning of the study, they were eliminated from consideration during the final analysis.

Instruction was qualified as being instruction of library media skills only. A further qualification narrowed the focus to the library media skill of information retrieval. The study was a comparative one in the sense that it looked at the degree of interaction between the classroom teacher and the library media specialist. Finally, the study was of library media skills instruction for fifth graders.

The researcher selected six research questions for which he sought support from the data that he had collected. Although these six questions did not take final form until near the end of the study, they had an impact through most of the data gathering process.
FOCUSING

The organization of the data came about through the overlapping of the analytic methods of constant comparison and observational analysis of instruction. Meaning emerged through interviews with the participants and through the reflections of the participant observer.

COMPETENCE

The inquirer is a Ph.D. candidate in educational communications at State University. He is thus qualified to engage in educational research. He has had coursework and experience in the areas of instruction and qualitative inquiry.

ANALYTIC PROCEDURES

In a qualitative study the analysis of data is inseparable from the collection and coding of data which precedes it and the development of a grounded theory which follows it. For this reason, comments on both theoretical sampling and development will be included in this section on the analytic procedures themselves.
THEORETICAL SAMPLING

Following his initial observations the researcher undertook theoretical sampling. It is "the process of data collection for generating theory whereby the analyst jointly collects, codes, and analyzes his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges" (Glaser and Strauss, 1967, p. 45). The research process began with a problem area, library media skills instruction for fifth graders. This initial groundwork was not based on any preconceived theoretical framework. The researcher developed a theoretical sensitivity which allowed him to develop numerous categories and hypotheses. He did not always know what would occur next, but remained "guided by emerging gaps in his theory and by research questions suggested by previous answers" (p. 47).

The researcher selected groups and subgroups that generated numerous properties for his already existing categories. The categories were then compared to each other and to their properties. The evidence itself was not compared. Rather, diverse and similar data were related to each other insofar as they indicated the same conceptual categories and properties. An example of a group was the
identification of a category of events relating to the concept of "important stuff." It was the researcher's control over the similarities and differences between the groups which permitted his development of categories with their respective properties and, ultimately, the emergence of a grounded theory. The inquirer raised theoretical questions and sought for their answers in the continuous research cycle. When he had decided that there was no further value in sampling events pertinent to "important stuff," this group was said to have reached theoretical saturation.

CONSTANT COMPARATIVE METHOD OF QUALITATIVE ANALYSIS

The constant comparative method of qualitative analysis follows theoretical sampling. It is used whether the data has been newly or previously collected. Four stages comprise the constant comparative method, although, according to Glaser and Strauss (1967), "earlier stages do remain in operation simultaneously throughout the analysis and each provides continuous development to its successive stages until the analysis is terminated" (p. 105).
The first stage for this researcher was the comparison of incidents applicable to each category. To continue the example of the previous section, each incident in the data dealing with "important stuff" was coded into as many categories of analysis as were possible. These categories would have included persons involved in the incident, teaching objective, type of educational media used, method of evaluation and others. While coding an incident for one of these categories, the researcher compared it with the previous incidents in the same and different groups that were coded in the same fashion. The result was the generation of the theoretical properties of the category known as "important stuff."

As categories and their properties emerged, the researcher discovered two kinds of categories: those that he had constructed himself and those that had been abstracted from the language of the research situation. "These concepts abstracted from the substantive situation will tend to be current labels in use for the actual processes and behaviors that are to be explained, while the concepts constructed by the analyst will tend to be the explanations" (p. 107). An illustration of a concept constructed by the researcher to explain what he was observing was the category, "information retrieval potential." "Important stuff" was, of course, an example of
a concept that came from the language used in the classroom and in the library media center.

The second stage is the integration of categories and their properties. According to Glaser and Strauss (1967), "the constant comparative units change from comparison of incident with incident to comparison of incident with properties of the category that resulted from initial comparisons of incidents" (p. 108). Subsequent discoveries of "important stuff" led to comparisons between this construct and the original properties that were derived from its first occurrence. The diverse properties themselves thus start to become integrated. The theory began to develop as different categories and their properties tended to become integrated through constant comparisons that forced the analyst to "make some related theoretical sense of each comparison" (p. 109). Thus, the researcher was able to fill in the gaps of his theory.

The third and fourth stages of the constant comparative method of qualitative analysis relate more specifically to theory development. These final two stages will be presented, along with some additional information, in the last section of this chapter, theoretical procedures.
The current study focuses upon the instruction of library media skills to fifth graders. Instruction was defined as the process of arranging human, material, temporal and spatial resources with the intention of facilitating one's own learning or the learning of others. Numerous events in the fifth grade classrooms and in the library media center at Midland Elementary School illustrated the process of library media skills instruction. When Mr. Cooper wrote on the chalkboard the key terms from the class's study of Jamestown, instruction was taking place. When Mr. Jones gave an assignment to his pupils that required the use of encyclopedias to write reports on parts of the body, instruction was taking place. In Mrs. Thompson's room instruction was taking place when several of her students went to the library to locate information on Indians.

The Observational System for Instructional Analysis (OSIA) is a tool for the systematic study of instruction such as this study has undertaken to investigate. OSIA is fully described elsewhere (Duncan, Hough and Belland, 1980). An attempt will be made to compare the qualitative categories of this study's analysis with the categories
used by OSIA. The justification for doing so has already been stated. It is an effort that points ahead to the time when research on library media skills can be quantitatively investigated.

THEORETICAL PROCEDURES

The third stage of the constant comparative method is delimiting the theory. For the study at Midland Elementary School this occurred as follows. Major modifications in the developing theory become fewer and fewer as the researcher discovered underlying uniformities in the original set of categories and their properties. A smaller set of higher level concepts emerged with this reduction of terminology and consequent generalizing. Constructs such as screening, challenging and coordinating crystallized into relatively fixed relationships, thus allowing for parsimony of variables and applicability to a wide range of situations. Reductionism, however, did not prevent the researcher from maintaining a close correspondence between the emerging theory and the already collected data.
The fourth stage is writing the theory. The researcher had coded data, a series of memos from the analytic process and a theory. The researcher was convinced that his analytic framework formed a systematic substantive theory that described how the classroom teacher interacts with the library media specialist in teaching the library media skill of information retrieval to fifth graders. His final task was to write the theory in a manner that others going into the same field could use it.
CHAPTER V

THE FINDINGS

The research experience in the classrooms and in the library media center at Midland Elementary School can be characterized as one having had excellent communications. With relatively few exceptions there were no times when the investigator did not feel welcome in one of these locations.

The primary data collected during the observation period were transcripts of classroom and library media center instructional events. While recording these sessions, the researcher also took notes on what was transpiring. At the end of each day, and sometimes in the mornings as well, the investigator maintained a research journal giving his impressions on what was taking place at the research site. Copies made of lesson plans and of pertinent textbook pages related various aspects of what was being observed. The researcher received copies of handouts distributed to students by the classroom teachers.
and the library media specialist. When students completed assignments and had work to hand in for assessment, the investigator was a recipient of this material as well as of other student work that was not formally graded. Finally, available for this project were miscellaneous data, such as classroom seating charts, class schedules and the layout of the library media center.

The present chapter is the analysis and illustration of these data. Illustrations along with the analysis provide the user of this research study an opportunity to judge for him or herself whether the data support the claims made by the researcher in regards to the ways that the classroom teacher interacts with the library media specialist in instructing the library media skill of information retrieval.

The analysis will be presented in six major sections. The section "Information Retrieval Potential" tells the story of information retrieval behaviors in the classroom and in the library media center. Discovered soon after the project was initiated was the knowledge that an understanding of information retrieval skills instruction would not be possible without an investigation into the nature of information retrieval behaviors in general.
Information retrieval skills were usually not taught formally in the classroom. "Hidden Curriculum" provides an interpretation of how library media skills instruction "crept into" the regular curriculum.

"Course of Study" takes note of the instructional events in the library media center that reflect how the library media skill of information retrieval is taught to fifth graders.

The interaction of the instruction of the classroom teacher and the library media specialist centers on the dynamic interrelationship between two important information retrieval behaviors engaged in by fifth graders. "Important Stuff" relates how fifth grade students react to information retrieval opportunities that occur in their classroom or elsewhere by distilling out from these opportunities key words that will allow them to form search strategies for retrieving information, whether in the classroom or in the library media center.

"Touching Base" reflects what is probably the major contribution of the library media specialist to the information retrieval success of fifth graders. The dialect generated by the classroom information retrieval process encounters the dialect of the cataloging system of the library media center. The task of the library media
specialist is to ensure, through library media skills instruction, that this interaction of classroom teacher and classroom dialect with library media specialist and library media center dialect will lead to successful retrieval by students of pertinent information.

"Method In His Madness" tells the complete story of a series of instructional events revolving around information retrieval and information retrieval skills in both the classroom and in the library media center. The data will be so stated as to become evidence that could lead to an answer for each research question and as sources for an explanation of such an answer.

Instruction is the arrangement of human, material, temporal and spatial resources with the intention of facilitating the learning of one's self or another. This definition of instruction, presented in chapter one, will be the basis for the analysis. In the next chapter, this same definition will become the framework for a theory of information retrieval skills instruction. The first section, and to some extent later sections, in this presentation will begin with an analysis which delineates who are the arrangers of educational resources. The kinds of arrangements that are made is the second topic to be considered. The next focus will be upon the kinds of
intentions that are related to these arrangements. For whom are these intentions held and for doing what are they maintained? The final issue is about the kinds of learning that are facilitated and how they are obtained. Arrangers, arrangements, intentions and learnings, these are the key elements of the following story and analysis.

INFORMATION RETRIEVAL POTENTIAL: INFORMATION RETRIEVAL IN THE CLASSROOM AND THE LIBRARY MEDIA CENTER

How can the opportunities for retrieving information in the classroom and in the library media center be characterized?

The interaction between the classroom teacher and the library media specialist as they teach information retrieval skills finds its genesis in the information retrieval behaviors which make the teaching of the relevant skills necessary. For this reason the quest for an understanding of the classroom teacher and library media specialist interaction, the focus of this study, begins with an examination of the classroom and the library media center information retrieval contexts.
The most obvious fact that strikes one after observing for several days in an elementary school setting is that of the daily schedule. This may not be so pronounced in the first grade, but by the time a student has reached the fifth grade, school work can be measured in terms of so much of one subject or another for so many minutes. The major subjects for the fifth grade at Midland Elementary School are social studies, reading, science, health, and language arts. In addition to these courses are such special subjects as art, music and physical education, but the investigator did not observe classes in these latter subjects.

Opportunities for information retrieval, however, also occurred in the library media center. Following discussion of information retrieval potential by subject, attention will be given to the occurrence of this phenomenon in the library media center. Social studies, because of its extraordinary ability to foster information retrieval activities, will be discussed first.
The first extended experience that the researcher had with an information retrieval potential was with Mrs. Thompson's students and their projects on Indians.

Indian Project

Miss Lashley, in the library media center, gave the researcher his first inkling about the Indian Project. She showed him passes she had received from students coming to the library media center from Mrs. Thompson's classroom. The students had come to locate information about Indian tribes in encyclopedias and other books in the library media center. The researcher was able to converse with one of these students who stated that he had come there looking for information on the Natchez tribe. Unfortunately, he had misspelled the name of the tribe and was, thus, unable to locate the desired information in the encyclopedia which he was using.

At noon, and later on the next day, the researcher talked with Mrs. Thompson about the project. She said that it was difficult to teach when one was unable to secure
sufficient materials for the students to use. Furthermore, when she sent her students to the library media center, she had to go ahead of them in order to be certain that the materials were going to be there and available when the pupils arrived. Her main objective was to have her students learn how to write a report. They had already spent several days on notetaking and she would soon begin instruction on how to write the rough draft of the final product. She had arranged things so that all of the students would be following a uniform procedure, step by step. Eventually, as she added dioramas and oral presentations to the writing activity, the assignment became a project and not just a simple report.

Mrs. Thompson assigned the study of a tribe to each student. She also provided materials in the form of books, maps, dittos and encyclopedias for the students to use. Her pupils also had access to the library media center and when they chose to go there, Miss Lashley would be willing to assist them. Occasionally, a student would encounter difficulty in finding information about his or her particular tribe. When this happened, Mrs. Thompson reminded the student to scan the table of contents or index of the item being used. Another obstacle was the alphabetic order of the cards in the library media center’s card catalog. Often the difficulty a pupil had in using
the card catalog came about because of his or her poor spelling.

The idea for the project referred to grew out of the third chapter of the social studies text, *Our Country*. Mrs. Thompson had concluded that the book did not give sufficient detail concerning the Indian tribes. Some of the important tribes the text did not mention at all. What the teacher needed was a method for getting her students to locate different materials on the topic and to write these up as a report. She prepared an outline for each student to follow:

I. Introductory Paragraph

II. Family Life (Food, Clothing, Shelter)

III. Tribal Life (Fighting, Government, Recreation, Education)

IV. Hunting, Fishing, Farming

V. Arts and Crafts

VI. Concluding Paragraph
Mrs. Thompson explained the outline to her students, step by step, using as an example a sample tribe. After gathering their notes, the students were to match these with the appropriate paragraph heading and then write their rough drafts. The final drafts were to be handed in to their teacher to be formally graded. The notes and rough draft their teacher also assessed as part of this evaluation.

After observing her students' work for several weeks on the project, Mrs. Thompson decided that they were taking too much time to complete their assignment. She set a deadline for everyone to have finished their projects. This meant that she had to spend extra time with Marvin who had a learning disability. In addition, Mrs. Thompson had decided to have her students include a bibliography of the sources that they had used in writing their reports. This would require extra time for both teacher and student alike.

Mrs. Thompson graded mainly on the basis of the information that the student covered. However, sentence structure and spelling were also part of her consideration. She expected her students to use the dictionaries that were located in the classroom. The grade she gave was equivalent to a test grade and she added extra points if the student included pictures.
Both Mrs. Thompson and her pupils were arrangers of resources that facilitated learning. As Mrs. Thompson worked with each individual student, she was arranging human resources for learning purposes. Arrangements made with Miss Lashley in the library media center were also crucial, since there was a limited supply of material resources in the classroom. Material resources included not only the books and encyclopedias that the students used but also the notes and products of the students' activities. Temporal resources played an essential role, guiding the pace of activities; these became paramount in importance when the instructor set a deadline. Not having sufficient materials in the classroom forced Mrs. Thompson to seek resources in the library media center and the public library as well.

The arrangements of these various resources were what helped bring about learning. Mrs. Thompson exerted a great deal of control over the activities of her pupils during this project and thus she set limits on the amount of self-directedness that students were allowed to exhibit. In order to facilitate learning, Mrs. Thompson worked with the students individually, as well as as an entire class. Her interaction with the library media specialist led to the successful retrieval of information from the library media center. Book materials that were arranged for
Information retrieval comprised the bulk of the material resources. The students did have some difficulty with the card catalog in the library media center.

Since Mrs. Thompson intended to facilitate the skills needed in writing a report, she utilized several different instructional strategies. At the beginning she initiated a great deal of managerial information. Frequent discussions with individual students resulted in exchanges of solicitations and responses. Mrs. Thompson needed to discover the strategies that each pupil was employing in order to attain his or her learning objective. The major flow of information was between the student and the material resources that they were using. Although the interaction was usually an unspoken one, it nevertheless consisted of the student's soliciting an unspoken request for information and the media item replying with or without the appropriate details.

Several types of learning resulted from the project. Intellectual skills and verbal learning predominated. Students developed positive and negative attitudes towards this kind of activity. When students elected to make drawings and dioramas for their reports, they were bringing motor skills into play. Later on in the school year Mrs. Thompson had her students do another project. Those
who benefited from doing the Indian project, to the extent that it helped them with the later assignment, can be said to have learned a cognitively strategy for doing projects.

Filmstrip Reports

Mr. Jones wanted to develop the use of nonbook media in his classroom. Over the period of a month, he utilized filmstrips, motion pictures, television and dittos. The use of these media was in conjunction with the regular social studies textbook. The investigator first learned about the filmstrip reports from an overheard conversation between Mr. Jones and Miss Lashley in the library media center. Mr. Jones’ concern was how he could schedule the filmstrips for the right day.

Soon, however, Mr. Jones realized what his major obstacle was going to be. He had access in his classroom to only a single filmstrip projector. He knew that he would have to borrow one or more projectors from his colleagues or perhaps from the library media center. He was going to be using six different filmstrips, and, knowing that he would not be able to borrow that many projectors, he decided to have his students take turns using the equipment.
He intended that the filmstrips would reinforce or verify what the social studies textbook, Our Country, had to say about colonial life. But Mr. Jones' main goal was to get his students to learn to work together in groups. He divided his students into six groups. When it was time for the lesson to begin, he called forward a member of each group and gave him or her a canister containing a filmstrip which the group would use as a basis for its report. Not only would the members work as a group, they would be graded as a group. Beginning on the following Monday, each group would make an oral report to the rest of the class. Each group would also have to have some written work to hand in to the teacher.

Before Mr. Jones released the class to work on their reports, he began to write criteria for the reports on the chalkboard. When the students started getting too noisy, he quit this task and exclaimed that they would have to figure out on their own what to write down.

Since Mr. Jones had succeeded in getting only one other projector, each group would have ten minutes in which to view the filmstrip before turning the projector over to another group. Some students had difficulty operating the projectors and this considerably slowed down their progress. The procedure for each group was to get an idea
of what the particular filmstrip was about and then to look up this same topic in their textbooks. When not viewing a filmstrip, class members were to work on a math assignment.

As the researcher approached one group to observe, a student informed him that the secretary of their particular group was making notes word-for-word from the filmstrip captions since they could not be sure what Mr. Jones would have written on the chalkboard as to the correct procedure they should follow.

Researcher: Susan, what are you writing down?
Susan: Information.
Researcher: How do you know which information to write down?
Susan: We just write down the important stuff.
Researcher: How do you know what is important?
Susan: Well, we know because Mr. Jones was over here and he said write these.
One common denominator stood out as the researcher observed the students in Mr. Jones' classroom. The same was true for Mr. Cooper's and Mrs. Thompson's classrooms as well. When selecting material for a project or a report, the students have to make a choice as to what material would be included in their work and what would be omitted. Whether they were working with a book, a filmstrip or another media format, the students had to condense the information into a package that would be acceptable for evaluation by the teacher.

As the researcher moved from group to group and from class to class, he asked the same general question: what is important? He received various answers. It was important because the teacher said so. It was important because part of the caption matched the picture on the frame. It was important because it was someone's name, a date or just indescribably important. The researcher felt a certain excitement as he pursued the clues for this first mystery of his study. At a later time, Mr. Jones informed
the investigator that shortly before giving the filmstrip assignment he had had a lesson with his students on notetaking and the selecting of what was important. It was apparent that there had been a "spill over" effect for the filmstrip reports.

Mr. Jones later commented on this learning experience. He said that it had been the first time for that school year that the students had had to stand up in front of the rest of the class. Mr. Jones' main objective had been to get his students to work together successfully in groups and he believed that that objective had been achieved.

Both teacher and students were arrangers in this lesson using filmstrips. While the teacher exercised control in terms of the nature of the assignment, the students were responsible for determining the parts of the filmstrip captions they would use for their reports. The sharing of a common grade was the teacher's solution to the problem of assessing a group effort.

The material resources utilized included the textbook and the six filmstrips. There is little flexibility in the use of a filmstrip. One might speculate on the direction that this lesson could have taken if slides had been the media used. Time was important in terms of meeting a deadline, but space was not a major factor.
The lesson began with Mr. Jones' initiation of managerial information. Because of student misbehavior, he initiated very few substantive directions. The students, thus, had to solicit clarification as to what the teacher expected from them. While they were working on their assignment, the teacher responded to student queries as he moved among the different groups. Some students experienced difficulty directing their own learning because they were uncertain as to how to manipulate a filmstrip projector. Considering these factors it is questionable how much substantive learning prevailed. Students did seem to develop positive attitudes towards each other. Certainly, they had the opportunity to do so. Learning to operate a filmstrip projector involved motor skills, from which they could receive positive results.

The library media specialist did not play a major role in this episode apart from pointing out to Mr. Jones the fact that the library media center had as part of its collection several filmstrips on the topic he was going to present to his students. Nevertheless, the professional interaction between the library media specialist as an evaluator of educational media and the classroom teacher as colleague is significant. It reflects the fact that the library media specialist is usually better acquainted with the contents of the library media center than is the
classroom teacher. In addition to the issue of making a recommendation in regards to the selection of appropriate media, Miss Lashley, the library media specialist, was responsible for scheduling its use for a specific day and time. Actually, in the library media center at Midland Elementary School scheduling became information. In this particular instance, no one else needed on the same day the filmstrips on colonial life.

The interaction between the classroom teacher and the library media specialist can be just as significant in terms of what it does not include as of what it does. The students in Mr. Jones' class had forgotten from their previous year's training how to operate a filmstrip projector. Miss Lashley did not suggest to their classroom teacher that the students be given a review session on the operation of the appropriate piece of equipment.

Motion Picture Lessons

Mr. Jones had been influenced by a teacher in-service workshop on critical viewing when he decided to show a motion picture to his social studies class. He incorporated some of the concepts from the workshop into his introduction of the film to his students.
He asked all of his pupils to stand and to face each other. They were to carefully observe the person in front of them and then to turn around. The person being observed was asked to change three things about him or herself before turning around again for further inspection by his or her partner. It was the partner's job to spot the three changes. The entire class was then asked to view the motion picture with the assignment of making notes about all the things that were changing, such as attitudes, costumes or whatever else they might note.

The motion picture was about two indentured servants coming over from England to America. In the social studies textbook was a short section that dealt with indentured servants, and this film was selected to supplement that material. After the class had viewed the first reel of the motion picture, Mr. Jones instructed his students to discuss the changes that they had observed.

During the afternoon Mr. Jones' class went to Mr. Cooper's classroom to view the second reel with his students. Just before the lights were turned out, Mr. Cooper gave a brief synopsis of the first part of the film. After the showing, Mr. Cooper led a discussion, which centered on the role of conflict in the plot of the story. The instructor then asked the students to list all
of the instances when conflict was an issue. Later the class made comments that were related to the feelings and emotions that might have been held by the main characters of the motion picture.

As noted, the introduction and conclusion to a media presentation are crucial for facilitating learning. Mr. Jones and Mr. Cooper arranged the showing of the motion picture to facilitate learning, albeit of two different kinds. Mr. Jones was concerned primarily with intellectual skills. While concerned with that type of learning as well, Mr. Cooper also stressed attitudes and emotions. Both teachers arranged human and material resources so as to facilitate the kinds of learning that they felt were important.

Most of the information the class received came from the motion picture itself and in this respect the film was the initiator of information. Following its showing, both classroom teachers solicited answers from their students who responded according to what they had learned from the film.

The workshop on critical viewing which had influenced Mr. Jones' choice of an introduction to the motion picture had been arranged for by Miss Lashley, the library media specialist. In-service workshops are one means whereby the
library media specialist can interact with the classroom teacher so as to influence his or her style of teaching.

Flag Lesson

The flag lesson was introduced by Mr. Cooper with a rather lengthy lecture based on a small pamphlet entitled, *You and Your Flag*. He was assisted in this initiation by Martha who consulted the classroom encyclopedia for further information. Mr. Cooper displayed several flags, including one brought to class for the occasion by Matthew. One student asked Mr. Cooper why the stars were on a blue background. Mr. Cooper replied that he did not know.

"Well, I tell you. You students stumped the teacher today. Shall I write myself a note? I'm going to have to do some research in the library. I'll try to find out by tomorrow. Does anybody know, by chance?" There was one volunteer answer, but no one knew for certain. Martha apparently had no success with the encyclopedia.

Mr. Cooper involved other students in his presentation. Lucy had two books on Betsy Ross and had gotten information in the library media center concerning the adoption of the official flag by the Continental Congress in 1777. The lesson ended with the distribution
of red, white and blue construction paper along with instructions that everyone was to make a flag of his or her own.

Mr. Cooper was not the lone arranger for this lesson. Lucy had her impact upon the lesson because of her independent work in the library media center. Although Martha's role in the instructional strategy used by Mr. Cooper was not the one of an independent learner, she provided access to other information that could be used as needed. There exists in this lesson a clear example of information retrieval potential. This is particularly the case with the question regarding stars on a blue background. Mr. Cooper chose on this occasion to seek out the answer himself. There was the potential, however, of challenging the pupils to ferret out this information on their own.

Material resources had a part in the instructional strategy used by Mr. Cooper. The booklet provided him with an introduction. His manipulation of several flags as well as the making of a paper flag by the students was calculated to facilitate motor skill learning as well as that of verbal information.
Mr. Cooper chose to interact with the library media specialist in getting an answer regarding the placement of stars on a blue background. It is possible that he could have found and used on his own a reference book to find the answer. In the sense that the library media specialist herself placed the reference book into the library media center's collection, Mr. Cooper was interacting with the library media specialist.

Was it coincidental that Lucy had two books that were very appropriate to the class' discussion? Whether she selected them during a regular class visit or by means of a library pass, at the beginning of the school year, Miss Lashley had arranged with Mr. Cooper for both kinds of visits.

A more fascinating conjecture is in regards to how Lucy happened to have two books so appropriate for the classroom discussion and this as a result of possible classroom teacher library media skills instruction. The research record does not tell but speculation can be made. The teacher may have asked her to select books on this topic. Or, possibly, Lucy had a personal interest in Betsy Ross and the flag.
Discussion

Mrs. Thompson was pleased that her students had been engaging in discussions that included, as she put it, some outstanding "thinking questions." Her students were planning a debate for the following Wednesday. They would be debating the issue of what would have happened if the United States had lost the War for Independence. What had captured their attention was actually the more current issue of whether women should be drafted. The textbook mentioned that one woman had dressed up like a man in order to fight in that war. This took the students off target from the debate that they had planned.

When the students started using the encyclopedia to compare the United States of today with Great Britain, the lesson got back on track. Students decided to look up information on the Soviet Union because they speculated that life in nations under British rule in this century might be comparable to life in the Soviet Union if the British had continued to be as "hard nosed" as they were during the time of the Revolutionary War. A visit to the library media center was planned next in order for students to consult an almanac, which the pupils hoped would provide current statistics on the population of all three countries.
This is just one of several information retrieval events that took place in Mrs. Thompson's social studies classes. The description above suggests that the classroom teacher opted for the discussion strategy in order to facilitate higher level thinking on the part of her students. This procedure is usually a risky undertaking because there is always a possibility in a setting such as this, where students have some independence in determining what is to be discussed, that the entire class can get off the subject at hand. Mrs. Thompson was willing to take that risk, even though it meant consuming considerable temporal resources.

Mrs. Thompson's class utilized material resources from a variety of sources, the classroom, the library media center, and in another instance, the public library. Her consistent argument for the use of a variety of media stemmed from the fact that she needed multiple sources to augment what she considered to be an inadequate textbook.

On this occasion the classroom teacher interacted with the library media specialist in order to extend the coverage provided by the resources available in the classroom. In the classroom the material resources used were not always books. Mrs. Thompson used several learning centers for her social studies classes. Students could
work independently and at their own pace in retrieving information from various sources. However, the long range goal was to be preparation for assessment. On one occasion, the teacher divided the entire class into pairs of students who quizzed each other with sample test questions taken from the textbook. When the classroom teacher interacts with the library media specialist in order to secure additional resources for his or her students, the fact that students would be held accountable for the contents of these resources is always a distinct possibility.

Reading Aloud

Although the students used other resources from time to time in the social studies class, the textbook was still their prime source of information. Often the discussion strategy became the read and discuss approach. The teacher would direct a student to start reading at a certain place in the textbook. The student would continue reading for several paragraphs until the teacher selected another student. Occasionally, the teacher would stop the reader in order to elaborate upon something he or she had just read or to ask a question. Questions and answers were thus
the heart of the discussion method. Such a question was one which Mr. Cooper posed to Brenda one day during a lesson. "What have we talked about so far? Sum it up in your own words. What information did Sharon and Sally give us from this textbook?"

At the end of a lesson Mr. Cooper might give the students a ditto exercise sheet. It usually asked for information that they could obtain from the textbook. When temporal resources were in short supply, the classroom teacher could easily utilize a technique known as "catching up time." The textbook was used to the exclusion of all other materials until the time was available for the "luxury" of using additional resources again. When the textbook becomes the sole source of information, there is little reason for interaction between the classroom teacher and the library media specialist, at least in regards to the subject matter under consideration.

Mr. Cooper began one lesson with a question, "Who can tell me what is meant by a port?" He wrote the word on the chalkboard. The replies from the students exhibited the existence of a variety of uses for the word, such as airport. Mr. Cooper pulled down the U.S. map and pointed out to his students the location of Midland. He next indicated to them the location of the nearest port on Lake
Fulton. He wrote the definition of a port on the chalkboard and then proceeded to link this introduction to the social studies lesson at hand.

The lesson was about the Louisiana Territory, another term which Mr. Cooper wrote on the chalkboard. As the lesson continued, he wrote other terms and names on the board. This occurred both before and while the class read from the textbook. At the end of the lesson, Mr. Cooper distributed a ditto sheet to each student. Their assignment was to find the answers in their textbooks for the questions on the sheet. Mr. Cooper told the students that they would be reading for information.

The writing of terms on the chalkboard during this lesson in itself seemed somewhat insignificant. At least the use made of them during this particular lesson was not extensive. Once written there, the terms were no longer referred to. But there existed the potential that these key words could be used as the launching pads for further investigations by the students. And such phenomena did occur in Mr. Cooper's classroom. The writing of key words on the chalkboard can be considered as the occurrence of "important stuff" in the context of an information retrieval potential.
The researcher had been provided a copy of the fifth grade reader. Looking through its table of contents, he noticed several chapter headings that had the ring of information retrieval skills: the encyclopedia, the index, the outline and others. While information retrieval skills instruction will be treated in greater depth in a later section of this chapter, it should be noted here that it was this aspect of reading which first attracted the attention of the investigator.

Syllabus

The researcher had accessible to him a copy of only one of several fifth grade readers. The reading series used by Midland Elementary School was published by Houghton-Mifflin and consists of several levels, with names for each level, such as Passports, Medley, Keystone and Impressions. When the school year began, all of Mr. Cooper's students were using the Medley reader. But Mr. Cooper's reading class did not consist of just his home room students. The entire fifth grade was divided into three reading classes according to ability level.
Mr. Cooper taught the most advanced students, Mr. Jones had those of average ability and Mrs. Thompason had the slow learners.

The material resources for the reading program consisted of more than just the basal reader which had been given to the researcher for his perusal. In addition to the reader, students had access to a practice workbook. The teacher had at his or her disposal a manual, a reference handbook, a bonus workbook and a test booklet. The basal reader contained skill lessons, such as had attracted the researcher’s attention, sandwiched in between the stories and poems which made up the heart of the program. The practice book consisted of exercises designed to facilitate the comprehension and learning of the skill lessons. Mr. Cooper used the practice book as a source for pretests which allowed him to assess student entry abilities. Other classroom teachers used the practice books for homework assignments, as practice activities or as independent work for students.

The teacher’s guide provided for a specific instructional sequence which the classroom teacher was to follow. For a reading lesson the sequence differed from that of a skill lesson. The teaching of a typical reading lesson began with the preparation of the students for the
reading of the selection, whether it be story, poem or play. Next, the students were expected to read and discuss the selection. As with social studies, the discussion method was the main instructional strategy employed by the classroom teacher. Following the discussion, the teacher had the option of pre-assessing the ability of his students prior to beginning the skill lesson that followed the story. If the students showed proficiency for the skill lesson, the teacher would skip it. If not, instruction in it followed, together with application in the practice workbook. A post-assessment test could follow to indicate the need for reteaching or for advancing to the next unit. Teachers did not always follow these steps in their carefully orchestrated sequence.

The characterization of a self-contained reading program makes little provision for interaction between the classroom teacher and the library media specialist. The literary excerpts to be read by students come from a single reader and not from a variety of sources as the case would be if the library media center was used as the only source for reading instruction. The use of anthologies persists at grades much higher than the fifth and the argument that students make their own selections is lost to the appeal for uniformity.
Mr. Cooper called his three reading groups Red, White and Blue. On a typical day he would start the class with the following assignments. The White group, bringing their readers and workbooks, would form a reading group at the back of the room around the work table. These students would grade the answers to a skill lesson and then return to their seats for silent reading. The Blue group would start the day either reading silently or working in their practice books. Later, they would gather around the work table to grade their practice books. The White group started day preparing for the reading and the discussion of a poem. When Mr. Cooper was finished with all three groups, students were instructed to return to their seats and to read the next story.

Thus far, information retrieval behaviors in reading have consisted of events related to reading and discussing the meaning of a story, poem, play or skill lesson. To do so involved the careful orchestration of all resources involved. What can be easily overlooked is the manipulation of spatial resources. A paperback book stand was conveniently located to one side of Mr. Cooper's classroom to serve as a source of materials for silent
reading. The work table was located at the rear of the room where students could gather to interact as small groups along with their classroom teacher.

Students in Mr. Cooper's room had two choices of materials to be read silently during reading class. A book could be selected from the paperback rack or students could read a book from the library media center. Arrangements for the latter option result from interaction between the classroom teacher and the library media specialist.

Reading Silently and Aloud

All three fifth grade teachers encouraged silent reading. According to them, it was the best way for students to gain new information. Mr. Cooper had an impressive list of one hundred ways to do a book report, a list he used quite frequently. Most of the ways for preparing a book report, according to Mr. Cooper's list, were written ones, but his list also included suggestions on how to develop dramatic, oral, and arts and crafts activities to replace the usual written report. Mr. Cooper spent considerable time reviewing the list with his reading students, whom he encouraged to select an activity for one or more books that they were or had just completed reading.
This exercise enabled them to reinforce through writing the information that they had gained by reading the book.

During a reading class, Edward had learned about another story, Gentle Ben, similar to the one in the basal reader. Immediately after the reading class was over, he obtained a pass to go to the library media center where he located the book. Naturally, he was interested in preparing a book report on this title. He decided to write a letter to the author telling him why he liked his book. Other students had their own techniques for selecting a book for a book report. Very often they simply chose the book that they happened to be reading at that moment. About a week later Mr. Cooper would call each student who had prepared a report to his work table, where the student would read his or her assignment to the teacher.

Each of the three fifth grade classroom teachers arranged his or her schedules so as to have time to read aloud to his or her students. The book that Mr. Jones was reading had already been read by several of his students who took delight in cueing in the other students as to what was going to happen next. Mrs. Thompson was reading a book to her students that had been recommended by Miss Lashley, the library media specialist.
Mr. Cooper preferred to read to his class after recess. On Wednesdays there was a short period of time between the end of recess and the scheduled visit to the library media center; he used that time for reading aloud to his pupils. On one occasion he was reading a mystery story entitled, *Mystery of the Three Mile House,* to his students. On the paperback rack in the classroom there were five other copies of the story. Soon there was a scramble for these other copies. Like the students in Mr. Jones' classroom, these students soon knew the ending before the rest of the class did. During the next visit to the library media center by Mr. Cooper's class, many of his students began looking for mysteries. Word got back to him about this from Miss Lashley, who had related that she had been "bombarded" with such requests. Fifth graders have a tendency to live moment by moment and that experience which was most recent was the one that motivated them to read.

At Midland Elementary School the interaction of a fifth grade teacher with the library media specialist through the agency of his or her students occurred more frequently in regards to reading than with any other mode of communication. And while the student could utilize the skill of reading the captions on a filmstrip, more often than not reading meant the reading of a book.
Students need to interact with more knowledge than can be made available in the classroom through either reading, lecture or discussion. These activities lead to the quest for further information when students have to seek it out on their own in the library media center. The classroom teacher interacts with the library media specialist in ways that promote the access of students to information. For the student this information means the expansion of existing knowledge or the establishment of totally new categories of understanding.

The library media specialist served in the capacity of a curriculum consultant when she recommended a book for Mrs. Thompson to read to her students. And, as often is the case, reading led to more reading. For Mr. Cooper's students further reading meant the reading of mysteries. The interest of these students in finding mysteries in the library media center was at such a high level of intensity that Miss Lashley decided to inform Mr. Cooper of its occurrence. This interaction between library media specialist and classroom teacher did not appear to involve the need for any action to be taken that would encourage or discourage similar reactions in the future by students visiting the library media center. For Miss Lashley, such displays of motivation by students was probably most welcome. The situation called for a response on her part.
She needed to direct students to where they mysteries were located in the library media center either by pointing directly to them or by encouraging the students to consult the card catalog. The use of the latter option by students points towards how the interaction of the classroom teacher with the library media specialist can lead to the need for instruction in the library media skill of information retrieval.

SCIENCE

Information is a basic aspect of science and thus it was to be expected that even in a fifth grade science class there would be opportunities for information retrieval. Additional information was important on those occasions when the classroom teacher deemed the textbook to be inadequate for the lesson at hand.

Supplemental Information

Mrs. Thompson's students had just finished the chapter in the science textbook on cells. Her students were going to be tested over the material on the next day. They had
completed all of the experiments suggested in the textbook. That in itself had taken a great deal of time. They had had to use an encyclopedia on several occasions. However, there had been many unanswered questions raised by the students. Mrs. Thompson had been trying to explain to her class about protoplasm and the stoma. The diagram in the textbook was inadequate, at least for these topics. The encyclopedia in the classroom was of little help. The conclusion was, "We should have gone and gotten a book in the library media center."

Robert Hooke's name had come to the attention of Mr. Cooper's students during a reading skills lesson. Since it was a reading class, only a few of Mr. Cooper's students had this information. He now wanted to use Robert Hooke as the introduction to a science lesson on the microscope. He asked Matthew, not a member of his reading class, who Hooke was. Matthew correctly identified him as the inventor of the microscope.

Two different kinds of information are demonstrated in these two illustrations. In the former, the class sought information to verify what they had previously learned. Mrs. Thompson's students wanted an additional diagram of the cell to verify what they already knew. In Mr. Cooper's class, most of the students did not know who was Robert
Hooke. They were looking for information that was different from what they already knew. These two information retrieval strategies are labelled verification and differentiation.

Information between the classroom teacher and the library media specialist varies in scope according to whether the need for information is for purposes of verification or differentiation, although this difference is one of degree rather than of kind. When, as a result of classroom teacher instruction, students have a maximal awareness of the nature of an information retrieval potential, there is minimal need for the assistance of the library media specialist during the information search in the library media center.

Use of Media

Mr. Cooper began the lesson on gravity by reading from the textbook. He then provided the following information for his students. "We can talk about the earth being round like this globe." As he spoke he removed an old globe from a shelf and demonstrated the likeness of earth and globe to the class. A discussion of gravity ensued. Matthew asked, "If the earth has gravitation, how come birds fly?"
Mr. Cooper's answer was another question, "Why does the moon stay out there?" Other pupils raised their hands in order to ask numerous questions. As Mr. Cooper drew a diagram of an airplane on the chalkboard, he explained why an airplane can fly. Many examples of gravity followed, with more questions and further discussion.

Science lessons provide ample opportunity for students to manipulate and sense artifacts. The previous illustration involving Robert Hooke was followed by a hands on experiment with microscopes and slides. The discussion on gravity was followed by a lesson on measuring volume in which students had to handle various objects. At a later time in the school year, Mr. Cooper wanted to conduct an experiment using a balance scale. Since the school could not afford to buy a set of scales, this effort was hampered.

A perennial concern of the classroom teacher is having the appropriate equipment available for use in the classroom as needed to support his or her instructional strategies. An additional illustration to the one given here is the earlier one regarding Mr. Jones' need for filmstrip projectors to support student reports on colonial life. The fact that the library media specialist did not have sufficient equipment to support Mr. Cooper's science
lesson in this present instance highlights the importance of the interaction between the classroom teacher and the library media specialist for securing additional equipment and, on other occasions, media themselves.

Key Words

During the lesson on gravity and during the ensuing one on weight, Mr. Cooper used the chalkboard frequently. He wrote down certain words, such as matter, mass, grams and weight. At the same time he gave definitions for these terms and students were encouraged to copy down these key words along with their definitions on note paper. It will be remembered that this kind of activity also occurred in a social studies class. A primary purpose was to point out to the students what were the key ideas of a lesson. By leaving these words on the chalkboard, the teacher provided continuity from one lesson to another. To be discussed later is the concept that key words can form the basis for searching for further information.
Health, like science, provides numerous information retrieval potentials.

Equipment

One morning before school began, Mr. Jones stopped the researcher and showed him a ditto sheet of the outer, middle and inner ears. Mr. Jones told the investigator that he was going to present the ditto to his health class as preparation for an exam. He had photocopied the picture of the ear from the textbook and from the photocopy had prepared the ditto. His intention was to have his students color the different parts and to label them. As Mr. Jones continued the conversation, he explained that he had four options. First, he could project the picture from the opaque projector onto the chalkboard where he would use colored chalk to outline the appropriate parts. Secondly, he could use a transparency with the overhead projector. Thirdly, he could use the opaque projector with the ditto. Finally, he could just distribute the dittos as handouts. He decided to go with the third option.
That afternoon Ted rolled in the opaque projector and Mr. Jones told him where to place it. Mr. Jones made sure that each student had a copy of the handout. He called out the names of different parts of the ear and in turn each student he selected came to the chalkboard and pointed out its proper location. Next students labelled and colored while Mr. Jones moved around the classroom helping individual students as needed. He constantly referred to the previous day's discussion that had been based on the health textbook, *Health and Growth*. When the students were finished labelling and coloring, Mr. Jones instructed them to open their textbooks and check for spelling and accuracy. Their test would be on Friday.

The above summary of a classroom experience illustrates various arrangements of human, material, temporal and spatial resources for the intention of facilitating learning. The classroom teacher had almost exclusive control over the learning environment and, along with the textbook, arranged for the instructional strategies to be employed. As preparation for an examination was crucial, material resources and the timing of the lesson had important roles to play. The main instructional strategy used was the presenting or initiating of information. There were no opportunities for discussion nor for questions. The teacher's stance was
expository and the student option was either to respond or not. An opaque projector has limitations and students had no other choice than to observe carefully what it projected. Spatial resources reflected the movement of students to and from the front of the classroom, where they were expected to identify a part of the ear. Learning was largely intellectual and verbal, though students may have developed some motor skills through coloring the handout.

This instance of instruction on the part of the classroom teacher is an example of the lack of interaction with the library media specialist in a setting when such interaction might have been useful. An overhead projector would have been available for projecting the image of the ear. The decision to use an overhead projector would have necessitated the preparation of one or more transparencies. The classroom teacher chose to follow his own judgment and did not seek to take advantage of his professional relationship with the library media specialist.
At noon one day during the latter half of November, Mr. Jones told the researcher that he was having a difficult day. The researcher was planning to visit Mr. Jones' health class that afternoon. A week previous the teacher had given to his students an assignment which included their presenting reports on the five senses. The three fifth grade classes shared a single set of health textbooks. Two of Mr. Jones' students had been sent to get these when the investigator entered the classroom.

As Mr. Jones went down his list, he called out the names of students and the topics of their reports. He asked for a show of hands of those who had not completed their assignments. Eight or nine students, about a third of the class, raised their hands. Mr. Jones was embarrassed. He turned to the researcher and said, "You wonder why a teacher doesn't involve more materials." He went on to say that his students had been given a full week to work on their assignment. He said that this was the last time that his students would do a project such as this one. They would "stick to the book." It was too much responsibility for his students to gather verificational or differential information.
When Sam, the first student to make a presentation to the rest of the class, had finished reading his report, Mr. Jones asked him where he had obtained his information. Sam replied that he had taken it from the textbook. When Mr. Jones asked him if he had used an encyclopedia at all, his reply was, "Sort of." Not all of the reports were read aloud. Two of the students had developed word games and they were distributed as dittos to the rest of the class.

A survey was made of five of the reports. Two students relied upon the classroom encyclopedia as their exclusive source of information. One student used only the textbook. Of the remaining two students, one used an encyclopedia at the public library and the other a resource from home. Two of these same students had copied their reports word-for-word from their sources. Two other students did some copying, with the rest of their reports being written in their own words. Only one student read from a source, gathered the necessary information and then wrote the entire report using his own phraseology.

Plagiarism can be an issue in the elementary school. By the fifth grade, students are beginning to develop their own unique ideas and the ability to convey these naturally. In order to do so, they must be taught how to select an information source and then to glean from it what is and
what is not important, relating this information to the assigned task. Classroom teachers need to make clear in advance that students write about their own reactions to the information that they have gathered.

When a student copies word-for-word from an information source, he or she is bypassing the need to rearrange the material resources that he or she has collected. One can only surmise as to the reasons for this attempt to short circuit a responsible assignment. Intellectual ability is probably one factor that must be considered. Lack of desire to prepare a report in one's own words can be due to the extra time that it takes to accomplish that task.

Mr. Jones had carefully arranged a situation in which students would have an opportunity to work with various sources of information. His frustration with those students who did not complete their assignments on time goes deeper than the temporal aspect of the situation. Because of one broad generalization, he decided to discontinue all use of media materials other than the textbook. The use of "catching up time," by focusing exclusively upon the textbook, can save considerable time and effort. Classroom teachers often express the feeling that using media is something extra, something supplemental
to the use of the textbook. In this case Mr. Jones' opinion was that most media were dispensable.

Two issues relating to the interaction between the classroom teacher and the library media specialist are illustrated by this example of classroom instruction. First, none of the resources used by the students for their reports came from the library media center. Had communication channels between Mr. Jones and Miss Lashley been operating effectively, a richer source of materials would have been available to them than the ones they actually used.

The second issue, one relating to plagiarism, is less clear-cut as an example illustrating the benefits of classroom teacher and library media specialist interaction. Miss Lashley did not become involved in the writing of reports by the students. She did at a later date, however, have a project that involved notetaking. It will be demonstrated below that selecting key words through notetaking may facilitate student writing of reports.
During a lesson on the skin, Mr. Cooper was bombarded with numerous questions by his students. When they turned to their textbooks, they found many of these questions answered. Other questions Mr. Cooper was able to answer himself. Some of the questions were, "Does the skin have any thing to do with paralysis?" or "Do people have thin skin?" Mr. Cooper recognized these as information retrieval potentials. Since he did not have all the answers, he had several suggestions for his students. "I think we will have to talk to a doctor or a nurse." "Maybe the librarian could help us." When someone knowledgeable is approached for information, one is relying upon an expert. It is incumbent upon the classroom teacher to facilitate interaction between his or her students and the experts.

LANGUAGE ARTS

Games are important in the fifth grade. Games were in the front of the spelling book, a new game for each week. Baseball, appropriate for any subject, was best for math. The same was true for football and basketball. An eraser and a trash can were suitable pieces of equipment for
playing basketball. The class played football with a field fastened to the bulletin board with two teams moving their paper footballs up and down the field according to the number of points each student won. Spelling football was very popular. Since language arts was not a very popular subject, this game helped generate interest. There were other games that could be played during the spelling lesson, Hangman, Wordo and Bingo for example. Another source for games to be played in the classroom was the Apple II computer.

Language arts is not a subject that is likely to send students to the library to locate information other than in a dictionary. Nevertheless, it does involve a specialized information of its own. In order to successfully teach this subject, the teacher must carefully arrange the resources that are available so as to create interest. Additional games are often available in the library media center. Sometimes computers are available from there as well. At Midland Elementary School the Apple II computers rotated from classroom to classroom with the interaction being between teachers and not with the library media specialist. At this school the resident computer "expert" was a fourth grade classroom teacher and not the library media specialist. Playing games helps generate a positive attitude towards spelling and the language arts in general.
SUMMARY

While the teacher arranges most instruction for information retrieval in the classroom, students have opportunities for independent activities. The most important material resource is the textbook, but many different media formats are used both to verify what is said in the textbook and to provide learning experiences different from what is available in the textbook. Time is a critical factor in the use of media, and for this reason they are often neglected. The way materials are stored in the classroom highlights the importance of the spatial aspects of learning. A large variety of media formats are obtainable in the classroom and the library media center.

Discussion is the most frequently used instructional strategy in the classroom. This strategy includes opportunities for questions and answers. Often the classroom teacher assumes the role of furnishing verbal information to students. Presentations of this nature are scattered throughout the lesson and the researcher observed few occasions of extended lecture. A form of lecture is the reading aloud from the textbook.
Sending students to the library media center for information does occur, but not frequently. As will be seen, the scheduled visit to the library media center controls the frequency of visits from the classroom. When the teacher did not have the answer to a question, the teacher would refer the student to the library media specialist or another expert. Key words, often written on the chalkboard, helped to prepare students for a visit to the library media center. Placing key words on the chalkboard enabled the classroom teacher to coordinate the dialect of the classroom with that of the library media center. In the library, students were often seen in need of assistance for retrieving information. When these situations occurred, as will be demonstrated later, the classroom teacher or the library media specialist would screen out any influences that might hinder a successful search.

Student information retrieval behaviors included observing, reading and listening. When students had answers to questions, they would raise their hands. They learned to write reports and to carry out extended projects. To do so involved selecting what was important and to omit other information. A later section contains an explanation as to how these information retrieval behaviors, with instructional assistance, took root and
became information retrieval skills that would remain indefinitely in the student's arsenal of information retrieval strategies.

LIBRARY MEDIA CENTER

In the library media center information retrieval behaviors and library media skills instruction are inextricably bound together. The existence of "natural" information retrieval behaviors that occur without any library media skills instruction is suspect. Yet, since information retrieval activities occurred in the library media center at Midland Elementary School for nearly four months before library media skills instruction began, it will be useful to examine the information retrieval activities that took place in the absence of formal instruction. As was explained in the section on information retrieval behaviors in the classroom, the genesis of library media skills instruction is to be found in the daily information retrieval activities in the library media center.
If a student comes to the library media center while Miss Lashley is teaching another class, he or she is, of course, unsupervised. If the student comes when there is a free or a work period, he or she can expect assistance from the library media specialist. Miss Lashley's first step is to ask the student what information he or she is seeking, what the situation is, and what problem is to be solved. Based upon this information, she is able to decide whether the student can him or herself find the information easily or whether he or she will need considerable help from the library media specialist.

If it is a question which the student can handle, Miss Lashley might suggest that the student consult the card catalog, or a dictionary or even an encyclopedia. Miss Lashley gives the student a general direction to follow and then turns to help someone else. If it is a situation or a problem of which she herself is unsure, the library media specialist and student become partners in the search.

Together Miss Lashley and the student would tackle the reference works in the library media center. Indexes and almanacs become sources to consult. Miss Lashley, however, does not actually find the answer for the student. She has on occasion looked up the answer when a student claimed to be stuck, but she leaves it to the same student to find the
answer to the problem again without further assistance. Miss Lashley believes that students have more enjoyment in searching for information if they can do it themselves.

The main difficulty that students have in their searches is in narrowing down their actual question to one that is sufficiently restricted. In structuring their questions students need to coordinate, or match, the dialect used in the classroom with the dialect used in the library media center, particularly with the dialect of the card catalog system. Miss Lashley, in this regard, shared with the researcher her strategy in working with a group of students who were looking for information on the Louisiana Purchase. "They might have that particular question and I would have to say to them, 'All right, now, what area are you talking about?' Then they get to the Louisiana bit. We use that. I always tell them we have to touch base, we have to come up with the general area for the information they want and from there, once they know that, it is a starting point. That's the key and I say, 'All right, this is the area. Now go look in this direction.'"

Most students come to the library media center with a specific interest already in mind. The most common statement made to the library media specialist is "Do you have such and such information?" Miss Lashley has stated
that nine times out of ten, students would not look for a
specific book, as they might in a college or university,
but for materials on a specific subject. "Do you have any
horse stories?" "Do you have any ghost stories?" "Do you
have any football books?" Younger students, those below the
fifth grade, would often go directly to the shelves looking
for whatever appealed to them. Although Miss Lashley often
tried to direct these students toward some particular
subject, they would usually just be pulling things off the
shelves, looking at the covers and leafing through the
pages until they found what they were looking for. Older
students, including many fifth graders, according to Miss
Lashley, were more oriented towards a subject search.

Though students might not have realized it, their
quests for information were subject based. Actually, there
might have been two or three subjects. Miss Lashley's task
was to help each student narrow down his or her search to
the actual subject he or she really wanted to pursue. Miss
Lashley had to help the students discover the most
inclusive subject which would provide the information
closest to what he or she needed for his or her classroom
assignment, if such was the case. Miss Lashley stated that
there were three ways to touch base. These were the three
kinds of headings in the card catalog, author, title and
subject. She did not include the Dewey call number as a
separate category because it was her contention that the call number was inextricably tied to the subject matter. "They have to play the game. They are detectives. They have to look for the clues. Look for the clues within their original question. And that's how they bring it about. But there's lots of clues. It's too large an area when it is like that. You have to narrow it down. And so that's the first step. They go to find out the key word that they need and, then, to find the information."

It is impossible to separate the information retrieval activities of the classroom from those that go on in the library media center. Such activities are generated in the classroom, but soon spill over into the library media center. To meet these "challenges", the library media specialist puts into use several instructional strategies that have already been mentioned. Techniques such as "referencing," "coordinating," "screening," "touching base" and "springboarding" are strategies used by the library media specialist to aid the student in translating his or her information need into an individualized search strategy.

"Referencing" occurs when the library media specialist directs the attention of a pupil or group of pupils to an aspect of the information retrieval system that would
assist one or more of them in retrieving pertinent information. "Screening" occurs when the library media specialist performs part of the information search for the pupil so as to help guarantee the success of the endeavor. "Referencing" is a type of "screening" and often the library media specialist will lead the student to the item that might prove to be useful to him or her.

The dialect used in the classroom usually differs from that used in the library media center, particularly from that employed by the card catalog system. To bridge this gap the library media specialist provides for a coordination between the two contexts. When the students were looking unsuccessfully under "Revolutionary War" in the card catalog, and Miss Lashley directed them to "United States—History—Revolutionary War," coordination between the dialect of the classroom and the dialect of the library media center was taking place.

Fifth graders continue to develop a facility for using the card catalog. When they are able to translate an information need into one or more headings employed by the card catalog, they are said to have "touched base." If their search continues along the line of using subject headings, they can be said to be "springboarding."
These are the basic approaches used by the library media specialist in dealing with information retrieval activities in the library media center. They were discovered as a result of the observation of information retrieval behaviors at Midland Elementary School. A later section will discuss the methods by which the library media specialist instructs students specifically in the development of information retrieval skills. The former skills, "coordinating," "touching base" and "springboarding," are learned in the context of actual information searches. The task now is to address the issue of how students learn information retrieval skills through an actual curriculum of "library instruction."

SUMMARY

An analysis of information retrieval activities in the classroom and the library media center was made in this section. A study of these two locations revealed how the behaviors of the classroom teacher, library media specialist and student promote the retrieval of information. While leaving a precise statement about the interaction between these principals for later theoretical consideration, it is important here to delineate the
general pattern that has emerged.

The classroom context generates concepts and ideas regarding the universe of knowledge as presented in the curriculum. The classroom teacher shapes this intellectual development through his or her own instructional strategies. However, it appears at this point that the classroom teacher does not interact directly with the library media specialist in order to foster the search for additional information in the library media center. Rather, the interaction is indirect. It is indirect in the sense that the classroom teacher's instructional content is absorbed by students through information processing abilities only to be released later through the information retrieval activities offered by the library media center. The classroom teacher does interact intermittently with the library media specialist. When this occurs, the behavior of the library media specialist towards students seeking information is correspondingly modified.
HIDDEN CURRICULUM: LIBRARY MEDIA SKILLS INSTRUCTION IN THE CLASSROOM

How can the planning for, instruction in and evaluation of the library media skill of information retrieval by the classroom teacher be characterized?

Information retrieval skills in the classroom are developed through the use of two different instructional strategies. Information retrieval and the various subject areas were part of the discussion earlier in this chapter. One of the byproducts of the information retrieval activities is the learning of cognitive strategies that can govern student performance in subsequent information retrieval endeavors. The other approach to developing information retrieval skills, formal library media skills instruction, is stimulated through the use of instructional strategies by the classroom teacher to train students in the methodology of information retrieval.

Unfortunately, this is not what usually happens. Information retrieval skills instruction often becomes the responsibility of the library media specialist. This does not mean that opportunities to engage in information retrieval skills instruction does not occur frequently in the classroom. When it does occur an “information
retrieval skills potential" is said to have occurred. This section deals with how classroom teachers at Midland Elementary School handled information retrieval skills potentials.

CHALLENGING

Mr. Cooper had his own unique sense of humor. One information retrieval project was actually the result of a joke in the teachers' lounge. One of the teachers in the lounge had mentioned that a Friday the thirteenth was coming up soon. Mr. Cooper responded by stating that he could never understand why, unlike the rabbit's foot, that Fridays the thirteenth were considered so unlucky. He said that somewhere in the school building there ought to be the information to answer this question. When, back in the classroom, he gave an assignment to his students to explore this question, they all started to walk out the room in the direction of the library media center. Mr. Cooper said that they could wait for their scheduled visit to the library on Wednesday. The reward for finding the answer would be twenty minutes of free time.
Mr. Cooper accompanied his students, a rare event, to the library. After announcing the search to Miss Lashley, Mr. Cooper left the room. Brenda went almost immediately to the card catalog to look under the heading, "Numbers." She quickly retrieved a book entitled, Number Lore, but it did not contain the answer she anticipated. One student, Cathy, went looking for items on "murder." She thought that had something to do with Friday the thirteenth. A group of students used the word "superstition" as their guide. Finally, there was a cry, "I found it!" and the winner was declared.

This was not the last time Mr. Cooper challenged his pupils to find answers to questions. Another "challenge" related to the human sense of taste. "Can you lose one variety of taste and still maintain the others?" Instead of consulting the library, the winner in this case interviewed a nurse to find the answer. A further stimulating assignment was about the alignment of the planets. "What is going to happen on March 10, 1982?" The answer came after a phone call to the head of the astronomy department at a nearby university.

The common denominator of these "challenges" is that they come on the spur of the moment and do not result from a lesson plan. Sometimes the information desired is
related to the instruction going on in the classroom at the
time an information retrieval potential arises. Students
consult printed materials or they may ask an expert. If
they are looking in the library media center, as in the
case with Friday the thirteenth, they are creating a need
to formulate a search strategy. The formulation of a
search strategy is what turns this experience into library
media skills instruction.

In a "challenge" the interaction of the classroom
teacher and the library media specialist begins with the
classroom teacher informing his or her colleague of the
impending search by his or her students. Although a last
minute warning of an impending visit does not facilitate
careful planning on the part of the library media
specialist, he or she is able to make the experience in the
library media center a learning one by availing him or
herself of the various information retrieval skills at his
or her disposal.
It is not easy to make a distinction between "challenging" students to use the library media center and "referring" them to the center for a search activity. The main difference is that a challenge is often a spur of the moment assignment while a referral is the result of a more carefully planned instructional strategy. They both involve student searches for information.

A series of events took place in Mr. Cooper's social studies class that had considerable influence on the use of materials by his students. One morning, his class was discussing Patrick Henry and the War for Independence. Ben raised his hand to ask the teacher this question, "How do we know all those things about Patrick Henry?" Mr. Cooper gave a nondescript reply and it seemed that the issue ended then. But that evening he gave it considerable thought.

The next morning Ben was hanging around Mr. Cooper's desk as so many of his students were accustomed to do. Mr. Cooper spoke first, "Yesterday, Ben asked me a question, 'How do we know those things that we talked about in social studies?' and I didn't realize what a smart question that was until later last night when I was thinking about what we did yesterday." He went on to state
that each student should remember that query, "how do we know those things from the past?" He called it an excellent question. Later he would describe it as brilliant. Richard was a little nonplussed with this personal positive judgment by his teacher. The researcher can still remember the electricity that was in the air that morning.

Mr. Cooper turned to the other students in the classroom and initiated a short social studies lesson, even though one had not been scheduled for that time period. He asked his students what people, three hundred years from then, would know about them. What evidence would they as students leave behind. The students volunteered several items: diaries, records, coins, documents, tools, weapons, photographs and various kinds of writing. Mr. Cooper called them artifacts. He flourished a copy of the Declaration of Independence. After some cursory remarks about its significance, Mr. Cooper challenged his students to guess as to how he had come by his copy of the Declaration. Clarence said that somebody had printed it. Mr. Cooper then wanted to know where such items were stored.

Paul: In Congress.
Cooper: Where else?
Dirk: In books.
Cooper: Where do we keep books?
Daniel: In the library!

There was a spillover in the social studies class from Ben's "brilliant" idea to the class's study of the Revolutionary War. Perhaps inspired by the notion of artifacts, Mr. Cooper and several of his students decided to use the library media center visit to locate books containing pictures of the Revolutionary War. Daniel, looking in the index of a science encyclopedia, found the word revolution. Fortunately, Miss Lashley was on hand to explain to him that a revolution to a scientist was different from what was meant by the Revolutionary War. She found a book for him entitled, *Two Centuries of War* 1776-1976. Other students consulted the card catalog, but found nothing under "Revolutionary." Miss Lashley explained to them that items on the Revolutionary War were cataloged under the heading, "United States—History—Revolutionary War." She also explained to them that they could find further materials in the stacks under the number "973.3."

Mr. Cooper's class emptied the library media center of books on the Revolutionary War. Mr. Cooper had had no time to warn Miss Lashley of the coming "invasion." If she had
known in advance, she would have put into effect her reserve policy so that the materials would not leave the library media center and thus all other classes could have had access to them as well.

Ben's special idea did not in itself involve the retrieval of information. What it did was to develop a positive attitude towards media and their retrieval. Mr. Cooper rather carefully developed an instructional strategy which allowed his students to progress from motivation to the act of searching in the library media center. He did so by furnishing them with information regarding the storage of artifacts in museums and of writings in libraries. What remained was to tie this in with the lesson on the Revolutionary War, and thus came the initiation of an information retrieval experience.

The presence of Miss Lashley in the library media center was what allowed an information retrieval activity to develop into a skills lesson. She employed several strategies for doing this. She helped Daniel coordinate his dialect in a way that would allow him to look elsewhere than into a science book for information on the Revolutionary War. She performed a reference function when she located a specific book for him. This was a type of "screening" in which she enabled the student to bypass the
usual methods for locating holdings in the library media center. She performed another coordination service by helping a group of students see that the card catalog had a dialect of its own, quite different from that used in the classroom. She would be building upon skills that the students had learned through library media skills instruction in previous years. Although the setting was not an instructional one in and of itself, by enabling students to improve their skills, it had become one. The use of the card catalog was referred to by Miss Lashley as "touching base." Using a subject heading such as "United States--History--Revolutionary War" is called "springboarding."

OUTLINING

The researcher at one point was curious to find out how students were able to determine what was, and was not, important in a piece of information. Operating on the surmise that it might have something to do with the skill of outlining, he attended one of Mr. Cooper's classes on that topic. In his introduction, Mr. Cooper asked his students to imagine that they had received an article to read and as an assignment the request to supply all the
Information possible from it. What was the first thing they would do? Ted volunteered that he would read the title. Mr. Cooper wrote this on the chalkboard and labelled it as step one. He asked Winona to tell him the next step. With a little prompting, she said that it was to think of a question that the article might answer. The title of the article under scrutiny was, "Kind of Meat We Eat," and the question which the class formulated was, "What are Those Kinds of Meat We Eat?"

The lesson continued with students volunteering the other steps needed until Mr. Cooper had the skeleton of an outline on the chalkboard. Main topics and subtopics came into place during class discussion. When Mr. Cooper's reading class had finished reviewing each step, he gave them an out of class assignment in their practice workbooks. The researcher wondered if main topics were not similar to other key words placed on the chalkboard in the past and which had led to information retrieval searches in the library media center. An opportunity came to discuss this matter with Mr. Cooper.

Mr. Cooper insisted that students got their information in many different ways. In each instance the process involved the students having to find an article or piece of media, then having to elicit specific information
from what they had found. Sometimes Mr. Cooper saw
students with the information having been handed to them,
with the task of further culling specific information from
it. Whether they had the information given to them, as in
the case of the outline, or whether they had to retrieve it
from the library media center, there still remained the
task of deciding what was important for their presentation.
Outlining was one way to decide what was important.
However, the teacher did have to consider the students'
levels of intellectual development.

Outlining exercises was not limited to the reading
class, where it was a skill lesson experience. Mr. Cooper
had his students make outlines of lessons in both social
studies and in health classes. One can surmise whether the
skill that the students had learned in reading translated
into proficiency in outlining for other classes. If this
were the case, an information retrieval skill, as a
cognitive strategy, can be said to have been learned.
Since this skill can facilitate the retrieval of
information in the library media center, outlining is an
example of a classroom instructional product that interacts
with the library media center program for information
retrieval skills instruction.
Closely related to outlining is the skill of notetaking. There were no lessons on notetaking in the reading skills program. Mr. Cooper's students learned how to take notes by practicing, doing so in their social studies class.

One day Mr. Cooper informed his students, "We're going to use the information in this chapter to help you learn how to take notes on the information that the chapter holds." Mr. Cooper followed the pattern established for outlining and had his students look for main headings and subheadings.

From these headings, the class formulated, and the body of the notes held, the answers to them. Mr. Cooper stressed that students' responses were to be in their own words. When the class was almost over, he made an assignment. He told his pupils to continue with their reading of the social studies textbook and to continue taking notes on what they had read. Further, he gave them a question to use as a guide for the exercise.
The above paragraphs describe how a classroom teacher adapted a study skill lesson on an information retrieval skill, outlining, into one that the class could use in another subject area. While taking notes, the students would be responsible for the arrangement of information. The material resource that they had to work with was their textbook. Their strategy was one of forming a hypothetical solicitation and then writing down the appropriate response. Students not only developed intellectual and verbal skills, they also made progress in the development of an overall cognitive strategy for deciding what was important in the information they were retrieving.

Classroom teacher instruction in notetaking facilitated student understanding of the organization of knowledge, an accomplishment which enabled more effective student interaction with the organization of media in the library media center.

TABLE OF CONTENTS

One means of access to information in a book is the table of contents. Mr. Jones had given his students a pre-assessment test on this skill the day before his presentation. He distributed a ditto which stated that
students should understand how to use the table of contents in order to locate the sections of a book that contained the information which they might be seeking. Mr. Jones, having already graded the test, knew the ability level of each student. The lesson began with Mr. Jones leading his reading students through an exercise on the use of the table of contents, using as an example one that was on another ditto.

The procedure was to have a student read a question which required him or her to indicate on what page or in what chapter the desired information was located. When the students had completed all eight questions, Mr. Jones had them place their grade at the top of the sheet. There followed a post-assessment test. It was similar in form to the pre-assessment test and the ditto lesson itself.

Mr. Jones' presentation was different from the one given by Mr. Cooper. In the latter instance Mr. Cooper provided an introduction to the study skill. An explanation set forth the importance of the table of contents. Mr. Jones merely followed through the skill lesson step-by-step. Nevertheless, the simplicity of the assignment for fifth grade students made the likelihood of the students' developing a useful information retrieval skill highly possible. Using the table of contents is a
further example of how the instruction of the classroom teacher interacts with that of the library media specialist. Using the table of contents for finding information in the library media center does not differ from its similar use in the classroom.

INDEXING

The closest thing to an experimental design for this study occurred with the study skill on the index. Mr. Cooper was quite depressed over the initial lesson he had presented to his students. The first time around he had let his students do the lesson by themselves. He told his students to study the lesson and to answer the questions without assistance. The scores were extremely low. His usual instructional strategy was to lead the class in reading and discussion. He decided to have his students go through the lesson again. This time he would be teaching the lesson to them. Then, without their seeing the corrections to their previous day's work, Mr. Cooper would have them redo the assignment. He could compare the results from using the two different teaching strategies. Although not a highly controlled experiment, the results would nevertheless be interesting.
Mr. Cooper began the second lesson with his usual personal reference. He made reference to his graduate studies and to how an index was essential when he searched for information. Mr. Cooper began to read slowly and carefully from the textbook. He stopped periodically for questions and further discussion. Students were given an opportunity to practice formulating key words that could be used in an index. They discussed what to do when they had to create a key word, since the question they were seeking to answer had none. Would the student have given up because it appeared that the book did not have information on the desired subject? Mr. Cooper then reviewed the entire lesson and asked the students to repeat the test they had taken the day before.

Most scores on the second day were lower than those on the first. Mr. Cooper's conclusion was that they were lazy. Perhaps a better answer would be the fact that the students had not learned how well they had performed on the first test before being examined over the same content for a second time.

The materials to be arranged in this lesson were all taken from the textbook or workbook. There was no attempt to furnish the students with actual books, even from the library media center, with which to practice this skill.
Students were learning an intellectual skill, but it is doubtful that they were developing a cognitive strategy that would facilitate a wide range of information retrieval activities. For this reason the interaction of classroom instruction on indexing with library media center instruction using actual media items will not lead to student achievement in information retrieval skills activities to the same degree as it would have with other skills.

CARD CATALOG

Howard was having difficulty with the skill lesson on the card catalog in his reading practice workbook. In the practice book, work was often independent of the progress the class was making in the basal reader. So Howard went to Mr. Cooper for assistance. The practice exercise had a list of numbered questions, and the assignment was to decide in which drawer of the pictured card catalog the answer for each respective question would be located.

Howard's task was to select out of the question the key word or words that he would use to select the appropriate drawer. The drawers were in alphabetical order. The problem was that each student had to guess what
the key word or words were without these words being explicitly stated as such. This was especially true in the case of a subject search. It was easy to look in the catalog under a title or an author. However, Howard's problem was with a title search. He did not realize that it was the first significant word in the title that was alphabetized.

A student once told the researcher that he, the student, hardly ever used the card catalog because he was never successful in the searches he made when using it. This is not to say that fifth graders are incapable of using the card catalog. The problem is having appropriate instruction in its use. The next section of this chapter will deal with the issue of library media skills instruction in the library media center.

Learning to use the card catalog from a practice book is similar to learning to use an index from the same instructional tool. It is doubtful that the interaction of classroom and library media center instruction for these two skills would lead to a conflicting relationship between the two approaches. However, it has yet to be proved that there is a positive correlation between instruction in the two skills in both learning environments.
Information retrieval skills instruction in the classroom lies more in the control of the classroom teacher as arranger than do the information retrieval activities discussed in the section entitled, "Information Retrieval Potential." When learning to retrieve information as a result of an actual encounter with such an experience, the student has little opportunity to examine the skill by itself. However, though the student can work independently on a skill lesson in his or her workbook, this exposure to the skill still does not provide the adequate "hands on" experience that he or she might find in the library media center.

Information retrieval skills instruction in the classroom does not provide the student with the variety of media formats that might be available for information retrieval in the library media center. This was certainly not the issue at Midland Elementary School since most instruction related to the use of the book.

A variety of instructional arrangements are accessible both to the classroom teacher for the instruction of information retrieval skills and to the student for his or her learning of the same skills. The teacher can
challlenge the student to find answers to questions that arise serendipitously in the course of instruction. The student may retrieve the answers him or herself, consult an expert or come up with no answer at all. In the latter case, the classroom teacher may refer the student to the library media specialist.

Outlining and notetaking are skills related to "keywording." Their use allows the student to extract the main topics out of a piece of information. This procedure facilitates the student's use of an index, a table of contents and even the card catalog. Practice in selecting main topics allows for training similar to that which occurs in the selection of subject headings in "springboarding."

The relationship between library media skills instruction in the classroom and that which goes on in the library media center is often coincidental. The teacher's main objective is to carry out the lesson plans that he has developed to make understandable to students the subject matter in the six main curricular areas. Most of the instructional strategies that are used by the classroom teacher and that facilitate the development of information retrieval skills, albeit inadvertently, are derived from the skill lessons of the reading program. Teachers and
students often complete such assignments without any real thought as to their relationship to the library media center and the library media specialist. Any interaction is usually unplanned.

But there is some transfer of learning. Students have been observed carrying out, in actual information retrieval situations, the same skills learned from the reading program. Further exploration of this relationship will need to await future research.

COURSE OF STUDY: LIBRARY MEDIA SKILLS INSTRUCTION IN THE LIBRARY MEDIA CENTER

How can the planning for, instruction in and evaluation of the library media skill of information retrieval by the library media specialist be characterized?

During the first half of the school year the library media specialist spends her time cataloging new materials that have arrived during the summer months. Her work also includes a full schedule of visits to the library media center for each class in Midland Elementary School. Since Miss Lashley, the library media specialist, keeps very busy during the first months of the school term, she delays
library media skills instruction until the second half of the year, actually until the middle of December.

Shortly before that time Miss Lashley prepares an outline for fifth grade library media skills instruction (Appendix A). The outline is based upon the library course of study adopted by the county school system. Although she has a prepared syllabus, Miss Lashley does not feel that she is committed to following it exactly as it is written.

Pretest

Miss Lashley relies upon a pretest (Appendix B) to shape her library media skills program. She selects questions from the previous year's test and organizes them as the first step in her instructional program. Miss Lashley has a two-fold purpose in giving the pretest. First, the pretest will tell her what information and skills the students have retained from the previous year's instruction. Second, the pretest lets her know those areas of library media skills instruction that she needs to stress with a particular class. What is necessary to emphasize varies from class to class. "I don't believe that just because you've got three fifth grade classes, that you have all three fifth grades at the same spot." She encourages
students to keep their graded pretests in a folder so that they can become worksheets for future library media skills instruction.

Although Miss Lashley has blocked out the different units that will be taught in her instructional program, it is the pretest which determines what specific activities will be presented to her students.

I organize it from the pretest. I now have all of the tally sheets from each of the pretests. On the weekend I take them home. I take home the course of study and the areas I need to cover from that, areas that they are weak in from the pretest. So I know which areas need only a review and those that need full depth of instruction. I take all my materials home and do a unit plan. I put down, for example, Dewey Decimal System and then I put down the activities that I will cover, whether they will be review-type activities or whether they will be instruction-type activities. I will have lecture-type activities, and other activities such as ditto search and finds and the activity cards. And I do that for each class. So that I have a total unit plan for each major area, Dewey Decimal System, Card Catalog, Areas of the Library and Reader's Guide to Periodical Literature. I'll have this all worked out this weekend, week by week, as I get to each unit.
Miss Lashley reviews the pretest with each fifth grade class three times. The first time is prior to the students’ taking the test and is aimed at making sure that they understand each question. The second time is when students are given an opportunity to correct the errors they have made. The final walk through is after Miss Lashley has tallied up the errors that students have made and lets them know how many students missed each item.

While the library media specialist is the arranger of the pretest activity, students become active arrangers of their own future library media skills instruction, because the areas which receive greater stress are determined according to how well the students do on the pretest. Miss Lashley, furthermore, arranges the setting of the pretest so that students will feel the least threatened when they are taking it. Going over each question before students are required to give answers, helps dispel some of the tension that predominates in testing situations and helps make certain that they clearly understand each question.

The year that the observer was at Midland Elementary School Miss Lashley included some questions which she expected the students to miss. She warned the students about these in advance and justified her using these difficult items by stating that they were questions which
would be answered later on in the instructional program. Considerable redundancy was built into the pretest, especially in the exercises relating to the Dewey Decimal class numbers. Apparently, this repetition did not distract the students. Perhaps this was so because a table listing all of the Dewey Class Numbers that they were to use was included. Students were encouraged to ask questions regarding anything that was unclear to them.

Several types of learning were evidenced by the pretest. The students had the most difficulty with the definitions on the first page because they required the recall of considerable verbal information. The scores in this section might have been higher if the questions had been in the format of a matching exercise rather than that of fill-in-the-blank. Intellectual skill was necessary to abstract a Dewey Class Number from the titles provided in the test. On the last page, almost the entire class missed the question that asked for the number of catalog cards that would be filed in the card catalog for the sample card given. This question required rather sophisticated abstract thinking. Various students evidenced trouble with this question later on in the library media skills program. All other questions for this section of the test required identification of the appropriate part on the card.
At the end of the pretest, Miss Lashley informed her students of the responsibility that was theirs. "You determine the length of instruction. I have the information. It's going to depend upon you how quickly you absorb the information." The classroom teacher did not have an opportunity to review the pretest either before or after the students took it.

Activity Cards

Most of the library media skills assignments that Miss Lashley made were to be done during specified time periods. This did not mean that the assignments were to be completed at the same rate. Activity Cards were an example of this flexibility. Miss Lashley kept a box of laminated cards for student use throughout the entire course of the library media skills instructional program. The box contained forty-eight cards concerning eleven different areas related to the instructional program in the library media center. Each card asked a question and students were to locate the answer in one of nine kinds of reference sources. Before the completion of library media skills instruction each student had to submit in writing his or her answers to five of these forty-eight questions.
Miss Lashley used the activity cards as part of her program because it gave students who finished their assignments early something to do until the end of class. This freed the library media specialist from unnecessary managerial duties and allowed her the freedom to walk among the students in the library media center, helping those students needing assistance with their assignments. Students received bonus points if they completed more than the required five activity cards. The classroom teacher was not informed of student participation in this activity.

Dewey Decimal System

Almost half of the time spent on library media skills instruction in the library media center was devoted to the Dewey Decimal System. Two out of the four pages of the pretest had been devoted to this topic. After entering the library media center, students in the fifth grade had twenty minutes in which to select their books. When this time was up, Miss Lashley gathered the pupils around her in one corner of the room and presented to them the library media skills lesson for that day.
The first lesson involved some simple logic and a little mathematics. Miss Lashley put numbers on the chalkboard and asked the students to arrange the numbers in the order they would be found if placed on the spines of books to be shelved. The numbers were compound ones and Miss Lashley spent some time explaining to the students the meaning of fractions. Fifth grade students had not yet reached fractions in their regular mathematics lessons in the classroom. When all of the numbers on the chalkboard had been arranged correctly, Miss Lashley gave the students a practice list to work with. Finally, each student received a ditto containing several exercises similar to those the library media specialist had presented earlier to the class with the instructions to work on these until the end of the class, when she would collect and grade them.

Call Numbers

The second lesson began with a review of decimal points. The work sheets redistributed from the previous class gave the students an opportunity to correct their mistakes. Half of the class had completed their
assignments in a hurry and, according to Miss Lashley, had
not bothered to read all of the numbers. After the class
had handed in the corrected papers, they listened to the
presentation for that day. The library media specialist
explained that the Dewey number which the students had been
studying was only half of the call number that appeared on
the spine of a book. For instance, the first three letters
of the last name of a nonfiction author added to the Dewey
number formed the call number, e.g. J796.33 May. A list of
call numbers placed on the chalkboard afforded students an
occasion to gain practice in putting these numbers in
correct order. A ditto with additional instructions and
with three practice exercises was distributed to the
students. When the students were finished with their
assignments, they handed them in to be graded.

The third lesson was a continuation of the study of
call numbers. A final exercise of twenty call numbers was
given out to the students, who thus had an opportunity to
demonstrate the competencies they had developed so far in
the library media skills program. Since each book on the
shelf is assigned a call number, each card in the card
catalog that pertains to a particular book has this same
call number printed on the upper left hand corner of the
catalog card. In order to locate an item, students had to
develop the skill of arranging call numbers in their proper
order.
When students had selected their books during their next visit to the library media center, they gathered around Miss Lashley to hear her present the fourth lesson in the library media skills series. Up to this point the Dewey number part of the call number could have meant anything. The Dewey numbers that they had worked with in their exercises had merely to be put in order from the smallest to the largest. The author letters referred to the last name of the author of a particular book. During this lesson and the next, the Dewey numbers took on new meanings.

Miss Lashley distributed to each student a ditto containing the ten main classes of the Dewey Decimal System of Classification:

100-199 Philosophy

200-299 Religion

300-399 Social Sciences
Beneath this presentation, the main classification for history was subdivided three times, that is, until decimal points came into use. Each digit in a Dewey number had its own respective topic. From a sample number located at the bottom of the handout the students were expected to select the appropriate topics in order to give the number its full meaning.

Miss Lashley distributed another ditto sheet which contained a list of twenty nonfiction titles. On the reverse side of the sheet all ten Dewey classes were subdivided to the tenth division. For each title students were required to list the appropriate Dewey number to the tenth division along with the name of the correct class.
The study of the Dewey class numbers continued during the fifth lesson. Students received a further handout which listed fifteen Dewey numbers without the author letters. They had to locate books on the shelves with call numbers corresponding to the numbers on the sheet. From each book they were able to obtain the author's name, which they used to locate a card in the card catalog. From the card in the card catalog, they obtained the subject of the book and it was this subject that they had to record on their ditto sheets. This lesson was a round about way to "touch base" and "springboard."

Scrapbook

The next three lessons were a continuation of the study of the Dewey Decimal System. The sixth lesson began with only a short introduction. Miss Lashley distributed to each student a ditto booklet composed of five sheets of paper stapled together. Each side of a sheet contained a heading with one of the ten Dewey class names along with two or three kinds of books that one might expect to find in that particular division. On a table Miss Lashley had several piles of old magazines which contained numerous pictures. The task was to clip out five pictures.
Illustrating the topics that were contained in each main Dewey class division. When the meaning of a picture was not clear, the students were encouraged to include a caption which explained its significance for the particular division it was supposed to illustrate. At first glance this seemed a simple task. The fact that it was extended through the seventh and eighth lessons indicates the degree of intellectual skill required for its completion.

Catalog Card

The ninth lesson was a review of the final page of the pretest. Students did not have as much difficulty with this page of the test as they had had with the first page of definitions. However, many of the definitions were for parts of the catalog card and for this reason Miss Lashley decided to include in her library media skills program a unit on this topic.

Miss Lashley had several sample catalog cards which were enlarged so that all of the students could observe them without difficulty. Her reason for including the topic at this time was that the first grading period was approaching and she had planned for a quiz which would consist of an examination over the parts of the catalog
card. The ninth and tenth lessons served as a review for the quiz and as an opportunity for completing any unfinished assignments. The study of the parts of the catalog card did not include an additional assignment.

Quiz

When students came to the library media center for their eleventh lesson, they had been instructed to bring paper and pencil. Actually, they were to do this for each lesson. Although they did not always use these materials, Miss Lashley wanted them to always be prepared to write.

Each student was given a discarded catalog card and told to staple it to the upper right hand corner of a sheet of paper. The students were then instructed to number off twelve questions. Miss Lashley read each question aloud to the students, giving them plenty of time to write an answer. When the class members had completed all twelve questions, the library media specialist collected the papers to grade them. She spent the rest of the lesson reviewing each of the questions given on the quiz so that students could have feedback on their performance.
After spring break, students returned to the library media center for their twelfth lesson. Miss Lashley had graded the quizzes, and these she returned to the students. Their new assignment was to take the catalog card from the quiz sheet and locate the appropriate book on the shelves of the library media center. If they could not locate the book, students had to assume that it was checked out in the name of another student. In the one case, if they found the book, they would take it to Miss Lashley for her to verify their discovery. In the other case, students would have to show to Miss Lashley the circulation card of the book for which they were looking in order to demonstrate the reason it could not be found on the shelves.

Reference Works

The thirteenth and fourteenth lessons covered two separate topics, reference books and notetaking. There was a reason for discussing these two topics over a two week period, and furthermore, simultaneously. The final assignment of the school year would be a research project and these two topics were fundamental to its success.
On both weeks, after selection time was over, Miss Lashley covered all of the reference works that were contained in the Midland Elementary School library media center. Although there were questions by students, Miss Lashley's basic strategy was the lecture method. She described each reference work and the intended use for that work.

Notetaking

Simultaneously with the lectures on the reference books in the library media center, Miss Lashley taught the students how to take notes for a research project. She distributed to each student a ditto on taking notes, which contained several exercises that might help the students develop their abilities in the skill of notetaking. It will be remembered that Mr. Cooper's students had had experience taking notes in their social studies class.
Research Project

The fifteenth lesson was initiated with Miss Lashley's walking around the library media center with a grab bag. In the bag were slips on which were written research topics. Each topic was chosen because there were one or more books on that subject in the library media center. Students reached in and the slip they pulled out told them what topic they would be researching for the next several weeks. No student was forced to research a topic which he or she particularly disliked. A student could exchange slips with a friend and, in some instances, reach into the grab bag a second time.

The lessons on reference books and notetaking were preparation for this assignment which continued for the sixteenth and seventeenth lessons. Miss Lashley told her students that the first step was to define their topic. The fifth grade students had had studies about dictionaries a few weeks earlier. The dictionary definition, along with all their other findings, students were to write on index cards; as it was easier to arrange and rearrange cards than sheets of paper. The dictionary definition was one way to help the student narrow down his or her topic to one that was researchable.
The research project was not supposed to be a research paper. Students were only required to give the main outline of the topic which they had chosen. It was to be an exercise in notetaking, not in writing. On the back of each card the students wrote the name of the source for that particular note, the author if given, publisher, place of publication and copyright date.

After defining their topics through the use of the dictionary, students were expected to consult an encyclopedia to get their "general overview." Then, they could start looking at books. They had to use at least one book. The rest of their citations could come from filmstrips, magazine articles, almanacs, atlases, or any of the other sources they had studied during the lessons on reference works.

Test

The conclusion of the library media skills program was a three page test (Appendix C). Some of the questions for the final test were repeated from the pretest.
Grading

All student work in the library media skills program was evaluated. At the end of the first nine weeks the classroom teacher received a grade for each student. The same procedure was repeated at the end of the library media skills program. The grade became a part of the language arts assessment.

Summary

Miss Lashley used lecture and discussion as her main instructional techniques for instructing her fifth grade students. These she supplemented with "hands on" experiences for the students while they worked with activity cards, searching and researching. The prevalence of the discussion method is significant in the library media specialist's use of the pretest. Not only was the test used as a tool for curriculum planning, it was the main topic of instructional conversation during three lessons. Miss Lashley determined to make the pretest not just a measuring device, but a learning experience as well.
Half of the instruction time the students spent in studying the Dewey Decimal System. For Miss Lashley, a classification system was more than a mere locational device. To her, the call number was inextricably tied up with subject headings. "Springboarding," for her, was the key to relating what goes on in the classroom to the resources in the library media center. Both the data of this project and the conversations with the library media specialist give evidence that in the elementary school, subject access to information is a necessity.

Information retrieval in college, and particularly in graduate school, is based upon the name of the author and his or her credentials. In the fifth grade students are still organizing their world around phenomena that are described with concrete concepts. Abstract thinking that will assist them in constructing a view of the various fields of knowledge has just begun. Miss Lashley believed that the call number, along with the subject heading, was crucial to student information retrieval success in the fifth grade. The making of Dewey scrapbooks emphasized the concrete nature of student thinking at this level.

Students had an opportunity to put into use the skills that they were developing in library media skills instruction. One activity was searching for a book in the
stacks, and then identifying its subject headings. The main project, though, in which the fifth grade students were involved during the second half of the instructional program, was a research activity. Miss Lashley initiated this endeavor with a series of lectures on reference books in the library media center. Each student, after picking a topic and taking notes on this subject, made use of the various reference books as their sources. Not all of the topics related to the fifth grade curriculum, but the degree to which they did is a measure of how well the library media center library media skills instructional program served to meet the needs of the classroom.

How did the instruction of library media skills by the library media specialist interact with the instruction of the classroom teacher? A brief summary of the evidence will be given.

The classroom teacher kept a sample copy of the current assignment made by Miss Lashley for the library media skills program. It was fastened to the chalkboard and served as a reminder to absentees that they had work to make up. It also encouraged students not to forget to take paper and pencil to the library media center for their next lesson.
The study of the Dewey Decimal System in the library media center was paralleled in the classroom with a lesson on outlining and a general emphasis on key words as subjects for research. An emphasis on reference works in the library media center seemed all inclusive compared to the usual focus in the classroom on dictionary and encyclopedia. Notetaking took place in both the classroom and the library media center. Finally, the instruction by the library media specialist ended in an evaluation which became part of a classroom language arts grade.

IMPORTANT STUFF: ASKING RELEVANT QUESTIONS

How does a student progress from an information retrieval opportunity to the selection of information which is relevant to that opportunity?

Students ask many questions about the world around them based upon concepts they have developed as a result of exposure to classroom subject matter. They frame their questions using the dialect of the classroom. Their motivation is to discover new information that is related to their existing intellectual network of ideas. As students shape their questions, they find it necessary to be selective. The use of one word means the exclusion of
Another one. They find it necessary to choose the "important stuff." It is incumbent upon the classroom teacher to teach his or her students how to develop this aspect of the library media skill for retrieving information.

CURRICULUM CONTEXT

The questions which students generate find their basis in the subject matter taught to them. Several examples of the emergence of "important stuff" from everyday lessons will be described.

Indian Projects

One day the researcher engaged Lily in a conversation about her project.

Researcher: How do you know what you are going to use when writing a note? How do you decide what you are going to use for your paper?

Lily: You read, like a paragraph, and then
pick out the most important things in it and write them down.

Researcher: What's important?
Lily: I don't know.

Researcher: Do you copy down just what's in the book or do you use your own words?
Lily: We copy out of the book to make a note, but in our report we have to use our own words.

Researcher: Why do you think that you have to do that?
Lily: Because someone wrote this book and you need to make up your own. They don't want you to copy out of it.

Filmstrip Reports

As the researcher approached one group to observe, a student informed him that the secretary of their particular group was making notes word-for-word from the filmstrip captions since they could not be sure what Mr. Jones would have written on the chalkboard as to the correct procedure they should follow.

Researcher: Susan, what are you writing down?
One common denominator stood out as the researcher observed the students in Mr. Jones' classroom. The same was true for Mr. Cooper's and Mrs. Thompson's classrooms as well. When selecting material for a project or a report, the students have to make a choice as to what material would be included in their work and what would be omitted. Whether they were working with a book, a filmstrip or another media format, the students had to condense the information into a package that would be acceptable for evaluation by the teacher.

As the researcher moved from group to group and from class to class, he asked the same general question: what is important? He received various answers. It was important because the teacher said so. It was important because part of the caption matched the picture on the frame. It was important because it was someone's name, a date or just
Indescribably important. The researcher felt a certain excitement as he pursued the clues for this first mystery of his study. At a later time, Mr. Jones informed the investigator that shortly before giving the filmstrip assignment he had had a lesson with his students on notetaking and the selecting of what was important. It was apparent that there had been a "spill over" effect for the filmstrip reports.

Mr. Jones later commented on this learning experience. He said that it had been the first time for that school year that the students had had to stand up in front of the rest of the class. Although generally pleased with their performance, Mr. Jones stated that those students who had taken information from the filmstrip and had put it into their own words had done a better job than those students who had copied down the captions word-for-word. Thus, the greatest problem that the students had had was in deciding what to include in their reports.
Mr. Cooper began one lesson with a question, "Who can tell me what is meant by a port?" He wrote the word on the chalkboard. The replies from the students exhibited the existence of a variety of uses for the word, such as airport. Mr. Cooper pulled down the U.S. map and pointed out to his students the location of Midland. He next indicated to them the location of the nearest port on Lake Fulton. He wrote the definition of a port on the chalkboard and then proceeded to link this introduction to the social studies lesson at hand.

The lesson was about the Louisiana Territory, another term which Mr. Cooper wrote on the chalkboard. As the lesson continued, he wrote other terms and names on the board. This occurred both before and while the class read from the textbook. At the end of the lesson, Mr. Cooper distributed a ditto sheet to each student. Their assignment was to find the answers in their textbooks for the questions on the sheet. Mr. Cooper told the students that they would be reading for information.
The writing of terms on the chalkboard during this lesson in itself seemed somewhat insignificant. At least the use made of them during this particular lesson was not extensive. Once written there, the terms were no longer referred to. But there existed the potential that these key words could be used as the launching pads for further investigations by the students. And such phenomena did occur in Mr. Cooper's classroom. The writing of key words on the chalkboard can be considered as "important stuff" in the context of an Information Retrieval Potential (IRP).

During the lesson on gravity and during the ensuing one on weight, Mr. Cooper used the chalkboard frequently. He wrote down certain words, such as matter, mass, grams and weight. At the same time he gave definitions for these terms and encouraged students to copy down these key words along with their definitions on note paper. It will be remembered that this kind of activity also occurred in a social studies class. A primary purpose was to point out to the students what were the key ideas of a lesson. By leaving these words on the chalkboard, the teacher provided continuity from one lesson to another. To be discussed later is the concept that key words can form the basis for searching for further information.
CLASSROOM LIBRARY MEDIA SKILLS

Earlier in this chapter illustrations of student learning in the classroom of library media skills were presented. These examples demonstrated that the learning of these skills was not the result of the classroom teacher's instructional intentions. They were learned by students as "side effects" of reading skill lessons.

Outlining and notetaking are more formal terms for describing the process of student selection of "important stuff" from a particular passage of subject matter. Two other skills learned in the classroom, use of a table of contents and an index, are more closely related to the process of "touching base," which will be discussed below. In the present context these latter two skills represent the selection of "important stuff" by the authors of the material resources being consulted by the students for answers to their questions. Using the same analogy in regards to the card catalog, it represents the selection by the library media specialist of what he or she considers to be the "important stuff" of his or her collection of educational resources.
SUMMARY

Student selection of the important features of an information retrieval potential is, then, a matter of developing questions which are relevant to an opportunity the student has had for retrieving further information. What is a relevant question? Several criteria which are related to this issue have emerged from the data.

Most of the time fifth graders responded in ways that expressed their basic inability to determine on their own what were and were not the relevant issues. Eleven year old children still think and express themselves concretely and thus are usually unable to clearly define what is important in any situation. Often when fifth graders are able to delineate something as important, they do so only because they have an indescribable and innate sense of something's worth.

A strong determinant in the choice of "important stuff" is the guidance provided by the classroom teacher. During the time when Mrs. Thompson's students were doing their research for the Indian Projects, they selected resources under the influence of the outline that their teacher had placed on the chalkboard. Some of the difficulty in selecting relevant ideas that was experienced
by Mr. Jones' students while working on the Filmstrip Reports was due to the decision of the classroom teacher not to provide his pupils with guidelines for such selection.

Learning how to ask relevant questions for the purpose of retrieving information is also related to the nature of the material resources containing the subject matter under consideration. In the case of a filmstrip, aspects of its design, such as the use of color, captions and other distinguishing features, allow for certain concepts to stand out as having special significance. Similarly, the names of people and the dates of events often set themselves off as having unique importance. When the teacher writes key words on the chalkboard or when he or she distributes information on a ditto sheet to his or her students, further opportunities for discovering the presence of "important stuff" takes place.

The interaction between the classroom teacher and the library media specialist takes place on the level of students, equipped with relevant questions, interacting with the library media specialist who teaches them that by "touching base" they can find relevant answers to the questions that they have asked.
TOUCHING BASE: FINDING RELEVANT ANSWERS

How does a student translate the dialect of the information retrieval opportunity into the dialect of the information retrieval system so as to develop an information retrieval search strategy?

Students come to the library media center with questions couched in the language or dialect of what is important for them from their experiences with classroom subject matter. Students can become frustrated if the dialect chosen to construct their questions does not prove compatible with the dialect of the library media center. Students must learn to "translate" their questions into a form that will ensure information retrieval. "Touching base" is that aspect of the information retrieval process that operates when students have developed "data base literacy." It is a task of the library media specialist, and hopefully of the classroom teacher, to educate students to use the dialect of the library media center by helping them to understand the workings of the library media center's system for information storage and retrieval.
In order to appreciate the significance of this task, a review will be given of what transpires in the library media center when an opportunity for information retrieval occurs.

The main difficulty that students have in their searches is in narrowing down their actual question to one that is sufficiently restricted. In structuring their questions, students need to coordinate, or match, the dialect used in the classroom with the dialect used in the library media center, particularly with the dialect of the card catalog system. Miss Lashley, in this regard, shared with the researcher her strategy in working with a group of students who were looking for information on the Louisiana Purchase. "They might have that particular question and I would have to say to them, 'All right, now, what area are you talking about?' Then they get to the Louisiana bit. We use that. I always tell them we have to touch base; we have to come up with the general area for the information they want and from there, once they know that, it is a starting point. That's the key and I say, 'All right, this is the area. Now go look in this direction.'"

Most students come to the library media center with a specific interest already in mind. The most common statement made to the library media specialist is "Do you
have such and such information?" Miss Lashley has stated that nine times out of ten, students would not look for a specific book, as they might in a college or university, but for materials on a specific subject. "Do you have any horse stories?" "Do you have any ghost stories?" "Do you have any football books?" Younger students, those below the fifth grade, would often go directly to the shelves looking for whatever appealed to them. Although Miss Lashley often tried to direct these students toward some particular subject, they would usually just be pulling things off the shelves, looking at the covers and leafing through the pages until they found what they were looking for. Older students, including many fifth graders, according to Miss Lashley, were more oriented toward a subject search.

Though students might not have realized it, their quests for information were subject based. Actually, there might have been two or three subjects. Miss Lashley's task was to help each student narrow down his or her search to the actual subject he or she really wanted to pursue. Miss Lashley had to help the student discover the most inclusive subject which would provide the information closest to what he or she needed for his or her classroom assignment. If such was the case, a subject approach to retrieving information is called "springboarding" and is only one way, although the most prevalent one for fifth graders, for
"touching base." Miss Lashley stated that there were three ways to touch base. These were the three kinds of headings in the card catalog, author, title and subject. She did not include the Dewey call number as a separate category because it was her contention that the call number was inextricably tied to the subject matter. "They have to play the game. They are detectives. They have to look for the clues. Look for the clues within their original question. And that's how they bring it about. But there's lots of clues. It's too large an area when it is like that. You have to narrow it down. And so that's the first step. They go to find out the key word that they need and, then, to find the information."

SUMMARY

Relevant questions deserve relevant answers. If students labor to determine the "important stuff" of the classroom subject matter milieu, it should not be surprising that they will leave the library media center in disgust if they have been unable to "touch base" somewhere within its four walls. When students are able to learn how to take the subject matter notions derived from their experiences in the classroom and at home and translate them
Into the dialect of the cataloging system of the library media center, they have attained a significant achievement on their way towards independence in information retrieval. However, there has been minimal interaction between the classroom teacher and the library media specialist in facilitating their students' move from choosing "important stuff" to "touching base." What interaction that does take place is within the framework of an interaction between the products of classroom instruction and the organization of the library media center.

A METHOD IN HIS MADNESS: AN EXAMPLE OF CLASSROOM TEACHER AND LIBRARY MEDIA SPECIALIST INTERACTION

Does the selection of instructional resources ever precede the decision of how to use them?

The caption of this section bears direct relationship to a classroom teacher and his class. It reflects his approach to the use of media for classroom assignments.
"Though this be madness, yet there is a method in it."
This immortal phrase was spoken by a friend of Hamlet's in the play by Shakespeare. Hamlet had been grieving over the death of his father and this was the reaction of his friend to Hamlet's strange and melancholy behavior.

Mr. Donald Cooper characterized in this same fashion his approach to the use of media by his students in the classroom and the library media center. An analytical discussion of library media skills instruction has pervaded this chapter thus far. This section will provide an integrated narrative of a single series of related episodes in the life of a fifth grade classroom seeking to find information to answer questions that have arisen in the classroom. One of these questions was answered by two girls in the form of verse.

Roses are red,
Violets are blue;
The thirteen colonies
Were started for you!

Roses are red,
Mr. Cooper guided his fifth grade students through a labyrinth of learning experiences in order to teach them a lesson on Jamestown and Captain John Smith. These varied experiences were the outcome of Mr. Cooper's method for carefully selecting human, material, temporal and spatial resources that he and the class arranged to facilitate the learning of this lesson by his students.

FIRST DAY

By Monday, October 12, Mr. Cooper had already prepared his lesson plans for each of the subjects to be taught to his fifth graders during the ensuing week. The social studies textbook was entitled, Our Country. Other materials, the use of which had been anticipated for the next ten days, included a workbook that accompanied the
textbook, a filmstrip entitled *Life in Jamestown*, and assorted library materials to be selected by the students.

Miss Nancy Burton, a student in a teacher education program at a nearby college, introduced the social studies unit on Jamestown to the class on Monday afternoon. She was later to become a student teacher under the supervision of Mr. Cooper, the teacher of the fifth grade class under investigation. Miss Burton entitled her presentation, "The Thirteen Colonies."

SECOND DAY

On the second day, Tuesday, October 13, the class read from the textbook and discussed "some important people and places." Since Mr. Cooper had correctly surmised that the class would be unable to cover all of the textbook material on this particular day, his plan was to assign the remaining pages as homework.
The library project began on the third day, Wednesday, October 14. It was either on the evening before while driving home from class at City University, or early in the morning before classes began, that Mr. Cooper made a shift in his plans. His plan had been to give a quiz over the pages already covered in the textbook, to give a further assignment on the same topic, as well as to show a filmstrip on Jamestown. Although he postponed these plans until the following day, the theme for Wednesday was still to be on Jamestown.

The class schedule as laid out by the principal allowed for a short period of time between the end of recess and the beginning of the library visit on Wednesday mornings. Mr. Cooper chose this interlude as his opportunity to introduce a fact-finding mission to the library media center. With the students' help he listed the "Important people and places" on the chalkboard. He stated, "When you're at the library today, find out any information you can about any of these." He did not tell the library media specialist, Miss Lashley, about this optional assignment, for no one was required to participate in this search and find endeavor. There was to be no
grade, just extra credit. The items listed on the chalkboard were the followings:

Captain John Smith

Pocahantas

Jamestown

King James I

House of Burgesses

John Rolfe

London Company

Mr. Cooper went to the library media center with his students, although it was not his usual custom to do so. He did not interact with his students during the first part of the visit. Instead, he busied himself with an examination of the filmstrip collection. It was here that he would find the filmstrip on Jamestown, scheduled for this day, but to be postponed until the following one.

Miss Lashley, the library media specialist, maintained the same posture as well. At first her main concern was with ensuring classroom discipline. The students were on their own, equipped with a list of potential subject headings and
the library media skills they had acquired during previous years of library media skills instruction.

The students employed a variety of strategies for selecting their materials. Some headed for the card catalog. Here they transformed a list of names from the chalkboard into subject headings that were associated with the call numbers of books on the shelves. Other students went directly to the shelves and browsed, using their acquaintance with the Dewey Decimal System as their guide. And some relied upon their vague familiarity with what types of books were kept on particular shelves.

As students located materials, they came either to their teacher or to Miss Lashley to have one of them indicate the appropriateness of their choices. The library media center had only a limited number of items on each topic. There were five entries under Pocahantas as title in the card catalog. Under John Smith there was one entry as title and none under the headings of Jamestown, James I, Burgesses, Powhatan, John Rolfe and London Company. Students were soon encouraged to check out the encyclopedias and other reference books for further information. The title of a book did not always correspond to the topic under consideration by a particular student. Some students utilized the index or table of contents of
their book in order to locate references on a particular subject.

Back in the classroom, after lunch, teacher and students began the social studies lesson. The first part of the lesson was an exercise in writing skills. Mr. Cooper asked his students to pretend that they were "Smitty," Captain John Smith. They were to imagine what he would have written in his diary during the spring of 1607. Mr. Cooper wrote the opening lines of the diary on the chalkboard. "Dear Diary, it is now the spring of 1607. We had a very long and rough trip. On the way here some very terrible and horrible things happened. In the first week..." The students were not required to begin their writing exercise immediately with only this small amount of information. A "brain storming" session followed the teacher's brief introduction. Mr. Cooper wrote on the chalkboard suggestions of "terrible and horrible" things that could have happened during the voyage to the new world. The students were then free to write.

The second part of the lesson consisted of one-on-one encounters between the teacher and student. Several exceptions to this method occurred in which Mr. Cooper worked with small groups of class members. Students, having selected materials in the library and in the
classroom, were at several levels of progress in organizing these materials for presentation. One group, whose project was only indirectly related to Jamestown, had gathered information on the early explorers of America. These students, who had gathered their materials prior to this day's visit to the library media center, were already organized. Mr. Cooper simply utilized this time period for hearing their report. They presented their findings to Mr. Cooper in the form of a radio talk show. A discussion of production responsibilities followed their listening to the cassette tape. The students then graded themselves and each of the other members of the group.

Next, Mr. Cooper talked individually with several of the students not in the previous presentation. Each student brought to this meeting the materials which he or she had found in the library media center. After perusing the books, for all of the materials were in this format, Mr. Cooper suggested an assignment which would require the particular student to develop a project that would demonstrate his or her competence in understanding the significance of the materials that he or she had collected. Mr. Cooper asked one student, Mary, to become an "expert" on "Smitty" through the use of the index in the book she had selected. He suggested that she keep a list of the notes that detailed interesting facts about John Smith and
to bring them to him by Friday. Another student, Edward, brought with him the "P" volume of an encyclopedia.

Mr. Cooper asked him to write a one paragraph report about Pocahantas and to draw her picture. This assignment was also to be completed by Friday. A third student, Keith, had materials about Jamestown. Mr. Cooper suggested that he use the index of the book to locate a picture of that early settlement. He then turned to the class to find out who else had materials on Jamestown. He selected three other students, Lucy, Clarence and Sarah, to work with Keith on a group project. Their assignment was to build a replica of Jamestown. These students organized themselves and met in one corner to make plans for carrying out this assignment. To do so they had until the following Tuesday.

Mr. Cooper kept a notebook in order to maintain control over these various projects. This method gave him the ability to keep track of each project which was underway. The notebook contained the name of each student, the topic which he or she had chosen, the medium or media to be utilized in the presentation of the project, and the date when the assignment was due.

Ernest and Timothy had selected Pocahantas from the list written on the chalkboard. They were going to construct a diorama depicting, no doubt, the incident when
Pocahontas saved Captain John Smith's life. Their project was due on Friday, October 30. Sharon also chose Pocahontas from the list provided in the classroom. She had until Wednesday, October 28 to make a puppet representing the character which she had chosen. Dirk and Matthew decided to work together on a group project about James I. Mr. Cooper told them to write a report about him and to draw his portrait.

FOURTH DAY

On the fourth day, Thursday, October 15, a filmstrip about life in Jamestown gave the class new understanding about the colony. The filmstrip told about how the London Company succeeded in persuading settlers to move to America. The colonists came to hunt for gold and jewels and, having built only a crude fort, were ill prepared for the rigors of their first winter. Many died as a result. It was then that Captain John Smith took command and with help from the Indians the settlement survived. The filmstrip told about the seeds which the settlers learned how to plant. New settlers continually arrived and eventually the settlement came to participate in its own self-government. The filmstrip ended with the expansion of the colony into new areas of America.
The observer had several opportunities during the day to engage Mr. Cooper in conversation. These conversations shed light on the teacher's view of the current learning scene. Mr. Cooper encourages his students to demonstrate their competence in dealing with each lesson and its appropriate assignment. He tells his students, "I want you to do something to show me this." They are to exhibit creativity in their problem solving. He explained that there were many sources where the students could find information about Jamestown. "Don't tell them," he recommends, "because through their activities they will find out for themselves." He is confident that there is a connection between the facts students encounter and the curriculum. The process whereby students are encouraged to move from a curricular objective, through an instructional process, and back to the curriculum by means of evaluation, was labelled by Mr. Cooper as the "Method in His Madness." Students return from the library media center with information and Mr. Cooper, then, finds activities for putting these into operation.

The students had been working on dittos taken from the social studies workbook. They received handouts from five pages of the workbook. The first page was a map which showed the location of Jamestown in Virginia. One exercise mentioned tobacco which later became a principal crop for
this early settlement. In another, Jamestown was referred to once, as was Pocahantas. Several of the ditto handouts were not relevant to the project on Jamestown. There was no social studies lesson on Friday, October 16.

FIFTH DAY

The fifth day of the project on Jamestown, Monday, October 19, was a day for silent work on each person's assignment. Students worked individually or in groups. Mr. Cooper soon realized that some of the projects would require more time to be completed than he had allowed in his notebook plan. In several cases he extended the time when the project would be due. The social studies lesson plan showed that the material which the students were covering in this class was far removed from Jamestown. Monday, October 19 was selected as the date for hanging up pictures of the Pilgrims. But lesson plans were not always meant to be followed.

The social studies hour found Mr. Cooper once again calling students back to his table for interviews on the Jamestown projects. Meanwhile, a math assignment was given to accommodate those students not being interviewed. Mr. Cooper's interest in the various facets of the students'
projects was all encompassing. He wanted to know whether they found a book by their own searching or after receiving help from the library media specialist or another student. Had they used the card catalog and the Dewey Decimal System or had they stumbled upon the item quite by accident? He was especially interested in knowing whether the student had used the index of a book in order to locate information about the topic that he or she had selected. He emphasized repeatedly that the assignment was only for extra credit and was indeed optional. In addition, he encouraged the students to express what ideas they already had. Helen and Brenda had been working on an assignment about explorers when the Jamestown project was first mentioned in class.

Mr. Cooper encouraged them to include an element about the colonies and thus allowed their project to be considered appropo to the Jamestown unit. It was their idea to write poetry. One poem of theirs introduced this section.

Some presentations entailed the preparation of written reports. For these Mr. Cooper had a list of some fifty different ways to write book reports. Other presentations required the development of more sophisticated media. Puppets and dioramas were the most common media formats to be designed. In the case of puppets, Mr. Cooper suggested a further type of media selection. Not only did the students have to select a book on a particular Jamestown
topic, but they had to find material on how to create the medium which was to communicate the subject matter. A final concern was the time involved. On each occasion there were negotiations as to when the assignment would be completed.

SIXTH DAY

Students continued to work on their projects.

SEVENTH DAY

A week had passed and the seventh day of the project, Wednesday, October 21, found the students back in the library media center. The observer got a preview of one presentation when he was treated to some songs and poetry. Sharon was busy looking for a book on how to make puppets. Another girl was helping her. They utilized the card catalog in their search. Still another student related how she was going to build her diorama. She had secured materials both from school and from home to assist her in the assignment. All of this gathering of materials had evolved from a book she had selected in the library media
center and which had given her the original idea. Other students appeared either to be bored with the Jamestown project or to have completed their assignments. They were busy selecting books on topics of more personal interest, jokes, mysteries, and dinosaurs.

EIGHTH DAY

Work on the Jamestown project now came to a sudden end. The eighth day, Thursday, October 22, found the students working silently on their projects. The social studies class found them making progress in the textbook.

NINTH DAY

On the ninth day, Friday, October 23, the students had a test over the materials that they had been studying for the past several weeks. This included the material on Jamestown. Also, most of their assignments were due on this day.
SUMMARY

On the following Tuesday, the observer had a final interview with Mr. Cooper about the Jamestown project. By this time the classroom teacher had had an opportunity to evaluate the work that the students had submitted. Several of these projects were made available to the observer for analysis. Mr. Cooper stressed the importance of the time factor in getting the assignments completed and turned in. He stated that the most popular topics were John Smith, Pocahantas and King James. If the student had made a good effort, he or she would receive a few extra bonus points. Mr. Cooper revealed that not everybody got materials from the library. He had yet to assign anything that specifically dealt with the library media center or the use of the library media center, in which students would be evaluated on a formal basis. He planned to do so later in the year. This optional assignment was not a major project. It was just one small step in the process of allowing students to gain competency in utilizing information resources.
CHAPTER VI

THE THEORETICAL CONSTRUCTS

The Information Retrieval Skills Theory of Instruction is intended to describe and predict the information retrieval behavior of fifth grade students in the classroom and in the library media center. To the extent that learning is related to information retrieval behavior, the theory should also predict the learning of information retrieval skills. Hinley and Ponder (1979) have pointed out alternative functions of theory. They distinguish between improvers and describers. The latter group emphasizes a "description of practice with the intention of increasing understanding of the ways classrooms work" (p. 135). To this description should be added an explanation that would give an increased understanding of the various ways library media centers operate. However, the scope of the predictive function may be limited due to the restricted setting in which the data were gathered.

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Proponents of field work as a basis for theory building have convinced educational researchers of the necessity to adequately describe the classroom setting in light of the complexity of the teaching endeavor (Yinger, 1978). Description, however, must be only the beginning of the research process. As Yinger points out, "It is very easy to be thick on description while being thin on analysis and theorizing. What is needed today in research on teaching is a method of theory construction that can build on this empirical work and at the same time provide theoretical construction that may be used as a research tool to guide further investigation" (p. 10).

A recognition of the importance of theorizing is the rationale for presenting the following theory in the form of axioms and propositions rather than in a narrative configuration. It is a "nascent" theory of library media skills instruction and makes no claim that it is in its final form. Constructs have been derived from several sources, in addition to those formulated by the researcher (Dunkin and Biddle, 1974; Webster, 1976; State of Ohio, 1980; AECT, 1975; Tillin, 1976; Hough, 1979; Belland, 1979; Hough, Duncan and Belland, 1980; Gagne, 1977). Hypotheses have not been formally defined but are present in the shape of the propositions.
A MODEL FOR INFORMATION RETRIEVAL SKILLS INSTRUCTION

As the findings have shown, information retrieval skills instruction cannot be separated from the broader context of information retrieval behavior in the fifth grade. Student participation in information retrieval opportunities, both in the classroom and in the library media center, were often seen as precursors of more formal library media skills instruction, whether by the classroom teacher or by the library media specialist. In seeking, then, to communicate these findings in the form of a theory, it is necessary to utilize a framework which will allow for the appropriate interplay between these two components of the overarching structure.

Dunkin and Biddle's (1974) model for the study of classroom teaching was considered as a possible candidate for this role. However, in the light of the findings of the previous chapter, their model had to be rejected as not being able to serve the needs of the present investigation. A new model was constructed around which the theory of this study could be formulated. The major difference between the two models is that the one used in this chapter makes allowance for the student to be the arranger of his or her own instruction, while the other one does not do so. The
role of the student as teacher is more in keeping with the
definition of teaching as adopted by this study. It will
be remembered that instruction was defined as the process
of arranging human, material, temporal and spatial
resources with the intention of facilitating one's own
learning or the learning of others.

The model upon which the theory of information
retrieval skills instruction will be built is a simple one.
It has two main divisions. The first division explicates
the nature of information retrieval potentials or
opportunities and library media skills instruction for
information retrieval that take place in the classroom.
The other division interprets the meaning of information
retrieval behaviors and instruction in the library media
skill of information retrieval that occur in the library
media center. It is well to remember at this point that
the findings of the previous chapter indicate a close, and
perhaps inseparable, relationship between opportunities for
information retrieval and instruction in how to do so both
in the classroom and in the library media center. This
connection between information retrieval and information
retrieval instruction is reflected in the theoretical
structure of this chapter. Each of the two divisions is
developed according to the four major aspects of the
definition of instruction adopted by this study. The four
aspects of instruction are arrangers, arrangements, intentions and facilitations.

The term arranger is not explicitly a part of the definition of instruction given above, but its presence is strongly implied. The arrangers are the teacher, the library media specialist, students and other participants in the learning process. The arrangements are the various configurations of human, material, temporal and spatial resources. The term Intention is used by the researcher to designate planned instructional strategies used by the classroom teacher, the library media specialist and students as the external and internal conditions required for learning Information retrieval skills. The facilitations are the basic types of learning that hopefully result from the instructional process.

The instructional intentions or strategies as detailed in each division of the theory will be defined in terms of the categories of the Observational System for Instructional Analysis (OSIA). This paper proposes that the ability to describe classroom teacher, library media specialist and student behaviors as instructional events coded according to OSIA will strengthen the explanatory and predictive powers of the Information Retrieval Skills Theory of Instruction. Appendix D contains the definitions of the major components of OSIA.
The mention of only four of the original six research questions as parts of the two divisions needs explanation. The first three research questions, "Information Retrieval Potential," "Hidden Curriculum" and "Course of Study," have been condensed into the two major sections of the theory. "Important stuff" and "Touching base" become the most significant instructional intentions of classroom and library media center information retrieval skills instruction. "Method In His Madness," with its focus on a narrative example of library media skills instruction, has not been directly incorporated into the theory.

DEFINITIONS

The theory is delimited by the definitions of instruction, learning and the other major elements of the theory. The definitions, along with numerous theoretical constructs, are contained in the dissertation's glossary (Appendix E).
The observations for this study took place in three classrooms and a single library media center. All of the students were in the fifth grade. Each of the three classroom teachers and the library media specialist were certified for their respective areas of responsibility. The pupils who were observed in the classroom were the same ones observed in the library media center.

The purpose of the study is to investigate the interaction between the classroom teacher and the library media specialist as they taught library media skills to fifth graders. To do so required observing the total curricular context in which students were encouraged to retrieve information. Likewise particular attention was focused on the instructional events which elicited information retrieval behavior on the part of the pupils. However, only that curricular context and those instructional events which pertain directly or indirectly to information retrieval will become part of this theory.
ASSUMPTIONS

1. The classroom teacher and the library media specialist have presage experiences which include training in all of the media skills needed by fifth graders.

2. Pupils begin the fifth grade library media skills instructional program with library media skills obtained during previous years of schooling.

3. The classroom teacher and the library media specialist do not develop their library media skills instruction from the guidance of courses of study alone.

4. Understanding information retrieval skills instruction for fifth grade pupils assumes an acquaintance with general information retrieval behaviors in the classroom and in the library media center.

AXIOMS, PROPOSITIONS, AND EVIDENCE

Each section of the divisions begins with a numbered axiom or proposition. Following these statements the direct specification of the evidence for each axiom or proposition is given.
The numbers at the end of the evidence refer to the
xyzrs of each section of chapter five which contain the
principal portions of the thick description that support
each respective axiom or proposition.

INFORMATION RETRIEVAL POTENTIALS AND INFORMATION RETRIEVAL
INSTRUCTION IN THE CLASSROOM

ARRANGERS

A-1 CLASSROOM TEACHER

Library media skills instruction by the classroom
teachers, although related to the prior experiences
of the teacher, generally occurs unintentionally.

The investigator queried the classroom teachers as
to their experiences with library media skills
instruction. These experiences were discovered to
be only tangential to the instructor's classroom
teaching. When library media skills instruction
did occur, it was auxiliary to what the classroom
teachers believed to be their main responsibility,
that of teaching curricular content to students.

(92-97, 123-129, 178-198)
P-1.1 INTERACTION WITH LIBRARY MEDIA SPECIALIST

Interaction between the classroom teacher and the library media specialist does not result from an agreement to do so on a regular basis. The evidence for substantiating the interaction between the classroom teacher and the library media specialist is of a dual nature, actual classroom and library media center observations as well as oral reports from the two instructors involved. Although these two educators interacted both through chance encounters and one-time appointments, there were no agreements to maintain a dialogue on a regular basis.

(123-143, 146-154, 154-156, 159-165)

A-2 PUPIL

Information retrieval behaviors by pupils develop partially as a result of their formative experiences and existing properties.

Observation during the course of the investigation led to the discovery that the fifth graders had undergone prior instruction in information retrieval. Formative experiences consisted of these students having had exposure to the curricula
of grades one through four. Evidence for these conclusions was obtained from the teachers who had taught particular students during previous school years. The investigator was also able to observe and to assess existing information retrieval properties possessed by the subjects of the study.

(123-129, 182-186)

COMMUNITY

The classroom teacher, the library media specialist and pupils benefit from contributions made to the information retrieval process by the school and community contexts.

The classroom and the library media center were not the only contexts to influence information retrieval activities. The district school personnel and the local elementary school principal were brought to bear on these situations through their participation in the curricular implementation process. The community context, including the public librarian and parents, proved to be sources from which students could retrieve information.

(141-143, 162-165, 179-181)
ARRANGEMENTS

A-4  HUMAN RESOURCES

The availability of the classroom teacher and other pupils as human resources supports the individual pupil's ability to retrieve information.

The typical student did not usually retrieve information without interacting with others. The classroom teacher, and to some extent fellow students, were both sources of information and "teachers" of how information could be retrieved and, ultimately, utilized for learning purposes.

(92-97, 123-129, 227-228)

P-4.1  DIALECT

Communication between the classroom teacher and his or her pupils facilitates the common dialect that exists in the classroom. Recordings of the classroom and library media center dialects, along with interviews, furnished the primary evidence for this study. An informal analysis of these recordings revealed patterns of communication unique to these two settings. Constructs such as "keywording," "important
"stuff," and "touching base" were derived from this analysis. These terms reflected the preeminence of language as the basic instrument for information retrieval.

(170-176, 227-233)

P-4.2 INDEPENDENCE

Pupil information retrieval behavior on a continuum that goes from dependence to independence is a function of the degree to which the classroom teacher exercises control over pupil information retrieval behavior and library media skills instruction.

The classroom teacher varied his or her control over student information retrieval behavior to the degree that the information retrieval potential was formalized as a specific question to be answered by students and to the extent that specific information resources were recommended as containing these answers. Control over library media skills instruction was less obvious but, as observed, was related to the classroom teacher's penchant for "sticking to the text."

(123-135, 138-143, 159-161, 168-170, 237-243)
P-4.3 SETTING

The setting in which information retrieval
behavior takes place, either in the classroom
and/or in the library media center, reflects the
choices which the classroom teacher and/or
library media specialist make in interacting
with pupils on a continuum from individual
tutoring to that of relating to the entire class
as a group.

When the investigator first entered the
classrooms and library media center, he focused
his attention on the classroom teacher and
library media specialist interaction with
students as a group. As research
instrumentation became more refined, the
investigator was able to focus on other
settings. The ability to do so occurred in the
classrooms and in the library media center.

(123-135, 141-143, 237-243)

A-5 MATERIAL RESOURCES

The availability of classroom media supports the
pupil's ability to retrieve information.
The classrooms contained innumerable media. Although the various media were not counted, classroom media were integral parts of information retrieval in that location. One reason they played such a role was because they furnished to the classroom teacher and the student immediate access to information needed for curricular purposes. The library media center was not always readily accessible to information-seekers from the classroom. The wide variety of media in the classroom, though not as highly organized as they would be in the library media center, covered the total range of curricular subjects.

(123-129, 138-143, 227-228)

P-5.1 COURSE OF STUDY

The controlling influence of a curricular course of study developed by the school context can lead to the utilization of media in the classroom and in the library media center.

The courses of study used by the Midland Elementary School specified particular learning objectives. To carry out these objectives learning experiences had to be designed for the
students. In developing strategies for providing these students with the appropriate kinds of experiences, media were needed.

(122, 146-148, 199-203)

P-5.2 MEDIA SELECTION

The classroom teacher uses previously developed lesson plans and instructional objectives prepared from the classroom course of study in selecting materials for instruction.

The evidence for the above proposition is mixed. Usually, the classroom teacher proceeded from the course of study through lesson plans and instructional objectives to the selection of media. However, on occasion, the teacher developed the lesson around the media.

(123-135, 138-140, 149-150)

P-5.3 MEDIA

The classroom teacher uses instructional technology in his or her selection for purposes of information retrieval and library media skills instruction, of book media in the form of textbooks, workbooks, dictionaries and
encyclopedias and of nonbook media in the form of aquariums, audiocassettes, bulletin boards, charts, computers, dittoes, filmstrips, games, globes, instructional television, maps, models, motion pictures, pictures, puppets and realia.

The list of media, both book and nonbook, provided in the preceding proposition provides evidence of the variety of materials used for information retrieval and library media skills instruction in the classroom. Professional organizations and in-service meetings kept the classroom teacher informed of the latest developments in instructional technology.


P-5.4 ACCESS TO INFORMATION IN MEDIA

The presence of diagrams, indexes, tables and tables of contents within book media permits access to the information contained within the items.

A study of the information retrieval process of fifth graders revealed that while the card catalog provided access to particular items as a
whole, particularly books, auxiliary aids, such as those indicated by the proposition stated above, provided more detailed access to the information contained within the actual item being used.

(123-129, 190-194, 237-243)

P-5.5 EQUIPMENT

The availability and successful operation of the appropriate equipment, including audio recorders, chalkboards, filmstrip projectors, microscopes, motion picture projectors and opaque projectors, allows the use of many nonprint media items in the classroom.

Students demonstrated varying abilities as to the operation of the various pieces of equipment used for the retrieval of information from nonbook items. While entrusted with the responsibility of training students as to how to use these pieces of equipment, the classroom teacher and the library media specialist had an uneven record of performance in this regard.

(129-135, 156-161)
TEMPORAL RESOURCES

The availability of temporal resources in the classroom supports the pupil's ability to retrieve information.

The large number of students at the Midland Elementary School combined with the presence of only one full-time library media specialist meant that the amount of time each student had in the library media center was extremely limited. The result was a decided curtailment on the amount of information retrieval each student could accomplish in that location.

(121, 123-135, 141-143, 150-154, 162-165, 168-170, 237-243, 243-245)

CLASSROOM VISITS TO THE LIBRARY MEDIA CENTER

A schedule of regular visits to the library media center permits pupils to spend time in the center participating in media selection, library media skills instruction and free activities.

The most obvious flow of students to the library media center corresponded to the official schedule of visits for each classroom. Fifth
graders were allotted only one visit each week. Except for passes granted to them, this was the only time that these students were allowed into the library media center.

(141-143, 154-156, 160-170, 179-186, 237-243)

INDIVIDUAL VISITS TO THE LIBRARY MEDIA CENTER

A pupil may secure a library media center pass from the classroom teacher so that he or she may spend time in the library media center on occasions when a regular visit has not been scheduled.

The passage in time between the discovery of an information need that required library media center resources for its resolution and the actual classroom visit was crucial for maintaining a high level of student motivation. To minimize any dissipation of interest, the classroom teacher frequently sent students to the library media center out of turn. These visits did not guarantee special assistance from the library media specialist, who might be supervising another class, but it did prevent
many information searches from going unfilled.

(123, 138-140, 150-154)

P-6.3 ADVANCE KNOWLEDGE ABOUT CLASSROOM VISITS

When the classroom teacher informs the library media specialist in advance of impending pupil information retrieval activities in the library media center, the ability of the library media specialist to meet the information needs of pupils is enhanced.

Occasionally fifth grade students were observed visiting the library media center with only short notice for the library media specialist. Failure to inform the library media specialist in advance of the impending visit was not, in and of itself, the major obstacle to a successful class visit. It was when the library media specialist was not forewarned of the topic which motivated the visit that her task of organizing the appropriate instructional events was threatened. Knowing the subject prior to a class visit allowed the library media specialist
to develop a strategy for promoting successful information retrieval.

(182-186)

P-6.4 CATCHING UP TIME

When there are limited temporal resources, the classroom teacher may choose the option of "catching up" time.

In general, the courses of study for the fifth grade specified the amount of time allotted to each subject. The classroom teacher developed lesson plans to facilitate the fulfillment of these expectations. When the pressure of other classroom activities hampered the development of information retrieval activities, the former activities received precedence over the latter. In the pursuit of knowledge, the textbook was often considered to be more important than materials from the library media center.

(143-145, 162-165)

A-7 SPATIAL RESOURCES

Spatial resources determine the pupil's ability to maneuver among the material resources such as a carpeted area or a mini-library.
Instructional materials which had the potential of both initiating and facilitating information retrieval activities were observed to be located in all areas of the classroom. Students could be found curled up on a carpet reading books or manipulating games. A collection of both print and nonprint materials allowed the classroom to serve as a library media center in its own right, although the degree of organization of these resources did not always closely approximate those of the library media center as directed by the school's library media specialist.

(129-135, 149-150, 159-161, 245-247)

INTENTIONS

CONDITIONS OF LEARNING

The external conditions of learning, consisting of teacher classroom behavior, library media specialist behavior and materials, temporal and spatial resources as instructional events, combine with instructional strategies to support the ability of the pupil to learn information retrieval skills.
When students, as observed, were learning information retrieval skills, their success was determined to result from the interaction of various aspects of the learning environment. Both the classroom teacher and the student brought something to bear on the situation. The classroom teacher selected various human, material, temporal and spatial resources as instructional events. These events were organized into instructional strategies which interacted with prior student ability to produce learning.

(123-129, 135-138, 154-156, 159-161, 176-177, 192-194, 196-198, 226, 243-245)

P-8.1 RESOURCE ARRANGEMENT

Information retrieval skills instruction by the classroom teacher is a function of the arrangement of the appropriate resources by the classroom teacher.

The definition of instruction accepted for this research endeavor was substantiated by the findings of this study. The definition could be applied to information retrieval skills as well as to the more traditional subjects. The
classroom teacher was found arranging all types of resources, human, temporal, material and spatial, in the attempt to facilitate the learning of students. The learning of information retrieval skills as a result of student self-instruction was also a part of the observation.

(123-129)

P-8.2 DISCUSSION

Teacher initiation and solicitation in reaction to pupil response, comprise the method known as discussion, the instructional strategy most frequently used by the classroom teacher.

When the classroom teacher presented a particular aspect of an information retrieval activity for the first time, he or she did so through the presentation of the principles involved. The initiation of information was thus designed to facilitate student recognition of the various steps to be followed in acquiring mastery of the pertinent skill. The classroom teacher next questioned various students to determine their level of competence. Responses
came at two stages of skill development. First, students needed to verbally describe the principle under consideration, and, then, respond through the actual participation in an information retrieval activity.

(123-129, 135-143, 156-158, 168-170, 186-188, 236)

P-8.3 INFORMATION PRESENTATION

The classroom teacher, in addition to basic methods, utilizes an introduction and/or follow-up in his or her presentation of media in order to allow for the control of information retrieval.

The two methods, reading from the textbook and discussion, were supplemented on occasion through the use of other media such as filmstrips, maps and computer disks. When these items were presented as information to students, the classroom teacher was observed carrying out a strategy designed to foster the behaviors mentioned above. The chief component of this strategy was the utilization of an introduction and a follow-up, a policy aimed
at focusing the students' attention on the key words and concepts of the presentation.

(123-138, 154-156, 159-161, 168-170)

P-8.4 PUPIL REPORTS

Pupils often prepare oral or written reports using one or more information sources. These information retrieval activities are in response to classroom teacher challenges.

Frequently in the classrooms at Midland Elementary School teachers posed questions for which students were expected to find answers. These occasions were both planned and spontaneous. Though the responses could have taken any one of several possible formats, a familiar one was the written or oral report. Students were required to use one or more sources of information in the preparation of their responses to the classroom teacher's challenge.

(138-140, 170-176, 179-181, 226)
A pupil project is the result of the classroom teacher's assignment of a lengthy written product involving the use of more than one media format obtained from two or more information sources.

On other occasions the researcher observed the classroom teacher assigning students the task of preparing a project. Students thus had opportunities to work with several information resources which comprised more than one media format.

(123-129)

TEACHER INABILITY TO ASSIST RETRIEVAL

When the classroom teacher is unable or unwilling to respond to a pupil request for information, he or she may refer the pupil to the library media specialist for assistance.

Observation revealed that the classroom teacher was not always able to provide his or her students with the resources required for successful information retrieval. One option
was that of sending the student needing assistance to the library media specialist.

(154-156, 170-176, 182-186)

STRATEGIES FOR STUDENTS UNABLE TO RETRIEVE INFORMATION

The classroom teacher uses coordination, screening and keywording when the pupil is unable to retrieve information independently.

When the classroom teacher was observed as being unable to send a particular student to the library media center, he or she employed other strategies. These were similar to the ones used by the library media specialist to facilitate student information retrieval in the library media center. The tactic involved helping the student to adapt the dialect of the classroom, including the use of key words, to the dialect of the library media center, including the use of the card catalog. When a particular student was unable to operate independently, the classroom teacher was seen retrieving some or all of the information for him or her.

(134-135, 147, 157, 159, 162-163, 180, 207-208, 212, 219-220)
Teacher use of a keywording instructional strategy may result in a pupil's choice of important stuff.

The fundamental task in translating the dialect of the classroom into that of the library media center was evidenced by the need for students to select "important stuff" from out of all the data presented during an information retrieval opportunity and to transform this "important stuff" into its key words. These key words became the entries, author, title, or subject, which the student employed in the library media center in order to secure information relevant to the formation of responses to the questions posed by the classroom teacher.

FACILITATIONS

INSTRUCTION AND PRACTICE

Pupil learning of information retrieval strategies is the result of information retrieval skills instruction and practice in completing information retrieval skills activities.

The study of information retrieval as undertaken by students at the Midland Elementary School provided evidence that supported a view concerning information retrieval as resulting from two educational phenomena, instruction and practice. Instruction tended to flourish in the library media center, and practice in the classroom. Together these two processes supported a viable program of information retrieval through an alternating cycle of opportunity and accomplishment found both in the classroom and in the library media center.

(143-145, 168-170, 182-186, 189-190, 194-195)

P-9.1 IRP

Pupil ability to retrieve information is a function of an opportunity to do so. The
One of the initial tasks of the researcher was to discover the antecedents for information retrieval behaviors. As noted, in the classroom such an antecedent was labelled an Information Retrieval Potential (IRP). The evidence contained in this summary is designed to clarify when and how such potentials arise and also to point out how these same potentials translated themselves into the retrieval of information by students.

(138-140)

P-9.2 NOTES AND OUTLINES

The ability of the pupil to take notes and to construct outlines allows him or her to communicate information.

When the classroom teacher decided that a particular class period would be devoted to reading from the textbook of that particular subject, the processes of notetaking and outlining came into use. Notetaking and outlining were discovered to be variations of
the basic procedure for arriving at what were considered to be the key words of a passage containing information. Delineating key words was further found to be one step in the process of retrieving information.

(123-129, 186-190, 212-213, 226)

P-9.3 PLAGIARISM

The pupil's ability to distinguish copying information word-for-word from that of phrasing it in his or her own words can allow him or her to independently communicate information.

When students use instructional media for preparing their responses to an information retrieval opportunity, they usually found themselves with the task of selecting only a portion of the vast array of information available for answering the challenge posed by the classroom teacher. When they did make a selection of information for use in a report or other activity, they faced the option of copying the data just as it was found in the retrieved source or of using their own creativity in preparing a unique response.

(162-165, 220-221)
Skill Lessons

Reading skill lessons in learning how to use a table of contents, an index and the card catalog facilitate pupil ability to retrieve information.

The researcher discovered that the reading program for the fifth grades at Midland Elementary School included provision for library media skills instruction. Unlike the training in this area that the students received in the library media center, the emphasis was upon verbal responses and not actual information retrieval behaviors. Nevertheless, a verbal acquaintance with the table of contents, the index, such as in books, and the card catalog did have some influence on information retrieval behaviors in both the classroom and in the library media center.

EVALUATION OF INFORMATION RETRIEVAL

Classroom teacher assessment of pupil information retrieval skills and activities allows the pupil to determine the success of his or her own information retrieval behaviors.
A comparison of the evaluation of information retrieval skills and behaviors in the classroom with that which took place in the library media center revealed that assessment of these skills in the former location received less of an emphasis than it did in the latter. This fact was particularly true in the measurement of the appropriate skills needed for information retrieval. The classroom teacher, however, showed definite concern in regard to the appraisal of information retrieval behaviors in the content areas.

INFORMATION RETRIEVAL POTENTIALS AND INFORMATION RETRIEVAL
INSTRUCTION IN THE LIBRARY MEDIA CENTER

ARRANGERS

A-10 LIBRARY MEDIA SPECIALIST

The prior experiences of the library media
specialist guide his or her library media skills
instruction.

The investigator queried the library media
specialist concerning her pre-service and
in-service training. Her schooling as an English
teacher, in addition to that required for a library
media specialist, influenced her perspective on the
kinds of resources needed for information
retrieval. The prevalence of print media in the
Midland library media center substantiated this
conclusion.

(92-97, 199-203)

P-10.1 INTERACTION WITH THE CLASSROOM TEACHER

Interaction between the classroom teacher and
the library media specialist is not a
function of an agreement to do so on a regular
basis.
The evidence for substantiating the interaction between the library media specialist and the classroom teacher is of a dual nature: actual library media center and classroom observations, and oral reports from the two principals involved. Although these two educators interacted both through chance encounters and one-time appointments, there were no agreements to maintain a dialogue on a regular basis.

(123-129, 129-140, 146-148, 150-156, 159-165)

Information retrieval behaviors by pupils develop partially as a result of the pupils' formative experiences and existing properties.

It was discovered that the fifth graders observed during the course of the investigation had undergone prior instruction in information retrieval. Formative experiences consisted of exposure to the curricula of grades one through four. Evidence for these conclusions was obtained from the teachers who had taught particular students during previous school years. The investigator was able to observe and assess
existing information retrieval properties possessed by the subjects of the study.

(170-176, 199-203)

ARRANGEMENTS

A-12 HUMAN RESOURCES

The availability of the library media specialist and other pupils as human resources supports the individual pupil's ability to retrieve information.

The typical student did not usually retrieve information without interacting with others. The library media specialist, and to some extent fellow students, were both sources of information and "teachers" of how to retrieve information and, ultimately, how to utilize it for learning purposes.

(170-176)

P-12.1 DIALECT

Communication between the library media specialist and his or her pupils facilitates the common dialect that exists in the library media center.
Recordings of the library media center and the classroom dialects, along with interviews, furnished the primary evidence for this study. An informal analysis of these recordings revealed patterns of communication unique to these two settings. Constructs such as "keywording," "important stuff," and "touching base" were derived from this analysis. These terms reflected the pre-eminence of language as the basic instrument for information retrieval.

(170-176, 229-233)

P-12.2 INDEPENDENCE

Pupil information retrieval behavior, on a continuum that goes from dependence to independence, is a function of the degree to which the library media specialist exercises control over pupil information retrieval behavior and library media skills instruction.

The library media specialist varied her control over student information retrieval behavior to the degree that the information retrieval potential was formalized as a specific question to be answered by students and to the extent
that specific information resources were recommended as containing these answers. Control over library media skills instruction was less obvious than that accorded to information retrieval behavior, but was observed to be related to the library media specialist's commitment to the library media center course of study.

(170-176, 203-204)

P-12.3 SETTING

The setting in which information retrieval behavior and library media skills instruction takes place in the library media center reflects the choices which the library media specialist and the classroom teacher make in interacting with pupils on a continuum from individual tutoring to relating to the entire class as a group.

When the investigator first entered the library media center and the classrooms, his attention focused on library media specialist and classroom teacher interaction with students as a group. As research instrumentation became more
refined, the investigator was able to focus on other settings. The ability to do so enabled him to detect the complex interactions that occurred in the library media center and in the classrooms.

(A70-176)

A-13 MATERIAL RESOURCES

The availability of the library media center media supports the pupil's ability to retrieve information.

Students were observed using the library media center resources for answering the questions that arose within the context of the classroom.

(A70-176)

P-13.1 MEDIA SELECTION

The library media specialist uses already developed lesson plans and instructional objectives prepared from the library media center course of study in his or her selection of media for library media skills instruction.

Before undertaking the investigation, the
researcher received a copy of the library media center course of study which he was to use during the ensuing research. The library media specialist at Midland Elementary School also prepared weekly lesson plans which were put at the disposal of the investigator. A comparison of lesson plans with actual library media center instruction revealed that adaptation of lesson plans to meet daily exigencies was the usual pattern of action followed by the library media specialist.

(138-140, 150-154, 179-186, 237-243)

P-13.2 MEDIA IN THE LIBRARY MEDIA CENTER

The library media specialist uses instructional technology in his or her selection, for purposes of information retrieval and library media skills instruction, book media in the form of easy books, biography, fiction, nonfiction, periodicals, and reference books such as almanacs, dictionaries, encyclopedias and the Reader's Guide to Periodical Literature and nonbook media in the form of activity cards, audiotapes, charts, dittos, filmsstrips, games, instructional television and pictures.
A survey of the materials and equipment located in the library media center and interviews with the library media specialist provided a list of the types of resources used in that location. The library media specialist drew upon current catalogs of media and equipment in making her purchases.

(123-129, 170-176, 213, 235-243)

P-13.3 CARD CATALOG SYSTEM

The amount of instruction pupils have had in the use of the card catalog and the card catalog system improves their ability to retrieve information in the library media center.

The fifth grade students at Midland Elementary School were pretested at the beginning of the school year in library media skills ability. Part of this pretesting included the evaluation of the students' facility in using the card catalog. Subsequent information retrieval activities completed by these same students
reflected the operation of their prior knowledge.


P-13.31 REPRESENTATION OF REALITY

Entries in the card catalog serve as representations of the actual media items involved.

The evidence on student perception of entries in a card catalog is incomplete. In that a student demonstrated a confidence that the access points, author, title, or subject, would lead him or her to an item with corresponding characteristics, the student could be said to have viewed a particular entry in the card catalog as being representative of an existing media item.

(226)

P-13.32 ACCESS TO INFORMATION IN THE LIBRARY MEDIA CENTER

The entry headings in the card catalog, author, title or subject, which are the starting points
of the complete description of the media item to be retrieved, provide access to information stored in the respective media items.

The pretest administered to the fifth grade classes at the beginning of the school year demonstrated their understanding of the terms, author, title, and subject. When students looked to retrieve a specific item mentioned by one of their classmates or the classroom teacher, they usually tried an author or title approach. However, the access point for locating educational resources as a result of the development in the classroom of "key words" and "important stuff," or as a result of individual interests, was the subject heading.

(170-176)

P-13.33 ALPHABETIZATION

Items for the card catalog are filed alphabetically to facilitate their retrieval by pupils.

Fifth grade students were not observed as having highly organized conceptions of how knowledge can be arranged. The dialect of the library
media center results partially from the use of cataloging rules to arrange the cards in the card catalog. These rules specify an alphabetic arrangement of the entries in the catalog. By arranging the entries alphabetically the location by students of instructional media was facilitated. There was some evidence that this facility was related to the student's ability to spell.

(123-129)

P-13.34 SUBJECT HEADINGS

The library media specialist uses Sear's List of Subject Headings to assign subject headings to items in the card catalog so that their retrieval is facilitated.

The researcher discovered that the dialect of the library media center was highly controlled. However, the dialect of the classroom, which was brought by students to the library media center on the occasions when they were seeking to retrieve information, was less rigid in its construction. Thus, the use of Sear's List of Subject Headings facilitated the
standardization of the library media center's dialect. The use of a limited vocabulary in describing the subject content of the library media center's resources prevented any confusion that might be caused by an unlimited number of terms resulting from the use of a natural classroom dialect.

P-13.35 CALL NUMBERS

The assignment of a call number to a media item using a classification system such as the Dewey Decimal System allows items to be located on a shelf and to be grouped together with other items of the same or similar subject matter.

When students entered the library media center in order to retrieve information, if they sought the information from media items and not from the library media specialist, they usually selected one of two options for the retrieval. The use of the card catalog allowed them to locate the Dewey call number on a particular card and to then find the appropriate item by
themselves. Additional items on the same topic were then available for retrieval due to the classificatory nature of the Dewey Decimal system. Students were also observed bypassing the card catalog and going directly to the shelves where their prior experience with the classification system used at the Midland Elementary School expedited information retrieval.

(205-209, 216-219, 237-243)

A-14 TEMPORAL RESOURCES

The availability of temporal resources in the library media center supports the pupil's ability to retrieve information.

The large number of students at the Midland Elementary School, combined with the presence of only one full-time library media specialist, meant that the amount of time each student had in the library media center was extremely limited. The result was a real curtailment on the amount of information retrieval each student could accomplish.

(199-203)
14.1 REGULARLY SCHEDULED VISITS

A schedule of regular class visits to the library media center permits pupils to spend time there participating in media selection, library media skills instruction or free activities.

The most obvious flow of students into the library media center corresponded to the official schedule of visits by individual classrooms. Except for passes these visits were the only times that students were allowed into the library media center.


14.2 UNSCHEDULED VISITS TO THE LIBRARY MEDIA CENTER

A pupil may secure a library media center pass from the classroom teacher so that he or she may spend time in the library media center on occasions when a regular visit has not been scheduled.

The passage in time between the discovery of an information need that required library resources
for its resolution and the actual classroom visit was crucial for student motivation. To minimize any dissipation of interest the classroom teacher frequently sent students to the library media center out of turn. These visits did not guarantee special assistance from the library media specialist, who might be supervising another class, but it did prevent many information searches from going unfulfilled.

P-14.3 PUPIL MEDIA SELECTION

The selection of media items by pupils in the library media center results from interests and the need to verify and/or differentiate an information retrieval activity presented in the classroom or elsewhere.

Student information interests were readily apparent to the investigator from the beginning of his study. Horses, dinosaurs, mysteries, and cars were only a few of the motivating factors behind fifth grader visits to the library media center. More difficult to discern were the
information needs which arose from classroom experiences. These needs appeared to be of two types. Students were expected to substantiate or further prove information presented in the classroom. The students were also encouraged, on other occasions, to locate information that extended the boundaries of that which was presented in the classroom.

(150-156, 203-204)

P-14.4 RESERVE MEDIA

Putting a media item on reserve results from an excessive demand by pupils for its use in an information retrieval activity.

The library media specialist at Midland Elementary School had a good knowledge of the extent to which her collection could meet varying information needs. She expressed this intuition to the researcher in terms of a decade of collection development and an equal length of time spent in organizing the collection on the shelves. When she became aware of a particular topic which would be investigated by a substantial number of students, she would remove
all pertinent resources from the shelves. She kept these items in a special location from which she could ration them out to interested students.

(182-186)

P-14.5 KNOWING ABOUT VISITS IN ADVANCE

When the classroom teacher apprises the library media specialist in advance of impending pupil information retrieval activities in the library media center, the ability of the library media specialist to meet the information needs of pupils is enhanced.

Occasionally, fifth grade students were observed visiting the library media center with only short notice for the library media specialist. Not letting the library media specialist know in advance of the visit was not, in and of itself, the major obstacle to a successful class visit. It was when the library media specialist was not forewarned of the topic which had motivated the visit that her task of organizing appropriate instructional resources and events was threatened. Knowing the subject of a class
visit allowed the library media specialist to develop a strategy for promoting successful information retrieval.

(182-186)

INTENTIONS

CONSIDERATIONS OF LEARNING

The external conditions of learning, consisting of library media specialist behavior and materials, temporal and spatial resources as instructional events, combine with instructional strategies to support the ability of the pupil to learn information retrieval skills.

When students were observed learning information retrieval skills, their success was determined as resulting from the interaction of various aspects of the learning environment. Both the library media specialist and the student brought something to bear on the situation. The library media specialist selected various human, material, temporal, and spatial resources as instructional events. These events were organized into instructional strategies which interacted with prior students' ability to produce learning.
Library media specialist initiation, the strategy for facilitating library media skills instruction that predominates in the library media center, and solicitation along with responses by pupils results in discussion.

When the library media specialist presented a particular aspect of an information retrieval skill for the first time, she did so through the presentation of the principles thus involved. This initiation was designed to facilitate student recognition of the various steps to be followed in acquiring mastery of the pertinent skill. The library media specialist next questioned various students to determine their levels of competence. Responses came at two stages of skill development. First, students needed to verbally describe the principle under consideration, and, then, to respond through actual participation in an information retrieval activity.

(204, 216-219)
P-15.2 INFORMATION RETRIEVAL ASSISTANCE

Coordination, screening and referencing by the library media specialist facilitate pupil ability to retrieve information, when it appears that the pupil cannot do so independently.

Fifth grade students often found the information retrieval process, with or without the use of the card catalog, a difficult one. In order to prevent the process from becoming stalled in the library media center, the library media specialist approached the situation with any combination of three different strategies. She translated the information retrieval dialect of the classroom into that of the library media center. She provided the student with a short-cut to the information needed. Or, finally, she gave directly to the student the needed information.

(154, 170-176, 182-186)

P-15.3 TOUCHING BASE

Touching base in the library media center occurs when a pupil uses the card catalog, often with the support of the library media specialist.
Two basic approaches to retrieving information occurred in the library media center. These approaches were the use and lack of use of the card catalog. Although he made no statistical measurements of card catalog utilization, the investigator was able to distinguish its use through simple observations as to who did and who did not employ the card catalog for his or her search. Students who did utilize the card catalog did so as a result of varied motivations. The resources which they uncovered were equally diverse.

(170-176, 207-209, 229-233)

P-15.4 SPRINGBOARDING

Springboarding in the library media center occurs when a pupil uses a subject approach to media selection and when such usage results in the use of card catalog subject headings.

Students came to the library media center from the classroom with questions framed in the dialect of that setting. Frequently, a student would translate one of his or her questions into the dialect of the library media center. When
the student did so, he or she soon discovered the requirement of using an author, title, or subject approach. The most frequent use of the card catalog was as a link between subjects discussed in the classroom and the answers to these subjects when they were posed as questions.

(170-176, 182-186, 207-209, 216)

A-16  LIBRARY MEDIA SKILLS PRETEST

Past pupil information retrieval formative experiences are reflected in pupil performance on an information retrieval pretest.

The library media specialist at Midland Elementary School retained copies of past information retrieval skills instructional programs and used these materials in the development of an information retrieval pretest. The decision to do so facilitated successful performance by students on the pretest.

(199-204, 216)
A-17 TYPES OF LEARNING

The learning of intellectual skills, cognitive strategies, verbal information, motor skills and attitudes as product variables often result in overall success in information retrieval skills and activities.

Success in information retrieval activities resulted from student learning of the five basic types of learning. Intellectual skills were involved when a student learned to differentiate between the various parts of a catalog card. Cognitive strategies played a role in the ability of the student to transform an IRP into a successful search for information that would actualize its potential. Verbal information was reflected in the reading skills used in the library media center. Manipulation of audiovisual equipment implied the use of motor skills. Finally, attitudes, such as motivation, prompted the student to persevere throughout the entire procedure.

(199-203, 216-219, 227-228)
P-17.1 INSTRUCTION AND PRACTICE

Pupil learning of information retrieval skills is a function of information retrieval skills instruction and practice in information retrieval skills activities.

The library media skills instructional program in the library media center did not require students to remember the aspects of information retrieval activity simply as verbal responses. What was required was the learning of information retrieval skills as parts of problem solving behavior. Students learned to solve information retrieval problems through their participation in actual experiences of the same nature which took place within the confines of the library media center.

(170-176, 182-186, 214-215)

P-17.2 DISCUSSION STRATEGY

Discussion, the instructional strategy most frequently used by the library media specialist, is a result of library media specialist initiation and solicitation, along with pupil response.
When the library media specialist presented a particular aspect of an information retrieval skill for the first time, she did so through the presentation of the principles thus involved. This initiation was designed to facilitate student recognition of the various steps to be followed in acquiring mastery of the pertinent skill. The library media specialist next questioned various students to determine their level of competence. Responses came at two stages of skill development. First, students needed to verbally describe the principles under consideration, and, then, respond through actual participation in an information retrieval activity.

(203-204, 216-219)

P-17.3 EVALUATION IN THE LIBRARY MEDIA CENTER

Classroom teacher assessment of pupil information retrieval skills and activities allows the pupil to determine the success of his or her information retrieval behaviors.

The library media specialist provided for initial, formative, and summative evaluation of
information retrieval skills. The pretest was integrally connected to the learning that had taken place both prior to the fifth grade and after its onset. A distinctive feature of the evaluation of information retrieval behaviors at Midland Elementary School was the use of the evaluation as a basis for further instruction. Another aspect was the presence of immediate feedback provided by the library media specialist in an effort to promote the establishment of correct responses.

(199-203, 211, 216)
CHAPTER VII

THE CONCLUSIONS AND IMPLICATIONS

The time has now come to delineate the conclusions arrived at by the investigator as a result of his research experience and to speculate upon the implications of the same endeavor. Just what can be said about the nature of the interaction between the classroom teacher and the library media specialist? With this understanding in mind, one may question: what are the directions that the library media profession should follow to facilitate future research and practice in this field of endeavor?

THE CONCLUSIONS

The interaction between the classroom teacher and the library media specialist at Midland Elementary School did not prove to be significant. In spite of this negative finding, opportunities for students to retrieve information abounded in both the classroom and the library media.
The instructional strategy used by the classroom teacher in a learning situation was the element most responsible for the translation of these opportunities into the actual retrieval of information. In the library media center the ability of the student to take advantage of the way that the library media specialist had organized her instructional media was in direct proportion to the same student's success in finding answers to questions that had been raised in the classroom through his or her interaction with curricular experiences. The linking of experiences in the classroom with those in the library media center was accomplished through the translation of the classroom dialect into that of the library media center. It is the conclusion of this researcher that the process of information retrieval outlined above can best be fostered by the promotion of teacher education programs that emphasize the development of the skills needed by the classroom teacher and library media specialist to carry out such a task.
The evidence in this study disclosed a lack in overt interaction between the instruction of the classroom teacher with that of the library media specialist. These two professional educators were found to have spent very little time in consultation with each other. The classroom teacher occasionally frequented the library media center, but the library media specialist, respecting the fact that the time spent in the center by the students was a free period for the teacher, attempted only infrequently to engage him or her in the library media skills activities and instruction taking place in that location.

The library media specialist in turn spent even less time in the classroom. The significant interaction between this professional educator and the classroom teachers usually took place at lunch time or before and after a teachers' meeting. However, in these opportunities for interaction of an institutional nature, they seemed not to sense the value of those moments together.

With the classroom teacher being unacquainted with what was transpiring in the library media center, his or her instruction interacted on a covert level with that of the library media specialist. When the classroom teacher
selected key words from a current lesson and then sent his or her students on a regular visit to the library media center, he or she was perhaps only vaguely aware that these key words were related to successful information retrieval, but may not have checked out this possibility beforehand. One could almost say that the classroom teacher taught his or her lessons as self-contained units. Even when information retrieval was an integral part of the classroom subject matter lessons, it was largely the responsibility of the library media specialist to guide the students in their transition from one learning environment to another. The appearance of a library media skills instruction lesson in the classroom, moreover, was kept isolated from a genuine information retrieval environment in the library media center. When the library media specialist taught these skills herself, she maintained the same isolationist stance, that is, she did not instruct in correlation with events taking place in the classroom. It should be noted at this point that the interaction of the classroom teacher with the library media specialist should be viewed in terms of their professional relationship being maintained over a period of several years. The lack of an apparent interaction at any one point might, as perhaps has happened with this research endeavor, be thus explained.
What then was the nature of the covert interaction that did take place? The interaction occurred through the instrumentation of the students who made the transitions from classroom to the library media center and back. The overt instruction that was inculcated into the students in both environments was representative of the covert instructional interaction of the classroom teacher with the library media specialist.

OPPORTUNITIES TO RETRIEVE INFORMATION

Students retrieved information at the Midland Elementary School for a variety of reasons. Many of these reasons were related to the personal interests of each fifth grader. However, information retrieval as a result of individual motivation was not the focus of this study. Instead, the researcher investigated those instances of information retrieval which occurred at the juncture between the instruction of information retrieval skills by the classroom teacher and the same instruction by the library media specialist.
The first task of the researcher was to determine whether the potential for such retrieval actually occurred. He soon discovered that various instances of such information retrieval did indeed take place. Most of the time the phenomena under investigation resulted from classroom teacher instruction in curricular content. The various subjects taught in the classroom spilled over into the library media center, as students attempted to substantiate and broaden the information obtained in the classroom. The instructional system for information retrieval set up in the library media center by the library media specialist was found to aid student efforts in verifying the information received through the instructional process in the classroom. The system also aided student attempts to find additional details regarding the same or other information received through the instructional process in the classroom.

Based on this observation one may ask the question: can the information retrieval opportunities in the classroom be viewed as potentials (IRP) for information retrieval in the library media center? The evidence was not conclusive, but there was support for the existence of an instructional construct called an information retrieval potential. Thus, the groundwork was laid for an effort to "flesh out" such an entity as a measure of the likelihood
that information utilization in the classroom can lead to varying degrees of information retrieval in the library media center.

INSTRUCTIONAL STRATEGY

The classroom teacher and the library media specialist used strategies for teaching information retrieval skills that were both parallel and dissimilar. Each of these educators used discussion as a primary tool for facilitating information retrieval skills and the activities related to them. However, while the former instructor used discussion as a means for generating information retrieval potentials, the latter one used this strategy as a means of facilitating the learning needed to actualize these potentials. Discussion in the classroom was generated most frequently in order to create opportunities for information retrieval (IRP). Discussion in the library media center was encouraged by the library media specialist as a means for teaching students how to move from an information retrieval potential to its logical outcome.
The introduction and follow-up to an information retrieval opportunity in the classroom were key elements in the process being investigated. Not all of these opportunities became foundations for further development. Using his or her own discretion, the classroom teacher would upon occasion challenge his or her students to take advantage of the occasions for information retrieval. The crucial issue here was whether an information retrieval potential was the result of classroom teacher calculation or an unplanned event. Among these instances were pupil reports and projects developed by students in response to definite lesson plans. Serendipitous retrieval occurred either when students intruded upon the instructional process with their own unique concerns, or when a novel situation demanding attention broke forth into the classroom, unexpected by all.

The library media specialist, as well as the classroom teacher, actively assisted students in the retrieval of information. The classroom teacher helped students indirectly by aiding student manipulation of the dialects of the classroom and the library media center or directly by carrying out parts of the information retrieval process itself, either for an individual student or for a group of students. The library media specialist performed similarly in the library media center, but with the added function of
pointing out specific instructional resources that might aid the student in his or her quest for information. Unique to the library media specialist was the opportunity to assist students in the process of directly linking the dialect of the classroom with that of the library media center.

THE CATALOGING OF MEDIA

One way to characterize the retrieval of information in the library media center is to distinguish between retrieval which uses the card catalog and that which does not. Use of the card catalog was not found to be inevitable for the fifth grader. Various problems arose which inhibited its use.

A basic constraint was the system in use, the filing of cards in alphabetic order. When a student was unsure of the spelling of a key word, the card catalog usually proved to be useless. Another issue was the relative size of the catalog's holdings. Students often appeared to be reluctant to flip through dozens of cards just to find the item for which they were searching. Subject cards often demonstrated the confusion which students from a classroom had with the dialect of the library media center.
A question that is forth coming is this: will the card catalog survive the scrutiny of information retrieval research? The researcher for this study is convinced that changes will come. Students should have the freedom to exercise the ability to use their own individual dialect, at least to some extent, in an atmosphere controlled by the dialect of the library media profession. The microcomputer, with its capability for storing and manipulating vast amounts of information, may prove to be one aspect of any future solution to this problem.

The freedom to speak one's own dialect does not mean that the dialect of the library media center will be abolished. Rather, it means that the classroom teacher and the library media specialist must endeavor to go "extra miles" in helping their students to adjust to the dialects of both the classroom and the library media center as well as to the interrelationship between the two educational environments, as reflected in the degree to which the two professional educators interact with each other.
A more in depth investigation into the nature and significance of the interaction of the two dialects mentioned above is a pressing need. A previous discussion indicated that many students who come to the library media center deliberately bypass the card catalog in their search for information. Several reasons emerged as to the apparent forbiddingness of this fundamental library media center tool. The primary reason, however, that students avoided the card catalog appeared to this investigator to be the specialized vocabulary of the card catalog.

A good illustration of the "unfriendliness" of the card catalog occurred when the library media specialist deliberately bypassed it in her attempt to connect a student having difficulty retrieving information that would lead to an appropriate information outcome. The library media specialist almost without exception took the student directly from his or her description of the information desired to the resources that the library media specialist believed would meet the student's need. What was supposed to be the link between user and resource was deemed unnecessary. In all fairness to the library media specialist, this researcher admits that the complexity of
the dialect of the card catalog was not, in and of itself, the only reason for the library media specialist's not using this tool. The time that it takes to help a slow learner use the card catalog must also be taken into consideration.

It is a truism that when the dialect of the classroom is the same as that of the library media center, information retrieval processes are optimally facilitated. The dialect of the classroom could then be said to have been incorporated into that of the card catalog. The degree to which this can be accomplished could be a significant measure of how successful information retrieval potentials can be transformed into student reports and other products of the information retrieval process.

How can this goal be achieved? Perhaps it will come to pass when the classroom teacher and the library media specialist seek to interact with each other to the extent that their individual dialects approximate a greater mutuality than that found to have occurred at the Midland Elementary School.
In order for the classroom teacher to successfully interact with the library media specialist for the purpose of facilitating information retrieval by students, both of these educators should receive training in how to do so. This training should be aimed at competence both in the instruction and the practice of the library media skill of information retrieval. This same training should also be aimed at teaching these two professionals the art of maintaining open communications with each other.

The future classroom teacher should receive training in the organization and storage of educational media as well as in their production for and utilization in the classroom. Many classroom teachers receive little instruction in library science during their pre-service education. All classroom teachers need to become fluent in the dialect of the library media center. Often they are as mystified by the card catalog as their future pupils will be. Thus, information retrieval as investigated in this study has encompassed the use of an intermediary link between the information retrieval potential and its actualization in the library media center. Likewise, the student teacher's curricula should include training in how
to facilitate this linkage, that is, training in certain library skills.

Many library media specialists have had experience as classroom teachers. It would seem that their acquaintance with the dialect of the classroom would be greater than that of their counterparts, the classroom teachers. In spite of this apparent advantage, the library media specialist of this study did not fully act upon all related happenings that took place in the classroom. The library media specialist usually had a schedule of classroom visits to her library media center that left her with insufficient time to reciprocate with visits to the classroom.

Pre-service training for the library media specialist should include training in how to take advantage of such visits.

Until such time as classroom teachers begin to seriously interact with library media specialists with the intention of promoting library media skills instruction, students themselves will have to coordinate the two different dialects which they encounter in the classroom and in the library media center.
The theoretical notions of the preceding chapter suggest implications for a theoretical base from which to launch the practice considered to be advisable, the interaction of classroom and library faculty. One of the methodological assumptions of this study is that qualitative research designs can help provide this much needed theory. The following discussion will focus on the influence that this research endeavor can have upon future research in the areas discussed and upon the practice of library media skills instruction.

Before engaging in a dialogue concerning research and practice, this discussion will deal with an issue that cannot be ignored in any approach to the development of library media skills theory. It may seem presumptuous to search after a theory for library media skills instruction when there is no theory for the operation of the library media center program, which in turn includes library media skills as one of its major components. For that matter, as was discussed in chapter one, there is no theory for library science itself. However, these handicaps do not mean that one should abandon any attempt at library media skills theory building. An overarching theory that will
serve the needs of the library media center can develop from subtheories of its various parts.

REPLICATION

How representative are the fifth graders in Mr. Cooper's, Mr. Jones' and Mrs. Thompson's classrooms of the other fifth graders across the nation? Is it possible to generalize from this immediate experience to potential experiences elsewhere? While these questions are important, and they must eventually be addressed, they are not the questions that motivated this research project. The investigator was interested only in the library media skills instruction that took place in three classrooms and in a library media center. The reason his interest was focused upon a limited range of phenomena is due to his concern with discovering and building grounded theory and not with verifying any existing theoretical body of knowledge. Now that a theory has ensued, this investigator's research interests will broaden.
METHODOLOGY

A qualitative methodology was used in this study to arrive at the conclusions contained within it. For instance, the practice of library media skills instruction will best be served if development is based upon theory. Elsewhere in this study it has been demonstrated that the theory which is most appropriate to the development of library media skills instruction is grounded theory.

As the theoretical foundation for library media skills instruction becomes more substantial, occasions will arise for changing methodologies in the field. Propositions which are promulgated in grounded theory will need to be tested. Their testing will come with the transformation of propositions into hypotheses. This metamorphosis will lead not just to an understanding of library media skills instruction, but to its prediction and control as well. As educators become more certain as to the nature of the phenomena that they are dealing with in library media skills instruction, they will be able to develop library media skills curricula of whose success they can be more certain. Uncertainty exists as to whether information retrieval behaviors can be rigidly manipulated as a result of the confidence that might come from the successful
testing of hypotheses. But these behaviors can at least be understood, if only because educators can be reasonably sure of their outcome, and this in spite of the variations found in most school populations.

The experimental method is not new to library media skills instruction (Smith, 1979). However, its use at this time would be unwarranted. Presently, the knowledge base in the field of library media skills is too limited. As all of the variables involved in library media skills instruction are identified, there is more likelihood that these same variables can be adequately controlled so as to make an experimental methodology appropriate.

**DESIGN**

The approach used by this study in developing its theory was the constant comparative methodology. It was successful in formulating numerous constructs and their relationships. These elements reflect the meaning of library media skills instruction held by the classroom teacher, the library media specialist, the students and this investigator. Built into this design was a system of analysis supplemental to the comparative methodology which could prove useful for future research.
The reference to a supplemental analytic technique is in regards to the Observational System for Instructional Analysis (OSIA). This technique was used in this study to help define the various constructs and the relationships between them. In future research OSIA's full power as an analytic tool should be tested in the arena of library media skills research. Some of the data from this study could possibly be useful in the near future for the beginnings of such a venture. Further, entire transcripts of instructional episodes were obtained for this study. They can be reanalyzed using the OSIA coding system and processed by using the OSIA computer package. This approach would facilitate not only the counting of instructional events, but could provide a more comprehensive view of their relationships and patterns of occurrence.

THEORETICAL DEVELOPMENT

This study has defined library media skills instruction as arrangers forming human, material, temporal and spatial arrangements with the intention of facilitating the learning by one's self, or by another, of information retrieval skills. The major axioms and propositions from
the previous chapter are given below along with suggestions as to how this information retrieval skills theory of instruction might be more fully developed.

ARRANGERS

Future research can be aimed at gathering further information regarding the roles of the classroom teacher, the library media specialist and the pupil in the library media skills program.

CLASSROOM TEACHER (A-1)

The classroom teacher, through his or her shaping of the events that transpire in the classroom, has a major effect upon the student's classroom behavior. A significant factor in this relationship is the classroom teacher's training experiences. Has he or she received training in the operation of the card catalog system? What facility does he or she have in helping the student translate the classroom dialect into that of the library media center so that the same student can relate his or her classroom learning experiences to the organization of the
material resources located in the library media center? Many states now require training in educational media for teacher certification. The question arises: what role does the teacher education program play in training the education student in the skills of information retrieval which he or she will eventually teach to prospective students?

Investigations in teacher education have produced research designs that have aided in an understanding of pre-service training. Their use would be valuable for the study of presage variables that are related to classroom teacher involvement in library media skills education. To do so, care must be taken to ensure that the training experiences under scrutiny are valid representatives of actual behaviors related to library media skills instruction. It is likely that a participant observational technique would prove to be most useful at this stage of research development in the field. Broad categories and general relationships need identification before an experimental approach can be advanced.
Little is known about how the personal characteristics of the library media specialist affect his or her ability to provide for information retrieval instruction. Since the amalgamation of book and nonbook materials, there has been more of a climate for educating users in how to select materials from the library media center collection. In addition, official standards for the library media center program have influenced the teaching style needed by the library media specialist for training students in library media skills.

Few, if any, library education programs offer coursework in library media skills as they have been defined in this study. The same is true for library media specialists trained in colleges of education. A library media skills curriculum cannot easily be dispersed throughout the other courses of a library science or a media education program. Offering at least one course could do some justice to the complexity of information retrieval skills and other library media skills. Until such a course becomes universally adopted, the library media specialist must rely upon in-service workshops to fill in the gap.
In-service workshops can also be profitable within the confines of an elementary school. In reference to this approach, should the classroom teacher or the library media specialist take the initiative in establishing a channel of communication that will facilitate coordination between the dialect of the classroom and the dialect of the library media center? The evidence from this study seems to suggest that the latter person, the library media specialist, has the responsibility to translate the dialect of the card catalog system into a form that will be compatible with the natural dialect of the classroom. Furthermore, in-service workshops for the classroom teacher can do much to dispel the aura of mysticism that often surrounds the organization and classification of media in the library media center.

Coordinating the languages of the classroom and the library media center has two facets. The curricular dialect originates in the classroom and its use is to describe the question or problem which the student takes with him or her to the library media center. The catalog dialect originates in the library media center and its use is to describe the information retrieval system, including stored media, that the student must master in order that he or she can find an answer to the question or a solution to the problem that brought him or her to the library media center.
When the library media specialist functions as the arranger of learning experiences in the library media center, one of the decisions that he or she must make is in regard to the amount of time that will be spent with students who are searching for answers to questions which have arisen either in the classroom or from among the students' own interests. The reactions of a library media specialist to students' requests for assistance may lie along a continuum of library media specialist responses. On the one end, the library media specialist may lay aside whatever he or she is doing and work with students until they have completed their searches and have found the needed information. At the other end is the library media specialist who ignores students' requests for assistance under the assumption that library media instruction has taught them how to conduct their own search.

In the context of this study, the classroom teacher and the library media specialist met at irregular times to discuss the information needs of the students in the fifth grade. The main reason for such an arrangement was the lack of time for a regularly scheduled interaction between the classroom teacher and the library media specialist. Once the library media specialist had completed the managerial function associated with getting the students busy selecting their materials, Miss Lashley would have had
time to talk with Mr. Cooper for only about five minutes about the information needs of his classroom. And such did occur on occasion, though its occurrence was marked more often by a discussion of the immediate needs of the classroom than by any continuing dialogue that would have included discussion of individual student learning needs.

Miss Lashley used a measurement as to how successful each student would be in finding his or her own information. Based on her knowledge of the library media center's organization and upon her awareness of the depth of the center's collection, she could gauge her response. When considering the other resource constraints, time available being one of them, her method for participation in student searches has much to be merited.

The complaint by the library media specialist that there is a lack of opportunity to interact with the classroom teacher on a regular basis could be met with one or two different managerial strategies. The library media specialist could develop an intervention strategy for facilitating interaction with the classroom teacher. If this approach did not prove feasible, the library media specialist could opt for the provision of service upon demand.
Whatever the managerial style selected, several recommendations for research on the classroom-library media specialist interaction appear to be appropriate. A survey designed to discover the prevalence of the occurrence of the phenomena under consideration, while not practical in all schools, would help promote the effort towards the generalization of the findings of this investigation. With the library media specialist, or possibly the classroom teacher, as observer, participant observation studies could be undertaken. In the present case the observer was an outsider. In the situation just mentioned above the observer as insider might have a more subjective, though perhaps a richer, viewpoint in reference to the phenomena being studied. A final research perspective proposed is one that looks beyond professional interaction to the variety of situations in which the nature of classroom teacher-library media specialist interaction is more personal than the formal interchange of colleagues.

The coordination of the dialect, or language, of the library media center with that of the classroom is crucial to the successful retrieval of information. Linguistic analyses could prove to be helpful in the area of the verbal components of classroom and library media center interaction. It is possible that the use of a research tool such as the Observational System for Instructional
Analysts (OSIA), with the full utilization of its subscripting capacity, can lead to the realization of such an outcome.

Subject access to materials in the library media center is based upon a familiarity with the *Sear's List of Subject Headings* (1982). The dialect of the classroom does not always agree with the *Sear's List*. Herein lies the responsibility of the library media specialist to make certain that the classroom teacher and the student can translate their concerns into the dialect of the library media center. There is on the horizon a technological breakthrough which promises to facilitate this type of communication. Some school library media centers have implemented (Costa, 1982) the use of microcomputers as substitutes for the card catalog. Actually, electronic devices have the potential of being much more than mere substitutes. Because of the economy of the computer chip, the day may come when the library media center dialect becomes a natural dialect capable of being manipulated directly through the microcomputer by its operator.
Information on the characteristics and formative experiences of the students who were observed during the course of this research experience has not been incorporated into the findings of the study. Knowledge of student presage variables could, however, facilitate understanding and prediction of student performance in information retrieval situations. One might ask: what is the educational background of his or her parents? How much time does the student spend watching television at home? Is there an encyclopedia in the home? What other instructional resources are available to the student in addition to those at school? These are some of the questions that should be considered in order to more adequately assess student entry behavior into a library media skills program. Interview techniques are the best research means for getting answers to these questions.

An additional need, equal in importance to those raised above, is the access to a record of student performance in prior library media skills instruction. On numerous occasions, the students observed during this study exhibited a facility with the information retrieval process which could not be explained except as being the result of
prior instruction. At Midland Elementary School, Miss Lashley began library media skills instruction with the third grade. When this study began, the students to be observed had already had two years of instruction in, for example, the utilization of the card catalog. Just as students in this study demonstrated different levels of performance, the same could be expected of performances that took place before this study began. Access to the evaluation instrumentation used to measure these performances will allow the development of a research approach leading to an understanding of this previous experience.

However, the issue of assessment of library media skills is a broader field of concern than that of testing students for their ability to retrieve information. Whether students receive a grade for each library media skills assignment is not as crucial as is the students' ability to arrange instructional settings that will facilitate learning. Several questions can be raised. When a student receives a grade for a library media skills assignment or test, what is the basis for the measurement? Is the test measuring the facility of the student with verbal information or is it measuring the level of intellectual skill being appraised? To what degree is the ability to retrieve information a product of cognitive
strategies that are both complex and difficult and thus difficult to measure? Library media skills must undergo task analyses so that the classroom teacher and the library media specialist can create the appropriate conditions that foster student learning.

Library Media Skills Pretest (A-16)

The pretest given at the beginning of library media skills instruction was an approximate measure of the different entry levels which students had when they began the instructional program. A sample of six students, selected upon the recommendation of their classroom teacher, were under more intense observation than the remaining class members. The teacher assisted the investigator in selecting two students, boy and girl, on each of three levels, high, middle and below average. An examination of their grades on the pretest, at the mid-term and on the final exam was inconclusive. Only the scores of the below average students could be predicted with some degree of accuracy. Anne and Tim scored the lowest of the sample on the pretest and did so again on the final exam. Other comments could be made about the performance of these students, but to do so would be to run the risk of
generalizing on the basis of a sample that was neither controlled nor completely representative of all three fifth grade classes. Any future studies would do well to consider the measurement of student performance so as to allow greater prediction of student outcomes in library media skills instruction.

The selection of a student sample was an effort to facilitate the processing of data on student performance. It is unfortunate that it did not allow for insight into the nature of individual student information retrieval abilities.

ARRANGEMENTS

Four types of resources are manipulated by the arrangers, classroom teachers, library media specialist, and students, so as to facilitate learning. These resources are available in finite quantities. It is a major task of the arranger to determine the amount and appropriate mix of these resources so as to facilitate the learning of library media skills. Human resources have been touched upon above in the discussion of the arrangers of instruction. Below, these human resources will be looked upon as the objects of manipulation by the
arrangers. Also, to be discussed are material, temporal and spatial resources.

HUMAN RESOURCES (P-4.2, P-12.2)

In both the classroom and the library media center the degree of control of the learning environment impacts upon the amount of self-directedness afforded students in information retrieval activities. The relationship between the classroom teacher and the student in terms of self-directedness is often an inverse one to that between the library media specialist and the student in the library media center. Much has been written in recent years about direct teaching. When the teacher maintains control of the learning environment in the classroom, information retrieval by students tends to focus strictly upon the curriculum content as presented. While the student's information retrieval behavior may be controlled in the classroom, he or she may be expected to act independently in the library media center. Actually, what is involved here is the interaction between two different types of treatment. On the one hand is the control of student information retrieval behavior in the classroom and, on the other hand, is the degree to which the student
works apart from assistance in the library media center. Various permutations of these interaction styles exist. Study can further investigate its implications for student information retrieval activities.

Two different research approaches are involved with the above discussion: self-directedness which is related to research based on classroom climate, and the study of direct teaching which is of more recent occurrence. A perusal of the literature of both classroom climate and direct teaching will furnish a multitude of ideas that can be used in developing research designs for studying information retrieval.

Setting (P-4.3, P-12.2)

Various settings were used in the classroom and in the library media center to facilitate instruction. The classroom teacher usually addressed the entire class. On occasion, and frequently in the case of Mr. Cooper, the classroom teacher would gather together a small group of students, often around a table, for the purpose of instruction. Interaction with the individual student occurred as needed and as the classroom teacher could manipulate temporal resources to be able to do so. In the
library media center, interaction with the class as a whole predominated. Working with small groups of students in the library media center was relatively rare. However, the library media specialist did occasionally find an opportunity to work with an individual student who had an information retrieval need. If the library media specialist could identify common characteristics among students, the use of the small group method might prove an economical solution to the expensive way in which time is usually spent in the library media center by the library media specialist.

The Observational System for Instructional Analysis (OSIA) contains a code that indicates the type of instructional setting under observation. A correlation between type of instruction and type of setting would prove useful in the further analysis of library media skills instruction.

MATERIAL RESOURCES (A-5, A-13)

A wide variety of resources for use both in the classroom and in the library media center has come to light in this investigation. While there was no systematic method for instructing students in the operation of the
equipment needed for some of the media, the use of the equipment did not cause excessive delays. A worthwhile study could be made of the circulation patterns of this material. How many materials does the student check out of the library media center each week? What topics do those media cover? Are they actually used by the student in the classroom or at home? Does the student read the books that he or she checks out of the library media center? These and other questions would help to identify the pattern of media use by students. Similar questions could be asked by the classroom teacher about the use of media in the classroom.

Media In The Library Media Center (P-L3.3)

The bottom line for the adequate functioning of the library media center's card catalog system is the availability of material resources for student activities. Even if the dialect of the classroom were to be translated into the dialect of the library media center, and even if the student were to succeed in "touching base" and "springboarding," if there were not enough media in the library media center to promote the learning of all students across a "smorgasboard" of subjects, all else
would be in vain. When there are only one or two titles related to a topic which is being studied in the classroom, it matters little how sophisticated the information retrieval system may be, the student is unlikely to find the answer to the question which brought him or her to the library media center in the first place. Library research methodology includes a variety of designs for collection evaluation. The majority of these tools were designed for the university library setting. A tool that will measure the "depth" of a library media center collection would be useful.

TEMPORAL RESOURCES (P-14.1)

Miss Lashley had twenty-nine different classes to visit the library media center each week. During that same week, she had somewhat less than eight hours of planning and free time. That is less than two hours for checking in and out and reshelving materials, making lesson plans for library media skills instruction, ordering new materials, meeting with classroom teachers and processing new materials when they arrived. Little time remained for students to come spontaneously to the library media center for the purpose of getting assistance with information
retrieval activities. One ameliorating circumstance was the assistance of one or two high school students who worked as library aides and the help of an occasional fifth or sixth grader who was willing to give up his or her recess to help in the library media center.

A time management study of the library media center program could possibly shed light on the utilization of this resource in this setting. The library media specialist might keep a log of all events and interactions that took place in the library media center during a specific period of time. The Observational System for Instructional Analysis (OSIA) allows for a fairly accurate measurement of the duration of the instructional events being observed.

Whether library media skills instruction should have begun in September instead of in December was a debatable issue at Midland Elementary School. Occasionally a classroom teacher was overheard stating that his or her students would benefit from library media skills instruction that began at the start of the school year. That library media skills instruction should be offered year around is not disputed by this researcher. Whether it is feasible in every case must rest upon a decision based upon all the resources that are available for such a
program to be undertaken. Miss Lashley claimed that she needed the first several months of the new school term to process and classify the new materials that had arrived at the library media center during the summer months. This work was not something with which students assistants could help.

SPATIAL RESOURCES (A-7)

The library media center at the Midland Elementary School was constructed from a classroom. Its dimensions are less than the standards set by the national standards committee. To meet these standards it would probably require a district-wide school levy to raise the funds necessary to build and operate a library media center that would be adequate in terms of size, materials, equipment and staff. With the present state of the nation's economy, it is doubtful that a new facility will be constructed in the near future.
INTENTIONS

Various internal and external conditions are necessary to facilitate learning. Previous discussion has labeled these as instructional strategies and events. The classroom teacher and the library media specialist promote the external conditions of learning. The student is responsible for shaping those conditions which are internal and which result from information processing.

CLASSROOM TEACHER (P-8.1, P-8.3)

The mode of presentation of media by the classroom teacher can be associated with its success in meeting the learning needs of the students. It is common knowledge that using an introduction and a follow-up, in conjunction with media, facilitates learning. The three fifth grade teachers varied in their methods of presenting media to their respective students. What is important for this study is not the utilization of an introduction or a follow-up for their own sakes, but for the sake of fostering a climate that would promote information retrieval. It would be useful to determine whether students tend to form search strategies for retrieving
Information as a result of media presentations which allowed for this kind of arrangement. The literature of audiovisual media contains helpful studies of the use of introductions and follow-ups as means for facilitating the learning of pertinent subject matter. These investigations might be useful in the design of research aimed at measuring the impact of such strategies upon information retrieval.

Discussion (P-8.2)

The most frequently used instructional tool in the classroom is that of discussion, which, however, is not a uniform technique. Rather, discussion includes both the initiation of information by the classroom teacher as well as for his or her solicitation of a response. When initiation predominates, there is little student involvement. However, when students receive encouragement to ask questions, the opportunities for student independence increases. The Observational System for Instructional Analysis (OSIA) once again proves to be a research tool that could be adequate for the measurement of such instructional phenomena.
Challenging (P-8.4)

When the classroom teacher "challenges" his or her students to find the answer to a question that evolves in the classroom, the question can arise as the result of a discussion either directly related to or only tangential to the subject under consideration. When either event occurs, the classroom teacher, in order to get the students to answer the question, relies heavily on reports and projects for student information retrieval activities that will involve the use of library media center resources. Should the classroom teacher already know the answers to questions for which students are expected to find answers? Very often the teacher does know the answer, but when he or she does not, the classroom teacher is likely to refer the student to the library media specialist or another expert. Interview techniques combined with observational analysis are required to secure the type of data needed to investigate the phenomena of teacher "challenges."
Already discussed in an earlier section was the task of coordinating the inequality between classroom and library media center dialects. The classroom teacher has several techniques for doing so. Among these are "key wording" and "screening." By providing the key words that will be used in the information retrieval strategy, the classroom teacher lessens the likelihood of failure in information retrieval searches by his or her students in the library media center. More generally, the classroom teacher will "screen" the student search and help reduce its difficulty by providing short cuts to the actual materials needed. This occurs when the classroom teacher furnishes the title of a book or when he or she tells the student to look directly in an encyclopedia. The referral to an encyclopedia often occurs when the classroom teacher knows that the library media center does not have the answer to the student's question in the materials shelved elsewhere in the stacks. Whether a teacher should "screen" a student search or not cannot be decided as a rule for all circumstances. The classroom teacher, and even the library media specialist, must know something about the ability of the student involved. If independent retrieval of information is an educational goal to be pursued, judicious "screening" is a necessary pursuit.
The phenomena mentioned above are complex ones. Observational analysis alone is not sufficient for an understanding of their subtleties. Interview techniques must supplement the aforementioned research approach. The classroom teacher reacts in ways not easily discerned by the observer. It would probably be wise to review the script of the instructional events with him or her in order to obtain an understanding of the observed behaviors.

Important Stuff (P-8.9)

The essential ingredient in the classroom context which leads to successful information retrieval is "choosing important stuff." Further investigations should to be undertaken in order to determine whether the concept is a valid one in this context a combination of interview and observational techniques are warranted. If "choosing important stuff" is verified as a component of information retrieval instruction, classroom teachers can be urged to develop instructional strategies which include its use.
The library media specialist has some intentions in common with the classroom teacher. Both faculty members are involved in planning lessons and in assessing the results of learning. An encouraging factor is that progress has been made towards using a microcomputer in library media skills assessment (Moskowitz, 1982).

A goal of library media skills instruction is the development of library media center users who are capable of independent information retrieval. When independent retrieval is not possible, the library media specialist usually intervenes so as to promote autonomy. In the operation of a library media center it is not an easy task to discern the presence and the operation of coordinating, screening and referencing strategies. While one can hope that a more controlled setting could be observed so as to permit the operation of sensitive instrumentation, research in the near future must depend upon naturalistic investigations for answers that have arisen as a result of this study in regard to library media specialist intervention into the information retrieval process.
The crucial point in the information retrieval process, at least as it is envisioned by this study, is the moment when the dialect of the classroom interacts with the dialect of the library media center. A successful interaction can lead to the retrieval of the appropriate information. The dialect of the classroom is the result of the choice by the pupil of "important stuff." The pupil "touches base" when he or she translates the "important stuff" into the dialect of the library media center, or more specifically, into that of the card catalog system. When the "important stuff" is subject oriented, and the pupil is able as a result of using the classroom dialect to choose the appropriate subject headings, he or she is said to have been "springboarding."

"Touching base" and "springboarding" will have a different character if and when the microcomputer becomes the instrument for cataloging and classification. The use of the microcomputer in the classroom is commonly accepted in many elementary schools. Computer literacy in the classroom could easily be transformed to computer literacy in the library media center. However, certain changes would have to be made. It would be unwise to translate the
catalog card into the same format for the microcomputer or
online catalog as that of the printed card. The existing
bibliographical format could be truncated for greater
efficiency. A by-product of the computerization of the
card catalog would be the ease with which an online
circulation system could be facilitated.

Computerization, however, should not be viewed as a
panacea for problems in library media skills instruction.
Although the process could be facilitated through
computerization, the need remains for a subject authority
file, and also a thesaurus of these headings. These
systems could be handled manually. "Springboarding"
promotes the use of subject entries in student information
retrieval searches. If the library media specialist keeps
an accurate record of subject headings, based upon Spear's
List, that are used in the card catalog, a thesaurus of
subject headings could be created and used to "coordinate"
the classroom and library media center dialects.
Many of the strategies used by students in the information retrieval process would remain unchanged even with the advent of educational technology. Observing, reading, listening and drawing are instructional events largely unaffected by computerization. Although there would be changes, these would not be as great as in the case of other student information retrieval strategies investigated by this study.

It is likely that much of the information available to a student will be online within the next several years. Efforts have already been undertaken to put encyclopedias in machine-readable form. The same will probably be true for most other reference books. The process of choosing "important stuff" will be made by the student sitting in front of a computer terminal. Copying will become editing, but unfortunately the issue of plagiarism will change little from its present level of eliciting concern.

Students will take notes and prepare reports and projects while manipulating the keyboard of a microcomputer. The market for home computers is growing and before many years the school may not have to bear the burden for providing students with access to computer hardware and software.
The use of the computer, however, will not alter the basic search process. Students will still need assistance in conceptualizing problems and questions that arise in the classroom and at home into a form that will facilitate searching for solutions and answers in the library media center or other information storage center. Although educational technologists, and library media specialists, too, may dream of a computer language that will bridge the gap between the classroom and the library media center, the use of natural language as a mode for computerized communication, that is, one that will meet the needs of technologists as well as users, has even the best computer scientists baffled at the present moment.

FACILITATIONS

Information Retrieval Potential (P-9.1)

Is there such a thing as an "information retrieval potential?" Such a measurement would be based upon the ability to determine when an opportunity exists for a student to retrieve information. At present the existence of such a factor, and the related concept of information retrieval skills potential, is based upon a construct
created abstractly from scripts of classroom interaction. The future use of an instructional analysis system such as OSIA could help establish the validity of such a concept.

The power of the Observational System for Instructional Analysis is that it allows for a view of instructional events that makes provision for the learner to be his or her own teacher. As library media skills instruction becomes better understood and as instructional programs are developed for its propagation, provision can be made for self-directed study. Whether learning be self-directed or directed by the classroom teacher or the library media specialist, learning will still consist of at least five basic varieties. These varieties include intellectual skills, verbal knowledge, problem solving, motor skills, and attitudes.

Classroom and Library Media Center (A-17)

As the student analyzes, synthesizes, differentiates and classifies, he or she will be manipulating symbols and can be said to be manifesting intellectual skills. Although nonprint materials have flourished in recent years, the student who is retrieving information will rely largely upon verbal information. In this respect, the
Important issue relating to learning and library media skills is whether cognitive strategies governing information retrieval behavior can be identified and taught. Motor skills play a lesser role in information retrieval, as they are usually conceived in library media skills education. However, there are many instances in which students learn from manipulating artifacts, one of which could be the stroking of the keyboard of a computer terminal. Attitudes, the final type of learning being considered here, are also important. The attitudes that children have towards information, and the apparent ease with which they can retrieve it, have an influence on their behavior which is indelible.

Considerable research has taken place in the development of learning theory that describes the types of learning that take place in the classroom. Such research designs could be modified to focus on the types of learning that take place both in the classroom and in the library media center in relationship to information retrieval. This study has focused upon the instructional aspects of information retrieval research. The research envisioned here would concentrate upon the investigation of the products of such instruction, the learning by pupils of information retrieval skills.
PRACTICE

This study has defined library media skills instruction as arrangers forming human, material, temporal and spatial arrangements with the intention of facilitating the learning by one's own self, or by another, of information retrieval skills. The theoretical developments of the previous section have shed at least some new light on the pathway of the classroom teacher and the library media specialist, educators who are concerned with teaching information retrieval skills to elementary school students. Specific practices cannot be projected at this stage of theoretical development, but the suggested research should eventually lead to practical applications within the classroom and the library media center.

ACTION RESEARCH

The school library media organization in the United States through its quarterly publication has promoted the concept of action research (Loertscher, 1979), an approach viewed as research undertaken by the practitioner in the field. Such studies do not require an extensive background in research methodology or statistics yet do
employ enough rigor so that results and conclusions have validity for specific programs in specific school library media centers" (p. 51). Its value is mentioned as a viable alternative to the lack of adequate research on library media skills instruction. Thus a library media specialist who wants to study his or her library media skills program with a degree of systematization should be encouraged to do so.

Yet another, and related, type of research could prove more useful than action research. Developmental research is directed at "determining whether, through particular interventions, desirable results can be achieved and if so under what conditions" (Sanders, 1981, p. 11). Library media skills instruction is a definite intervention into the curricular program of the elementary school student. This study has attempted to make a start in the direction of identifying the conditions under which such library media skills behaviors are fostered. To this extent this dissertation can be labelled as developmental research.

As long as their techniques are systematic and responsible, all interested persons are invited to pursue the quest for better understanding, prediction and control of library media skills instruction.
APPENDIX A

Fifth Grade Library Media Skills Instruction

I. Media Center Orientation
   1. Name media center personnel
   2. Observe media center
   3. Handle materials properly

II. Organization of Resources
   1. Locate almanacs, atlases, indexes, biographies, Reader's Guide, dictionaries

III. Selection of Resources
   1. Select correct materials for a specific topic
   2. Select correct index for a specific topic
   3. Identify criteria used in giving awards

IV. Utilization of Resources
   1. Identify and state the purpose of the basic information on a catalog card
   2. Use all available sources to collect information for a specific topic
V. Comprehension and Study Skills

1. Use almanacs, atlases, indexes, Reader's Guide, dictionaries

2. Take notes

3. Explain Dewey Decimal Numbering System

4. Identify parts of a book
APPENDIX B

Fifth and Sixth Grade Library Pre-Test

1. The author is

2. The title is

3. The illustrator is

4. The illustrations are

5. The copyright date is the

6. The Dewey Decimal System is

7. The call number is

8. The publisher is

9. Fiction means Fiction books are arranged in order by the

10. Non-fiction means Non-fiction books are arranged in order by subject

11. The card catalog is an

12. The three types of catalog cards are

365
13. An abridged dictionary is.................................
14. An unabridged dictionary is.................................
15. An encyclopedia is...........................................
16. An atlas is....................................................
17. The Reader's Guide to Periodical Literature is..............

Put the following call numbers in correct order:
Add McC Yat Han Car Uns Rho Hes Don
J821 J508 J301
Und Ste Chi

DEWEY DECIMAL SYSTEM
000 General Works, Encyclopedias
100 Philosophy, Thinking
200 Religion, The Bible
300 Social Science, Government and Community
400 Language, Words
500 Science, Nature
600 Applied Science, Building and Growing
700 Fine Arts and Recreation, Sports, Games, and the Arts
840 Literature, Plays, Poetry, and Short Stories
900 History, Geography, Biography, Past Events and People
For each title give the Dewey Class Name and Number:

1. Modern American Plays
2. Thunderstorms
3. The Old Testament
4. All about the Human Body
5. American Indians
6. Manners made easy
7. Space travel
8. What's Inside of planes
9. The Civil War
10. The Rainbow Dictionary

Under the picture of the book, write the general Dewey Class Number:

1. The Moon
2. Rockets
3. One God
4. Wild Flowers
5. Japan
6. World Book Encyclopedia
7. Music Is Fun
8. John Glenn
9. U.S. History
10. Community Living
11. You Can Write Chinese
12. Baseball Is Fun
13. Children's Poetry
14. World Geography
15. Rainbow Dictionary
16. How to Draw Cats
17. 100 Plays from Fairy Tales
18. How Puppies Grow
19. All about our Minds. How We Think
20. Greek Mythology

[A SAMPLE CATALOG CARD IS GIVEN]

Find the following parts of the catalog card:

1. Author
2. Illustrator
3. Publisher
4. Title
5. Call Number
6. Copyright Date
7. Subject
8. Total Number of Catalog Cards
9. Are the pages numbered?
10. Is the book illustrated?
APPENDIX C

Fifth Grade Library Test

1. Title is .................................................................
2. The author is ...........................................................
3. The illustrator ............................................................
4. The publisher .............................................................
5. The card catalog is an alphabetical ................................
6. Non-fiction means ......................................................
7. Fiction means ............................................................
8. The call number is made up of two distinct parts. They are the .................... and the ....................
9. The three main selection areas in the library are: ............................., .........................., and ..........................
10. The three types of catalog cards are:
11. An unabridged dictionary is ............................................
12. An abridged dictionary is .............................................
13. An atlas is ...................................................................
14. An almanac is .............................................................
15. An encyclopedia is .......................................................  
16. What is the difference between pleasure books and reference books?
Number the following in the order in which you would find them in the card catalog.

Exercise 1

- Law
- The last frontier
- Last race
- The law of life
- The last out

Exercise 2

- The new math
- Newman, James R.
- NEWSPAPERS
- NEW YEAR
- New tall tales

Exercise 3

- BOOKS AND YOU
- A book of fish
- BOOKBINDING
- Book of witches
- A book of bees

Don't forget that when titles begin with the words, A, An, or The, we skip that word and go on to the second word in the title. Our card catalog is alphabetized: word-by-word, not letter-by-letter.
Arrange the following call numbers in correct order:

Exercise 1

J629.131
Rai

J629.109
Lex

J629.130
Zim

J629.200
The

J629.020
McI

Exercise 2

J301.450
Man

J301.450
Ada

J310.420
Jef

J305.240
Bac

J320.430
Lof

Exercise 3

J796.330
May

J917.910
Car

J001.900
Coh

J629.450
Fri
What is the subject heading for this number?

J636.1

If the following information was on the top line of a catalog card, what type of catalog card would it be?

1. DOGS
2. Henry, Marguerite
3. ANIMALS—FICTION
4. Two guns of old Oregon
5. Alexander, Lloyd
6. WHALES

What do these symbols and abbreviations mean?

unp. illus. c I. T.
p. E J J

What information about the source should be given on the note cards?

1.
2.
3.
4.
5.

and if an encyclopedia, include the

6.
APPENDIX D

OSIA Definitions

**Thinking:** Any nonappraisal behavior in which a person is apparently reflecting on some substantive or managerial aspect of classroom instruction. Occurs when a person is consciously in communication with one's self.

**Senses:** Any nonappraisal behavior in which a person uses's one's senses, seeing, hearing, feeling, tasting and smelling, to take in information from an external source. The person is essentially in sensory communication with one's external environment.

**Manipulating artifacts:** Any nonappraisal behavior in which one manipulates or works with instructional artifacts or curricular-instructional materials. One is essentially in tactile contact with materials in the process of doing something with them.
**Initiates:** Any spoken, unspoken or mediated nonappraisal behavior that presents substantive or managerial information to another or others while being an expression of knowledge, a demonstration of motor behavior or an expression of feeling states or value preferences.

**Responds:** Any spoken, unspoken or mediated behavior that is evoked by an element in the instructional situation, i.e., the antecedent behavior of another or an instructional artifact. It is an expression of knowledge, demonstration of a skill or an expression of a feeling state or value preference.

**Solicits clarification:** Any nonappraisal behavior, spoken, unspoken or mediated that evokes or is clearly intended to evoke from another person a response that reveals the fuller meaning of an antecedent behavior of that person or product of his or her behavior. It may have involved expressions of knowledge, expressions of feeling states or value preferences or expressions through motor behavior. The behavior that it evokes or is intended to evoke the fuller meaning of may be in the form of a question, direction or suggestion.
Solicit: Any manifest, spoken, unspoken or mediated nonappraisal behavior that evokes or is clearly intended to evoke a response from another person in the instructional setting. The soliciting behaviors may ask for expressions of knowledge, expression of feeling states or value preferences, or expressions through motor behavior.

Judge correctness: Any manifest behavior, spoken, unspoken or mediated that responds or reacts to an antecedent behavior of the self or another, or to a product of such behavior in the instructional setting by judging the behavior or the product of behavior to have been logically, empirically or normatively correct to some degree. Publicly accepted criteria are invoked or could be invoked to support the judgment.

Personal positive judgment: Any manifest behavior, spoken, unspoken or mediated that responds or reacts to a person, self or another, an antecedent behavior of the self or another or to a product of such behavior appearing in the instructional setting by expressing personal, positive judgment about the person, behavior or product of behavior. The criteria for making the judgment are personal and arise from the feeling states or value preferences of the person doing the judging.
Acknowledgement: Any manifest behavior, spoken, unspoken or mediated, that responds or reacts to a person, self or another, or to a product of such behavior appearing in the instructional setting, by recognizing the person, behavior or product in ways that indicate that the person, behavior or product has been perceived. No judgment is explicitly expressed.

Judges Incorrectness: Any manifest behavior, spoken, unspoken or mediated, that responds or reacts to a person, self or another, an antecedent behavior of the self or another, or to a product of such behavior appearing in the instructional setting by judging the behavior or the product of behavior to have been logically, empirically or normatively incorrect in some degree. Publicly accepted criteria are invoked or could be invoked to support the judgment.

Personal negative judgment: Any manifest behavior, spoken, unspoken or mediated that responds or reacts to a person, self or another, an antecedent behavior of the self or another, or to a product of such behavior appearing in the instructional setting, by expressing a personal, negative judgment about the person, behavior or product of behavior. The criteria for making the judgment are personal and arise from the feeling states or value preferences of the person doing the judging.
Instructional nonfunctional behavior and events:
Behavior that clearly or apparently interferes with either
the creation of the nonsubstantive conditions for learning
or with the achievement of learning outcomes and/or serves
no apparent substantive, managerial or appraisal
instructional function.

Substantive behavior: Behavior that is directly associated
with achieving learning outcomes considered by those in the
instructional situation to be a legitimate part of the
subject matter of the field under study.

Managerial behavior: Behavior that is directly associated
with creating the nonsubstantive conditions that are
considered by those in the instructional situation to help
influence the achievement of learning outcomes.

Appraisal behavior: Behavior that judges or acknowledges a
person, a behavior or a product of a person's behavior who
is a member of the instructional situation.

Spoken behavior: The mode of expression that involves the
use of spoken word or language.
Unspoken behavior: The mode of expression that involves the absence of the spoken word or language.

Mediated behavior: The mode of expression that involves the use of some instructional medium, e.g., television and the overhead projector.

Private strategy: The instructional communication strategy that occurs when the person is not in communication with others. It indicates independent behaviors.

Expository strategy: The instructional communication strategy that is characterized by unidirectional communication from one person to one or more other persons. It indicates direct behaviors.

Reciprocal strategy: The instructional communication strategy that is characterized by reciprocal communication between two or more people. It indicates interactive behaviors.
APPENDIX E

Glossary

Access: Freedom or ability to obtain or make use of.

Access point: Starting point for information retrieval by pupils using the card catalog.

Activity: Pupil classroom or library media center behavior under the influence of events designed to provide conditions for learning.

Adjust: To achieve a balance between one's own needs and the demands of others.

Alphabetization: The arranging of items in the order of the letters of the alphabet.

Arranging: Making instructional resources available in various ways and combinations, or withholding resources.
Assessment: The act or instance of determining the importance or value of pupil work.

Association is the linking together of two or more phenomena as a result of internal cognitive relationships.

Author heading: One that utilizes the name of the author of the item as the access point.

Behavior: Overt action by a person.

Card catalog: Catalog of book and nonbook materials in which entries are arranged alphabetically on cards.

Card catalog system: All of the processes related to the use of the card catalog and which influence pupils in their retrieval of information in the library media center.

Carpeted area: Location in the classroom where a floor covering is used for special instructional purposes.

Cataloging is the library process whereby a bibliographical description of a media item is prepared to serve as a link between the item and a potential user of it. It forms part of the information delivery system.
**Catching up time**: Occurs when the classroom teacher selects for exclusive use the textbook of a specific subject. The result is discussion of the contents of the textbook to the exclusion of all other information resources both in the classroom and in the library media center.

**Challenging**: Occurs when a question arises in the classroom either from the experience of the classroom teacher or from the instructional setting which is operationalized through classroom teacher solicitation of a response from one or more pupils. The response is based upon either instant recall or information retrieval using an information storage and retrieval system. The response can also be based upon interaction with an expert. It is often an optional task.

**Change**: Make a difference in some particular way and to a certain degree.

**Choosing important stuff**: Cognitive strategy which allows the pupil through thinking, and discussion with the classroom teacher, to select that part of the total information already obtained from an information source which will now be used in either a report, a project or another learning activity produced by the pupil. The classroom teacher initiates keywording episodes in order to
alert the pupil to the classroom teacher's criteria for what is important in a particular information source, spoken, unspoken or mediated. Choosing important stuff is also facilitated by the use of notetaking and outlining, pupil information retrieval strategies to be discussed below.

**Circulation:** Occurs in the library media center when a pupil affixes his or her name to an item's circulation card and the card and the item are stamped with the date when the item is to be returned.

**Classification:** Systematic arrangement in groups or categories according to established criteria.

The **classroom** is a location where teacher and students engage in the learning of content areas as a result of classroom teacher instruction.

**Classroom dialect:** The dialect, written and spoken, used by the classroom teacher, his or her pupils and all instructional materials for the purpose of facilitating communication in the classroom setting.
Classroom teacher: One who has completed, and been certified for completing, a college-level program designed to prepare one for teaching a particular grade level, in this case the fifth grade, in a particular classroom setting.

Communication: Process by which information is exchanged between individuals through a common system of symbols, signs or behavior.

Community contexts: Context variables in the school district to which classroom teachers, library media specialist and pupils must adjust. Includes parents, public librarians and experts.

Conclusion: Instructional process of bringing to a close the practice or use of something.

Conditions: The internal capabilities and the external factors which, when appropriately applied bring about a change in the behavior of an individual.

A content area is a particular subject matter which together with other content areas compose the curriculum.
Coordinating: Occurs when the classroom dialect is matched to the dialect of the card catalog or other information system. The matching is initiated by the classroom teacher or library media specialist.

Copying: Reproduction of information, either spoken or mediated, utilizing intellectual and verbal information skills.

Copying in one's own words: Reproduction of important stuff in an information passage by a pupil. This is an independent behavior and operates through the use of verbal information and intellectual skills usually as a response to classroom teacher solicitation.

Copying word-for-word: Motor and verbal information skills utilized to transcribe an information passage exactly as it is written in the original source. Can also involve the copying of a picture.

Course of study: Official statement of what shall be taught in each school of a school district, as well as a form of communication. As the official statement of what shall be taught, it represents an educational commitment on the part of school personnel involved in its development and implementation and the Board of Education which approves it. As a form of communication, it tells school
personnel clearly and concisely what is to be taught in a
given subject or area of study for a particular grade or
combination of grades.

The curriculum is composed of the various content areas and
determines what students will be taught.

**Dependence**: Quality or state of being influenced by or
subject to another.

**Description**: Representation of the media item in terms of
such information as author, title, place of publication,
copyright date, number of pages and so forth.

**Dewey Decimal System**: System for classifying book and
nonbook media according to an organization of knowledge and
through the use of integers and decimal numbers.

**Diagram**: Graphic design that explains rather than
represents.

**Differentiation media**: Search for information that adds to
or is different from information already initiated in the
classroom.
Discussing: Occurs when the teacher initiates instructional information and solicits a response on the topic at hand from the pupil. There usually follows a further teacher reaction with additional initiation as the cycle continues.

Doing a project: Occurs in response to a specific solicitation from the classroom teacher. Pupils usually utilize private communication strategies to secure the information needed and are less likely to solicit assistance from a parent or other expert than they would in the case of challenging or reporting. The project may involve the use of nonbook media and these artifacts are often manipulated in front of the other pupils. Since the project can be lengthy, it is usually not read, at least not in its entirety, to the other pupils. Projects are carefully assessed and usually receive a major grade.

Enjoyment: Action or state of taking pleasure or satisfaction in an information retrieval activity.

Entry: Record of a book or nonbook item in a card catalog.
Experience: Sensory stimuli processed beyond the sensory register in the human nervous system.

Experts: Persons having, involving or displaying special skill in or knowledge of a particular subject or topic.

Free time: Occurs when pupils are free to engage in an activity of their own choosing in the library media center.

Grouping: The instructional focus when the classroom teacher interacts with at least two but less than the total number of pupils in the entire class.

Heading: A name, word or phrase placed at the head of a catalog entry to provide a point of access in the catalog.

Human resources: One's self or others in the instructional setting.

Independence: Quality or state of not being influenced by or subject to another.

Index: List of items treated in a printed work that gives for each item the page number where it may be found.
Individualization: The instructional focus when the library media specialist interacts with a single pupil.

An information need is the occasion when a "hitch" arises either in the classroom or out of it and which could result in a search for locating information that would resolve the anomaly.

Information retrieval is the recovery of information that has been stored in various media.

Information retrieval behavior: Act or process of securing knowledge that has been stored in an information storage and retrieval system.

Information retrieval potential: Measure of the possibility for the classroom teacher or a pupil to make a solicitation that calls for information retrieval. The opportunity arises before, during and after class time and its fulfillment involves the use of the library media center or other information system, including experts. A potential can exist without being taken advantage of by the classroom teacher or a pupil. It is recognized through the use of criteria established by the person analyzing instruction.
**Information retrieval skill:** The library media skill which enables one to retrieve information from an information storage and retrieval system.

**Information retrieval skills instruction:** Process of arranging human, material, temporal and spatial resources with the intention of facilitating one's own or another's ability to retrieve information.

**Instruction** is the process of arranging human, material, temporal and spatial resources with the intention of facilitating one's own learning or the learning of others.

**Instructional events:** Manifest and observable behaviors of the classroom teacher, the library media specialist and pupils in the classroom and/or in the library media center.

**Instructional media** are the components of a system that stores and/or distributes human experiences for educational purposes.

**Instructional objective:** Instructional event towards which effort is directed.
Interaction is the relationship between the media center teacher and the classroom teacher in which one of them adds to, subtracts from or has no effect upon the teaching of library media skills by the other.

Interest: Feeling that accompanies or causes special attention to an object or class of objects related to information retrieval.

Introduction: Instructional process of bringing something into practice or use through initiation.

A key word is a significant word from the curricular context which is used by a student in his or her search for information. Key words may or may not be used in relationship to the cataloging system.

Lesson plan: Statement of intent by the classroom teacher in transforming a course of study into instructional activities.

Learning: A predisposition to change in human behavior that is a function of experience, including the predisposition for the elimination of behaviors by extinction or substitution.
The library media center is where instructional media are stored by a library media specialist according to a cataloging system. Students are encouraged to retrieve and interact with instructional media made available through their information retrieval searches.

Library media center dialect: The dialect, written and spoken, used by the library media specialist, his or her pupils, and all instructional materials for the purpose of facilitating communication in the library media center setting.

A library media skill results from learning how to produce, store, retrieve or utilize information.

Library media skills instruction occurs when the classroom teacher or the library media specialist arranges human, material, temporal and spatial resources with the intention of facilitating student learning of library media skills.

A library media specialist is one who has completed and been certified for completing a college-level program designed to prepare him or her for administering a media center and for teaching library media skills at all grade levels, K-8, in a library media center.
Library media specialist behavior: Acts and activities of the library media specialist in the library media center.

Material resources: Media, artifacts and natural living and non-living substances.

Measure: Determine the degree of competence in a skill.

Media: A system that can store and/or distribute human experience.

Mini-library: Collection of media in the classroom selected by the classroom teacher for specific instructional purposes.

Motivation: Something that causes a pupil to act in an information retrieval situation.

Notetaking: Motor and intellectual skills of summarizing a written or spoken passage according to accepted criteria of what is most important and usually as a response to the classroom teacher or the workbook.

An opportunity is an occasion when an anomaly exists in the curricular setting which causes a student, either as a result of teacher instruction or as a result of independent motivation, to resolve the anomaly through the construction of an information retrieval strategy. Thus, an information retrieval potential can exist as either a planned or a spontaneous opportunity for information retrieval.
Outlining: Motor skill and cognitive strategy whereby notetaking is structured in such a way so as to show the relationships and the relative importance of the components of a passage contained in an information source and which is usually carried out as a response to classroom teacher or workbook solicitation.

Parents: Father and mother of pupils who retrieve information.

Pass: A slip of paper or other object that signifies that the pupil possessing it may leave the classroom for a visit to the library media center.

Personal interest media: Any item which is not selected as a response to classroom teacher solicitation.

Presentation: Instructional process of setting forth or initiating information for the attention or response of the pupil.

Protest: Measure of pupil library media skills ability taken prior to the beginning of library media skills instruction.
Project: See Doing a Project.

Properties: Pupil characteristics such as enjoyment, interest and motivation.

Public Librarian: Professional who operates the library supported by community funds.

Pupil: A member of the fifth grade who is taught by a classroom teacher and who visits the library media center where he or she is taught library media skills by a library media specialist.

Pupil Classroom and Library Media Center Behavior: Acts and activities of the pupils in the classroom and in the library media center.

Referencing: A form of screening in which the library media specialist refers the pupil to a specific book or nonbook item in the library media center or to a specific section of items located on one or more shelves of the library media center's collection.
Referring: Occurs when the classroom teacher sends one or more pupils, but less than the entire class, to the library media center or to an expert to retrieve information that cannot be retrieved in the classroom.

Reporting: Occurs in response to a specific solicitation from the classroom teacher. The pupil usually uses a private communication strategy to secure the appropriate information but may also solicit assistance from a parent or other expert. The pupil's response is written but may be read aloud to the rest of the pupils. The product is usually assessed.

Representation: Use of a symbol to refer to another item.

Requisite skills: Ability to utilize all of the information on the catalog card.

Reserve items: One which under regular circumstances would be permitted to circulate for a regular period of time, but whose use is now restricted according to regulations determined by the library media specialist.
Schedule: To appoint, assign or designate for a fixed time.

School contexts: Context variables in the school to which classroom teacher, library media specialists and pupils must adjust.

Screening: Occurs when the classroom teacher performs part of the information search for the pupil or pupils so as to facilitate the chances for a successful student information retrieval activity. Screening takes the form of a discussion between the classroom teacher and one or more pupils.

A search strategy occurs when a student develops a plan for retrieving information as a result of exposure to various key words in the curricular context that give directions for such a plan. These key words can be the result of either instruction or the student's own cognitive processes.

Sear's List of Subject Headings: A volume that categorizes knowledge through the use of subject headings.
Selection: Occurs when the classroom teacher decides to use one or more material resources to facilitate the learning of the pupil.

Selection time: Occurs when pupils decide what items in the library media center they will put into circulation for a specific period of time.

Spatial resources: Material resources as arranged in space; including, classrooms, subdivisions of classroom space facilitated by movable furniture, and the library media center.

Springboarding: Occurs when the subject approach to information retrieval, whether as a result of the pupil's own initiative or the library media specialist's prompting, is used by the pupil in his or her search for information in the library media center.

Fifth graders are students who have been evaluated as having successfully completed the first four levels of the elementary school curriculum.
Subject: Branch of knowledge or learning.

Subject heading: Key word or key words used to express the essence of a particular topic.

Success: Attaining an objective or goal.

Table: Systematic arrangement of data usually in rows and columns for ready reference.

Table of contents: That part of a book which lists its contents, usually in the order in which they appear in the item.

Teacher classroom behavior: Acts and activities of the classroom teacher in the classroom.

Teaching consists of instruction, teacher planning and student evaluation.

Imperial resources: Clock time.

Title heading: One that utilizes the title of the item as the access point.
**Tutoring**

Specifically, the use of one or more headings from the card catalog for the purpose of pupil information retrieval. Generally, a discussion between the library media specialist and a pupil in which the pupil is encouraged to apply the requisite skills involved with the successful use of the card catalog.

**Tutoring**: The instructional focus when the classroom teacher interacts with a single pupil.

**Verification media**: Search for information to substantiate information already initiated in the classroom.

**Visit**: Occurs when the pupil or classroom teacher enters the library media center for a period of time.
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