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Factors Affecting the Adjustment of Iowa High School Graduates to the Use of the University of Northern Iowa Library

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Findings related to the hypotheses are as follows. Data showed that the UNI print collection was twenty-eight times larger than the average collection of the largest school enrollment category. Less than fifty percent of those schools surveyed reported having either m:icrafilm or microfiche. Over fifty percent of the library media specialists surveyed taught skills in orientation and library citizenship. Less than fifty percent of those surveyed taught organization of resources skills, selection and retrieval of resources skills, utilization of resources skills, study skills, and production skills. Less than fifty percent of the library media specialists surveyed instructed students in identification and description of a specific information need, subject reference sources and indexes other than the Readers' Guide, classification systems other than the Dewey Decimal System, limitations of the location~ tools included in the school library media center collection, the research process, and the importance of examining all sides of an issue. Less than fifty percent of the library media specialists surveyed reported having a program which was written and sequentially planned.

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Table of Contents

List of Tables

List of Tables (cont'd.)

CHAPTER ONE

Introduction

Library instruction has always been considered a part of the school library media specialist's responsibilities. However, the increased attention library instruction received in the 1970s brought about new theories regarding what should be taught, when it should be taught, and how it should be taught.

Library skills manuals began appearing which touted the logic of sequential instructional planning from elementary through middle school or senior high school. A wide array of presentation methods became available, ranging from worksheets to filmstrips and computer presentations.

Although library instruction has become increasingly more sophisticated, it is difficult to determine if any uniformity of experience for students exists. What library instruction can one expect an Iowa graduating high school senior to have been exposed? Answers to this question certainly have implications for the university library personnel, university bibliographic instructors, as well as high school library instruction curriculum planners. A better understanding of the high school senior's library instruction exposure can serve as a point at which further library skills instruction can be initiated at the high school and/or university level.

An examination of library skills manuals and curriculum guides may indicate what their individual authors feel is necessary for students to learn. Is there any consensus among these authors and, if so, do the schools of Iowa agree with them and attempt to provide instruction in these

library skills? Identifying problems which university personnel have determined to affect the adjustment of incoming freshmen to the university library may also have implications for future curriculum planning at both the high school and university levels.

Purpose and Research Problem

The purpose of this study was to better define the status of library instruction of students coming from the major contributing high schools to the University of Northern Iowa. A more realistic picture of the students' exposure to library skills, the research process, and orientation to their high school library media facilities was gained and, thereby, an identification of problem areas which could be addressed at the high school level and problems which could realistically be solved only at the university level.

Specific research questions investigated were:

1. How does the size of school library media center print collections at the University of Northern Iowa's major contributing high schools compare to the size of the library print collection at the University of Northern Iowa?

2. To what library skills have graduates from the major contributing high schools to the University of Northern Iowa been exposed?

3. Are school library media specialists including in their library instruction programs content and experiences which will help graduating senior students adjust readily to the use of a university library?

4. Do the major contributing high schools to the University of Northern Iowa have a written, sequentially planned library instruction program?

The hypotheses tested were:

1. The University of Northern Iowa library's print collection, including books and periodicals, will be at least ten times larger than the average size of the print collections in the larger contributing high school library media centers.

2. The majority of the major contributing high school library media centers will have no materials on microfilm or microfiche.

3. Fifty percent or more of the school library media specialists surveyed will indicate that they provide formal instruction in each skill listed under the following categories:
   a. Orientation and library citizenship
   b. Organization of resources
   c. Selection and retrieval of resources
   d. Utilization of resources
   e. Study skills
   f. Production of materials

4. Less than 50% of the school library media specialists surveyed will indicate that they include instruction in each of the following:
   a. Identification and description of a specific information need
   b. Subject reference sources and indexes other than the Readers' Guide to Periodical Literature

c. Classification systems other than the Dewey Decimal system such as Library of Congress or Superintendent of Documents

d. Limitations of the locational tools included in the school library media center collection

5. Fifty percent or more of the school library media specialists surveyed will indicate that they include formal instruction specifically in both the research process and the importance of examining all sides of an issue before drawing conclusions.

6. Less than fifty percent of the major contributing high schools will have written, sequentially planned programs of library instruction.

Significance of the Study

The significance of this study was the insight gained about the experiences in library instruction which students have had in the University of Northern Iowa's major contributing high schools. An analysis of library instruction experienced, whether the students have learned it or not, has implications for what more could be done by the high schools to better prepare the students for using an academic library. The analysis could also result in more realistic expectations by university people regarding incoming freshmen and could be used in planning library bibliographic instruction at the university level.

Assumptions

For the purposes of this study, it was assumed that the person or persons responsible for the school library media center in each of the major contributing high schools were knowledgeable concerning the school

library media center and its program of library instruction. The assumption was also made that the school library media centers of these major contributing high schools included a card catalog or other organizational tool for locating books and other materials and the Readers' Guide to Periodical Literature or other similar indexes to periodical articles.

It was assumed that some library instruction is necessary to enable students to utilize the information sources within a school library media center or a university library. It was further assumed that library instruction learned at the high school level has the potential to be transferred and applied in another library, such as the university library. The assumption was also ~~being~~ made that high school library media specialists and university library personnel want to provide the best learning experiences for their students, and that this learning will be based on library skills which these professional persons perceive are necessary for students to functionally utilize the school library media center or the university library.

Limitations

The results of this study can be generalized only to the major contributing high schools to the University of Northern Iowa. Furthermore, the results can be generalized only to the formal library instruction experiences these major contributing high school students are likely to have had at their high school library media center, and not to the informal, point-of-need instruction. This researcher recognizes that such generalizations are of limited scope and do not include any learning experiences the students may have gained from sources outside the school

library media center such as learning library skills from teachers other than the school library media specialist, public library personnel, or university library personnel.

The library skills included in the survey represent only those library skills to which the students in these high schools are likely to have been exposed and do not necessarily represent those library skills which the students have actually learned. Furthermore, a library skill, even though it has been learned, does not necessarily insure that knowledge of the library skill will be transferable to all other libraries.

No attempt was made to include all characteristics or variables which may be included in the high school library media center instruction programs in the population surveyed, nor was there any attempt to evaluate the quality existing in such programs.

Definitions

In this study, a high school is stipulated as being a school which includes grades ten, eleven and twelve. These may be schools containing kindergarten through twelfth, seventh through twelfth, ninth through twelfth or any combination which includes the grades ten through twelve in the same school. A major contributing high school is a school which meets the definition of a high school set out above and which is located in the Northeast zone of the state of Iowa. The area of the Northeast zone is identified by the University of Northern Iowa's Office of Admissions (1985), as containing 24 counties and 50.8 percent of the freshmen entering the University of Northern Iowa directly from high school. (See Appendix A for a map with the counties highlighted.)

A school library media center is defined as being an area or system of areas in the school where a full range of information sources, associated equipment, and services from school library media professionals are accessible to students, school personnel and the school community (American Association of School Librarians & Association for Educational Communication and Technology, 1975, p. 111). A school library media professional, used interchangeably with the term school library media specialist, is defined as being the person who "qualifies by training and position to make professional judgments and to delineate and maintain media programs or program components." (American Association of School Libraries & Association for Educational Communication and Technology, 1975, p. 110).

Library instruction is "an information service to a group, which is designed to teach library users how to locate information efficiently. The essential goals of this process are an understanding of the library's system of organization and the ability to use selected reference materials" (American Library Association, 1983, p. 22). The term "library instruction" applies only to a high school program and the term "bibliographic instruction", while having the same meaning, applies only to the college or university level of instruction. In this study, a library instruction program is an organized plan to carry out library instruction as described above.

Library skills are defined as skills which fall into the following categories as identified by Gillespie and Spirt (1973): orientation and library citizenship, organization of resources, selection and retrieval of resources, utilization of resources, study skills, and production of materials.

The research process is a search strategy that was defined by Spirt (1979) as "...a logical process by which scattered knowledge is organized into a coherent pattern..." (p. 129). This process involves a logical progression from selecting and narrowing a subject through finding appropriate subject headings, general reference sources, locating and utilizing existing bibliographies, finding specific reference sources, taking notes, collecting bibliographic and footnote information and organizing the information found into a product.

CHAPTER TWO

Literature Review

The body of literature about library instruction appears to be divided between theory and practice - why, what, how and when one should teach. Library instruction is taught in both the elementary and secondary school systems and at the college level where it has come to be known as bibliographic instruction. Because of these two distinct groups of literature consumers, the theory and practice literature is usually either aimed toward the school systems or the universities. Very little seems to exist that interfaces ideas between these two groups, even though their ultimate goals are the same.

Frequent complaints are aired by college librarians regarding the ill-preparedness of incoming college freshmen. Biggs (1979) attested that: "After two years of administering a very active undergraduate library instruction program, I find that incoming freshmen - without a single exception that I have observed - lack all but the most rudimentary library skills" (p. 44). Doyen (1981) concluded, after her survey of students enrolled in a library instruction class at Miami (of Ohio) University, that "...students are leaving Ohio public schools and entering college often with little or no previous instruction in library/media center use" (p. 62). Echoing this opinion is Dickinson (1981) who stated, "Whatever, if anything, is being done now by way of library user education in the nation's school systems, it is clearly inadequate" (p. 854).

The inability of university students to effectively utilize library resources has also been noted by non-library university personnel. In a study undertaken in 1975 and 1976 by the User Education Committee of the

General Libraries of the University of Texas at Austin (1977), university faculty were surveyed regarding their observations of students' library skills. A majority (78.9%) of the faculty rated their undergraduate students' abilities to use library resources as fair to poor even though 88.7% of the students indicated that they had instruction in the use of their high school library media center. Of the faculty surveyed, 84% felt that their students "did not possess the necessary library skills to do college assignments when they entered the university" (p. 17).

Since this researcher could locate no literature on the results of library instruction which would lead one to conclude that students going to college from secondary schools possess adequate library skills, there appears to be a noticeable lack of library skills among persons graduating from high schools, at least as perceived by most authors of bibliographic instruction literature.

At first glance, the problem seems straightforward: high school graduates appear to be inadequately prepared for college library use; therefore, the public and parochial school systems should prepare them better. This, however, implies that there is a point at which high school library instruction should end and college-level bibliographic instruction should begin. The point of contention then is division of labor. Which level is responsible for what? Is the school system responsible for everything a student needs to know concerning library skills? Is the school system responsible for half and the college responsible for half?

In order to answer these questions, one must first attempt to determine what library skills have been identified as contributing to a university student's ability to effectively carry out library research work. Although literature written from a university point of view which alleges

the inadequacy of library instruction on the high school level is not difficult to locate, this researcher had considerable difficulty identifying specifically what these authors felt the high school students should have learned before entering college.

McCarthy (1982), through her observations of reference patrons, noted many factors which affect a student's ability to utilize the university library. She claimed that inadequate library instruction can lead to mistaken opinions on the part of the student as to how much they know in relationship to how much they need to know. Students are over-confident, in some cases, missing out on some useful resources which they could utilize but do not because of their misconception that they are already aware of everything they need to know.

Guilt and embarrassment among students is also a frequent by-product of this situation. Students frequently feel guilty for not knowing everything they need to know and then are too embarrassed to ask for assistance when they feel that what they need to know may be very elementary (McCarthy, 1982). Student frustration is another common observation. McCarthy inferred that because students were unprepared for the complexities of an academic library, they became frustrated when they found out it was not always possible to use the library without problems.

Kieffer (1985), in his observations of reference patrons at the University of Northern Iowa library, also concluded that students underestimate or misjudge the scope and complexity of the library. Some students think that because it is a university library, it will have everything. They become frustrated when they want a periodical to which the library does not subscribe.

Kieffer disclosed that many students tend to place too much confidence in the card catalog and Readers' Guide. They seem to be unaware of the limitations of these tools. Farber (1984) also concurred that students are too dependent on the card catalog and that they tend to see it as leading them to any and all information in the library.

Many students feel overwhelmed by the idea of the research process according to Kieffer. They are unfamiliar with the research process and are surprised at its complexity. Doyen (1981) echoed this observation and added that students lacked self confidence to conduct research because of their unpreparedness in library skills.

Kieffer disclosed that students have difficulty asking questions. They have not learned to think through what they wish to learn and to put their wishes into concrete questions. Another problem Kieffer recognized in students concerns justification of predrawn conclusions. Students often ask to find only information which will support a point of view they already have. They are not willing to examine all sides of an issue before deciding upon a view.

Kieffer advocated that students should come to the university with an appreciation of the complexity of the library and an appreciation of the library as a source of information. He also suggested that students should learn how to ask questions, but most of all, that they should feel confident enough to ask for help.

Biddle (1981) agrees about the importance for students to ask questions and commented that an understanding of library vocabulary is necessary. McCarthy (1982) also maintained that it is essential for students to ask questions. She attested that patrons who have more experience using the library are more willing to ask for help and

concluded that "What can be really helpful, if it can be achieved, is the attitude that there is always more to learn about libraries" (p. 38).

In Buddy's (1982) preliminary study, academic librarians were interviewed to determine the causes of what she called "research shock," a term she applies to the reaction students have when required to use the academic library. Of those librarians interviewed, a majority noticed that students were "intimidated" by the size of the physical facilities. Introduction to the Library of Congress classification system also appeared to produce "research shock." Students were "hesitant and apologetic" about asking for help (p.100).

In a later study the same year, Buddy (1982) observed problem areas for university students. She contended, after her study to familiarize high school seniors with "specialized reference tools, techniques of research strategy and writing, and an academic library environment," that students should be exposed to the academic library at the high school level (p. 99).

Merriam (1982), in her study of feeder high schools to the University of Massachusetts at Amherst, gathered together information concerning the physical quantity of school library media center materials at these feeder schools and compared them with the University of Massachusetts at Amherst's library statistics. One of the recommendations resulting from this study was that high school library media specialists should visit university and college libraries so that they can better prepare their students for what they may encounter at the academic library. Merriam recommended that the wider range of materials and "finding aids" available at the academic library should be made known to the high school student (p. 10).

Recommendations of specific library skills which high school students should be exposed to before entering college were difficult to find. Biddle (1981) was as specific as this researcher could find. She advocated that high school students should be familiar with the "card catalog, periodical indexes, reference works, and how they are arranged" (p. 162). She also inferred that any library skills students obtain need to be transferable to other situations and materials.

The question arises, Are these library skills mentioned by Biddle enough? Do any other exist? After surveying four handbooks on school library skills instruction and three curriculum guides from different school systems or states, this researcher concluded that there exists a body of library skills which are included in most handbooks and curriculum guides (Davies, 1974; Gillespie & Spirt, 1983; Hart, 1978; Prostano, 1982). The majority of the sources this researcher surveyed advocated that certain library skills should be taught, and that they should be taught in a sequential manner starting in the elementary school and continuing through high school (see Appendix B). Gillespie and Spirt (1973) urged that all school districts should develop a "sequential instructional plan that indicates the skills to be mastered at various grade levels" (p. 39). Although a sequential plan seems to be recommended by handbooks, curriculum guides and authorities in the school library instruction field, whether school systems are following these recommendations is difficult to determine.

The American Association of School Librarians and the Association for Educational Communications and Technology in their book Media Programs: District and School (1975), also recognize that library skills are cumulative and the responsibility for students' progress should be shared

and extended by each successive school library media program students encounter as they progress through their education. Toifel and Davis (1983) concluded that "librarians at the higher academic levels should have a vital interest in the extent and quality of the relevant preparation being afforded those students at lower levels" (p.211).

This researcher could find little evidence in the literature of any high school library instruction program that outlined what was needed at the university level and planned its program accordingly. Likewise, little evidence was found of university or college bibliographic instruction programs being planned around what was specifically identified as a generic body of knowledge concerning library instruction which one could assume to exist at the high school level. If a sequence of specific library skills and activities was a commonly accepted plan, then university bibliographic instructors would appear to have a fairly clear basis for planning their own bibliographic instruction.

Although many authorities recognize a core of library skills, this is no guarantee that library instruction programs are being planned with these specific library skills as functional objectives in mind. Lubans (1974) speaking of university library-use instruction, conceded that:

> Most library-use instruction is based on what we as librarians think library users need to know. It is this educated guess work on perceived need on which many programs...have been based. Since we are prompted to action by what we observe is lacking in the library users need, our response is apt to be a type of bibliographic first aid (p. 232).

This admission has led to the conclusion that either the university persons responsible for bibliographic instruction are aware that students have been exposed to a certain body of knowledge regarding library

skills, or that their own observations have led them to conclude that the students are not being exposed to this knowledge.

Most of the literature on library instruction seems to indicate that students from high schools are coming to academic libraries inadequately prepared to cope with the complexities of the facilities or materials. Although authorities in the school library instruction field appear to have identified a core of library skills which should be taught on the school level in a sequential manner, university personnel are still planning their library instruction around what they perceive the students need to know. A gap appears to exist between what the school library skills teachers think they are teaching their students and what the university bibliographic instructors believe that the students need to know.

The American Association of School Librarians (1983) in its response to the Nation At Risk report and its implications for the education of students reasoned that the school library media specialists could, because of their training and abilities, make many contributions toward meeting the recommendations set out in the Nation At Risk report. The AASL pointed out that school library media specialists could "Provide and develop a comprehensive, goal-oriented list of library learning skills and research activities designed for effective and efficient use of instructional materials during the school day and at home" (p. 2).

Are students being exposed to a body of knowledge which has been identified by school library instruction authorities? Are attempts being made by school library media specialists to lessen problems students may have in adjusting to university library use as identified by university spokespersons? More specifically, are students from the major contributing high schools to the University of Northern Iowa being

exposed to a body of knowledge related to library use? Until the status of their library skills exposure can be identified, the extent of the resulting gap between school library instruction and university bibliographic instruction can not be clearly identified. No division of labor can exist without first identifying what labor is to be divided.

CHAPTER THREE

Methodology

Library instruction can occur on two different levels. Gillespie and Spirt (1973) have identified these two levels as formal and informal. Informal instruction is that which takes place at the point-of-need. When a student asks a question and the school library media specialist provides the student with the wherewithall to answer it himself or herself, the school library media specialist is providing informal instruction. Formal instruction is that which involves preplanned lessons usually presented to a group of students. Although the importance of informal library instruction is recognized, for the purpose of this study, only formal library instruction has been investigated in order to discover if any uniformity in library instruction course content exists.

This researcher recognizes that adequate staff time and library instruction integrated into classroom activities are important factors in the effectiveness of library instruction programs; however, the scope of this research did not include these factors.

The major focus of this study was centered around identifying the library skills taught at the major contributing high schools and identifying attempts made on the part of the high school library media specialist to alleviate problems freshmen have in adjusting to university library use as identified in the literature review.

The research concentrated on the University of Northern Iowa and the high schools which send the majority of new freshmen to it. The high schools were located within the Northeast zone of Iowa which contains 24 counties in the Northeast section of the state of Iowa. (See Appendix A

for a zone map.) This zone was designated by the Office of Admissions at the University of Northern Iowa (1985) as containing 50.8 percent of the new freshmen students enrolling in the University of Northern Iowa. Schools included in this study were high schools which are approved by the Iowa Department of Public Instruction (DPI) and listed in the Iowa Educational Directory, 1985-86 (DPI, 1985). Malcolm Price Laboratory School at the University of Northern Iowa was also included in the study, but the Iowa Braille and Sight Saving School at Vinton was not included because of its unique character. Excluded, also, were alternative schools and "Specially Approved Schools" as identified in the Iowa Educational Directory, 1985-86 (DPI, 1985). The population was selected because of its significant contribution of new freshmen to the University of Northern Iowa.

A cover letter and a survey instrument (see Appendix C) were sent on February 1, 1986, to a school library media specialist in each high school in the Northeast zone, explaining the purpose of the study and requesting that the questionnaire be completed and returned within three weeks, by February 21, 1986. Those library media specialists not replying by February 25, 1986, were sent a follow-up letter. The researcher chose to cut off the returns as of March 8, 1986, and disregarded any returns received after that date.

The names and addresses of the school library media specialists in the population group were obtained from the list of school library and audio visual personnel produced by the DPI and titled Basic Educational Data Survey, 1984-85 (1984). School library media centers, which did not have school library media specialists' names listed in that list or were known by this researcher to have changed personnel within the last year,

were addressed to "school library media specialist" or to the name of the new school library media professional, if known. Addresses for these unlisted schools were obtained from the Iowa Educational Directory, 1985-86 (DPI, 1985).

The questionnaires were coded to enable a follow-up letter (see Appendix D) to be sent to those members of the population not returning the survey instrument. All responses were kept confidential and no individual school identification was included in the study report. The code numbers on the survey instruments were eliminated when the instruments were returned and before data were compiled.

Information about print and non-print materials in the University of Northern Iowa library was also gathered for comparison purposes using University of Northern Iowa Cataloging Statistics, July 1, 1984 - June 30, 1985 (University of Northern Iowa Library, 1985).

CHAPTER FOUR

Analysis of Data

Data about the materials contained in the school library media centers at the selected schools were gathered and compared to data gathered at the University of Northern Iowa (UNI) library. Data about the library skills as identified by authorities in the field of school library instruction (see Appendix B), were also gathered from the major contributing high schools. Data concerning problem areas identified by reference personnel at UNI's library and reference studies done by other reference personnel were collected from the major contributing high schools as well. Data related to each hypothesis were compiled and the number of responses was converted into percentages rounded to the nearest tenth of a percent in order to accept or reject each hypothesis.

A three week deadline was mentioned in the cover letter which accompanied the questionnaire. Eighty-five responses were received by February 25, 1986, when forty-two followup letters were sent. Nineteen additional questionnaires were received by the cutoff date of March 8, 1986, for a total response of 104 or 81.9 percent of the 127 questionnaires sent. One questionnaire was received after the March eighth cutoff date and was not included in the results.

Two of the questionnaires received were discarded because the respondents had answered very few (less than 20%) of the questions on the instrument. One respondent stated that lack of time was a problem while the other gave no explanation. The total usable responses were 102. One respondent became confused on the skills area of the questionnaire which included questions eighteen through twenty-three. This respondent

reported the location in the school where instruction in these skills was taking place instead of the type of instruction being provided in these skills as directed by the instructions. Since the remainder of this respondent's answers was usable, only the responses to the skills questions were disregarded.

Averages and percents are based on the number of respondents actually answering each question; therefore, the total number of responses will not always be 102, but the total percents should be about 100. Any variations in percent totals is due to rounding.

Data from the questionnaires were compiled by enrollment size of the secondary schools. Eight respondents did not indicate the enrollment size of the secondary school in which their media center is located. Enrollments for two of these were obtained from the Area Education Agency 7. The other enrollments were obtained from the Electronic Directory of Education data base (1985).

The enrollments of the schools ranged from 60 to 1,861. The first category "A" with enrollments of 60 to 249 students contained 40 or 39.2 percent of the responses. The second category "B" with enrollments of 250 to 499 students contained 39 or 37.5 percent of the responses. The third category "C" with enrollments of 500 to 1,861 students contained 23 or 22.5 percent of the responses.

The purpose of this study was to investigate library instruction at the secondary level; therefore, all schools in the Northeast zone containing grades ten through twelve were included in the survey. Two respondents did not indicate the grades served by their library media center. The researcher discovered this information by use of the Electronic Directory of Education data base (1985). A majority of the schools surveyed (53.8%)

contained secondary grades nine through twelve. Another 35.3 percent contained grades seven through twelve.

Questions three through seven on the questionnaire requested data about the print collection of the library media center. Response categories were the specific material types of fiction, non-fiction plus biography, reference, magazine, and newspapers, to more closely resemble typical reporting or inventory categories for library media center collections. Data for each material type were totaled by enrollment category and divided by the number of respondents in that category to determine an average. The total average size of the print collections in enrollment category "C" was then compared to the total of the UNI library's print collection. (See Table 1.)

Table 1

Number of Materials in Print Collections in the UNI Library and Secondary School Library Media Centers

Type of Material	UNI	Size A		Size B		Size C	
		No.	Ave.*	No.	Ave.	No.	Ave.
Fiction	68,046	35	1,626	34	2,068	22	3,482
Non-fiction & Biog.	350,612	35	3,267	33	4,669	22	10,476
Reference	9,396	37	371	33	518	22	1,046
Magazines	4,912	36	49	38	79	22	106
Newspapers	70	38	5	38	6	22	5
Total	433,036		5,318		7,340		15,115

*Total of all materials by type divided by number of respondents

Data in Table 1 show that the total number of titles in the print collection at UNI's library is 433,036. Since this is more than twenty-eight times the size of the average collection of the largest school category (15,115) hypothesis 1, "the University of Northern Iowa library's print collection, including books and periodicals, will be at least ten times larger than the average size of the print collections in the larger contributing high school library media centers", was accepted.

Since it was not the intent of this researcher to determine the average size of the non-print collections at the surveyed schools, but to determine if the students at these schools had access to such non-print collections, an average size of the non-print collections was not calculated. The data are presented in Table 2 by the number and percent of respondents reporting that their school had materials in these categories. The above presentation method was selected because the researcher suspected that some respondents mistakenly reported the total number of microfiche sheets instead of the total number of microfiche titles as directed by the instructions for this section. The researcher was also suspicious of some answers for the films and video recording category. One school reported 2,000 in this category. Given the length of time the area education agencies have been in existence and the extent of their use, this figure appears to be an estimate and one which may be in error.

Those respondents not answering questions eight and nine were not included in the total number of respondents. The difference between the total number of respondents and those respondents reporting that they have materials of these types, represents those respondents reporting no materials of these types. A breakdown by school enrollment size is included in Appendix E.

Table 2

Number and Percent of Schools which have Non-print Materials in Library Media Center Collections

Type of Material	Schools	Schools having materials	
	No.	No.	%
Microfilm	100	19	19.0
Microfiche	99	41	41.4
Films and Video Recds.	97	52	53.6
Filmstrips	96	65	67.7
Slides	97	41	42.3
Discs and Cassettes	97	63	64.9
Computer Software	94	51	54.3

The presence of microfilm was reported by only nineteen schools (19%) out of 100 answering this question, indicating that eighty-one schools (81%) have no microfilm. A total of forty-one schools (41%) out of 99 responding to the question concerning microfiche indicated that they had microfiche available at their schools. This indicates that over twice as many schools have microfiche as microfilm. Twelve of the nineteen schools that had microfilm also had microfiche. Seven schools had microfilm only, therefore, only 48 (48%) of the schools surveyed have any type of microfilm materials available for student use. Since the percent of schools reporting that they have either microfilm or microfiche falls below fifty percent, the second hypothesis, "the majority of the major contributing high school library media centers will have no materials on microfilm or microfiche",

was accepted. Data for the remainder of the non-print collection will be discussed later in this chapter.

The researcher decided that only formal instruction would be used as a means of accepting or rejecting hypothesis 3, "fifty percent or more of the school library media specialists surveyed will indicate that they provide formal instruction in each skill listed under the following categories: a. orientation and library citizenship, b. organization of resources, c. selection and retrieval of resources, d. utilization of resources, e. study skills, and f. production of materials." Informal instruction may reach all or only one student and cannot be relied upon as an indication that the students graduating from a school have received instruction in a skill category. Therefore, only the responses to either "Formal" or "Formal and Informal" instruction categories were used. The word "Formal" in tables and narration will, hereafter, represent a total of the "Formal" plus "Formal and Informal" response categories. "Informal" represents instruction done by a school in an informal manner only.

Skills are listed on the left-hand side of Tables 3 through 8 by the number and letter corresponding to their number and letter on the survey instrument. (See Appendix C for the survey instrument.) The "None" column heading on the tables represents the "No instruction" response category on the survey.

Table 3

Instruction in Orientation and Library Citizenship Skills

Question	Formal		Informal		None		Total
	No.	%	No.	%	No.	%	No.
18a.	80	79.2	18	17.8	3	3.0	101
b.	78	77.2	22	21.8	1	1.0	101
c.	62	61.4	36	35.6	3	3.0	101

Eighty (79.2%) of the schools answering the survey provided formal instruction about the physical arrangement of the library media center. (See Table 3.) Seventy-eight (77.2%) indicated that they provided formal instruction on the rules and procedures of the media center. Sixty-two (61.4%) of the library media specialists also reported that they provided formal instruction about responsibility and respect for the media center property and facility. Since more than fifty percent of the respondents indicated that they provided formal instruction in each of the three categories of orientation and library citizenship skills, hypothesis 3a was accepted.

Hypothesis 3b was rejected. Four of the nine skills were taught formally by less than fifty percent of the library media specialists surveyed. (See Table 4.) These included identifying the location of non-print resources (46.4%) and equipment (27.8%), using existing bibliographies to locate resources (34.7%), and locating information through the use of an online computer search of one or more data bases (5.9%).

Table 4

Instruction in Organization of Resources Skills

Question	Formal		Informal		None		Total
	No.	%	No.	%	No.	%	No.
19a.	82	81.2	18	17.8	1	1.0	101
b.	45	46.4	35	36.1	17	17.5	97
c.	27	27.8	48	49.5	22	22.7	97
d.	83	82.2	17	16.8	1	1.0	101
e.	86	85.1	14	13.9	1	1.0	101
f.	75	74.3	21	20.8	5	5.0	101
g.	35	34.7	43	42.6	23	22.8	101
h.	6	5.9	5	5.0	90	89.1	101
i.	62	62.0	33	33.0	5	5.0	100

The remainder of the skills were taught formally by over sixty percent of the library media specialists surveyed; three of these skills were taught by over eighty percent of the library media specialists. The skills were: identifying the physical location of print resources (81.2%), using the catalog to locate resources (82.2%), and using an index to periodical literature to locate articles (85.1%). Instruction in recognizing the Dewey Decimal system as an organizational scheme was taught by 74.3 percent of the library media specialists and sixty-two percent instructed their students formally in using cross references and/or guide words in the card catalog, encyclopedia, etc.

Part c of hypothesis 3, the selection and retrieval of resources, was rejected. Data in Table 5 show that only 43.6 percent of the library media specialists responded that they provided formal instruction on selecting appropriate resources. A much lower percentage (29.7%) reported that they provided instruction in judging the authoritativeness, currency, and usefulness of each source.

Table 5

Instruction in Selection and Retrieval of Resources Skills

Question	Formal		Informal		None		Total
	No.	%	No.	%	No.	%	No.
20a.	44	43.6	53	52.5	4	4.0	101
b.	30	29.7	55	54.5	16	15.8	101

Part d of the third hypothesis was rejected also. Three of the nine skills listed were taught formally by less than fifty percent of the library media specialists surveyed. Using subject specific reference sources was taught by only 49.5 percent of the library media specialists. (See Table 6.) Only 16.2 percent formally instructed students on using equipment to get information from non-print resources, while only 16.5 percent instructed them on locating and utilizing materials in other libraries or agencies.

Table 6

Instruction in Utilization of Resources Skills

Question	Formal		Informal		None		Total
	No.	%	No.	%	No.	%	No.
21a.	57	57.0	34	33.7	10	9.9	101
b.	59	58.4	37	36.6	5	5.0	101
c.	62	61.4	34	33.7	5	5.0	101
d.	63	62.4	35	34.7	3	3.0	101
e.	51	50.5	45	44.6	5	5.0	101
f.	55	54.5	41	40.6	5	5.0	101
g.	50	49.5	46	45.5	5	5.0	101
h.	16	16.2	52	52.5	31	31.3	99
i.	16	16.5	65	67.0	16	16.5	97

Over fifty percent of the library media specialists surveyed provided instruction in utilizing dictionaries, encyclopedias, indexes, almanacs, atlases, newspapers, magazines, and biographical sources. The range was from 50.5 percent for magazines and newspapers to 62.4 percent for almanacs and atlases.

Hypothesis 3e was rejected. None of the seven categories of study skills was taught through formal instruction by over fifty percent of the library media specialists surveyed. (See Table 7.) The skill of compiling a bibliography was the only skill provided formally by over thirty percent of the respondents (34.7%). Notetaking and outlining were taught by 21.8 percent of the library media specialists surveyed. Instruction in the following skills was given by less than 20 percent of the respondents:

distinguishing among fact, fiction, and opinion and bias (19.8%), synthesizing information (17.8%), selecting relevant from irrelevant information (16.8%), evaluating accuracy of information (15.8%), and skimming (13.9%).

Table 7

Instruction in Study Skills

Question	Formal		Informal		None		Total
	No.	%	No.	%	No.	%	No.
22a.	22	21.8	23	22.8	56	55.4	101
b.	18	17.8	29	28.7	54	53.5	101
c.	16	15.8	36	35.6	49	48.5	101
d.	20	19.8	39	38.6	42	41.6	101
e.	17	16.8	39	38.6	45	44.6	101
f.	14	23.9	34	33.7	53	52.5	101
g.	35	34.7	35	34.7	31	30.7	101

Table 8

Instruction in Production of Materials Skills

Question	Formal		Informal		None		Total
	No.	%	No.	%	No.	%	No.
23a.	8	7.9	29	28.7	64	63.4	101

Hypothesis 3, production of materials, was also rejected because only 7.9 percent of the media specialists surveyed gave formal instruction in the production of audiovisual materials to enhance presentations. (See Table 8.)

Hypothesis 4 was accepted. Less than fifty percent of the library media specialists surveyed provided formal instruction in each of the four categories of hypothesis 4, "less than 50% of the school library media specialists surveyed will indicate that they include instruction in each of the following: a. identification and description of a specific information need, b. subject reference sources and indexes other than the Readers' Guide to Periodical Literature, c. classification systems other than the Dewey Decimal System such as Library of Congress or Superintendent of Documents, and d. limitations of the locational tools included in the school library media center collection." The respondents reported only 26.5% gave instruction in identifying or describing the specifics of an information need, while 34.3% included narrowing or broadening a topic to find needed information. (See Table 9.)

Table 9

Instruction About Problems Encountered by University Freshmen

Question*	Formal		Informal		None		Total
	No.	%	No.	%	No.	%	No.
25. Identifying or describing the specifics of an information need	27	26.5	67	65.7	8	7.8	102
26. Narrowing or broadening a topic to find needed information	35	34.3	59	57.8	8	7.8	102
32. Using subject reference books other than those in their center	11	11.0	36	36.0	53	53.0	100
33. Using indexes to periodicals other than Readers' Guide	14	13.7	23	22.5	65	63.7	102
31. Classification systems other than the Dewey Decimal System	17	16.7	19	18.6	66	64.7	102
29. Limitations of the library tools	41	40.2	48	47.1	13	12.7	102
27. Experience limited by limited resources available	44	43.6	50	49.5	7	6.9	101

*Questions are in the order in which they are discussed and not in the order in which they appear on the survey instrument

Instruction in using subject reference books other than those found in their library media center was provided by only 11 percent of the respondents. A slightly larger percentage (13.7%) provided instruction in using indexes to periodicals other than Readers' Guide to Periodical Literature. Instruction on classification systems other than the Dewey Decimal System was taught formally by only 16.7 percent of the respondents.

Only 40.2 percent of the respondents surveyed reported that they provided instruction about the limitations of the locational tools found in the library media center. In addition, less than fifty percent (43.6%) of the library media specialists surveyed reported that they made their students aware of the fact that their library experience is limited by the limited resources available at their library media center.

Hypothesis 5, "fifty percent or more of the school library media specialists surveyed will indicate that they include formal instruction specifically in both the research process and the importance of examining all sides of an issue before drawing conclusions," was rejected. Less than fifty percent (38%) of the library media specialists surveyed indicated that they provided instruction in the research process. Only 19.6 percent of the respondents indicated that they provided formal instruction about the importance of examining all sides of an issue before drawing conclusions. (See Table 10.)

Table 10

Instruction About Research Process and Issue Examination

Question	Formal		Informal		None		Total
	No.	%	No.	%	No.	%	No.
34. The research process	38	38.0	40	40.0	22	22.0	100
30. Examining all sides of an issue before drawing conclusions	20	19.6	44	43.1	38	37.3	102

Table 11

The Structure of the Library Instruction Program

Type of instruction	No. of Responses	% of Responses
a. Written, sequential plan	37	32.7
b. Sequential plan, not written	16	14.2
c. Written, non-sequential plan	4	3.5
d. No structure, instruction at point-of-need or upon request	55	48.7
e. No instruction	1	0.9
Total	113	100.0

Since respondents were free to select more than one response to question thirty-five, structure of the library instruction program, the total number of responses on Table 11 is greater than the total number of schools (100) responding to this question.

Nine of the respondents indicated that they had both a written sequential plan and gave instruction at point-of-need or upon request. This number, added to the twenty-eight reporting having a written, sequential plan only, equals a total of thirty-seven (32.7%) reporting that they had a written, sequentially planned program of library instruction. Therefore, hypothesis 6, "less than fifty percent of the major contributing high schools will have written sequentially planned programs of library instruction", was accepted. Four of the respondents reported having a sequential plan which was not written and also gave instruction at point-of-need or upon request.

In addition to the data for the above hypotheses, information was also gathered about the exposure students from these secondary schools have had to the complexities of a larger library. Only 28.7 percent of the respondents reported that they attempted to orient their students to the facilities and materials collection of a larger library such as a large public or an academic library. Furthermore, only 23.5 percent attempted to provide formal instruction about the greater complexity and scope of larger libraries such as university libraries. (See data in Appendices F and H).

Data were also gathered about the non-print collections in the schools surveyed. (See Table 2.) Over fifty percent of the library media specialists responding in this survey indicated that they had films and video recordings (53.6%), filmstrips (67.7%), disc or cassette recording (64.9%), and computer software (54.3%) in their collections. However, only 42.3 percent of the specialists responding indicated that they had slides available at their library media center.

Data regarding photocopying and the vertical or information file were also gathered from the schools surveyed because these services exist at UNI's library. The responses to these questions are represented by the total and percent of yes and no responses for each enrollment category on Tables 12 and 13. Since some of the respondents to the question about photocopying qualified their answers by reporting that photocopying was available to their students but was actually done by someone else, the researcher established an additional response category, "not self-serve".

Table 12

Access to Photocopy Machine by School Enrollment Size

Response	Size A		Size B		Size C		Total	
	No.	%	No.	%	No.	%	No	%
Yes	23	57.5	24	16.5	21	91.3	68	66.7
No.	8	20.0	12	30.8	1	4.3	21	20.6
Not self-serve	9	22.5	3	7.7	1	4.3	13	12.7
Total	40	100.0	39	100.0	23	99.9	102	100.0

Table 13

Access to a Vertical or Information File by School Enrollment Size

Response	Size A		Size B		Size C		Total	
	No.	%	No.	%	No.	%	No	%
Yes	39	97.5	35	89.7	23	100.0	97	95.1
No.	1	2.5	4	10.3	0	0.0	5	4.9
Total	40	100.0	39	100.0	23	100.0	102	100.0

Sixty-eight (66.7%) of the respondents indicated that their students had access to a photocopy machine. Another 12.7 percent reported that photocopying was available but the students were not allowed to photocopy by themselves. Over ninety-five percent of the responding schools reported having a vertical or information file.

Because question asking was regarded by university reference librarians as a skill important to the library user, data were also gathered regarding this skill. Over fifty percent (53.9%) of the library media specialists surveyed included instruction about requesting help from staff to find materials or information. (See Appendix H.)

Data were compiled by this researcher in order to examine any trends in library instruction that may be related to the different sizes of schools surveyed. (See Appendix G for skills data by school enrollment size.)

Further analysis of the data gathered concerning the library media skills listed for hypothesis 3 resulted in the discovery that schools with enrollment size "C" provided the largest percentage of formal instruction in twenty-five of the thirty-one skills. Schools with enrollment size "B" provided the largest percentage of formal instruction in only six of the thirty-one skills. Schools size "A" did not provide the largest percentage of instruction in any of the skills mentioned. Enrollment size "C" schools provided the smallest percentage of formal instruction in only one category, producing audiovisual materials to enhance presentations. Schools in enrollment group "A" provided the smallest percentage of formal instruction in twenty-five of the thirty-one skills.

Schools with enrollments in the "C" category also provided a larger percentage of formal instruction in seven of the eleven skills listed as problems for university freshmen. The "C" schools did, however, provide the smallest percentage of instruction (9.1%) in using subject reference books other than those found in their school library media center. They also provided the smallest amount of formal instruction (21.7%) on the greater complexity and scope of larger libraries such as university libraries. This appears to coincide with the fact that only 21.7 percent of

those surveyed from enrollment category "C" reported that they orient their students to the facilities and materials collection of a larger library such as a large public or large academic library. Forty-one percent of the respondents in category "A" reported that they orient their students to larger libraries while only 22.5 percent of "A" respondents reported that they provided formal instruction about the greater complexity and scope of larger libraries.

"C" schools also reported having the largest percentage of instructional programs which involve written, sequential plans. Thirteen (50.0%) of the responses from the "C" schools as compared to fourteen (33.3%) of the responses from "B" schools and ten (22.2%) of the responses from "A" schools indicated the provision of written, sequential instructions. No "B" or "C" schools reported giving "no instruction", while only one "A" school reported giving "no instruction". Over one-half of the responses from "A" schools (60.0%) showed "no structure, instruction at point-of-need or upon request". This was also the category chosen most often by "B" schools (42.9%). (See Appendix I for data by school size about the structure of the library instruction programs in the schools surveyed.)

CHAPTER FIVE

Conclusion, Recommendations and Summary

Conclusions

Data indicate that there are more than twenty-eight times the number of print materials in the UNI library than the average number of print materials in the largest schools' collections. This, perhaps, could indicate that students entering UNI from these secondary schools might be overwhelmed by the UNI library's size, a problem noted frequently by McCarthy (1982), Buddy (1982), and Kieffer (1985). They may also be unaware of the wider variety or scope of information sources available at a larger library, a problem also mentioned by Kieffer.

Fiction books would also appear to have a less prominent place in the UNI collection than in the school collection, comprising only 15.7 percent of the UNI collection, while comprising 30.6 percent of the "A" size school collections, 28.2 percent of the "B" collections, and 23 percent of the "C" collections.

The data collected also imply that with the exception of newspapers, the size of the collections in each materials category increases with the size of the school. The larger the school, the more variety of reference sources to which the student may be exposed. This might possibly be one reason why library media specialists in the "C" schools made fewer attempts at providing instruction in using subject reference books other than those found in their library media center. Perhaps their larger reference collections made them feel that exposure to sources at another, larger library was unnecessary.

Microfiche appears to be a more popular choice for storage of print materials than microfilm. This, perhaps, is due to the fact that less storage space is necessary for microfiche than microfilm. The largest area of non-print media at UNI seems to be microfiche. Microfilm and microfiche appear to be common storage mediums for periodicals and other information at UNI. Since fewer than fifty percent of the schools surveyed have microforms, students graduating from these schools may be unfamiliar with how to access information on them. This could cause a reluctance to use microforms and a dependence on books and other print information sources.

The large percentage of schools reporting the presence of films and video recordings appears high considering decreasing budgets, the cost of films today, and their ready availability at the area education agencies. If a further analysis of the data were possible, this researcher suspects that most of the materials in this area would be video recordings rather than films. There is the possibility, however, that outdated film collections still exist at some of these schools.

Filmstrips appear to be the most prevalent non-print media available at the schools surveyed, with disc and cassette recordings second. Fifty-one (54.3%) of the library media specialists surveyed reported having computer software; however, comments on the questionnaires indicate that some schools have separate computer centers not connected with their library media center. Students in some of the remaining schools, therefore, may be exposed to computer applications, but not in their library media center.

The majority of students entering UNI from the high schools in this study may be expected to be familiar with photocopying; however, students coming from the larger "C" schools are probably much more likely to be familiar with it than those coming from the smaller schools. Students coming from the "A" schools appear much more likely to have had photocopying done for them than the "B" or "C" schools. This may mean that some students may be reluctant to try photocopying on their own or depend on service desk photocopying in the UNI library.

Library media specialists appear to do a good job of orienting students to the school's library. They also appear to be instructing students about the physical location of print resources. They seem not as involved in showing students where non-print resources and equipment are which may indicate that students do not have direct access to these resources.

Data indicate that a majority of students coming to UNI from the high schools in this study should be familiar with using a catalog to locate resources and should recognize the Dewey Decimal System as a means of organizing materials. The majority of these students should also be familiar with an index to periodical literature and know how to locate articles using it. The above skills were mentioned by Biddle (1981) as important for high school students to know. A majority of students should also be familiar with using cross references in the catalog and indexes.

The prevalence of the above skills might lead one to expect that a majority of students coming from the schools under study would probably have been exposed to at least one organizational scheme and recognize that there exists at least one source by which one can locate information in periodical literature. This is no guarantee that what these students have

been exposed to has been learned or that, if learned, this knowledge is transferable to another library as recommended by Biddle (1981), and especially to a library that uses the Library of Congress classification system and has many periodical indexes.

The relatively low number of schools involved in online data base searching may be due to the current economic situation of Iowa schools, a decentralization of computers and computer instruction, or unfamiliarity of the library media specialists with the techniques or benefits of setting up such a program.

A majority of students coming to UNI from the high schools under study may have difficulty selecting sources appropriate to their needs even though they can locate these sources. Most of the students will, probably, also be unfamiliar with how to judge the usefulness, currency or authoritativeness of an information source. They may select books and periodical articles by relatively unknown persons or materials which do not have the most recent information.

It appears that a majority of the students coming to UNI from the major contributing high schools might be familiar with dictionaries, encyclopedias, indexes, almanacs, atlases, newspapers and magazines, and sources from which to locate biographical information as recommended by Biddle (1981). These students will probably be less familiar with using subject specific reference sources which could indicate that fewer of these are to be found in some secondary library media center collections, or that if found, the sources are not being taught. Students probably would be unfamiliar with usage of existing bibliographies to locate materials.

A majority of students from these schools will, most likely, be unfamiliar with using equipment to get information from non-print resources, even though the schools surveyed indicated that a majority included non-print resources in their collection. This may indicate that, although such material exists, it is not very accessible to the student.

Data indicate that few students could be expected to know how to find or use materials from other libraries or agencies. This could be a handicap in that they are unfamiliar with potential information sources through resource sharing or interlibrary loan and are limiting their possibilities unnecessarily.

Many of the students graduating from Iowa high schools in the Northeast zone will probably not have been exposed to study skills by the library media specialist. Over fifty percent of the library media specialists surveyed indicated that they provided "no instruction" in notetaking and outlining, synthesizing information, and skimming. Library media specialists indicated that a majority of them provided "no instruction" or "informal" instruction only on evaluating accuracy of information, distinguishing among fact, fiction, opinion and bias, and selecting relevant from irrelevant information. This could also affect their ability to examine all sides of an issue before drawing conclusions as recommended by Kieffer (1985).

Although this study appears to show that most of the library media specialists at the secondary schools seem not to be involved in providing formal instruction in study skills, this is no certainty that students have not been exposed to these skills. Notetaking and outlining, synthesizing information, and skimming may be taught at the junior high or middle school level and may not be repeated at the high school level.

Furthermore, many of the study skills may be taught by social studies or English teachers with the library media specialist taking a less active role. Twenty respondents indicated in their comments that their English teachers were primarily responsible for skills instruction. Nine more indicated that classroom teachers were responsible for the research papers produced by seniors. Fourteen indicated that they work together with the teachers to teach skills. These library media specialists may be hesitant to claim on the questionnaire that they provide formal instruction if it were a joint effort.

It would appear that a majority of students graduating from the high schools under study most likely cannot be expected to be familiar with production of audiovisual materials. Since the area education agencies are heavily used for this purpose, many of the schools will probably have little in the way of materials or equipment to use for production, except for less sophisticated materials such as posters.

Although a majority of students appear not to be involved in producing audiovisual materials or using equipment to get information from non-print resources, this may not be a big handicap to them as users of the UNI library. The UNI library has only forty-three films or video recordings and 276 filmstrips. (See Appendix E for UNI non-print resources.) These resources are located in the youth collection and are used primarily by those interested in elementary or library science education. Slides and disc or cassette recordings would be important to new UNI library users insofar as they may need to use the special collections. The UNI art collection contains many slides and the music collection, understandably, many recordings. Given our culture today,

however, the majority of students have probably been exposed to disc and cassette recordings somewhere in their experience.

Computer software appears to be a growing media area. In 1980, secondary schools averaged less than one computer terminal per school (McGrew and Buckingham, 1982, pp. 31-32). This survey shows that 54.3 percent of the secondary schools have computer software, indicating a probable growth in the number of computers. At the present time, this is not an essential skill in using the UNI library because it has no computer software or hardware for student use. The utilization of computers in the library will, most likely, be expanded in the future when plans for an online catalog are fulfilled. Students may also be exposed to online data base searching if they wish an online search to be done for them. At the present time, this service is not such a prevalent occurrence at the undergraduate level as at the graduate level (Weeg, 1985). This may be partially due to the fact that many of the undergraduate students might be unaware that online searching exists or are not assigned papers that require extensive searching of indexes or abstracts. Fifty-five (53.9%) of the library media specialists surveyed reported that they attempted to instruct their students to request help from staff to find materials or information as urged by McCarthy (1982), Kieffer (1985), and Biddle (1981). The respondents are, however, apparently not as involved in instructing students how to formulate questions to ask the library media specialist who will get them the specific information they need. Less than fifty percent also provide instruction on how to narrow or broaden a topic so that sufficient information can be found. This supports Kieffer's observation of new UNI library users and their difficulty in asking questions (1985). These factors could also have a direct bearing on a

student's ability to carry through a research process and could be one reason why Kieffer (1985) and Doyen (1981) observed that many students felt overwhelmed by the research process. They may feel that they do not even know where to start and are reluctant to show their ignorance by asking questions, another problem frequently observed by reference librarians, McCarthy (1982), Kieffer (1985), and Buddy (1982).

Few students coming to UNI from the surveyed high schools will be familiar with information sources outside of their own library media center collections. Most will, in all likelihood, be unfamiliar with subject reference books or periodical indexes not found in their own library media center. Presumably, most will not have been oriented to the facilities and materials of a larger library nor will they be familiar with sources outside of their library or methods of access to information such as online data base searching or locating materials through resource sharing or interlibrary loan. They will also, probably, be unfamiliar with classification systems other than the Dewey Decimal System. In addition, it appears that most students are not made aware that their library experience is limited by the limited resources in their library media center. These factors could possibly contribute to a student's sense of frustration as observed by McCarthy (1982) and Kieffer (1985) upon being confronted with the complexity and scope of a larger library.

A majority of students are, in all likelihood, not being instructed about the limitations of the library tools they have learned such as subject access to materials by using the card catalog. This instruction could possibly be transferable to another, larger library and could be taught even with a small collection.

The schools surveyed appear to focus their instruction on orienting their students to the physical arrangement of the library media center, the use of a catalog to locate resources, the Dewey Decimal classification system, the use of one periodical index, and the use of general reference works. Students would, most likely, be able to locate information in their school library media center; however, they may have difficulty choosing what information to use based upon relevance, accuracy, authoritativeness, currency, and opinion versus bias. They may also experience difficulty synthesizing what information they find and putting it into a research product.

Those schools which appear to have done a better job of instruction in the skills area are the larger "C" size schools. These are also the schools which have a much higher percentage of written, sequential plans for library instruction. It would appear that those willing to formulate a written, sequential plan may be more committed to teaching library skills or more inclined to follow through with their plan. Comments from nine of the library media specialists surveyed indicated a willingness to do more but time was a factor. Part-time positions or lack of support personnel apparently have prompted some library media specialists to put a lower priority on skills instruction.

After examining the data from this research project, it would appear that the observations of Kieffer and other reference librarians mentioned in the literature review would probably hold true for students coming to UNI from the Northeast zone of Iowa. Their observations of the problems in library use encountered by incoming freshmen are supported by a noticable omission of these same skills by the library media specialists responsible for library instruction in the schools surveyed.

The existence of a core of library instruction, as identified by library instruction authorities (see Appendix B), apparently has not meant that all of these skills have been incorporated into the instructional programs of the high schools surveyed. These high school library media specialists appear to be concentrating their efforts on instructing students to locate materials specific to their library media center and to locate information within these materials. There seems to be little done in the way of evaluating this information and incorporating it into a product.

Recommendations

A more complete picture would be obtained if a survey of library skills could also be given to elementary and junior high or middle school library media specialists. Surveying other teachers in the school system who may have library skills education responsibilities would certainly help to give a more complete picture.

The implications these findings hold for the UNI library personnel is that they will probably continue to find incoming freshmen having the same problems in library use that previous freshmen have experienced. Bibliographic instructors, on the other hand, are in a position to place greater emphasis on these observed areas of weakness, perhaps providing more simple experiences in areas to which it is unlikely that many of the students have been exposed.

High school library media specialists could improve their library instruction, first of all, by developing a written, sequential program of library instruction from elementary through high school, preferably in cooperation with classroom teachers who could help provide experiences in which these skills could be practiced. Included in this program should be

a provision for periodic reevaluation of objectives to prevent teaching skills no longer necessary and to incorporate skills known to be important in the future.

School library media specialists could also improve their instruction programs by keeping in mind that the skills they teach are not ends in themselves and related solely to their own library media center, but lifelong skills which should be taught with the idea that they can be transferred to other situations and places. It is also important that school library media specialists recognize that information storage and retrieval is not static and that it is important for students to recognize that alternative methods of storage and retrieval exist and that these methods, most probably, will be continually undergoing changes in the future.

Summary

The purpose of this study was to better define the status of library instruction at high schools contributing a major portion of new freshmen to UNI. Results of the study provide a more realistic picture of a student's exposure to library skills and the research process and serve to identify library skills area which could become problems to new UNI freshmen.

A cover letter and survey instrument were sent to 127 high schools, the total population of high schools in the Northeast zone of Iowa which contributes 50.8 percent of the freshmen to UNI. A total of 104 questionnaires were returned; 102 questionnaires were usable. Data were compiled according to three school enrollment size categories.

The following hypotheses were tested and the results are given following each hypothesis:

1. The University of Northern Iowa library's print collection, including books and periodicals, will be at least ten times larger than the average size of the print collections in the larger contributing high school library media centers.

   This hypothesis was accepted because data showed that the UNI print collection was twenty-eight times larger than the average collection of the schools in the largest school enrollment category.

2. The majority of the major contributing high school library media centers will have no materials on microfilm or microfiche. Accepted.

   Less than fifty percent of those schools surveyed reported having either microfilm or microfiche.

3. Fifty percent or more of the school library media specialists surveyed will indicate that they provide formal instruction in each skill listed under the following categories:

   a. Orientation and library citizenship. Accepted.

      Over fifty percent of those library media specialists surveyed taught these three skills.

   b. Organization of resources. Rejected.

      Four of the nine skills listed were provided by less than fifty percent of those surveyed.

   c. Selection and retrieval of resources. Rejected.

      Less than fifty percent of those library media specialists surveyed taught these two skills.

   d. Utilization of resources. Rejected.

      Less than fifty percent of those schools surveyed provided instruction in three of the nine skills included here.

e. Study skills. Rejected.

None of the seven skills included in this category were taught by fifty percent or more of those surveyed.

f. Production skills. Rejected.

Less than fifty percent of those library media specialists surveyed taught this skill.

4. Less than fifty percent of the school library media specialists surveyed will indicate that they include instruction in each of the following:

a. Identification and description of a specific information need.

b. Subject reference sources and indexes other than the Readers' Guide to Periodical Literature.

c. Classification systems other than the Dewey Decimal System such as Library of Congress or Superintendent of Documents.

d. Limitations of the locational tools included in the school library media center collection.

This hypothesis was accepted because less than fifty percent of those surveyed taught these skills.

5. Fifty percent or more of the school library media specialists surveyed will indicate that they include formal instruction specifically in both the research process and the importance of examining all sides of an issue before drawing conclusions.

Less than fifty percent of those surveyed indicated that they provided instruction in these two areas and the hypothesis was rejected.

6. Less than fifty percent of the major contributing high schools will have written, sequentially planned programs of library instruction.

This hypothesis was accepted because only 32.7 percent of those surveyed reported having a program which was written and sequentially planned.

Number and Percent of Current Year Graduates Enrolled As Freshmen New
From Iowa High Schools by Zone of Orgin

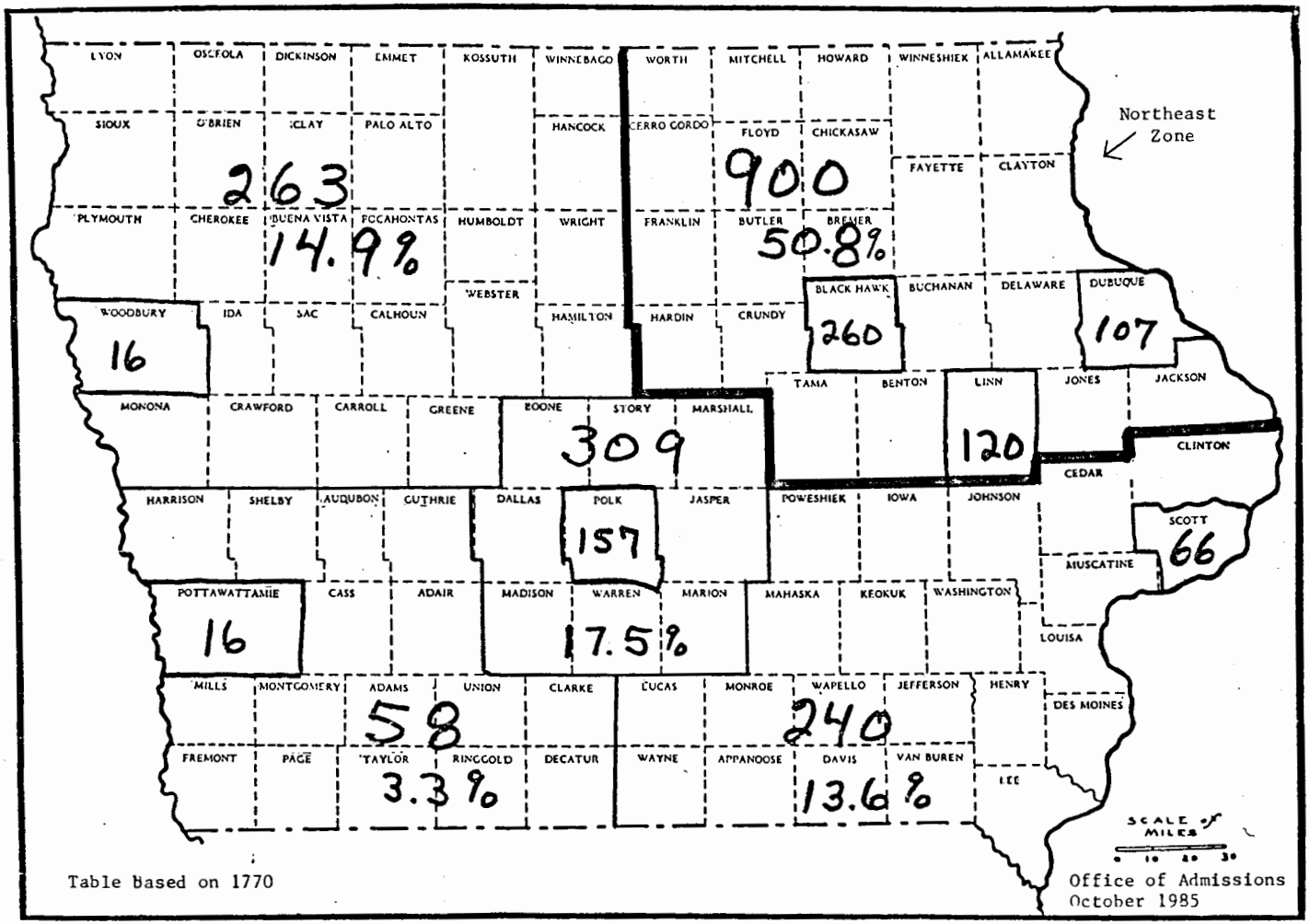

Table based on 1770

Office of Admissions
October 1985

HOVEY'S OUTLINE MAPS NO. 102—IOWA Published by L. D. HOVEY, CEDAR FALLS, IOWA

Appendix B

Library Skills Included in Handbooks and Curriculum Guides

Skills	No. of Sources		
	HB	CG	Total
Orientation and Library Citizenship			
Orientation to the physical arrangement of the Media Center	3	7	10
Rules and procedures of the media center	5	7	12
Responsibility and respect for the media center property and facility	4	7	11
Organization of Resources			
Identifying the physical location(s) of:			
Print resources	4	7	11
Non-print resources	3	7	10
Equipment	3	7	10
Using the catalog to locate resources	4	7	11
Using an index to periodical literature to locate articles	5	7	12
Recognizing the Dewey Decimal system as an organizational scheme	4	7	11
Using existing bibliographies to lacate resources	6	5	11
Locating information through the use of an on-line computer search	1	1	2
Using cross references and/or guide words in card catalog, encyclopedias, etc.	4	7	11
Selection and Retrieval of Resources			
Selecting appropriate sources of information for a specific topic	4	6	10
Juding the authoritativeness, currency and usefulness of each source	4	3	7
Utilization of Resources			
Using general reference works:			
Dictionaries	5	7	12
Encyclopeida	5	7	12
Indexes	5	7	12
Almanacs, atlases	4	7	11
Newspapers, magazines	5	6	11
Biographical sources	3	7	10
Using subject specific reference sources	4	4	8
Using equipment to get information from non-print resources	4	6	10
Locating and utilizing materials in other libraries or agencies	2	5	7

Skills	No. of Sources HB	CG	Total
Study Skills			
Notetaking and outlinging	3	5	8
Synthesizing information	5	5	10
Evaluating accuracy of information	4	5	9
Distinguishing among fact, fiction, opinion and bias	3	4	7
Selecting relevant from irrelevant information	3	2	5
Skimming	2	3	5
Compiling a bibliography	4	5	9
Production of Materials			
Producing audiovisual materials to enhance presentations	4	6	10

HB - Handbooks CG - Curriculum Guides

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Appendix C

Cover Letter and Survey Instrument

1904 Sunnyside Drive
Cedar Falls, Iowa 50613

February 1, 1986

Dear Library Media Specialist,

I am conducting a research study about the library skills needed to use the library at the University of Northern Iowa. In order to do this, I need to collect information on the library skills background of university students who have graduated from selected Iowa high schools.

I would appreciate it if you will fill out the enclosed questionnaire designed to gather information regarding library skills education at your high school and return it in the enclosed envelope by February 21, 1986. Since your school falls within the selected geographical area, the information you provide is extremely important to this study. All responses will be kept confidential and no individual school identification will be included in the study report. The code number on the survey will be eliminated when the instrument is returned and before data is compiled.

This research is being done for the fulfillment of the requirements for my Master of Arts degree in Library Science at the University of Northern Iowa. Your cooperation will be much appreciated.

Thank you for your help.

Sincerely,

Cindy A. Kruckeberg

School Library Media Instruction Survey

This instrument has been designed to gather information regarding the library skills background of students who are potential freshmen to the University of Northern Iowa.

Please read the directions for each section and indicate your response in the desired manner. Please try to avoid skipping any questions. If any of the following questions apply only to special groups such as college-bound, please indicate in writing in the space provided at the end of the questionnaire, the nature of the group and the questions involved.

1. What is the enrollment of the secondary school using the library media center? (Use the number reported to DPI as of September 15, 1985)

   _____

2. What secondary grades does this center serve? _____

How many TITLES in the following categories does your secondary collection include? (Use latest inventory or report numbers)

3._____ Fiction books

4._____ Non-fiction books including biographies

5._____ Reference books

6._____ Magazines

7._____ Newspapers

8._____ Microfilm

9._____ Microfiche

10._____ Films and video recording

11._____ Filmstrips

12._____ Slides

13._____ Disc and cassette recordings

14._____ Computer software programs

Please indicate your answers to the following questions by circling YES or NO

15. Do students using this center have access to a photo copy machine?

YES NO

16. Does this center have a vertical or information file?

YES NO

17. Are students oriented to the facilities and materials collection of a larger library such as a large public or large academic library?

YES NO

Please indicate below the content of library instruction provided for students in this school by the media professional. Write in an (F), an (I), an (N), or both an (F) and an (I) in front of each skill included in the following list of library instruction objectives.

F- Formal, planned activity
I- Informal, one on one basis
N- No instruction

18. ORIENTATION AND LIBRARY CITIZENSHIP

a._____ Orientation to physical arrangement of the media center

b._____ Rules and procedures of the media center

c._____ Responsibility and respect for the media center property and facility

19. ORGANIZATION OF RESOURCES
Identifiying the physical location(s) of:

a._____ print resources

b._____ non-print resources

c._____ equipment

d._____ Using the catalog to locate resources

e._____ Using an index to periodical literature to locate articles

f._____ Recognizing the Dewey Decimal system as an organizational scheme

g._____ Using existing bibliographies to locate resources

h._____ Locating information through the use of an on-line computer search of one or more data bases

i._____ Using cross references and/or guide words in card catalog, encyclopedias, etc.

20. SELECTION AND RETRIEVAL OF RESOURCES

a._____ Selecting appropriate sources of information for a specific topic

b._____ Judging the authoritativeness, currency, and usefulness of each source

21. UTILIZATION OF RESOURCES
Using general reference works:

a._____ dictionaries

b._____ encyclopedias

c._____ indexes

d._____ almanacs, atlases

e._____ newspapers, magazines

f._____ biographical sources

g._____ Using subject specific reference sources

h._____ Using equipment to get information from non-print resources

i._____ Locating and utilizing materials in other libraries or agencies

22. STUDY SKILLS

a._____ Notetaking and outlining

b._____ Synthesizing information

c._____ Evaluating accuracy of information

d._____ Distinguishing among fact, fiction, opinion and bias

e._____ Selecting relevant from irrelevant information

f._____ Skimming

g._____ Compiling a bibliography

23. PRODUCTION OF MATERIALS

a._____ Producing audiovisual materials to enhance presentations

Please indicate below whether your students have had formal, informal, or no instruction by the school library media professional in each of the following areas. Write the appropriate response(s) in the blank on the left.

F- Formal instruction
I- Informal instruction
N- No instruction

24._____ Requesting help from staff to find materials or information

25._____ Indentifying or describing the specifics of an information need

26._____ Narrowing or broadening a topic to find needed information

27._____ Being aware of the fact that their library experience is limited by the limited resources available at their media center

28._____ The greater complexity and scope of larger libraries such as university libraries

29._____ The limitations of the library tools they have learned such as the limitations of subject access to the card catalog or the fact that only certain periodicals are indexed in certain indexes

30._____ The importance of examining all sides of an issue before drawing conclusions

31._____ Classification systems other than the Dewey Decimal system such as Library of Congress or Superintendent of Documents

32._____ Using subject reference books other than those found in their library media center

33._____ Using indexes to periodicals other than Reader's Guide to Periodical Literature

34._____ The research process (The research process is defined as selecting and narrowing a subject, finding and locating appropriate sources, using existing bibliographies, taking notes, collecting bibliographic information, and organizing the information found into a product)

35. What is the structure of this media center's library instruction program?

_____a. Written, sequential plan

_____b. Sequential plan, not written

_____c. Written, non-sequential plan

_____d. No structure, instruction at point-of-need or upon request

_____e. No instruction

COMMENTS

Appendix D

Follow-up Letter

1904 Sunnyside Drive
Cedar Falls, Iowa 50613

February 25, 1986

Dear Library Media Specialist,

I have not, as of this date, received a reply to the questionnaire I sent to you regarding the high school library skills program in your school. I need this information so that I can finish my research paper as a part of the requirements for my Master of Arts degree in Library Science at the University of Northern Iowa.

I would appreciate it if you would fill out and return the questionnaire as soon as possible in the envelope that was provided.

If you have returned the questionnaire in the last few days, please know that I appreciate your cooperation in my research.

Sincerely,

Cindy A. Kruckeberg

Appendix E

Non-print Materials by School Size and at UNI

Table 14

Non-print Materials by School Enrollment Size*

	Size A			Size B			Size C			Total		
Type	NO	YES	% YES	NO	YES	% YES	NO	YES	% YES	NO	YES	% YES
Microfilm	39	1	2.5	26	12	31.6	16	6	27.3	81	19	19.0
Microfiche	28	11	28.2	17	21	55.3	13	9	40.9	58	41	41.4
Films & Video Rec.	23	16	41.0	17	21	55.3	5	15	75.0	45	52	53.6
Filmstrips	16	22	57.9	12	25	67.6	3	18	85.7	31	65	67.7
Slides	29	9	23.7	20	18	47.4	7	14	66.7	56	41	42.3
Disc & Cassettes	17	21	55.3	14	24	63.2	3	18	85.7	34	63	64.9
Computer Software	24	12	33.3	13	25	65.8	6	14	70.0	43	51	54.3

*Size A has 60 to 249 students, size B 250 to 499 students and size C has 500 to 1,861 students.

Table 15

University of Northern Iowa Library's Non-print Resources

Type of Material	Quantity and Location	
Microfilm	3,669	Main Collection
Microfiche	398,060	Main Collection
Films & Video rec.	43	Youth Collection
Filmstrips	276	Youth Collection
Slides	6,589	Special Collections Art
Disc & Cassettes	6,077	Special Collections Music
Computer Software	0	

Appendix F

Orientation to Larger Libraries by Enrollment Size

Table 16

Orientation to Larger Libraries by Enrollment Size

	Size A		Size B		Size C		Total	
Responses	No.	%	No.	%	No.	%	No.	%
YES	18	46.1	10	25.6	6	26.0	34	33.7
NO	21	53.8	29	74.4	17	73.9	67	66.3
Total	39	99.9	39	100.0	23	99.9	101	100.0

Appendix G

Library Skills Instruction

Table 17

Instruction in Orientation and Library Citizenship Skills

18a. Orientation to the physical arrangement of the media center

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	24	60.0	14	35.0	2	5.0	40
B	34	87.2	4	10.3	1	2.6	39
C	22	100.0	0	0.0	0	0.0	22
Total	80	79.2	18	17.8	3	3.0	101

18b. Rules and procedures of the media center

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	26	65.0	13	32.5	1	2.5	40
B	31	79.5	8	20.5	0	0.0	39
C	21	95.5	1	4.5	0	0.0	22
Total	78	77.2	22	21.8	1	1.0	101

18c. Responsibility and respect for the media center property and facility

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	18	45.0	20	50.0	2	5.0	40
B	26	66.7	12	30.8	1	2.6	39
C	18	81.8	4	18.2	0	0.0	22
Total	62	61.4	36	35.6	3	3.0	101

Table 18

Instruction in Organization of Resources Skills

19a. Location of print resources

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	27	67.5	13	32.5	0	0.0	40
B	33	84.6	5	12.8	1	2.6	39
C	22	100.0	0	0.0	0	0.0	22
Total	82	81.2	18	17.8	1	1.0	101

19b. Location of non-print resources

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	12	31.6	17	44.7	9	23.7	38
B	19	51.4	12	32.4	6	16.2	37
C	14	63.6	6	27.3	2	9.1	22
Total	45	46.4	35	36.1	17	17.5	97

19c. Location of equipment

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	11	29.7	16	43.2	10	27.0	37
B	7	18.4	22	57.9	9	23.7	38
C	9	40.9	10	45.5	3	13.6	22
Total	27	27.8	48	49.5	22	22.7	97

19d. Using the catalog to locate resources

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	29	72.5	11	27.5	0	0.0	40
B	33	84.6	5	12.8	1	2.6	39
C	21	95.5	1	4.5	0	0.0	22
Total	83	82.2	17	16.8	1	1.0	101

19e. Using an index to periodical literature to locate articles

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	29	72.5	11	27.5	0	0.0	40
B	35	89.7	3	7.7	1	2.6	39
C	22	100.0	0	0.0	0	0.0	22
Total	86	85.1	14	13.9	1	1.0	101

19f. Recognizing the Dewey Decimal system as an organization scheme

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	27	67.5	10	25.0	3	7.5	40
B	29	74.4	8	20.5	2	5.1	39
C	19	86.4	3	13.6	0	0.0	22
Total	75	74.3	21	20.8	5	5.0	101

19g. Using existing bibliographies to locate resources

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	11	27.5	18	45.0	11	27.5	40
B	14	35.9	15	38.5	10	25.6	39
C	10	45.5	10	45.5	2	9.1	22
Total	35	34.7	43	42.6	23	22.8	101

19h. Locating information through the use of an online computer search

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	0	0.0	2	5.1	37	94.9	39
B	2	5.1	1	2.7	36	92.3	39
C	4	17.4	2	8.7	17	73.9	23
Total	6	5.9	5	5.0	90	89.1	101

19i. Using cross references and/or guide words

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	18	46.2	18	46.2	3	7.7	39
B	26	66.7	11	28.2	2	5.1	39
C	18	81.8	4	18.2	0	0.0	22
Total	62	62.0	33	33.0	5	5.0	100

Table 19

Instruction in Selection and Retrieval of Resources Skills

20a. Selecting appropriate sources of information for a specific topic

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	11	27.5	26	65.0	3	7.5	40
B	22	56.4	17	43.6	0	0.0	39
C	11	50.0	10	45.5	1	4.5	22
Total	44	43.6	53	52.5	4	4.0	101

20b. Judging authoritativeness, currency, and usefulness

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	5	12.5	26	65.0	9	22.5	40
B	16	41.0	18	46.2	5	12.8	39
C	9	40.9	11	50.0	2	9.1	22
Total	30	29.7	55	54.5	16	15.8	101

Table 20

Instruction in Utilization of Resources Skills

21a. Dictionaries

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	15	37.5	20	50.0	5	12.5	40
B	25	64.1	10	25.6	4	10.3	39
C	17	77.3	4	18.2	1	4.5	22
Total	57	56.4	34	33.7	10	9.9	101

21b. Encyclopedias

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	18	45.0	19	47.5	3	7.5	40
B	26	66.7	11	28.2	2	5.1	39
C	15	68.2	7	31.8	0	0.0	22
Total	59	58.4	37	36.6	5	5.0	101

21c. Indexes

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	19	47.5	18	45.0	3	7.5	40
B	26	66.7	11	28.2	2	5.1	39
C	17	77.3	5	22.7	0	0.0	22
Total	62	61.4	34	33.7	5	5.0	101

21d. Almanacs, atlases

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	22	55.0	16	40.0	2	5.0	40
B	26	66.7	12	30.8	1	2.6	39
C	15	68.2	7	31.8	0	0.0	22
Total	63	62.4	35	34.7	3	3.0	101

21e. Newspapers, magazines

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	14	35.0	23	57.5	3	7.5	40
B	26	66.7	11	28.2	2	5.1	39
C	11	50.0	11	50.0	0	0.0	22
Total	51	50.5	45	44.6	5	5.0	101

21f. Biographical sources

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	15	37.5	22	55.0	3	7.5	40
B	25	64.1	13	33.3	1	2.7	39
C	15	68.2	6	27.3	1	4.5	22
Total	55	54.5	41	40.6	5	5.0	101

21g. Using subject specific reference sources

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	11	27.5	26	65.0	3	7.5	40
B	25	64.1	13	33.3	1	2.6	39
C	14	63.6	7	31.8	1	4.5	22
Total	50	49.5	46	45.5	5	5.0	101

21h. Using equipment to get information from non-print resources

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	5	12.5	19	47.5	16	40.0	40
B	6	15.8	21	55.3	11	28.9	38
C	5	23.8	12	57.1	4	19.0	21
Total	16	16.2	52	52.5	31	31.3	99

21i. Locating and utilizing materials in other libraries or agencies

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	5	12.5	28	70.0	7	17.5	40
B	8	22.2	21	58.3	7	19.4	36
C	3	14.3	16	76.2	2	9.5	21
Total	16	16.5	65	67.0	16	16.5	97

Table 21

Instruction in Study Skills

22a. Notetaking and outlining

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	9	22.5	9	22.5	22	55.0	40
B	6	15.4	12	30.8	21	53.8	39
C	7	31.8	2	9.1	13	59.1	22
Total	22	21.8	23	22.8	56	55.4	101

22b. Synthesizing information

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	7	17.5	11	27.5	22	55.0	40
B	6	15.4	13	33.3	20	51.3	39
C	5	22.7	5	22.7	12	54.5	22
Total	18	17.8	29	28.7	54	53.5	101

22c. Evaluating accuracy of information

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	6	15.0	11	27.5	23	57.5	40
B	6	15.4	16	41.0	17	43.6	39
C	4	18.2	9	40.9	9	40.9	22
Total	16	15.8	36	35.6	49	48.5	101

22d. Distinguishing among fact, fiction, opinion and bias

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	8	20.0	15	37.5	17	42.5	40
B	6	15.4	17	43.6	16	41.0	39
C	6	27.3	7	31.8	9	40.9	22
Total	20	19.8	39	38.6	42	41.6	101

22e. Selecting relevant from irrelevant information

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	6	15.0	15	37.5	19	47.5	40
B	6	15.4	17	43.6	16	41.0	39
C	5	22.7	7	31.8	10	45.5	22
Total	17	16.8	39	38.6	45	44.6	101

22f. Skimming

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	7	17.5	13	32.5	20	50.0	40
B	3	7.7	15	38.5	21	53.8	39
C	4	18.2	6	27.3	12	54.5	22
Total	14	13.9	34	33.7	53	52.5	101

22g. Compiling a bibliography

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	11	27.5	11	27.5	18	45.0	40
B	13	33.3	17	43.6	9	23.1	39
C	11	50.0	7	31.8	4	18.2	22
Total	35	34.7	35	34.7	31	30.7	101

Table 22

Instruction in Production of Materials Skills

23a. Producing audiovisual materials to enhance presentations

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	2	5.0	8	20.0	30	75.0	40
B	5	12.8	13	33.3	21	53.8	39
C	1	4.5	8	36.4	13	59.1	22
Total	8	7.9	29	28.7	64	63.4	101

Appendix H

University Library Use Problems

Table 23

Instruction about Skills Identified by University Reference Personnel

24. Requesting help from staff to find materials or information

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	14	35.0	25	62.5	1	2.5	40
B	24	61.5	14	35.9	1	2.6	39
C	17	73.9	6	26.1	0	0.0	23
Total	55	53.9	45	44.1	2	2.0	102

25. Identifying or describing the specifics of an information need

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	6	15.0	28	70.0	6	15.0	40
B	11	28.2	26	66.7	2	5.1	39
C	10	43.5	13	56.5	0	0.0	23
Total	27	26.5	67	65.7	8	7.8	102

26. Narrowing or broadening a topic to find needed information

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	8	20.0	27	67.5	5	12.5	40
B	15	38.5	22	56.4	2	5.1	39
C	12	52.2	10	43.5	1	4.3	23
Total	35	34.3	59	57.8	8	7.8	102

27. Aware that library experience is limited by limited resources available at their media center

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	13	33.3	23	59.0	3	7.7	39
B	19	48.7	18	46.2	2	5.1	39
C	12	52.2	9	39.1	2	8.7	23
Total	44	43.6	50	49.5	7	6.9	101

28. Greater complexity and scope of larger libraries

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	9	22.5	22	55.0	9	22.5	40
B	10	25.6	18	46.2	11	28.2	39
C	5	21.7	12	52.2	6	26.1	23
Total	24	23.5	52	51.0	26	25.5	102

29. Limitations of library tools

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	12	30.0	23	57.5	5	12.5	40
B	18	46.2	15	38.5	6	15.4	39
C	11	47.8	10	43.5	2	8.7	23
Total	41	40.2	48	47.1	13	12.7	102

30. Importance of examining all sides of an issue

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	8	20.0	17	42.5	15	37.5	40
B	4	10.3	19	48.7	16	41.0	39
C	8	34.8	8	34.8	7	30.4	23
Total	20	19.6	44	43.1	38	37.3	102

31. Classification systems other than the Dewey Decimal System

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	5	12.5	7	17.5	28	70.0	40
B	9	23.1	8	20.5	22	56.4	39
C	3	13.0	4	17.4	16	69.6	23
Total	17	16.7	19	18.6	66	64.7	102

32. Using subject reference books other than those in own media center

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	4	10.3	13	33.3	22	56.4	39
B	5	12.8	12	30.8	22	56.4	39
C	2	9.1	11	50.0	9	40.9	22
Total	11	11.0	36	36.0	53	53.0	100

33. Using indexes to periodicals other than Readers' Guide

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	3	7.5	8	20.0	29	72.5	40
B	6	15.4	11	28.2	22	56.4	39
C	5	21.7	4	17.4	14	60.9	23
Total	14	13.7	23	22.5	65	63.7	102

34. The research process

	Formal		Informal		No Inst.		Total
Size	No.	%	No.	%	No.	%	No.
A	16	41.0	14	35.9	9	23.1	39
B	14	35.9	18	46.2	7	17.9	39
C	8	36.4	8	36.4	6	27.3	22
Total	38	38.0	40	40.0	22	22.0	100

Appendix I

Structure of the Library Instruction Program

Table 24

Library Instruction Program by School Enrollment Size

School Size	Size A		Size B		Size C		Total	
Responses	No.	%	No.	%	No.	%	No.	%
a	10	22.2	14	33.3	13	50.0	37	32.7
b	6	13.3	8	19.0	2	7.7	16	14.2
c	1	2.2	2	4.8	1	3.8	4	3.5
d	27	60.0	18	42.9	10	38.5	55	48.7
e	1	2.2	0	0.0	0	0.0	1	0.9
Total	45	99.9	42	100.0	26	100.0	113	100.0

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