

THE UNIVERSITY OF CALGARY

AN ANALYSIS OF STUDENTS' INFORMATION USE

by

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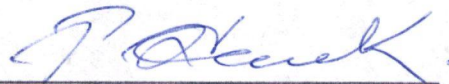
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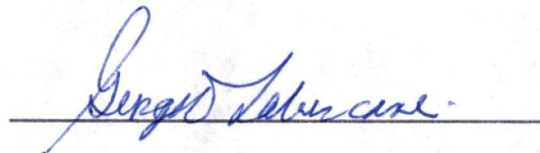
THE UNIVERSITY OF CALGARY

FACULTY OF GRADUATE STUDIES

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## ABSTRACT

The purpose of this study was to examine the information-seeking behavior of Calgary high school students. Students in forty-six classes in six Calgary public high schools took part in the study during the first semester of the 1985-86 school year. An analysis was done of the resources and facilities students used in response to school research assignments. Students' perceptions of themselves as library users or non-users were also examined.

Questionnaires were administered to 1,025 students to determine the number and type of libraries they used, their success in locating information, the assistance they received, their perceptions of how the school library met their information needs, their perceptions of themselves as library users or non-users and, if non-users, their reasons for non-use. A bibliometric analysis of 841 student bibliographies provided information on the number, type and currency of the materials used. Teacher questionnaires and librarian interviews provided background information for the analysis.

A summary of the findings includes:

1. Students are inclined to use more than one facility in their search for information. Although the school library was used most frequently and successfully, students used as many as seven different libraries including the university library, private libraries, SAIT and Mount Royal libraries.

2. Home libraries are important information sources for students. They were used by almost half the students questioned and as frequently as the public library.

3. Over one-quarter of the students in the sample perceived themselves as library non-users. They would not willingly use a library unless they needed to for a school-related assignment.

4. Books were the main source of information for students. Use of other information sources such as magazines or newspapers was less than expected, and nonprint use was extremely low.

5. Materials used were generally current and there was an indication of the use of Canadian resources.

6. Similar information use patterns were found for students in each of the six schools.

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## CHAPTER I

### INTRODUCTION

The purpose of this study was to examine the information-seeking behavior of senior high school students in response to school research assignments. Two aspects of student information-seeking behavior were analyzed: the actual resources used by students and the various facilities used in an attempt to locate these resources.

High school students today have increasingly complex information needs. The wealth of information available as well as the variety of ways of finding this information challenge libraries to facilitate information access. In order to satisfy student information-needs, school teachers and librarians must have a factual basis on which to plan instruction for information retrieval and processing, library services and collection development. It is not enough to assume students' needs and the changes in library programs that will best respond to them. By considering the actual use patterns of students, better and more accurate planning can take place.

In 1983, the National Commission on Excellence in Education prepared a report warning that America has allowed a dangerous deterioration in its formal education. To

survive in an Information Age, they stressed the need to raise the United States to the standard of a lifelong learning society. They called for excellence in education and recommended that home, school and library work together to achieve it.

Librarians responded to this call in Alliance For Excellence (1984). This document noted that the learning needs in communities were going to increase and change. Because of this probable change, "Society should know more about the information-seeking skills and behaviors of children and adults" (Alliance, 1984). Many researchers also support this contention.

DeGennaro (1980) refers to the tendency to evaluate libraries in terms of input statistics such as number of volumes or amount of money spent, when he hypothesizes that there is no significant correlation between library statistics and user satisfaction. He states: "It is time to put quality and user satisfaction ahead of big numbers as the goal and guiding concept of library management".

Cyr (1970) notes in her description of the Sobrante Park Evaluation Project: "Perhaps one of the cardinal rules in library research should be to ask the library patron what he thinks about the services which affect him. Unfortunately, this is the fellow usually overlooked". This problem, overlooking the patron or client, seems to be more severe in school library research simply because the client

is younger and perhaps considered less influential or less mature.

The problem is not restricted to school libraries, however. In a study of users and non-users of college libraries, Musavi (1977) states that the lack of attention to the user is the most critical problem of academic libraries. Her concern is that development or limitation of library functions and services should not be based solely on the ideas and opinions of education experts such as library experts. Mohamed (1977) found that "librarians could not always correctly estimate the service requirements of patrons or determine the expected behavior patterns of users in order to maximize their need satisfying capability in the library." Thus, a more acceptable foundation for administrative decisions regarding library planning can be provided by studying the actual information-seeking behavior of students. What are their library use patterns? Where do they look for information and what resources do they actually use?

#### Need For the Study

Library use has been studied most frequently in terms of the circulation of materials or the use of the card catalog or the kinds of reference questions answered. However, relatively few studies have considered the actual information-seeking behavior of the library user. If the

purpose of use studies is to "improve existing conditions within a particular library" (Tobin, 1974), and in terms of library planning to "enable our decisions to be based on an objective market analysis of the needs, habits and desires of the intended recipients of the service" (Meyer, 1969), then it is even more important to consider the library user.

There are a number of reasons for such studies. As Musavi (1977) says: "In the present decade growing demand, high cost, dissatisfaction with the library function, improvement of storage and retrieval mechanisms, a rapid increase of human knowledge, and growth of publication make it imperative for librarians to be aware of their potential patrons' needs and characteristics prior to actual policy making or planning for new investment in the libraries".

Tobin (1974) noted an international need for research in the usage of school libraries. Her analysis of use studies revealed very few of these studies in Canada for any type of library and fewer in school libraries. Although an overall trend toward an increase in the publication of this type of library study was indicated, this was not true of school libraries.

In summary, few studies of library users have taken place at the high school level or in Canada, although the need for such studies has been apparent for many years. The results of the few high school library use studies in the United States have revealed use patterns with important

implications for teachers and librarians. Thus, the present study undertook to address this need by describing and analyzing one aspect of the library usage of high school students in Calgary Public Schools.

#### Statement of the Problem

The purpose of the investigation was to determine the library use patterns of Calgary Public high school students during the fulfillment of the requirements of teacher-initiated research assignments. What were the information-seeking behaviors of this group? Questions that were investigated included:

1. What kinds of resources did high school students actually use in completing research assignments and what usage patterns did they demonstrate in terms of number of resources, proportion of resource types and resource currency?

2. Was there a relationship between the number, type and currency of resources used and the subject, grade, or school of the students?

3. What facilities did high school students attempt to use in their search for information, in which facilities were they successful and in which did they receive assistance?

4. What perceptions did students have of how one facility, the school library, met their needs, what were

their perceptions of themselves as library users or non-users and what reasons did they give for the non-use of libraries?

#### Delimitations of the Study

This study dealt only with the information-seeking behavior of students who had received research assignments requiring a bibliography. Nevertheless, since a major part of any high school students' information needs are a direct result of school related assignments and since bibliographies provide a concrete list of resources students used, this was considered one of the most effective methods of collecting unbiased, straightforward data about student's information-seeking behavior.

#### Limitations of the Study

1. The study was confined to the Calgary Public School System which limits generalizability.

2. A completely random sample was not provided. Participation in the study was voluntary. Although none of the teachers or students contacted by the investigator refused to take part, teacher-librarians in each school provided the names of teachers giving appropriate assignments to the researcher and it is possible that some teachers were missed or refused to take part before the librarians made the list.



3. School samples varied in number, grade level, and courses of study, making the isolation of a school effect difficult. Any relationships found would be apt to be the combined result of a number of different factors.

### Definitions

School library will be used to refer to the area in the school where a full range of information sources, associated equipment and services from library staff are accessible to students, school personnel and the school community

(American Association of School Librarians, 1975). Media centre, learning materials centre, learning resource centre and other such terms will only be used in a direct quotation or when giving a title. In the same way the term "librarian" will be used instead of such terms as media specialist, mediatrix and resource center personnel.

Non-user is defined as a student who would not willingly use any library unless given a specific assignment by an instructor that necessitated its use. As Musavi (1977) states "Librarians have used this term (non-user) for many years without any explicit designation of its actual meaning; no criteria have been established to distinguish users from non-users." For this study a student's perception of himself as a non-user of the library or an un-willing library user is what distinguishes him from a library user.

User is defined as a student who willingly use a library.

It is important to note that the library may be used in many different ways. It may be used strictly as a place to meet or study. It may be used to check out various materials, or resources may be used in the library without checking them out.

Perception refers to the impression or awareness of an object or quality such as a student's impression of a school library or his awareness of himself as a library user.

Research Paper or Assignment, in a high school setting, refers to a type of assignment which involves the gathering of information and the organization of this information in some orderly form by the student.

Bibliometrics is the use of mathematical methods to study resource use, when resources are defined as information sources such as books, magazines, pamphlets and other sources.

## CHAPTER II

### REVIEW OF THE LITERATURE

This literature review is divided into four sections (a) library users and non-users (b) library facilities used by students (c) bibliometrics and (d) types of resources used by students. The general area of library use studies with the emphasis on library users and non-users will be considered first.

#### Library Users and Non-users

The need for library use studies has been pointed out in Chapter I and, in the general area of use studies, the need for studies of users and non-users of school libraries seems particularly strong. During an analysis of use studies published in Library Literature from 1960 to 1973, Tobin (1974) examined the type of patron involved in the use study. She concluded, "Since the non-users of libraries generally far out-number the users, the grand total of 1% of the world's use studies which are devoted to non-users would seem to be inadequate." A further breakdown of the data shows that school libraries selected non-users as subjects in only one study. Their subject preference seemed to be

for individual patrons over specific groups by a ratio of fourteen to one.

Overall, it seems the contributions made by school libraries to use studies for the period 1960 to 1973 have been slight. This is probably why Tobin indicated an international need for research in the areas of usage of school libraries and of non-users. Tobin's conclusions are supported by Peritz's (1977) survey of research published in the core journals of library science in the years 1950, 1960, 1965, 1970 and 1975.

Peritz's findings include the following: there are few studies on public libraries, on users (particularly on non-professional users) and on educational activities of libraries; the number of surveys of the public is low when compared to other kinds of surveys; the research literature is more process oriented than client oriented and more concerned with the needs of the professional community than with the needs of any other group; there is a virtual absence of studies on children and students; the single most frequently studied type of organization is the college and university library, followed by the special library; only 2% of the research examined concerned school libraries. The lack of research on users and non-users in all of the library areas is evident, as is the minor involvement of school libraries in published research.

In 1967, Mendelson and Wingard commented on "a woeful lack of information available to policy makers on the use of libraries, or even on what constitutes their use". And they, too, noted that even less had been published in regard to the reasons for "non-use" of libraries.

Loertscher and Stroud (1977) found that librarians were often reluctant to include non-users in their library surveys. This was particularly true in the case of teacher non-users, the rationale being that only people using the library would know what services it offered and only they should have input. With this type of attitude toward non-users, it is no wonder that few studies on non-users have appeared. However, a present tendency seems to be to try to identify library non-users and to try to determine why they do not use the library.

One such study was done by Lubans (1970) at the Rensselaer Polytechnic Institute library. He concluded that the non-users felt they had no need to use the library. Non-users indicated that library use was strictly course related. Thus, if an instructor did not provide guidance or reason, such as assignments necessitating the use of the library, the student would not voluntarily use it. In a later study, Lubans (1974) found that reasons for non-use included ignorance of the material or the extent of the services available as well as the perceived lack of need mentioned before. Although this sample was taken at the

University of Colorado, other studies indicate that students using school libraries reason in much the same way.

In 1970 a regional action workshop was devoted to the "non-user" of library services. The report on the workshop estimated that public libraries were reaching approximately 20% of the total population of the community. When participants were asked what non-user groups in their community they wanted to reach, an overwhelming majority listed children, students, young adults (Allen, 1970). This is the same group that school libraries are primarily concerned with.

Wilder (1970) studied library usage by students and young adults and found that many students rated the public library as significantly more satisfactory (for school related use) than their school library. Their perceptions of the helpfulness of the staff of the two types of library followed the same pattern of greater satisfaction with the public library. More reliance could be placed in his findings if he had used a representative sample of school children. However, his questionnaires were given only to visitors to the public library, resulting in a biased sample that once again ignored the non-user.

In 1975, a Gallup survey of public libraries studied the attitudes and behavior of both users and non-users ("Public", 1976). The survey was conducted with a representative national sample. Over 1500 adults, age

eighteen years and older, were involved. The survey revealed that only 49% of the sample had used a public library in the past two years. The non-users gave the following reasons for not using public libraries: not interested or no need (35%), not enough time (24%), don't read (12%), too far away (12%), have enough books (11%). Non-users were asked what services might convince them to use libraries more often. Thirty percent of the non-users could name no service that a library could possibly offer that would convince them to use the library. Although this survey concerned adults rather than students, the findings may be similar for a younger group.

Ladendorf (1972) refers to the problem as the "user barrier". Her contention is that relatively few people ever willingly use libraries. Lack of awareness of the resources to be found in libraries, lack of training in techniques needed to locate materials, the complexity of the library system, the lack of on-the-spot guidance, the poor image of libraries are all given as reasons why people avoid libraries. Ladendorf suggests applying market analysis and salesmanship techniques as methods that may break the user barrier. She admits that "no amount of planning, education, or advertising is going to get everyone into a library, but most libraries can improve on their present scores". An active concept of library service is advocated in order to reach the non-user.

Although these studies do little more than acknowledge that there is a need to find out more about school library users and non-users, other studies have considered specific aspects of student library use. One of these aspects is the use of different library facilities.

#### Library Facilities Used by Students

While the use of a particular library or type of library (usually public or academic) has been studied extensively, there has been little research directed at students and their use of more than one library facility to meet their information needs. An important breakthrough in this area was reported by Mancall (1979) in a doctoral dissertation. As part of her methodology, she administered questionnaires to 234 students in six academic high schools in a large metropolitan area in order to determine the number and type of libraries they used in their search for information needed for specific school assignments. Students were also asked about any help they received and where they were able to find information.

Results from the study indicated that students successfully used more than one type of library. The average student used three libraries, while 15% of the students used five or more libraries. The types of libraries used by students included: school (86%), public (89%), home (56%), college/university (37%), private/special



(19%), community college (4%). Success rates for finding resources were high, 75% for school libraries, 85% for home libraries, 69% for neighborhood public libraries and 100% for regional public libraries. More than one half of the students received help in the library, usually from library staff. Family and friends also provided help in using libraries, causing Mancall to conclude that students see libraries as places to receive assistance. Mancall reported some differences among schools that affected library use, but suggests that even more important was the specific assignment and the teacher's expectations and instructions to the students.

A more extensive study, using the same methodology, was performed for the U.S. Office of Education in 1980 (Drott, Mancall). In this study 1,298 questionnaires were completed by students from fifteen schools. The authors emphasize the significance of the research, noting that the study is the "first large-scale description of actual behavior of high school students as information users" and that the methodology is "straightforward, rigorous, and replicable". They stress the wide applicability of the techniques at the school level.

Findings in this study are similar to those in Mancall's research. Two or three different libraries were used by the average student (69% of all students). Only 4% used more than four libraries, although 16% used four or

more. Type of library use included: school (84%), combined public (75%), home (59%), college/university (16%), private/special (7%) and community college (3%). Since this sample was shaped to include a mix of student achievement levels, while Mancall's earlier study was of students enrolled only in college preparatory courses, the lower use of college, university and private or special libraries is predictable. The success rates were very similar in both studies (for example 77% of the students succeeded in finding information in school libraries) and staff help was reported by one third of the students.

Robinson (1980) and Wozny (1982) used the same methodology to study facilities used by students. Robinson (1980) adapted Mancall's questionnaire to study student book reports and the type of library used to acquire the books. Wozny (1982) added a new technique to Drott and Mancall's methodology in her study of the use of libraries and library resources by honor students in grade nine science who received training in online bibliographic searching. The fifty-three students from a Philadelphia upper-middle-class public high school were asked to indicate on their bibliographies the types of libraries they used to secure each reference. This allowed Wozny to relate each type of material referenced to the source institution.

She found that students used different facilities as sources of different types of materials. For instance, 66%

of all encyclopedias used and 55% of all magazines used were located in the school library. The public library provided 16% of the magazines referenced while the home provided 20%.

The assignment goals and instructions emphasized currency of materials, a variety of formats and suggested sources outside the school library as well as student use of online bibliographic searching. With this type of instruction it is not surprising that a variety of libraries were used, typically two or three. School libraries were used by 98% of the students, while 87% used public, 74% used home, 11% college or university and 8% private or special libraries. Percentages are high in the first three categories, and since this study included only grade nine students it is logical that fewer students would use college or university libraries compared with students in grades eleven or twelve with probable higher reading levels and greater sophistication in information access. The success rate was high especially in the school library where 92% of the students using the library were successful in finding information. Nearly three-quarters of the students received help from library staff.

Some other related research has also been reported. Abkd1jalil (1985), for instance, compared book availability and user satisfaction in two high school libraries in Ohio. He found that in both libraries the user performance measure was improved when a librarian's help was offered.

Extensive research on public library use may also apply to library facility use by students. A Gallup survey on book reading and library usage was commissioned by the American Library Association in 1978. Telephone interviews were conducted with 1,515 adult men and women, described as a representative national sample. The survey found that 51% of the respondents had visited the public library in the past year, which is up 2% from a 1975 Gallup survey that asked the same question based on a two year period. Respondents were questioned as to the source of the last book they had read. Almost one third (30%) mentioned a friend or relative, 24% said a book store and only 11% found their book in a public library. However, if only the 51% who were library visitors, rather than the total sample, were considered, the figures rose to 18% who obtained their last read book in a public library, 25% who obtained their book from a friend or relative and 26% who used a book store. It seems that, to most adults, home libraries and book stores are more significant sources of book resources than public libraries.

Shontz (1982) reviewed research concerning the public library and children and young adults, a group that was not included in the previous study. She reports that the Philadelphia Project, a study of more than 10,000 students in even-number grades two through twelve in 1969-1970, indicated the use of the public library by students

increased as grade level increased. Other findings concluded that class assignments accounted for a large percentage of student library needs and that 50% of the students in grade twelve were more satisfied with the public library than the school library.

Some of these findings do not agree with research done by Fasick and England in 1976 in a study of the Regina Public Library. Children ages six to twelve were studied and the selection of books for personal reading was the most frequent reason given for visiting the public library rather than the need to find information for class assignments reported in the previous study (Shontz 1982).

In a study of Quebec school libraries, Houle (1984) found the annual number of book loans per pupil decreased substantially from the elementary to the secondary level. In Alliance For Excellence (1984), teenagers were called "the most frequent dropouts from public library use" and the question was asked, "Why do young adults stop using libraries?"

Shontz (1982) concluded that school and public libraries serve essentially the same children. She stated that each can benefit from sharing knowledge, collections and services. This aspect was also presented by D'Elia (1980). He used Zweizig's conceptual model of user behavior. This "identifies the individual as an information seeker and the public library as one available channel of

information in a complex information environment" (D'Elia, 1980).

D'Elia surveyed 202 residents in Syracuse using a telephone interview and found, among other results, a relationship between in-house use of the public library and the use of other libraries. Although the study has some obvious limitations (the small sample size, the possible inaccuracies of self-reported data and possible bias in sampling) it serves as an excellent demonstration of the complexity of the construct, library use. D'Elia further defines public library users and non-users. Non-users, for instance, are divided into potential users (with the only identifiable difference from users being their perception of the inaccessibility of the library) and hard-core non-users. The latter group tend not to be active readers and not to be involved in activities such as adult education or community groups. He questions whether this group can ever be changed to become users.

Overall, the picture of student library use indicates that information seekers need to use more than one facility and thus may require specific types of instruction, assistance is seen as contributing to successful library use, and multiple factors affect library use.

### Bibliometrics

The study of library use, indeed all research in library science, has relied heavily on the survey technique. Stroud (1982) explains this reliance as due to the need to obtain so much of the information from people. Since it makes use of questionnaires, interviews, case studies, tests and observations, the survey method is well suited for the purpose, and the preponderance of research previously reviewed made use of these methods.

In considering the research on the actual materials high school students use to get information, however, another approach, that of bibliometrics, appears to have been used to good effect. Since a number of the studies relevant to this research rely on a bibliometric approach, and since a bibliometric analysis is used in the present study, examination of that method itself will be considered before reviewing the studies.

"Bibliometrics" was defined by Pritchard (1969) as "the application of mathematics and statistical methods to books and other media of communications." He expressed the hope that the term "bibliometrics" would be used in all studies which "seek to quantify the processes of written communication". This hope has been realized to a large extent, as reported by Narin (1977) in a comprehensive review of bibliometrics published in the Annual Review of

Information Science and Technology. Narin notes that bibliometrics and its applications have grown extensively and the representative sample of bibliometric works given in the paper provide ample support for this statement.

Bibliometrics has as its basic data references and citations, publications and producers of scientific publications. Techniques used in bibliometric analyses range from simply counting publications and citations to the more complex bibliographic coupling and co-citation (both used to establish relationships between individual scientific papers). Other techniques include influence measurement, journal classification, clustering and certain linguistic analysis techniques applied to keywords and concepts.

The methodology of this study includes a bibliometric analysis of references found in bibliographies. This area of references and citations has provided a rich source of data in many fields. The characteristics, the number, the publication date and the type of references may all be studied from bibliographies or reference lists.

A distinction is sometimes made between "true" citation analysis, defined as dealing with references that have actually been used in the paper, and studies based on bibliographies which may list references in the hope that they can contribute even though they may not have added to the paper (Broadus, 1977). This distinction, which may be



made by university scholars, is not one that is likely to occur to high school students. Teacher instructions, added to their own lack of sophistication in research, result in student bibliographies that reflect actual use, and are "true" citations in Broadus' terms.

The application of mathematics in bibliometrics has given rise to a number of laws and distributions. Of particular interest to this study is "Bradford's Law" which says that, in any body of literature, a large proportion of journal articles referenced are concentrated on a few titles, while the remainder of the articles are dispersed over a large number of titles (Drott, 1980).

Bradford's distribution has also been linked to Zipf and Yule distributions as in the study by Tobias (1975) on the use of journals by freshmen in a required English course. Tobias reported that ten periodicals provided almost one-half of the citations while most of the other titles had only one or two citations each. Although she counted only once a periodical cited numerous times in a paper, it was discovered later that if every citation had been counted, the trends would have remained basically the same. Of a total of 240 magazine titles referenced, 60% of the articles were contributed by 8.3% of the titles and 80% of the articles were contributed by 20% of the titles. The other 200 titles usually were referred to only once or twice which is consistent with Bradford's Law. Similar

distributions were reported by Mancall (1979), Drott (1980), Wozny (1982) and many others.

Narin (1977) listed and reviewed twenty-four studies which verify the validity of bibliometric measures. Covering a twenty year period (1957-1977), the studies indicate that "bibliometric measures correlate highly with more subjective interview and survey-based measures of productivity, eminence, and quality of research". This view is also supported by Broadus (1977). The data, by its very nature, provides accurate and precise observations. When counted it does not change. It is an unobtrusive measure. Because it actually reflects the results of work by library users, Narin (1977) states that bibliometric techniques can claim a reliability not always achieved by survey techniques.

The application of bibliometric analyses to library collection building has been reviewed by Broadus (1977). He posed the question as to whether citation studies can help librarians make better selection decisions. Can user needs be met more effectively given the information such an analysis could provide? From his review of the literature Broadus concludes: (a) results of citations counts have proved fairly reliable, (b) they correlate positively with the use of libraries by researchers and (c) they can be of value in choosing serials and monographs. Obviously, bibliometric studies should not be the main basis for

collection development, but bibliometric studies may assist a collection builder in making effective decisions. Even the specialist may find some value in the results of bibliometric studies.

It appears that there are a number of advantages to using bibliometric techniques. They may be used to give measurements of the actual materials referenced by students. Currency, type, number, special characteristics can all be analyzed. Bibliometrics can include books, magazines, newspapers, pamphlets and government documents, interviews, nonprint items and more. It has the advantage of providing concrete data, the nature of which can be clearly defined. Also important is that the data comes directly from the student or scholar. It is not changed or slanted by the research. In all, bibliometrics can provide a valuable tool.

#### Types of Resources Used by Students

The bibliometric approach has been used to describe the resource use of high school students as well as university scholars. Mancall (1979) used this technique to determine the actual resources used by high school students in the preparation of independent study projects. She states that references (usually taken from bibliographies of student papers), reflect "the habits, taste and bibliographic skills of the students". Findings from the study revealed a heavy

dependence on books, which made up over two-thirds of the total references. Although the typical student paper had eight to twelve references, 45% of the papers had no references to journals. Journal usage did conform to Bradford's Law. Mancall also reported that references to both books and journals were surprisingly old.

Using these first results as a pilot study, Drott and Mancall (1980) studied a larger, more varied sample and found a similar book orientation (62% of all references) with magazines next in importance (19% of all references). They found relatively little use of other materials in terms of the total number of references. When the percentage of students using each type of material was considered, a somewhat different pattern emerged. For instance, encyclopedias were cited in 36% of the papers even though they accounted for only 7% of the total references. Book and magazine use was still high (88% and 39% respectively), while government documents and pamphlets were used in 14% and newspapers in 10% of the papers. The age of the materials used varied greatly; only 20% of the papers had one-half of their references dated within the last five years.

Drott and Mancall reported that there were great differences in material use from student to student, but these differences appeared in every school. The patterns of material use held true across schools and the school

districts studied. Only a slight effect was noted due to community socioeconomic level or school library collection or funding. The nature of the assignment and the instructions given students by teachers and/or librarians were considered most important.

This conclusion was supported by Wozny's (1982) study. One of the goals of the assignments was student use of up-to-date information, and Wozny reported that over 80% of the students referenced at least one item published within the last two years.

Overall, a wide variety of current materials was used by students in Wozny's study. Instead of books, magazines were the most important information source used by 83% of the students and account for 46% of the references. Books were referenced by 66% of the students and accounted for 25% of the references. References to encyclopedias, government documents and pamphlets and newspapers were all greater than in previous studies and used by 45%, 44% and 24% of the students respectively. Wozny concluded that the major influence on this particular student information use was the teacher and the librarian and the educational goals they established for the assignment.

Two types of materials used by students in their search for information have received special research emphasis. One is magazines, in the high use category, and the other is nonprint resources, with almost non-existent use. Due to

their importance as sources of up-to-date information, magazines are of special interest to librarians.

Tobias (1975) lists three questions the librarian of an undergraduate library may find it hard to answer in the absence of a body of information about periodical use. They are: which periodicals should be added to the collection, which should be dropped and where should the cut-off point for periodical subscriptions be made? These questions and others related to the format of periodicals (bound, unbound, microfiche, clippings) the indexing necessary for optimum use, even the decisions concerning which magazines to store and how long to store them, are all of concern to librarians.

Fasick (1983) found in an Ontario survey of a random sample of elementary school libraries that no matter what size the material budgets were, most school libraries spent between 5% and 15% of the budget on periodicals. The percent of high school library spending on periodicals is often higher. Yet with ever increasing subscription costs and the desire to meet the interest needs as well as the curricular needs of students, it is important that limited funds be spent on magazines that will have the greatest potential use. Studies of magazine use by students may help provide better periodical service.

Mancall (1979), Drott (1980) and Wozny (1982) all reported that the pattern of magazine use by high school

students was exactly the same pattern seen in the many studies of adults (especially scientists and scholars). Bradford's Law was observed in each study, as a small number of titles accounted for the largest share of all magazine use. Drott (1980) found that four titles (Newsweek, Time, U.S. News & World Report and Sports Illustrated) supplied over one-quarter of the magazine use. Wozny (1982) found that 30% of the total magazine use was supplied by four titles, three of which were the same as those in the previous study. Both studies found the Readers' Guide to be the most used magazine index. This type of information may aid librarians in making decisions about periodicals that will help libraries better meet students' information needs.

Rogers (1984) notes that nonprint information sources such as motion picture films, sound recordings, graphics, realia, multimedia kits, filmstrips, video recordings, slides, transparencies, charts, dioramas, flash cards, games, microscope slides, models and cartographic materials, have been regarded or accepted as educational tools for decades. He believes this acceptance by librarians has been proven through acquisition and dissemination of information in nonprint formats.

An estimate of the size of the pool of audiovisual materials found in public school library media centers in the United States in 1978 reveals more than 75,000,000 nonprint titles. The National Center for Educational

Statistics gave 1,072 as the mean number of nonprint items per school compared with 7,500 as a mean number of book titles. Roloff, however, concluded that there was a lack of scientific evidence to support the use of nonprint media (Aaron 1980). Smith (1980) notes that school libraries have served as leaders in the use of nonprint materials but there is still much to be done before they can be selected and obtained as readily as books. This may well be an indication of why nonprint has been referenced so rarely in student research.

Both Wozny (1982) and Drott (1980) reported that only 4% of the papers in their studies referenced nonprint items and this made up only 1% of the total number of references. Even these figures may be inflated due to the inclusion of interviews in the nonprint category. This information is disquieting. Does this mean that students do not use nonprint items as information sources or that appropriate nonprint materials are lacking in the schools studied? If the monies and time spent on nonprint is to be justified in terms of student use, then further research in this area is important.

Although specific research on high school students' use of library resources and facilities as part of their information-seeking behavior is not extensive, there is evidence of patterns of student use that may be important. The heavy student emphasis on books as information sources,



the very minimal use of nonprint resources and the magazine usage that conforms to Bradford's Law have all been noted. A lack of currency in student materials use unless specifically emphasized by the goals of an assignment and related instruction may also be significant. Overall, however, there is a definite lack of Canadian studies in the area and a need to extend the present data base to complete the picture of high school students' information-seeking behavior.

### CHAPTER III

#### METHODOLOGY

This study was designed to describe the information-seeking behavior of high school students in Calgary Public Schools in response to teacher-initiated assignments requiring a bibliography. The actual materials used (i.e. books, magazines, newspapers, encyclopedias, government documents or pamphlets, non-print resources and interviews), the different libraries used, and students' perceptions of themselves as library users were all studied to generate a picture of high school students as information users.

#### The Sample

From the fourteen Calgary public high schools, seven schools were selected to provide a variety of student population sizes and community characteristics. The principal of one of the seven schools was unwilling to have his school be involved in the research project, thus, the final sample was made up of students from six schools. The three city quadrants (N.W., S.W. and S.E.) containing public senior high schools were represented in the sample.

A major difference among the schools in the sample was the size of the student population. Directly related to this was the size of the library collection. For this reason, schools are numbered from smallest to largest according to the size of the student population.

Schools #1 and #2 have smaller populations of approximately 600 and 780 respectively. School #3 has a population of 930, School #4 one of 1,700 and School #5 a population of about 1,800. The largest school in the sample, School #6, has a population of 2,100. To preserve anonymity, only general features of each school will be noted when applicable.

All of the schools had access to a neighborhood public library. All schools had at least one full-time teacher librarian. All six of the schools had busing. Socioeconomic status was not clearly defined, with the majority of schools serving students from a variety of socioeconomic areas.

The next step in the sampling process was undertaken by the teacher-librarians who identified the teachers giving assignments requiring bibliographies. All the teachers thus identified were contacted by the researcher and in each case that the assignment fit the research criteria, they agreed to take part in the study.

Next, students in each of the classes involved in the assignments were informed of the research and asked to take

part. Participation was over 99% with only a few students refusing to complete the questionnaire (one because she needed the time to work on a late assignment). All bibliographies completed were included in the study as students had no objections to having them copied. However, twenty-nine students did not complete bibliographies in spite of their inclusion in the assignment requirements.

Twenty-seven of the twenty-eight teachers completed the teacher questionnaire and all six teacher-librarians were interviewed. In total, twenty-eight teachers from six Calgary Public High Schools took part in the study which involved forty-six classes. The analysis included 1,025 student questionnaires and 841 student bibliographies from 870 papers.

#### Data Collection

Data were collected from four sources: (a) student questionnaires, (b) student bibliographies, (c) teacher questionnaires, and (d) interviews with teacher-librarians. The main focus of the study was on the student bibliographies and questionnaires, while the teacher questionnaires and teacher-librarian interviews served to provide background for the analysis.

In the spring of 1985, the Supervisor of Program Evaluation for the Calgary Public School Board approached the principals of seven public high schools and requested

permission for the researcher to contact them in order to explain the nature of the research and ask for permission to include their school in the project. The librarians of these schools had been contacted by the researcher and all had expressed their willingness to cooperate. Six of the seven principals were willing to listen to the research proposal and subsequently gave their permission for the research to proceed in their schools.

Once permission had been obtained from the school principals to involve their schools in the research, the teacher-librarians were contacted. They were informed about the nature of the research both during telephone conversations and in writing. The teacher-librarians were then asked to identify teachers in their school who had given or were likely to give research assignments that required students to go beyond a classroom text for information, required a bibliography and gave the students an element of choice in topic selection, that is, they could choose some aspect of a single topic but the whole class did not have to do exactly the same topic.

The actual data collection was initiated on October 1, 1985. Upon receipt of the name of a teacher who had given or was planning to give an assignment meeting the research criteria, the researcher contacted the teacher by telephone, explained the nature of the research and requested his involvement. All of the teachers contacted agreed to take

part. A time was then arranged for administering student and teacher questionnaires. This was done at the teachers' convenience but as close to the due date of the assignment as possible. The photocopying of bibliographies was either done at the same time as the questionnaires or as soon as the papers were available.

Cooperating teachers were given copies of the teacher questionnaire, the student questionnaire and the information sheet and consent forms for the student as well as an outline of the proposed research. Confidentiality was emphasized to both teachers and students. No school names, teacher names or student names were to be used in the study. Neither teachers nor students signed the questionnaires. A numerical coding system was used to identify the school, the grade and the subject for each questionnaire and bibliography. Students remained anonymous. The teachers did not examine the student questionnaires and only group results were used.

### Instrumentation

#### Questionnaires

Two questionnaires were used in this study, a student questionnaire (Appendix A) and a teacher questionnaire (Appendix B). When the due date of each assignment was finalized, an appointment was made to administer the student

questionnaires as close to that date as possible. The assumption made was that when a paper was due, the research process undertaken for the assignment would still be clear in the students' minds. The questionnaire referred only to the one particular assignment students were then handing in. This critical incidence approach was used to ensure more accurate data than general questions of what students usually did would provide.

The majority of the student questionnaires were given by the researcher, but in some cases the cooperating teacher administered them to his classes. Teachers usually completed the teacher questionnaire while the students did their questionnaires. Occasionally teacher questionnaires were completed at a later date and mailed to the researcher.

Both student and teacher questionnaires were adapted for use in this study by permission of Mancall. (Mancall, 1979; Drott, 1980) They had been used effectively and extensively both by Mancall in her Ph.D. dissertation entitled "Resources Used By High School Students in Preparing Independent Study Projects: A Bibliometric Approach" and by Drott and others in "A Quantitative Inventory of Resource Development and Utilization for Metropolitan High School Students". The latter was an extended study funded by the United States Office of Education. Some of the questions were revised and other

questions were added to make the questionnaires more suitable for this study.

The student questionnaire was primarily factual and used to identify where students looked for information (in which libraries), where they actually found the information they needed and whether they received assistance, either from library staff or friends or family members in finding the information. Questions were added to determine student perceptions of how the school library met their needs and of themselves as library users or non-users. Since the questionnaire referred only to the assignment students were handing in, it was straightforward and relatively easy for students to answer. Administration of the questionnaire took less than fifteen minutes, allowing for explanations and questions.

Teacher questionnaires provided background concerning the assignment, the teacher interaction with libraries and the instructions given to students.

### Bibliographies

The bibliographies that students completed as part of their research assignments were important information sources. An analysis of these bibliographies provided data about the currency of the materials students actually used, the different types of materials referenced and the quantity of materials used. The bibliometric technique and its



applicability to such studies as this has been reviewed in Chapter II.

As an unobtrusive measure of student material use, the collection of the bibliographies was quite straightforward. Once a teacher had collected the students' assignments, the researcher was notified and photocopied the assignment bibliographies within that school. The papers never left the school premises and were returned to the teacher within an hour. This was to ensure that no assignments were lost or misplaced. In a number of cases teachers volunteered to photocopy the bibliographies for the researcher as did one teacher-librarian. One Computer Science class had done all of their assignments on computer. Their teacher simply asked them to run off two copies of their bibliography on the printer, one of which was given to the researcher.

Each bibliography was assigned a control number which identified the class, and thus school, subject and grade level. No student names were to be included on these bibliographies. If students added their names in error, they were crossed out or otherwise removed.

### Interviews

Teacher-librarians in each of the six Calgary Public Schools participating in the study were interviewed by the researcher in order to gain background that could help in the analysis of the student data. The interview format is

found in Appendix C. This interview format was based, by permission, on an instrument developed by Mancall (1979). The focus of the interview was on the collection available to students within their high school library as well as the services offered to students to assist them in meeting their information needs. The interviews were arranged in each of the schools between February 27 and March 7, 1986. Taking thirty minutes to one hour, they were tape recorded for more accurate transcription.

The interview was a standardized open-ended type, made up of open-ended questions that allowed for some flexibility in response. The same ground, however, was covered with each teacher-librarian. The researcher asked each teacher-librarian the questions as listed in Appendix C Librarian Interview Outline, in the same order and basically as written. Depending on the different personalities of the respondents, the time available, the school and other factors, the responses varied in content and length.

### Data Analysis

#### Questionnaires

As each class set of questionnaires was collected, each questionnaire was assigned a student control number. The questionnaires were first checked for internal consistency by determining if student responses to subsequent questions

were consistent with what had been reported in previous ones. For instance, did students report receiving help in a library they had not checked as one in which they had sought information? Consistency was over 99%.

The questionnaires were then examined to consider written-in answers and to total responses in certain categories such as the total number of libraries used or total number of libraries in which staff supplied help. A coding sheet was used to organize the questionnaire information for each part of each question. To simplify the questionnaire for the students, the three questions pertaining to assistance received in finding information asked for only yes or no responses, with a space to write in the name of a library if a positive response was given. On the data sheet both positive or negative responses were recorded for each type of library as well as a symbol (-) to indicate if an answer had not been given. The data was tabulated by counting down specific columns.

Tables were then created to present the information. The statistical procedures of percentages, mean, standard deviation, median and mode were used. This was sufficient to answer such questions as: How many libraries did students use when responding to school research assignments? What types of libraries were used most frequently? Where did students have the most success in finding information? Did students use assistance in finding information, in what

libraries did they use assistance, and who provided the assistance? What were students' perceptions of how their school library met their needs? What were students' perceptions of themselves as library users? Did the overall use patterns exhibited by the total sample vary from school to school?

### Bibliographies

The 841 student bibliographies analyzed revealed a total of 3,501 references. With this number of items to work with, computer analysis was indicated. As with the questionnaires, each bibliography was assigned a case number. Pre-coding of the papers by the researcher identified the type of material and highlighted the date of the material.

In the analysis of the bibliographies, a number of decisions had to be made. The identification of books, magazines, encyclopedias, newspapers, government documents, non-print items, interviews and others was not always clear from the information given by the students. Although judgements had to be made in this area, they were all made by the one researcher and thus were relatively consistent.

Titles of magazines, newspapers and encyclopedias were noted on separate cards along with the complete code number of the bibliography that referenced them. Since the use of major periodical indexes was a factor in the study, each

magazine and newspaper referenced was checked for inclusion in the Readers' Guide to Periodical Literature or the Canadian Periodical Index. Coding sheets were completed before entering data into a computer.

The SPSS package of statistical programs was used in the computer analysis of the bibliographies, but the bulk of the final analysis was based mainly on tables that presented the information in a direct, straightforward way more easily used by school personnel.

## CHAPTER IV

### ANALYSIS OF DATA

Four sources of data were used in this study: student questionnaires, student bibliographies, teacher questionnaires and librarian interviews. The student questionnaires and bibliographies served as the main basis for the analysis, while the teacher questionnaires and librarian interviews provided background.

This chapter is divided into two main sections. The first section presents the findings of the student questionnaire and the second presents the bibliometric analysis. Each of these sections is further subdivided to consider first the data as a whole, in order to provide a general picture of student information-seeking behavior, and then to analyze the data by school, to describe the effect of the local situation. The bibliometric analysis also considers the impact of subject and grade.

#### Questionnaires

The student questionnaire posed questions concerning: (a) the number and type of libraries used (b) students' success in locating information (c) the assistance students

received either from library staff or family and friends (d) students' perceptions of how the school library met their information needs and (e) their perception of themselves as library users. Each of these aspects of the questionnaire will be considered in turn.

#### Overview of the Data

Number of libraries used. The actual distribution of the number of libraries used by all the students in the sample is shown in Table 1. Two libraries were used by 36% while three libraries were used by 23% of the students. This makes a total of 59% of all students using either two or three libraries. Another 9% used four libraries and 5% used five or more. Thus, replies to the first question in the student questionnaire indicate that almost three quarters of the students used more than one library.

A few students (1% or 11 out of 1,025) used no libraries, relying on their "own brains" or information discussed in class, but others used as many as seven libraries. The mean number of libraries used was 2.3 with a standard deviation of 1.2. This indicates that the majority of students were aware of and willing to use more than one facility in their search for information. The different types of libraries they used is the next consideration.

TABLE 1

## Number of Libraries Used by Students

(N = 1025)

---

Number of Libraries used	% of Students Using*	Cumulative % of Students Using*
<hr/>		
None	1	1
1 library	26	27
2 libraries	36	63
3 libraries	23	86
4 libraries	9	95
5 or more libraries	5	100
$\bar{x}$ = 2.3	s.d. = 1.2	

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\*Percentages are shown to the nearest whole number



Types of Libraries Used. Table 2 illustrates the types of libraries students used. As may be expected, the school library has the greatest overall use with 90% of all students searching for information there. The home library is next in importance if the use of neighborhood public libraries is considered separate from that of other public libraries. However, when public library use is combined (each student who used a neighborhood public and/or one or more other public libraries is counted once) usage equals that of the home library at 49%. More students try their neighborhood public library (35%) than other public libraries (29%), but 15 % of the students use not only their neighborhood public library but also another public library, possibly because of lack of success in finding information at the neighborhood branch.

The school, public and home libraries are the main information facilities used by students but at least 10% of the students in the study also made use of the university library. Since the university collection is classified according to the Library of Congress System rather than the Dewey System students are familiar with, and since the size of the university collection is massive compared to school collections, and considering the advanced reading and content level of much of the university collection, together with the necessity of signing out a special university card at the school in order to use the collection, it is

interesting to note that over 100 students in the sample did make use of the university library. .

Other facility use is relatively minor. Only 3% of the students used the Mount Royal facility while 1% used the SAIT Learning Resources Centre. Private or special libraries, considered in the "other library" category, were used by 5% of the students. A variety of libraries were specified by this group.

The medical libraries of different hospitals were listed, usually by Biology students. Others noted church libraries they found useful. The Petro-Can library, the library of the Arusha Cross-Cultural Center, the library of the National Film Board of Canada and the library of the Canadian Amateur Hockey Association were among the other special libraries recorded.

TABLE 2

## Student Use of Libraries by Type of Library Used

(N = 1,025)

---

Type of Library	% of Students Using
<hr/>	
School library	90
Neighborhood public library	35
Other public library	29
Combined public library (Neighborhood and/or other)	49
Mount Royal College library	3
SAIT Learning Resources Centre	1
University of Calgary library	10
Home Library	49
Other libraries (private or special)	5

---

Success Rates. Table 3 shows the percentage of students using each library who actually found information there that they could use in their reports. The success rate of students using these various types of libraries was highest for those using the school library. Eighty-seven percent of these students were able to locate information needed for their assignments in the school library. High success rates of over 80% were also reported by students using home libraries, the university library and private libraries.

The small number of students seeking information at the SAIT or the Mount Royal libraries were successful only about half the time. Student success in public libraries varied from 65% in neighborhood public libraries to 74% in other public libraries. However, when the combined public library success rate is considered, it climbs to 79%. This seems to support the hypothesis that students who are unsuccessful in finding information in a neighborhood branch of the public library may try another public library successfully (usually the larger main branch).

TABLE 3

## Student Success Rates in Various Libraries

(N = 1014)

---

Type of Library	% of Students Who Found Information
<hr/>	
School library	87
Neighborhood public library	69
Other public library	74
Combined public library (neighborhood and/or other)	79
Mount Royal College library	57
SAIT Learning Resources Centre	50
University of Calgary library	82
Home library	82
Other libraries (private or special)	86

---

Assistance. The questionnaire asked students to report if they received assistance in any of the libraries they had used. The type or degree of help was not specified, just the information that assistance had been received. Students did specify, however, whether the help had been provided by library staff or by friends or family members.

Table 4 shows that library staff provided the most help to students in the school setting. Thirty-seven percent of all students using the school library received assistance from library staff. Although assistance by staff in neighborhood public libraries is less (only 24% of the students received help), the combined public library total shows that 35% of the students using those facilities received help from the library staff. Staff help is much lower for other types of libraries, except for the university library where 22% of the students received help, and in other (private or special) libraries, where 20% of all students using the libraries received assistance.

The assistance of family and friends in finding information in libraries was also important to students. In every library, over 10% of the students using the library received help from this group. In the university library, family or friends assisted 32% of the students, even more than were helped by library staff.

Table 4 also reports the relatively few cases in which someone else used a library for a student. Surrogates more

often searched for information for students at SAIT, Mount Royal, the university and other libraries. It should be remembered that only a few students used the SAIT library, thus two out of ten students (or 20%) used surrogates to gather information there, while 14 of the 101 students using the university library (or 14%) used family or friends to gather information for them when they were not present. The use of surrogates to gather information at the school or home library was minimal.

This suggests that students generally search for their own information sources in libraries that are familiar to them, such as the school, home and, to some extent, the public library. Larger or more specialized libraries are more apt to involve someone else locating information for them. Comments written on the questionnaire suggest that older siblings going to SAIT, Mount Royal or the University of Calgary, or parents working at these institutions or hospitals or companies with private libraries are the surrogates that located information for students.

TABLE 4

## Sources of Assistance Received in Libraries

(N = 1014)

---

Type of Library	Students Rec. Help From Library Staff	Students Rec. Help From Family/Friends	Students Rec. Help From Surrogates
<hr/>			
School	37%	14%	1%
Neigh. Public	24	12	4
Other Public	35	22	7
Combined Public	35	20	6
Mount Royal	11	21	14
SAIT	--	30	20
University	22	32	14
Home	4	11	2
Other	20	29	14

---

An overall picture of the percent of students using each type of library, the percent of students successful in



finding information and the percent of students receiving help in each library is presented in Table 5.

TABLE 5

Student Library Use, Success Rate and Assistance Received

(N = 1014)

---

Type of Library	Students Using	Users Having Success	Users Helped by Staff	Users Helped by Family /Friends	Users Helped by Sur- rogate
<hr/>					
School	90	87	37	14	1
Neigh. Pub.	35	69	24	12	4
Other Pub.	29	74	35	22	7
Comb. Pub.	49	79	35	20	6
Mount Royal	3	57	11	21	14
SAIT	1	50	--	30	20
U of C	10	82	22	32	14
Home	49	82	4	11	2
Other	5	86	20	29	14

---

Student perceptions of how the school library met their needs. The questionnaire dealt only with students' information-seeking behavior in response to a specific assignment. By focusing on student actions near the assignment due date, it was hoped that the data would be more concrete and more accurate than if their general or usual information-seeking behavior was queried. But it is not enough to note that 90% of the students reported using a school library and 87% of these library users were able to find information. Do these figures accurately reflect students' perceptions of how the school library met their information needs?

In Measuring Student Information Use, Mancall states that "Student use of materials is controlled not only by what is available and suitable, but also by a more subtle factor - the students' perceptions of availability and suitability" (1983). Therefore, students were asked for their perception of how the school library met their need for information for the specific research paper they had just completed. Table 6 shows that 86% of the students responding to the question indicated that the school library had met their needs to some extent. Fourteen percent replied that the school library supplied none of the information needed to complete their research. In this instance, student perceptions seem to coincide with what was

reported as actually happening with 87% of the students who tried to use the school library reporting success. It is also interesting to note that 24% of the responding students indicated that the school library supplied all the information needed to complete their research while, as noted in Table 1, 26% of the total student sample reported using only one library. This suggests that if only one library was used it was probably a school library.

TABLE 6

Student Perceptions of How the School Library  
Met Their Information Needs

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Information Provided	% of Students	Cumulative % of Students
<hr/>		
All needed information	24%	24%
Some of the information needed	42	66
A small part of the information needed	20	86
None of the information needed	14	100

---

The main contact most young people have with libraries is within a school. This early contact may affect student use of libraries as adults. Thus, students' perceptions of themselves as library users were also noted in this study.

Students were asked if they would ever voluntarily use a library if they did not have to find information for a school related assignment. Twenty-six percent of the sample students said they did not consider themselves to be library users. However, it is encouraging that 74% of the students did consider themselves voluntary library users. They would use a library even if school demands for information did not force them to. This compares favourably to a Gallup survey of adult library users in which only 49% reported using a library in the past two years ("Public", 1976).

Nonetheless, when over one-quarter of the students consider themselves non-users, it may be important to know why. Eight Percent of the perceived non-users did not, or possibly could not, give a reason for their non-use. As shown in Table 7, the reasons the other students gave for being library non-users fell into five major categories. The largest group (33%) indicated that they were not interested in or had no need to use libraries. Others (18%) either did not read or hated reading and/or books. Another 17% did not like libraries and/or librarians. Twelve percent said they did not have enough time to use libraries

while an equal percentage either had enough books or preferred to buy their own.

A small group of students (4%) did not use libraries because they did not know how to use them or had difficulty using them. Other reasons suggested by less than 4% of the non-users included problems with overdues, being too lazy or living too far away from a library. But in spite of these reasons for non-use, almost three quarters of the students in the sample did consider themselves to be library users even when school assignments did not necessitate use.

TABLE 7  
Student Reasons for Non-use of Libraries  
(N=267)

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Reasons	Used by % of Non-users
<hr/>	
Not interested or no need	33%
Do not read or hate reading and/or books	18
Do not like libraries or librarians	17
Not enough time	12
Have enough books and/or prefer to buy own	12
Do not know how or have difficulty using library	4
Overdues	3
Lazy	2
Too far away	1

---

### Analysis by school.

The questionnaire data were further analyzed by school. This provided the opportunity to determine if there was a relationship between student facility use and the school they attended. For this analysis, the librarian interviews (see appendix C) provided background concerning school size, student socioeconomic background, resource availability and other factors affecting student library use, while the teacher questionnaires (see appendix B) gave information on the instructions students received. Schools were numbered according to size as indicated in Chapter III.

Table 8 shows the average number of libraries used by students in each school. The number given beside the school refers to the number of students in that school who completed questionnaires. Generally speaking, student use of libraries appears fairly similar. The range of the number of libraries used was very close for five of the six schools. The average number of libraries students used was around two or three. Even the mode is similar in five of the six cases. School #6, which has a slightly lower mean and mode, was also the school with the greatest number of students in non-academic classes.



TABLE 8

Measures of the Number of Libraries Used by Students  
by School

---

	School	School	School	School	School	School
	#1	#2	#3	#4	#5	#6
	N=253	N=81	N=118	N=228	N=116	N=229
<hr/>						
Mean Number of						
Libraries Used	2.0	2.3	2.9	2.8	2.3	1.8
Modal Number of						
Libraries Used	2.0	2.0	2.0	2.0	2.0	1.0
Median Number of						
Libraries Used	1.8	2.3	2.8	2.6	2.2	1.7
Standard Deviation	1.0	0.9	1.2	1.3	1.1	1.0
Range	6.0	4.0	6.0	7.0	6.0	7.0

---

Table 9 shows the percent of students from each school using different numbers of libraries. Considerable variation is found here with School #6 having 42% of its students using only one library, while School #3 has only 10% of its students using one library. Variation is also found in the number of students using five or more libraries. Most schools have few if any students in this group, yet schools #4 and #3 have 10% and 12% respectively.

This variation must be expected considering the different grades, subject areas and academic levels included in the sample. In fact, variations within a single class or from class to class within a school were usually much greater than that found from one school to another.

TABLE 9

Student Use of Libraries By Number of  
Libraries Used By School  
(%)

---

	School #1	School #2	School #3	School #4	School #5	School #6
	N=253	N=81	N=118	N=228	N=116	N=229
No Libraries	<1%	0%	0%	1%	2%	3%
1 Library	36	20	10	14	21	42
2 Libraries	40	38	32	34	39	34
3 Libraries	18	33	30	24	26	17
4 Libraries	4	7	16	17	9	4
5 or more Libraries	2	2	12	10	3	-

---

Another way to consider individual school effect on library use is to compare the use of specific types of libraries. Table 10 shows that the use of school libraries is consistently high across all schools and considerably higher than the use of any other library. Interestingly enough, the school with the largest population recorded the least school library use, while the greatest school library use was in the lowest population group. This is consistent with Drott's (1980) findings in which the largest school district recorded the lowest use of the school library (67%) while the smallest district had almost 100% usage. However, unlike Drott's results, no other type of library use exceeded school library use in any of the schools in this study.

In all schools, the public library and the home library were next in importance to the school library. Half of the six schools reported second rank usage of the public library while the other half reported that the home library was second in importance.

In every case, the home library was used by more than 40% of the students, with one school having 63% of the students reporting home library use. It is apparent that the home library was a significant information source for the students and this finding holds true across subject and grade as well as across schools.

The public library usage is also significant. Combined public library usage figures indicate that home library usage was surpassed in three schools with as many as 68% of the students reporting public library use in two of the schools. Overall, however, public library use is not as consistent as home library use.

All but one of the schools reported more use of the neighborhood public library than other public libraries, such as the main branch downtown. But other public libraries were used by as many as 52% of the students in one school. One factor that may have affected public library use was teacher instructions. All of the teachers from School #4 advised students to use their neighborhood public library to find information for the assignment, and over 83% of these teachers suggested one or more other public libraries as well. Schools #1 and #6 with the lowest public library use had around 30% of the teachers advising the use of other public libraries. This is similar to Wozny's (1982) findings on the impact of teacher instructions.

Teacher suggestions may have had an effect on university library use, too. All of the teachers in School #3 suggested the use of the university library and 27% of the students reported such use, more than double that of the next closest school. School #6, with the lowest usage (1%) of the university library had no teachers suggesting its

use. However, proximity may have been a much more important factor, both in teacher suggestions and student use. For this sample, school #3 was closest to the university and School #6 was furthest away.

The Mount Royal library, the SAIT LRC and private or special libraries were relatively little used by students in the sample. They are also the libraries that were rarely suggested by teachers in their instructions to students.

Although school size may have had some effect on student use of libraries, there is no consistent pattern. It is probably reasonable to assume that the type of assignment, the teacher's instructions to the student, the subject and grade level all have an effect on students' information seeking behavior and may account for most differences seen in the school-by-school analysis of facilities use.

In summary, the student questionnaires revealed that close to three-quarters of the students used more than one library while searching for information for school research projects. Some used as many as seven. This indicates that students have both the need and the inclination to search for information in more than one facility. School, home and public library use was more frequent than that of other libraries.

Over one-third of the students received help, especially from the staff in school libraries. Friends and family also provided assistance to students in locating materials. It seems that many students were not completely independent library users and the provision of needed services and instruction could be important to their success and development as information users.

Over 80% of the students perceived the school library as providing for at least some of their information needs, while almost one-quarter of the students said it provided all of the information needed. Reasons for non-use of libraries were determined. With this information concerning student facility use, the next step was to determine actual resource use.

TABLE 10  
Student Use of Types of Libraries  
By School

Type of Library	% of Students Using					
	School #1 N=253	School #2 N=81	School #3 N=118	School #4 N=228	School #5 N=116	School #6 N=229
School Library	95	91	99	89	78	86
Neighborhood Pub.	25	48	49	45	38	25
Other Public	13	33	33	52	33	18
Combined Public	31	68	57	68	49	37
Mount Royal	1	2	3	5	3	2
SAIT LRC	1	1	1	-	2	1
University	8	9	27	12	10	1
Home Library	45	44	63	55	47	42
Other Library	7	1	11	3	2	12



### Bibliographies

Bibliographies provided information on the materials students reported they used during the completion of school research assignments. An analysis of the bibliographies provided information on the quantity, type and currency of the references students used, which could prove useful when making decisions about collection development and library instruction. A general overview of all the bibliographies was considered first.

#### Overview of the Data

Number of references. The 841 student bibliographies provided a total of 3,501 references, ranging from 1 to 27 references per paper. The mean number of references was 4.2 (s.d. = 2.8) with a median of 3.5. Although, 870 papers were originally studied, three percent or twenty-nine of the papers did not contain a bibliography, in spite of its inclusion being part of the requirements of the assignment. Of the papers that lacked a bibliography over 55% were from classes in Social Studies 13.

Table 11 shows the distribution of references within the papers. To emphasize the differences found among the students, the distribution is divided into approximate quartiles. Six or more references (up to twenty-seven

references in one paper) were used by 22% of the students, while 23% used three references. Another 27% used only one or two references while an almost equal percent (28%) used four or five.

This variation from student to student in the number of references used was apparent within classes as well as overall. For instance, the class with the student whose bibliography contained twenty-seven references, also had student bibliographies with one or two references, as well as many other numbers between the two extremes. This seems to indicate that student-to-student differences are high and may have an effect on the number of materials used as references.

TABLE 11

Distribution of References Within Student Bibliographies  
(N=841)

---

N of References	% of Bibliographies
<hr/>	
1 or 2 references	27
3 references	23
4 or 5 references	28
6 or more references	22

---

Type of References. Table 12 shows that, of the 3,501 references found in the student bibliographies, more than half ,or 56% were to books. Encyclopedias, the next closest group, made up 16% of the total while magazines provide 11% of the references. The remaining groups, including newspapers, government documents and/or pamphlets, nonprint, interviews and others contributed only 5% or less each to the total number of references.

If an average student had four items in his bibliography, and followed this general pattern, at least two (or half) of the references would be books, and another reference would be to either an encyclopedia or a magazine. The final reference could be any of the other items.

A somewhat different pattern emerges when individual students are taken into account. The last column of Table 12 shows the percentage of papers in which a reference type occurred. It can be seen that over 80% of the students referenced at least one book. This emphasizes the orientation students seem to have towards the location of information from that source.

Encyclopedias were used by 36% of the students. Although the percent of users is small, it is hardly surprising that the overall number of encyclopedia references was not larger. Since they generally provide an overview of the subject, only one such reference would be

needed per paper. The multiple use of general encyclopedias would probably have led to a repetition of information. For this reason, librarians and teachers tend to discourage exclusive reliance on encyclopedias.

One fifth of the students used at least one magazine while close to one tenth used one newspaper or more. Only 3% of the students used nonprint as an information source. Apparently, a variety of types of references are used, but not all students share in this diverse use. In fact, the book was the only type of resource used by a majority of the students.

TABLE 12  
Total References in 841 Student Papers  
(N=3,501)

---

Type of Resource	% of all References	Used in % of Papers
<hr/>		
Books	56	83
Encyclopedias	16	36
Magazines	11	20
Goverment Docs/ Pamphlets	5	11
Newspapers	4	9
Nonprint	1	3
Interviews	1	3
Other	5	14

---

Age of Materials. Although we are living in an Information Age, not all of the information available today is of equal value. Students are encouraged to take a critical approach to information sources and assess the value of the material they find. Often the age of materials is an important factor in determining the worth of information, especially in subjects such as science where up-to-date research may supplant or even discredit earlier information. Do students realize how important currency can be?

The materials used by students covered a range of eighty-two years. The earliest material referenced was dated 1904 yet six of the referenced items were dated 1986. This latter date is particularly noteworthy since only five of the 46 classes had assignments due in January of 1986. The rest of the bibliographies were completed in 1985. For this reason, the five and ten year indexes noted later in this chapter will refer to the five and ten years previous to 1985.

The mean date for the references was 1977, but was affected by the few references with very old dates. The standard deviation was 8.9. More indicative of the age of materials was the median age of 1980 and the mode, which was 1985.

Students seem to be aware of the importance of the age of materials, especially considering that some of the oldest references were used by two classes researching mythology topics. A number of excellent yet old references would be appropriate in this case. In an English 30 class, for example, topics necessitated the use of older novels, yielding references published in 1940.

The oldest date in each bibliography was compiled and analysis revealed a median date of 1973. The median for the newest item in each bibliography was 1983. This ten-year span indicates the pattern found for the age of references. A greater concern for currency is indicated than that found by Drott (1980) in a similar study where a 15-year span was recorded for the age of all bibliographic materials and the median date for the newest item was four years old.

With the exception of encyclopedias, reasonable currency was indicated for most types of references. Although the modal date of the encyclopedias referenced was 1985 and the median date was 1980, over 20% of the total number of encyclopedias were more than 10 years old. Some were as old as 1939, with a number in the 1960's and even more in the early 1970's.

General encyclopedias are weeded, or removed, from most Calgary public school library collections at least when they are ten years old and usually when they are five years old.



This is recommended in guidelines given in the Library Management Handbook (1981).

A closer examination of encyclopedia titles with older dates revealed such names as The World Scope Encyclopedia and The Waverly Encyclopedia. These encyclopedia titles were not found in any of the high school libraries. Thus, there is a distinct possibility that these older encyclopedias may have formed part of a home library collection where weeding is not as established a practise.

Although it was not possible in this study to establish the library source of each reference, questionnaire results recorded earlier in this chapter indicate the importance of home libraries to students. Student comments, written in on the questionnaire, also included "I didn't need to use a library, I have an encyclopedia at home."

Although the copyright dates given for encyclopedias may indicate some lack of sensitivity to age, the overall picture of material currency can be seen in Table 13 and Table 14. Table 13 gives the distribution of materials published within the last five years (1981 to 1985) while Table 14 gives the same information for a 10 year period (1976 to 1985).

It is immediately apparent that there is considerable variation in the age of materials used by students. If current materials are regarded as those published within the

last five years, then 33% of all student papers had more than one half current materials. However, 25% of the papers had no materials published within five years.

If the definition of currency is expanded to include materials published within the last ten years (see Table 14), the overall picture improves considerably. Two thirds of the students had 51% or more of their materials within a ten year time span with 42% having 76% or more of their materials within this current category. But there were still 10% of the students that showed little concern for currency with none of their information sources dated within the last ten years.

TABLE 13  
 Distribution of Materials Referenced  
 Within Five-year Period  
 (N=841)

% of Materials Published in 1981 or Later	% of Papers	Cumulative % of Papers
No materials published in 1981 or later	25	25
1% through 25% of all materials published in 1981 or later	11	36
26% through 50% of all materials published in 1981 or later	23	59
51% through 75% of all materials published in 1981 or later	13	72
76% through 100% of all materials published in 1981 or later	20	92
Missing data, percentage not coded	8	100

TABLE 14  
 Distribution of Materials Referenced  
 Within Ten-Year Period  
 (N=841)

% of Materials Published in 1976 or Later	% of Papers	Cumulative % of Papers
No materials published in 1976 or later	10	10
1% through 25% of all materials published in 1976 or later	5	15
16% through 50% of all materials published in 1976 or later	21	36
51% through 75% of all materials published in 1976 or later	14	50
76% through 100% of all materials published in 1976 or later	42	92
Missing data, percentage not coded	8	100

### Relationships Among Variables

Since the subject, grade and number of students varied from school to school, it was not possible to determine if there was a relationship between the variables of type, number, or currency of materials and the different schools. However, relationships among the variables of type and currency of references and the subject or grade of the students were tested by Chi Square. This test indicated that relationships did exist (sig. = 0.0001).

Inspection of the actual data indicates the possibility of a subject effect on the types of references cited. As seen in Table 15, Biology, Computer Science and Psychology classes each used more magazines than the other subject areas. Social Studies, Basic Business and Computer Science also placed a greater reliance on encyclopedias than the other subject areas, while English and Foods classes relied more heavily on books. Overall, though, most subject differences were not great, especially when compared to the student-to-student differences.

TABLE 15  
Percent of Each Type of Reference Used  
in Various Subject Areas

Subject	Type of Reference							
	Books	Mag.	Ency.	News	GD	NP	Int.	Other
S.S. (N=1734)	49%	11%	21%	5%	5%	1%	-	9%
English (N=555)	72	9	8	1	-	6	-	3
Biology (N=475)	55	16	14	5	7	-	1%	2
Foods (N=11)	91	-	-	-	-	-	9	-
Personal Living (N=155)	70	5	10	7	5	2	1	1

TABLE 15 (continued)

Subject	Type of Reference							
	Books	Mag.	Ency.	News.	GD	NP	Int.	Other
Basic								
Business (N=63)	70%	2%	29%	-	-	-	-	-
Computer Sc. (N=240)	66	16	21	8%	1%	-	-	-
Psychology (N=198)	55	15	3	-	15	-	9%	3%
Phys. Ed.	51	1	9	-	26	-	13	-

\* Percentages are shown to the nearest whole number.

GD - Government Documents and/or Pamphlets

NP - Nonprint

Int. - Interviews

The grade level of students involved in this study was only slightly related to the type or currency of materials used in the papers. The same pattern of type of material use seen for the whole sample was similar across each grade. One area in which student grade level may have had an effect, however, was that of number of references.

Table 16 shows the percent of students in each grade and the percent of total references used by each group. If the number of references was similar across all grades, it would be expected that the grade 10 students, 32% of the sample, would use 32% of the references. The actual number of references was 7% less than expected. The number of references used by grade 11 students was 1% greater than expected while the grade 12 use was 6% greater than expected. These findings support the idea that more advanced students would use an increasing number of information sources in their research. Thus the increase in resource use through grades 10 to 12.



Table 16

Distribution of Number of References  
By Grade

---

Grade	% of students in the sample	references actually used (%)	expected % used	difference
10	32	25	32	-7
11	37	38	37	+1
12	31	37	31	+6

---

### Specific Material Use

A more detailed examination of some of the specific types of materials completes this picture of student resource use.

Books. The use of books by the students in this study dominated the use of different types of materials. Every subject and every grade had more book references than any other type. This is hardly surprising with our predominately book-oriented libraries and the easier access provided to books than to magazines.

Books, however, were the least up-to-date of all the reference types. Only 53% of the books whose dates were recorded had copyright dates within the last ten years. Even fewer, 27%, were dated within five years or less.

But currency may not be the most important consideration in book use. A book of poetry published in 1924 (which was referenced in one of the bibliographies) could be used quite appropriately in an English assignment where the quality of the material rather than its currency was most important. The usefulness of an information source to a particular assignment and the quality of material seem to be just as crucial as currency, especially in the English area.

Other References. Most of the "Other" category of references could also be considered in the "Book" category. This group consists primarily of special types of reference books. Almanacs and yearbooks were the major components and probably the cause of the recent median and modal dates for the group (1984 and 1985 respectively). Dictionaries of various types were also listed frequently, as were atlases and notes of different kinds.

Magazines. Though magazines are usually considered an important source of current information, the students in the sample that referenced this resource were in the minority. Only 20% of all students included one or more magazine references in their bibliographies.

As expected, the articles were current. The median date for magazines was 1984, the same date as the mode. 84% of the magazines were published within the last five years and 93% within the last ten years.

The most popular magazine titles are given in Table 17. They are ranked so that the most frequently used title is listed first with the others placed in decending order of use. Although close to half of the titles are the same as those listed by Drott (1980) and over two-thirds the same as those found by Wozny (1982) in similar studies, it is

interesting to note that the most used title in this study was the Canadian magazine Maclean's. Other Canadian magazines included in the most frequently used list were: Alberta Report, Canada & the World and Saturday Night. Predictably, none of these magazines was cited in the American studies.

Only the most frequently used magazine titles were listed because after the sixteenth ranked title, eighty-eight other magazine references were to individual titles or occasionally, two or three to a title. This wide range of magazine use is noteworthy, especially since five titles, the first five in Table 17, supplied 54% of all magazine references. These findings were consistent with Bradford's Law, as noted in Chapter II. The same pattern of a few titles providing a large proportion of articles while the rest are spread out over a large number of titles is found in most bibliometric research.

All of the magazine titles receiving four or more references were indexed either by the Readers' Guide to Periodical Literature, the Canadian Periodical Index or both. All of the school libraries involved in this study had both indexes.

A study of the periodical holdings of each school revealed that all schools held the first six titles (which contributed 57% of all magazine references). At least half of the six schools held the other magazine titles, with the

exception of Fortune (held by one school) and The Futurist (held by two). This indicates that many of the magazine resources are provided by the school library and access is probably through the magazine indexes Readers' Guide to Periodical Literature or the Canadian Periodical Index.

TABLE 17

## Use Statistics of 16 Most-Referenced Magazine Titles

---

Magazine Rank	N of Ref.	% of all References	Cumulative % of Ref.
<hr/>			
1 Maclean's	58	15	15
2 Newsweek	50	13	28
3 Time	42	11	38
4 Science News	35	9	47
5 National Geo.	25	6	54
6 Alta. Report	13	3	57
7 Discover	6	2	59
8 Fortune	6	2	60
9 Psych. Today	5	1	62
10 Science Digest	5	1	63
11 U.S. News & W.R.	5	1	64
12 Business Week	4	1	65
13 Canada & the World	4	1	66
14 The Futurist	4	1	67
15 Saturday Night	4	1	68
16 Science	4	1	69

---

Newspapers. Newspapers were used only in 9% of the student papers. Although over twenty different newspapers contributed the 148 references, the following summary shows the emphasis on the local Calgary Herald.

---

Newspaper	Number of References	% of Newspaper References
-----------	-------------------------	------------------------------

---

Calgary Herald	64	43
Globe and Mail	15	10
Financial Post	14	9
All other newspapers	55	37

---

Most newspaper references were up-to-date. The median date was 1984, the mode was 1985 and 99% of the references were published within the last ten years.

Encyclopedias. Over one-third of all students used one or more encyclopedias in their research. Although problems with currency were noted previously, the majority of students indicated some awareness of its importance. The modal date for encyclopedias was 1985, the median was 1980.

Almost half of the encyclopedias were published within the last five years and over three-quarters were published within the last ten years.

The popular World Book Encyclopedia accounted for 42% of the references. Table 18 reveals some of the other titles ranked by the number of references each provided. Only the first fifteen encyclopedias were listed, the other encyclopedia titles were referenced five times or less each, which was less than 1% of the total encyclopedia use.



TABLE 18  
Dispersion of References to Encyclopedias  
(N= 573)

---

Rank	Encyclopedia Title	Number of Ref.	Cumulative % of Ref.
<hr/>			
1	World Book	240	42%
2	Encyclopaedia Britannica	64	53
3	Collier's	50	62
4	Academic American	32	67
5	Encyclopedia Americana	32	73
6	Funk & Wagnall	23	77
7	Illustrated Columbia	19	80
8	Canadian Encyclopedia	17	83
9	Encyclopedia International	12	85
10	Merit Students	9	87
11	International Family Health	8	88
12	Encyclopedia of the Third World	7	90
13	Concord Desk	6	91
14	New Illus. Medical & Health	6	92
15	New Book of Knowledge	6	93
16	World and Its People	5	94

---

Interviews. Although only thirty-five or 1% of the bibliographic references were interviews, the questionnaires indicate that more than twice that number actually did use a personal source for information. The sixth questionnaire question asked for special ways in which information had been gathered. Seventy-two students mentioned interviews specifically, or mentioned talking to people, or opinions of friends or family members or discussions with parents. Yet, only thirty-five students listed interviews in their bibliography. It is possible that some students are unfamiliar with the use of interviews as bibliographic references or that they only report formal interviews rather than the more informal interviews such as discussions or opinions of friends or parents that were also used as information sources. However, it is also possible that this type of information source is not reported as often as it is used.

Nonprint Resources. The nonprint references included a variety of media types such as records, motion pictures and videos, television shows, radio broadcasts, and filmstrips. The median date of these resources was 1983, but only 75% were produced within the last ten years.

Nonprint resources were a minor source of information for students in this study. They provided only 1% of the references and were used by only 3% of the students. These

figures are similar to those reported by Drott (1980) and Wozny (1982). However, Drott notes that interviews were included in the nonprint category in his study and that they made up the bulk of the references in the group (1980).

This study considered interviews and nonprint sources as two distinct categories. However, if they were combined, over 6% of the students would have used these resources. It is interesting to note that there was no overlap between the two. That is, different students used interviews than used nonprint. Not one bibliography included both an interview and a nonprint source. This may have been due to the nature of the assignments and teachers may have suggested one but not the other.

In summary, student use of resources varied in number, type and currency. Yet a similar pattern of material use was found for all six schools. Books were clearly the most used resource both in total number of references reported and in the number of papers including them. Encyclopedia use was next and then magazines, with only one-fifth of the students including this type of resource. Both magazines and, to an extent, encyclopedias referenced tended to clump around a small number of well used titles.

At least some references published within the last five years were used by 75% of the students. Over 40% of the students had 51% to 100% of the references, used in their papers, with copyright dates within that time span. Ninety

percent of all students used some references published within the last ten years. This indicates some concern for currency of resources, reinforced by the appropriate use of older materials for specific topics. The lists of popular magazines and encyclopedias used also point to the use of Canadian publications.

## CHAPTER 5

## DISCUSSION

SummaryThe Problem

The purpose of this study was to examine the information-seeking behavior of Calgary public high school students. With the increasing complexity of our information rich world, students must be able to locate and utilize the knowledge they need. As stated in Alliance For Excellence, "By knowing how to find, analyze and use information today, they [children] certify their readiness to become reasoning, thoughtful adults tomorrow as citizens of the Information Age" (1984).

In order to help students become more successful information users, it is first necessary to know what they actually do in response to a need for information. Where do students look for and find information? Do they need help in locating information? What types of resources do students use to provide themselves with information? Are they using the best available resources? Questions such as these should be answered in order to plan effectively for

programs, library services and library collections that meet students' information needs.

#### Related Research

Related literature on high school students as information users is limited, primarily, to studies done in the United States by Mancall and Drott. In two separate studies they reported basic patterns of student information use. Both found that students had a tendency to use more than one type of library in their search for information. Public library use was very high, in some cases greater than school library use, and home library use was third in importance.

Material use favoured books. Magazines were used by almost two-fifths of the students, but the use of other resources was limited. Patterns of magazine use were predicted by Bradford's Law, with most of the references concentrated on a few magazine titles, and indicated the value of keeping holdings of certain magazines over an extended time period.

Mancall reported that book and magazine references were surprisingly old (1978). Drott stated that, "Material references are not particularly current. Only 20% of all papers have at least one-half of their references within five years of the date of the assignment" (1980).

Although Wozny's small sample of 47 students consisted of grade nine students, rather than high school students, her work is important to this study because she built on Mancall's and Drott's research. Based on their suggestion that "teachers and librarians can have a much greater impact on the student use of materials than the specific content of collections that the students utilize" (1982), Wozny helped develop instructional goals for an assignment that emphasized currency and variety of information sources. Instructions were provided on the use of periodical indexes and online bibliographic searching. Out-of-school sources of information were suggested and actively promoted by means of formal and informal networks. Wozny's results point to the significance of this type of goal setting and instruction.

Magazines became the most used source of information, and the use of encyclopedias, newspapers and government documents and pamphlets increased from that found in the earlier studies. Nonprint use, however, remained at 1%. Materials were current, with 80% of the students using one or more items published within the last two years (Wozny, 1982). Wozny concluded that "the major influence on the student use of information is the teacher and library media specialist" (1982).

### Procedure

The procedures in this study followed closely the methodology used by Mancall, Drott and Wozny. Information about the facilities students use in their search for information for school research assignments was obtained from a student questionnaire. Adapted (by permission from Mancall) for use in Calgary, the questionnaire asked (a) in which libraries students looked for information, (b) where they were successful in locating information (c) what assistance they received in obtaining information, either from library staff, family and friends, or surrogates (d) how students perceived the school library met their information needs and (e) whether they considered themselves library users or non-users and, if non-users, their reasons for non-use.

Information about the materials students used was taken from their bibliographies. Analysis revealed the number, type and currency of resources students used.

Teacher questionnaires and interviews with librarians provided background information to aid in interpreting the student data. Major findings of the study are reported both for student facility use and student resource use.



### Major Findings

1. Students are apt to use more than one facility in their search for information. Almost three quarters of the sample used more than one library.

2. Students use the school library more successfully and more frequently to locate information than any other library.

3. The use of home libraries is important. Home libraries were used by almost half of the students. This use was consistently high, with up to 63% of the students using home libraries and never less than 42% of the students using them in any of the six schools.

4. The use of public libraries is important as well. Almost half of the students reported using them but the use was not as consistent from school to school as that of home libraries.

5. Over one-third of the students received help from library staff. Help from family and peers was also prevalent.

6. Teacher suggestions concerning the use of university and private or special libraries seemed to increase student use of these facilities.

7. Most students (86%) perceive that the school library meets their information needs to some extent.

8. There are fewer student non-users of libraries than adult non-users (see Chapter II). Student reasons for non-use of libraries, while similar to those given by adults, differ in emphasis and for the additional reason that they dislike libraries and/or librarians.

9. Books are the main source of information for students.

10. Nonprint use is extremely low (1%).

11. Magazine and newspaper use is lower than expected from previous research.

12. Magazine references followed the pattern predicted by Bradford's Law..

13. Encyclopedia use is greater than expected from previous research and concentrated on a few popular titles.

14. Teacher instructions and suggestions seemed related to the type of resources used. For instance, interviews were usually used only when suggested by teachers.

15. Currency of materials is generally appropriate.

16. There was an indication of the use of Canadian resources, particularly in the magazine area.

### Implications

#### Libraries

The school library is not alone in its role as a student information facility. It is important to students (this study indicates how very important) as a major source

of information, but it is not the sole facility to which high school students turn to meet their information needs. The majority of students turn to more than one facility when searching for information. This has implications for the type of instructions students receive. Transfer of learning from a school library to other libraries should be encouraged. Specific idiosyncrasies of one school library may not be as important as general classification concepts and resource retrieval strategies.

Teachers and teacher-librarians may find it beneficial to arrange for student tours of libraries. Even mentioning the availability of other libraries has been effective. Providing students with such information as specific resources available, circulation times or locations may assist even more students in their search for information.

This study is descriptive, rather than evaluative. However, information gathered about student use of school libraries, their success in finding information there, the assistance received from library staff and student perceptions of how the school library met their information needs, all indicate that the school libraries involved in the study are achieving the major goals of supporting the school curriculum and providing for students' information needs to a very high degree.

Another important facility for students was the home library. Almost half of the students in this sample

reported that they had used their home library in locating information for their research assignment. In fact, the home library was the most used library after the school library, for students in three of the six schools. There may be different reasons for this. Students may consider materials from a home library easy to locate as revealed by the low incidence of assistance reported in each of the three categories of: helped by staff, helped by family or friends or helped by surrogates (see Table 6). They may even select topics because of the availability of materials at home. The influence of the home in all areas of education has been stressed by researchers (What Works, 1985). Both Mancall and Drott commented on the heavy use of home libraries in their studies.

A recent U.S. Department of Education report on research about teaching and learning states that "What parents do to help their children learn is more important to academic success than how well-off the family is" (What Works, 1985). Part of the "curriculum of the home" it discussed included the provision of books. Further, it advocates that parents make " . . . books an important part of the home" and give magazines or books as presents (What Works, 1985). However, it is not enough just to be aware of the role of home and the information resources found there. This emphasis, both by researchers and by students, on the use of the home library has implications for educators. Are

the resources found in the home adequate or even acceptable? And what role should teacher-librarians play in order to ensure that students use the best materials?

Consider the encyclopedia references found in this study that go back to the 1940's. These may have been part of home collections as indicated by the titles that were not to be found in school or public libraries. Although many home libraries contain high quality as well as current materials, others consist mainly of old university texts that diminish in accuracy and usefulness with each year. There may be considerable use to be gained from such sources as with older encyclopedias, but have students and parents the necessary critical awareness of what is still valuable and what is outdated or even incorrect? It may well be a responsibility of teacher-librarians to remind parents as well as students of the importance of up-to-date information for many topics. Improving communication between the school library and the home may be an important consideration.

Through parent-teacher organizations, school newsletters, school openhouses and the involvement of parents in their children's schoolwork, teacher-librarians can make the opportunity to offer suggestions and information that may help round out as well as up-date home library collections. Lists of valuable reference materials, recommended and preferably annotated lists of books and

magazines can provide guidelines and even incentive to parents and students to improve home libraries.

The use of public libraries by students also raises questions for school librarians. Although librarians reported the use of interlibrary loans and, in some cases, informal networking with other high schools, not one had any network established, no matter how informal, with a public library. Since this study found that almost half of the students used a public library when searching for information for school related assignments, this may be an area for cooperation that will actively benefit students.

Overall, the use of neighborhood public libraries was greater than the use of other public libraries, but students were more successful in finding information in other public libraries than at their neighborhood branch. The majority of students using public libraries other than their neighborhood branch noted that they used the main branch of the public library, downtown. This library with its large facility, audio-visual resources and extensive collection has more to offer students than a neighborhood branch, except ease of access.

Even informal networking by school and neighborhood public libraries may help increase successful student use of the neighborhood branch. If school libraries have a copy of neighborhood public library magazine holdings displayed with their own holdings list, students would not only be reminded

and aware of the availability of magazine resources they could use at the neighborhood branch but they would not waste time searching for periodicals that are not found there.

Informing librarians of the neighborhood public library of major student research topics may result in displays, the borrowing of materials from other branches, or at least an awareness of student school-related information needs. A sharing of sources and ideas for use can benefit both librarians and students.

The students have pointed out, by what they actually do in locating information, the importance of information networks. Perhaps school teacher-librarians should take steps to assist them in a holistic approach to retrieving information rather than one that is limited to a single school library.

The record of assistance received by students has a number of implications. One, not all students are independent library users. Without assistance, their search for information may have proven ineffective or frustrating. As well, students regard libraries as places to receive help and would probably benefit from specific arrangements to receive such assistance. This could be done by setting aside times that staff would be available. Teachers and/or teacher-librarians could possibly arrange to meet students at other libraries if staff help was not obtainable there.

Furthermore, careful planning for instruction in information retrieval skills at the start of an assignment may be an efficient way to reduce demands for assistance and contribute to student independence as information users. Finally, peer and family assistance is frequently reported and could be capitalized on.

#### Non-users

The goal, to "develop and support a desire for individual life long learning" is usually rated as very important by schools as a whole as well as by library programs. In working to achieve this goal it becomes apparent how important student perceptions of their school library and of themselves as library users actually are.

Motivated by a conviction of the importance of libraries for individual learning, most librarians consciously or unconsciously strive to have students leave their influence with as favorable a perception as possible of libraries. As Mager (1968) says, "Whatever else we do in the way of influencing the student, the least we must strive to achieve is to send him away with favorable rather than unfavorable feelings about the subject or activity we teach. This might well be our minimum, and universal, goal in teaching." If we cannot promote a good feeling about libraries in the schools, we are handicapping students in their desire for lifelong learning. People tend to spend as



much time as possible at places and doing things they regard favorably, in the same way that they avoid places and activities they regard unfavorably. If students do not feel favorably towards the school library, it is unlikely that they will seek to be there or make use of it during their school years or to make use of other libraries in their future life long learning.

This rationale underlines the importance of determining why some students have already labeled themselves library non-users. Over 90% of students' reasons for considering themselves non-users fell into five main categories. Four of these five were similar to reasons given by an adult sample of library nonusers ("Public" 1976).

For both adults and students the main reason was that they were not interested or had no need for libraries. This reason was given for over 30% of both samples. The second most frequently given reason for students (18%) was that they do not read or hate reading and/or books. This reason was given by 12% of the adults. Adults stressed a lack of time as being a reason for non-use (24%) but this was given by only 12% of the students. Just over 10% of both students and adults said they had enough books or preferred to buy their own. Twelve percent of the adults said they lived too far away from a library, but few students used this reason.

The most significant difference between the adults and the students in their reasons for the non-use of libraries

was a reason given by students but not by adults. Over 17% of the student non-users said they did not like libraries and/or librarians. Some students expanded on this, most noting that they disliked the library because of what they considered excessive restrictions such as no talking, no music, and a negative atmosphere. Something that could have been included in this category, but was so specific that it was grouped separately, was the problem of overdue materials. This was noted by 3% of the student non-users.

Perhaps administrators and teacher-librarians could carefully consider the regulations currently enforced in the school library. Could less restrictive guidelines achieve the same purpose with less alienation of students? Granted, you can not please everyone (for example, some said the library was too noisy while others said it was too quiet) but it may be worthwhile to reevaluate priorities so that what is taking place in school libraries is not obstructing the achievement of one of the libraries' main objectives.

### Materials

The emphasis students placed on book resources was a predictable finding of this study. However the relatively minor use of other types of resources compared to book use was unexpected in light of the multimedia orientation in education today.

There is not enough information to postulate that nonprint use is increasing, no matter how slightly, from usage found in earlier studies. What is apparent is that school library budgets make a considerable investment in nonprint materials. Surely their use as information sources for students should be reflected in student bibliographies. If this is not the case, perhaps the instruction of students needs to reflect the increasing importance and availability of nonprint resources.

Mancall (1983) suggests that "students should be encouraged to think beyond the book format in a more content-oriented approach". It seems that assignment specifications that require a variety of resources or specific types of resources, coupled with pertinent access instructions get the intended results. (Wozny, 1982).

Modeling may also be a key technique here. Are teachers and teacher-librarians providing students with up-to-date information from television programs, newspapers, magazines, government documents, cassette tapes and the like? Or is a textbook used most often as an information source? By showing students the benefits of deriving information from a variety of types of resources, teachers may have an even greater impact on student use of a range of resources.

This impact of teachers on student information use has implications both for in-servicing and for teacher-training.

When teachers are familiar with a range of information sources, including nonprint resources, and are comfortable and competent in using them, the evidence indicates that students will follow their example in using more and better resources (Blazek, 1971). Teacher-training in this area could be most important before student teaching begins, but if the library component is lacking in their program, in-servicing at the school level could be initiated. Instruction for teachers could well have a widespread effect on student information use.

The schools taking part in this study had a wide variety of magazine holdings. Librarians usually rated magazines as high on their priorities during budget proposals (in one case it was the top priority item). They describe high school students as being heavy magazine users. Males, especially, are seen to turn from books to magazines at this age. Magazines are perceived as a major reason for student library use.

Why, then, did only one-fifth of the students use magazines for research? One reason may be that students view magazines as light, recreational reading rather than serious or important information sources. Another, is that magazines are not accessed through the card catalog. Magazine indexes such as the Readers' Guide to Periodical Literature are not as familiar to students or, with their multi-volume format, as easy to use. All the librarians

interviewed mentioned that the use of the Readers' Guide was taught to students. But none of the schools was able to maintain magazine holdings of even half of the magazines references in the index. The frustration of not being able to locate an information source may be a factor in its limited use. While access to an on-line data base and careful instruction and preparation of students in the use of magazine indexes may help solve part of the problem, increased resources or sharing of resources may be even more important in increasing student use of magazines.

Although Mancall's (1979) findings indicated that certain well used periodicals should be kept in libraries for ten years rather than the five years which is often the case, this study found that 84% of all the magazines used were published within the last five years. This indicates that most students will be satisfied with back holdings of five years.

Students used a wide variety of periodicals, yet as predicted by Bradford's Law, most of the usage was accounted for by a few main titles. Knowing which titles are in this group would certainly increase the benefits of microfiche purchases. Collection development decisions based on actual student use will at least tend to ensure cost efficient and well used collections.

Student use of Canadian materials is a concern of many of our school libraries. Haycock (1977) refers to major

steps made by the Vancouver School Board to "encourage the selection of Canadian learning resources based on program needs at the local school level". While the present study did not specifically search for Canadian content, it did become apparent, during the course of the investigation, that Canadian materials were being used. Social Studies topics were not the only sources of such use, either. Biology, Psychology, Physical Education and many other areas showed the use of Canadian materials.

This use is particularly apparent in the list of the most frequently used magazine titles. Overall, the Canadian Maclean's was used most often, and three other Canadian titles were included in the sixteen most frequently used magazines list. Newspapers, as expected, were predominantly Canadian and The Canadian Encyclopedia was also well used.

More than half of the materials used, in over 33% of the students' papers, were published within the last five years. This figure increased to 56% for a ten year period. Compared to Drott's (1980) figures of 20% for the five year period and 42% for the ten year period, the information used by Calgary students is considerably more up-to-date. More importantly, the use of older materials is generally appropriate for specific topics, especially in English.

The publishing dates of books and encyclopedias were more often older than those of newspapers, magazines or pamphlets. Implications here concern both collection

development and instruction. In the first case, careful weeding of library materials would promote materials that are both current and of high quality. Numbers of resources are not as important as the quality of the resources. Librarians do students a disservice by leaving out-of-date, misleading materials in a collection.

Careful instruction of the students before their research begins may also be effective. An emphasis on evaluating the resources they find could be of benefit. Wozny's (1982) study indicates the effect of teacher and teacher-librarian instruction on the currency of the student's materials use.

Ladendorf states that "The better the library knows its clientele, the higher will be the use obtained from every dollar it spends on materials" (1976). Knowing more about students as information users may assist teacher-librarians in improving materials selection. Even in the larger high schools with a correspondingly high resource budget, high cost of materials and increasing user demands make effective spending essential. It is not always enough to have a wide selection of resources when students comment that the school library has what they need but someone else always signs it out first.

Knowing the number of materials students generally use in their research and something of the expected demand on school library resources, allows for more effective planning

for collection building. The importance of weeding has also been noted in improving the quality as well as the currency of resources. And the most effective use of collections usually results from the preparation of students, before they start their research, in the most effective ways of locating and utilizing resources. Added to this could be management decisions concerning library services based on actual student needs. Thus, the value of determining student patterns of information use can be found in the factual basis it helps provide for informed decision-making by educators.

### Recommendations

Descriptive studies such as this provide a starting point for further research. What, then, is the next step? Obviously, the picture of high school students' information seeking behavior is not complete. The aspect of information retrieval has been considered in part, but what happens between the location of the resources and the completion of the paper? What do students do with the information once they find it?

1. A study of the research process, particularly the utilization of information by students should come next. During the librarian interviews, it was suggested that it is not enough just to ensure that students have located adequate sources of information. All too often, they do not



know what to do with the information once they get it - other than to copy verbatim.

Kuhlthau states: "The process of assimilating new information is the complex process which students are involved with in library research " (1984). This process must be understood in order to effectively utilize information. Thus, future studies could concentrate on resource utilization to complete the picture of high school students as information users.

2. The use of specific resources is another area for investigation. In this study, the use of magazine references was much less than that found in previous research. Is this due to a lack of resources, or the type of assignments given, or student attitudes towards magazine use? What factors affect student magazine use?

Of even greater concern is the use, or lack of use, of nonprint resources. This area is a critical one for librarians concerned with collection development. How can the funds spent on nonprint resources be justified if students do not use them as information sources? Do students need more training in referencing these materials, are they not easily accessible or is there a lack of appropriate nonprint sources on certain topics? Much more information is needed in this area.

3. Home libraries also require further investigation. They are important to students, but what do we really know

about them? What types of resources do students find in home libraries? What effect do home libraries have on student information use? The answers to questions such as these could assist parents and educators in providing the best possible information to students.

4. A final area for investigation, and perhaps the most important one, is that of the library non-user. The school age group is the one for which research is most needed. Adult non-users have been investigated, but a study of students who already perceive themselves as library non-users may provide the answers to why so many adults are non-users of libraries. In-depth interviews of student non-users may reveal factors not previously considered in studies of adults.

These are just a few of the many areas that may contribute to an understanding of student information use. Yet, the need for further information is great and these areas raise interesting questions that should be answered.

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## APPENDIX A

STUDENT QUESTIONNAIRE:  
LIBRARIES AND RESEARCH PAPERS

## EXPLANATION:

The purpose of this questionnaire is to find out what libraries you used in preparing your research papers and to determine if the libraries met your needs. ALL REPLIES WILL BE KEPT CONFIDENTIAL.

## LOCATING INFORMATION

1. Did you use any of these libraries in preparing your research paper, even if you didn't find any information? Check as many as apply.

- a) ☐ School library
- b) ☐ Neighborhood public library
- c) ☐ Other public library  
Please indicate name of library
- 
- d) ☐ Mount Royal College library
- e) ☐ S A I T Learning Resources Centre
- f) ☐ University of Calgary library
- g) ☐ Home or personal library
- h) ☐ Private libraries, i.e., those belonging to companies, research organizations, or special groups. Please specify.
- 
- i) ☐ Other, please specify.
-

2. Here is the same list of libraries again. This time check only those in which you got information you used in your paper.

- a) ☐ School library
- b) ☐ Neighborhood public library
- c) ☐ Other public library  
Please indicate name of library
- 
- d) ☐ Mount Royal College library
- e) ☐ S A I T Learning Resources Centre
- f) ☐ University of Calgary library
- g) ☐ Home or personal library
- h) ☐ Private libraries, i.e., those belonging to companies, research organizations, or special groups. Please specify.
- 
- i) ☐ Other, please specify.
- 

3. Did the staff of any of the above libraries help you find information?

☐ Yes

☐ No

If yes, please specify in which types of libraries you received help.

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4. Did anyone else, such as a friend or family member, help you use a library by accompanying you and assisting you there?

☐ Yes

☐ No

If yes, please specify in which types of libraries you received help.

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5. Sometimes, friends or family members are able to gather information from libraries for students. Did someone use any library for you? (In other words, use it for you without you being present.)

☐ Yes

☐ No

If yes, please specify which types of libraries were used by someone else for you.

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6. If there are any special ways you gathered information please list them below. For example, did you interview people or write for information? List what you think was useful to you.

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7. What is your perception of how your school library has met your need for information for your research paper? Check one of the following statements which best describes you.

- a) ☐ The school library supplied all the information I needed to complete my research.
- b) ☐ The school library supplied some of the information I needed to complete my research.
- c) ☐ The school library supplied a small part of the information I needed to complete my research.
- d) ☐ The school library supplied none of the information I needed to complete my research.

8. Do you consider yourself a library user? That is, if you did not need to find materials for a required assignment, would you ever voluntarily use the library?

☐ Yes

☐ No

9. If your reply was NO in question 8, please indicate why you do not voluntarily use the library?

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## APPENDIX B

TEACHER QUESTIONNAIRE:  
LIBRARIES AND RESEARCH PAPERS

## EXPLANATION:

This questionnaire is concerned with aspects of the student's research assignment which relate to library services and resources. All replies will be kept confidential.

## I. TOPIC SELECTION

1. Which of the following best describes how a student arrived at the selection of a topic? Pick one.

- a) | ☐ | Student had unrestricted choice of subject area and specific topic.
  - b) | ☐ | Student had unrestricted choice of a subject area with teacher follow-up and approval on specific topic.
  - c) | ☐ | A list of subject areas, or a single subject area, was presented within which each student selected a specific topic.
  - d) | ☐ | A list of specific topics was presented from which a student selected one.
  - e) | ☐ | A specific topic was assigned to each student.
  - f) | ☐ | Other, please specify.
-



## II. GUIDANCE IN LOCATING INFORMATION

1. Below is a list of places students may go to find information. Check those you suggested to students. Check as many as apply.

- a) ☐ School library
- b) ☐ Neighborhood public library
- c) ☐ Other public library  
Please indicate name of library

- 
- d) ☐ Mount Royal College library
  - e) ☐ S A I T Learning Resources Centre
  - f) ☐ University of Calgary library
  - g) ☐ Home or personal library
  - h) ☐ Private libraries, i.e., Those belonging to companies, research organizations, or special groups. Please specify.

- 
- i) ☐ Other, please specify.
- 

2. Below is a list of non-library sources of information. Check those you suggested to students. Check as many as apply.

- a) ☐ Personal interviews to collect information.
  - b) ☐ Writing to or contacting personally individuals, organizations, agencies or associations for available material.
  - c) ☐ Other, please specify.
-

3. Instruction in library use, if necessary, may be provided in a variety of ways. Below are a list of possibilities. Check as many as apply to the procedure you followed.

- a) ☐ General classroom instruction given on the use of the school library provided by the teacher either in the classroom or in the school library.
- b) ☐ Classroom instruction given on the use of specific library tools and materials, e.g., indexes such as the Readers' Guide to Periodical Literature, the card catalog, etc., either in the classroom or in the school library, by the teacher.
- c) ☐ Arranged with the school librarian to provide instruction in the use of library tools and materials.
- d) ☐ Accompanied students to a public library and provided instruction for them there. (Instruction by the teacher)
- e) ☐ Accompanied students to a public library and arranged for instruction to be provided by a member of the library staff.
- f) ☐ Arranged for student instruction at public library, but without teacher.
- g) ☐ None of the above.
- h) ☐ Other types of instruction or directions offered; please specify.

### III. INTERACTION WITH LIBRARIES AND TEACHING STAFF

1. Describe your own interaction with libraries in relation to your students' research papers by checking any of the following that apply.

#### A. Interaction with school library

- a) ☐ Planned with library staff member before assignment was given.
- b) ☐ Notified library of assignment before assignment was given.

- c) ☐ ☐ ☐ Did not notify library of assignment.
  - d) ☐ ☐ ☐ Requested purchase by library of particular materials to support student research.
  - e) ☐ ☐ ☐ Arranged for the school library to borrow materials for students.
  - f) ☐ ☐ ☐ Knew from past experience which topics could be researched in the school library.
  - g) ☐ ☐ ☐ Other, please specify.
- 

B. Interaction with libraries outside school

- a) ☐ ☐ ☐ Discussed assignment and topics with public library staff.
  - b) ☐ ☐ ☐ Discussed topics with college or university library staff.
  - c) ☐ ☐ ☐ Discussed topics with staff from other libraries, please specify.
- 
- d) ☐ ☐ ☐ Accompanied students to other libraries. Please specify.
- 
- e) ☐ ☐ ☐ Borrowed materials for students personally.
  - f) ☐ ☐ ☐ Loaned my own materials to students.
  - g) ☐ ☐ ☐ Other, please specify.
- 

IV. INTERACTION WITH ORGANIZATIONS OTHER THAN LIBRARIES

List below any contacts made with organizations other than libraries in relation to the student's research papers.

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## APPENDIX C

## LIBRARIAN INTERVIEW FORMAT

This study is concerned with the materials used by high school students in fulfilling assignments calling for outside information resources (non-textbook). The interview with librarians will provide background for the analysis. The interview will be confidential.

Following is a list of topics or questions that will be asked.

1. How does the librarian know when students are seeking materials for assignments? For example: When - before, at the time, or after the assignments are given. Where - in faculty meetings, at curriculum meetings during informal conversations with teachers. How - by memo, through personal contact with teachers, by students needing help.
2. In general, how many teachers giving assignments calling for non-textbook resources discuss the topics and requirements of these assignments with the librarian?
3. What services does the librarian offer students and teachers in relation to locating information for these assignments? For example: planned assistance to students such as the introduction of resources, the teaching of research skills, interlibrary loans and others; how assistance is offered such as - to groups of students only, to individual students only, to either groups or individuals when assignments are made.
4. What are the current magazine subscriptions in the school? How are they selected? How long are magazine backfiles kept? How is the decision made as to which magazine titles to keep? Which magazine indexes are available in the library?
5. What is the size of the library collection? Are there any special features about the collection that should be noted?
6. What is the library yearly materials budget? How is the budget divided in terms of audio-visual and print material?

7. What are the library hours? What are the school hours in terms of regularly scheduled classes?

8. Also included will be any comments the librarian has about students as information users while fulfilling their assignments and any other matters which the librarian feels may be of interest to the study.