

CHAPTER II

RELATED STUDIES

=====

2.1. Introduction

A few studies related to the present investigation are briefly mentioned in this chapter. A large number of studies on different aspects of the library and its contribution to education have been done in the developed countries of the world, especially in America. It is not possible to discuss the many investigations on all aspects of the library in this brief review. Only such studies are reported, which in one way or the other, investigate the educational functions of the library.

2.2. The Evaluation of Higher Institutions, The Library

An exhaustive study was undertaken by Mr. Douglas Waples for the Commission on Institutions of the Higher Education of the North Central Association of Colleges and Secondary Schools, U.S.A. in 1929.¹ The study undertook to identify the characteristics of a college library which

deserve most attention in judging the relative excellence of institutions for higher education. Basic assumptions for undertaking the study were as follows :

1. An effective college must have a good library.
2. The functions of the college library should be defined entirely by the educational programme of the institution. The college library should derive its objectives from the institution it serves.

Three objective measures of the effectiveness of the college library used in this study are : the holdings of books and periodicals; the financial support of the library; and the use of the library by students and instructors.

Of the fiftyseven institutions which participated in the main study on Evaluation of Higher Institutions, thirty-five supplied the data desired for the study of the library. These included senior colleges, junior colleges and universities. An attempt was made to represent a normal range of institutional excellence in the sample chosen.

The required data regarding the library was collected as follows :

1. An information schedule was used to obtain facts on library finance, methods of book collection and policies governing reserve book collections.
2. Two checklists were used to sample the holdings of the library; one for general reference books and the other for periodicals.

3. An individual record card was used to measure the number of titles borrowed for outside use by each student and instructor during the second semester of 1932-33.

The data collected was statistically analyzed to determine which facts regarding the library are associated with institutional excellence. Four criteria were used in the study for determining the relationship between general institutional excellence and the above stated facts about the library. These criteria were : (1) a subjective rating of general excellence; (2) a rating of the instructional facilities of the institutions; (3) weighted educational expenditure per student; and (4) a composite rating of the library itself. The fourth criterion, composite rating of the library was made after the relative significance of the various features had been determined on the basis of the three other criteria. The features found most significant were then combined into a single index.

The data was statistically analyzed to determine the coefficient of correlation between the status of libraries on the feature under consideration and the standing of the same institution on the general criterion of excellence.

The following table presents the coefficients of correlation between each of the three criteria of institutional excellence and six different measures of library holdings, based on thirty five institutions.²

Table 3 : Coefficients of Correlation Between Three
Criteria of Institutional Excellence and
Six Different Measures of Library Holdings

Measures of Library Holdings	Coefficient of Correlation With Criterion		
	Subjective: Ranking	Rank on: Instru- ction	Composite Library Rating *
1. Number of volumes in the library	0.58	0.31	0.61
2. Number of periodicals currently subscribed for	0.52	0.21	0.74
3. Average number of volumes added annually over a five- year period	0.44	0.37	0.71
4. Number of volumes added during 1931-32	0.53	0.43	0.73
5. Reference books held from check-list	0.54	0.40	0.72
6. Periodicals held from check- list	0.62	0.43	0.59

* Self correlation eliminated.

According to Mr. Waples the measures of library holdings provided by the two check-lists, one for reference books and the other for periodicals, are among the best of the six measures investigated, when tested by the size of the correlations with the criterion. Similarly coefficients of correlation between eight measures of the financial support of the library, seven measures of student use of the library

and measure of faculty use of library and the three measures of institutional and library excellence were computed. Two measures of finance which show highest correlation with the criterion of excellence are expenditure for books and periodicals during one fiscal year (1931-32) and the salary expenditure of library personnel weighted for student enrolment. (Correlation coefficients are 0.64, 0.55 and 0.87, and 0.51, 0.39 and 0.87 for the two measures stated above respectively). Mr. Waples has selected the average annual number of 'free' loans per student as the best measure of student use of library. (Correlation coefficient 0.35 with subjective ranking of the institution). The average annual number of loans to faculty members correlates 0.26 with the subjective rating of general excellence.

Some other important findings of this study are: the mean number of titles borrowed per student per semester for the thirty-five colleges is 5.55 titles, the institutional averages ranging from 1.80 to 16.35. The coefficient of correlation between number of library loans to faculty and to students is 0.66.

The above stated six measures of the library have been recommended by this study to be adopted in accrediting

procedures for determining the educational value of a college library.

2.3. Teaching with Books, A Study of College Libraries

Harvie Branscomb directed a study known as 'The Library Project' for the Association of American Colleges in 1937.³ The overall objective of the study was to find out the extent to which the efforts of the college library are integrated with the college as a whole or in other words to study the educational effectiveness of the library rather than its administrative effectiveness.

Phenomenal growth of college libraries had taken place in America in the years preceding this study. In 1934-36, college, university and professional school libraries in U.S.A. had about 63 million volumes and their total expenditure was \$ 14.8 million.

It is necessary to secure a sufficient use of these enlarged resources. The role of librarians and teachers in the effective use of library materials and services by students needs to be investigated. Several local studies were set-up as a part of the project. Sixty college libraries were visited, many librarians, administrators and teachers interviewed, and published literature consulted where ever necessary. Dr. Branscomb and his colleagues on the project have

enquired into almost all the aspects of the functioning of college libraries. Only those findings which are relevant to the present study are reported in the following sections from Dr.Branscomb's comprehensive report.

Undergraduate use of library

It is difficult to measure the usefulness of a college library because its qualitative aspects such as stimulating and awakening power cannot be measured. Only quantitative aspects of library can be measured and an attempt made to determine the extent to which a library is performing its intended function.

It is a fact that libraries are being used a good deal more than in the past. Dr.Branscomb has quoted Carl M. White to prove the point. According to Mr.White, the combined recorded circulation of five libraries in 1936-37 was more than five times what it was in 1914-15. Continuous and consistent figures for a ten year period preceding 1936-37 were available from 23 university libraries. The combined circulation showed an increase from 7,774,426 loans in 1927-28 to 10,817,424 in 1936-37, that is 39.11 per cent.⁴ During that ten year period, student and faculty enrolment increased by 15.1 per cent in those 23 libraries. Per capita circulation increased from 40.8 loans to 48.41 loans, or a

20 per cent increase in ten years. Thus, the average increase in per capita loans can be considered as 2 per cent per year.⁵

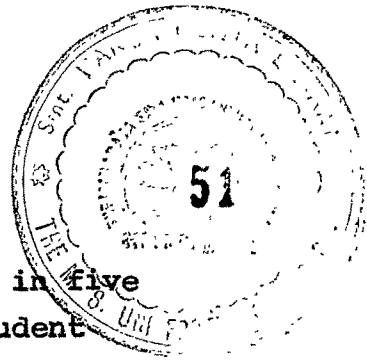
It is clear that this increase, though a source of satisfaction, cannot be entirely attributed to the undergraduate students. A marked feature of American educational development in the two decades preceding 1936-37 was a substantial increase in graduate school enrolments. Mr. White has not given the increase in the number of graduate students for the 23 universities he studied. However, for the country as a whole the growth of graduate students out-ran that of undergraduates to a considerable extent. The U.S. Office of Education figures reported an increase of 109 per cent in the number of doctorates conferred in the nine year period 1926-27 to 1935-36. It is obvious that a considerable proportion of the annual per capita increase of 2 per cent reported by Mr. White is due to the influence of rapidly growing graduate enrolments during that ten year period.

Dr. Branscomb has concluded that there has been a considerable increase in the circulation of libraries due to enlarged enrolment, increase in the number of graduate students and other factors, the total process resulting in a small increase in the use of the library per individual

student. For the undergraduates this would appear to be something less, on the average, than 2 per cent per year.... Perhaps all will agree that the growth has not been rapid enough to warrant a complacent conclusion that the problem of undergraduate use of the library has been solved.⁶

Dr. Branscomb has found these figures defective on two counts; firstly, the circulation figures have different meanings in different libraries and secondly, the overall circulation figures do not provide an indication of the library use of undergraduates separately. He has therefore reviewed some special studies on the use of libraries by undergraduate students, including two which were completed by him. These are reported below in brief.

- i. Mr. Douglas Waples has reported undergraduate use of libraries for 35 institutions as 5.5 titles loaned per student per semester on an average from the general collection. (Institutional averages ranged from 1.8 to 16.36) This study has been already reported.
- ii. Mr. E. W. McDiarmid, Jr., made a most careful study of the reading of 2,278 undergraduate students in seven liberal arts colleges.⁷ He has reported an average use of 6.93 volumes per student per semester from the general collections and 12.38 volumes from the reserve collections. The mean for total number of books loaned to students is 19.17 per semester.



- iii Mr. Harry L. Johnson conducted a study in five colleges in the Middle West.⁸ The student enrolment in these colleges was 2,438 ranging from 238 to 675 in the different colleges. Mr. Johnson's study was conducted during an entire academic year. He has reported a mean withdrawal of 12.54 books per year from the general collections and 26.19 from the reserve collections. In both types of reading women students withdrew appreciably more volumes than did the men.
- iv Dr. Branscomb directed a study on the undergraduate use of the library in a small town in the East, which has an university (referred as University A) with an excellent faculty and a good library. Use of library by 2,292 undergraduate students for a period of nine weeks during the second half of spring semester of 1936-37 was surveyed. It is reported that on an average 3.16 volumes per student were withdrawn during the nine weeks from the general collections and 12.94 from the reserve collections. This study gives the figures for library use by students in terms of the different classes, such as freshmen, sophomore; junior and senior. Generally the students in the higher classes appear to make more use of the library as their average withdrawals are more than those in the lower classes.
- v Dr. Branscomb conducted another study in what he has called College B, which is an excellent eastern liberal arts college for men with a better than average library. A survey of the extent of student use of general collection in the library was made

for a nine week period in the spring of 1937, and repeated in the fall semester of 1938-39. For the latter period 836 students withdrew 4,349 volumes, an average of 5.2 per student.⁹ The reserve reading was not studied during the period.

vi In the fall of 1930 Professor A.C. Eurich studied a typical week's use of the library in the University of Minnesota. The typical week was chosen in the tenth and eleventh weeks of the fall quarter. The total circulation for the typical week was 2,749 volumes from the general collection and 8,011 charges at the reserve book desk. The circulation figures per week have been converted into per year statistics by appropriate calculations. The calculations indicate an average circulation of 11.8 volumes per student per year from the general collection and 34.4 volumes per student from the books placed on reserve. Professor Eurich has concluded that ' the proportion of students who use the library each day is a relatively small part of the entire student body. '

vii Dr. Ralph H. Parker studied the general circulation of the University of Texas library in the fall of 1934.¹⁰ The study was made from October 15th to December 15th, a total of 62 days, or just about nine weeks. During the observation period 11,330 titles were issued to 4,394 undergraduate students enrolled in the College of Liberal Arts. This yields an average per student circulation for the period of 2.57 volumes, or equated to an annual basis, 10.28 volumes per student.

Dr. Branscomb has summarized and compared the studies described above. All of them are based on the first hand examination of the withdrawal slips of undergraduate students

in 51 institutions having more than 20,000 students, in addition to the enrolments in 35 colleges studied by Waples. The following table summarizes the above studies.¹¹

Table 4 : Summary of General Circulation Averages,
Fifty five Institutions.

Study	Group Studied	Period	Average Per Student	Student Average Equated to Academic Year
1.Waples	35 colleges	One semester	5.55	11.10
2.McDiar- mid	2,278 students in 7 colleges	One semester	6.93	13.86
3.Johnson	2,438 students in 5 colleges	One year	11.36	11.36
4.Univ.A	2,292 students in 1 univ.	One half semester	3.16	12.64
5.College B	836 students in 1 college	One semester	5.20	10.40
6.Eurich	8,362 students in 1 university	typical week	0.33	11.80
7.Parker	4,394 students in 1 university	One half semester	2.57	10.28

The agreement of these studies is very striking. Their results strongly confirm one another. Circulation statistics for the reserve book collections were available from only a few of the above studies. Figures of use of the reserve book collections by 6,333 undergraduates in twelve colleges are given below.¹²

Table 5 : Summary of Reserve Book Circulation Averages,
Twelve Institutions

Study	Group Studied	Period	Average No. of Titles per Student	Average No. of Charges per student	Average Equated to One Year Titles : Charges	
2. McDiamid	2,278 student in 7 colleges	One semester	12.38	26.95	24.76	53.90
3. Johnson	1,763 students in 4 colleges	One Year	26.19	60.87	26.19	60.87
4. Univ. A	2,292 students in 1 univ.	One-half semester	<u>12.34</u>	12.94	----	51.76

Dr. Branscomb has rightly concluded from the above studies that the average undergraduate student in U.S.A. withdrew about 12 books per year from the general collection of his college or university library during the period of study. From the reserve collections, the undergraduate student, on an average, made from 50 to 60 withdrawals, approximately half that many titles being involved. Thus, the average undergraduate student was using per semester slightly more than one book for each course from the general collection and about 3 titles per course from the reserve collection.

The average circulation figures can be challenged as a measure of the undergraduate's use of the library. Firstly,

arithmetic mean cannot be a true description of reading by so many thousands of students. There would be many above the average, but so would be others below the average. Secondly, these circulation figures do not include other important functions of library use, such as use of encyclopedias, periodicals and other tools of reference. Dr. Branscomb, while not denying the value of these other services, contends that ' these other activities are built around and related to the use of the book collection and that indications of the extent of this use will reveal perhaps better than any other single approach, the significance of the library's contribution to the education of college students. '13

To answer the charge that arithmetic mean cannot truly describe library use of students, Dr. Branscomb has further analyzed the data in some studies.

In University A, the undergraduates borrowed 2.87 volumes from the general collection for nine weeks. A count was made of the number of students who made negligible use of the library, which was defined as the withdrawal of less than one book per month. It was found that 42 per cent students made no use of the general collection and 66.9 per cent made a negligible use of it during the period of study or 53.8 per cent withdrew only 332 books whereas the

remaining 46.2 per cent borrowed 6,252 books or 95 per cent of the total withdrawn. For books withdrawn from the reserve collection, the picture is not very different. Approximately 19 per cent undergraduates made no use of the reserve collection and 30 per cent made negligible use of it. If the withdrawals for general and reserve collections are combined, it is found that 12.7 per cent made no use and 22.29 per cent made negligible use.

By applying the same definition of less than one book per month borrowal to Johnson's study it is found that out of the 2,438 undergraduate students studied by him in five colleges, 10.6 per cent made no use and 55 per cent made negligible use of the general collection in their libraries. For the reserve collection, the no use and negligible^{use} figures are 4 per cent and 22.2 per cent respectively.

McDiarmid has not given circulation figures for individuals or classes. But in his summary, he has reported: 'Still more noteworthy is the fact that twenty per cent of the students borrowed in all (general and reserve combined) five titles or less.'¹⁴ McDiarmid's study was undertaken for one semester or a period of four and half months. His figure of five titles per semester, therefore, is in agreement with the definition of negligible use

mentioned above. Thus 20 per cent students in McDiarmid's study made negligible use of the total collections in their libraries.

Only general reading was considered in the one semester study at College B. Figures are available for only those students who withdrew no books from the general collection. For this college, 36.6 per cent students made no use of the library's general collection.

Miss Withington of the Women's College Library of Rochester University has reported that 28 per cent of the student body made no use of books from the general collection during the fall semester of 1937-38. The following table gives a summary of the no use and negligible use of general collection reported in the studies described above.¹⁵

Table 6 : Summary of Studies of Negligible Use of General Collection, 8 Institutions, 6052 Students

Group of Students	Period	Per Cent withdrawing 0 Books	Per Cent Withdrawing Less than One Book Per Month
2,292 students in one university	One half semester	42.0	66.9
2,438 students in five colleges	One year	10.6	55.0
836 men students in one college	One semester	36.6	---
496 women students in one college	One semester	28.0	---

Negligible use of the reserve collection reported in three studies has been summarized in the table given below.

Table 7 : Summary of Studies of Negligible Use of Reserve Book Collection, 12 Institutions, 6333 Students.

Group of Students	Period	Per Cent Withdrawing 0 Books	Per Cent Withdrawing Less than One Book Per Month
2,292 students in one university	One half semester	19.0	29.5
1,763 students in four colleges	One year	3.9	22.2
2,278 students in seven colleges	One semester	----	20.0 ('borrowed in all 5 titles or less')

Dr. Branscomb has concluded as follows regarding the use of libraries by undergraduate students in the light of the above figures of no use and negligible use :

The average number of books borrowed per year from the general collection seems to be about twelve per student, but the average would be lower were it not for the presence of a small number of students who take out a great many books. The mass of the undergraduates make very little use

of the main book collection.... In the case of the reserve books the situation is not so clear. This may be because the measure of negligible use chosen - less than one book from reserves per month - was for this class of material too low. Nevertheless, one finds from a fifth to nearly a third of the students making virtually no use of the reserve collection.... From the data, in this chapter it seems clear enough that undergraduates do not make very much use of the college or university book collection, not nearly so much as is ordinarily assumed. The fact is obscured first by total circulation figures which in practically every institution include the borrowings of everybody in the neighbourhood, and by the presence in each institution of a small percentage of students who borrow a large number of books, some of them an amazing number. Since undergraduate use of the library is predominantly for curricula purposes, the above statement can be restated as follows : it seems evident that college faculties are making only a very limited use of the library in their teaching work. In a number of colleges, there seem to be better libraries than are needed. This seems to demonstrate what was asserted in the previous chapter, that in spite of all its growth the library has not been fully integrated into the major program of the college. This is as true from

the faculty side as from that of the library side.¹⁶

Br. Branscomb has, through his painstaking search, extracted extremely valuable information regarding the library use of undergraduates. The only silver lining to the otherwise dismal picture is the observation by Dr. Branscomb that these low figures of library use would not be found on every campus. In McDiarmid's study, the institutional differences showed a greater range than those of sex, academic class, or scholarship rating. Those colleges which have much heavier circulations merely prove the fact that the library can be made to play a larger part in the programme of instruction than it seems to be doing in the majority of cases.¹⁷

It has been revealed by the studies described above that under the then prevailing conditions, students did not find a use of the library necessary or essential. Where lies the difficulty, with the student, the instructor or the library ? Dr. Branscomb has tried to find an answer to this question in the third chapter of his book.

Scholarship standing and library usage

It has already been stated that women students use library facilities slightly more than men students, average book withdrawals increase as one proceeds from the freshman to the senior status and other such matters. McDiarmid in his study of seven colleges investigated the relationship of

the number of books borrowed by each student to his scholastic attainment. The coefficient of correlation for the entire group of 2,278 students was 0.173 ± 0.20 . He concluded that 'the number of titles read by each student has little to do with the grade point average.'¹⁸

Prof. A.C.Eurich in a second and more detailed investigation of the reading of 347 undergraduates in the University of Minnesota, could find a very small degree of relationship between the amount of reading done by individual students and their scholarship rating. The coefficient of correlation was 0.02 ¹⁹.

In a small college in Pennsylvania (referred to as College C), relationship between the grades received by the students of the graduating classes of 1934, 1935, 1936 and 1937 and the extent of their library use was investigated. The coefficient of correlation for 18 seniors of 1934 was -0.03 ; of 21 students of 1935 $+0.27$; of 18 members of the class of 1936 -0.05 ; and of 26 graduates of 1937 $+0.44$.²⁰

The lack of correlation between grades of students and their library use may not prove very much. Too many factors could influence this relationship. Dr.Branscomb has tried to control these factors in order to reach valid

conclusions.

In University A, it may be recalled 22.29 per cent or 511 students borrowed less than 1 book per month. How did these students - who made negligible use of the library - fare scholastically? Out of these 511 students grades were available for 446 students. Their distribution according to grades obtained was as follows :

Grades :	A	B	C	D	F
Number of Students :	100	373	628	253	73

These students who made virtually no use of the library received more As than Fs, more Bs than Ds and their average is better than C. In general they appeared to have done excellently as a group. According to the judgment of the faculty members themselves, those students of the 2,292 studied who made least use of the library, and in fact almost a complete disuse of it, did better than acceptable work in their courses. The use of the library then was not a necessary part of the instructional programme, or the teaching programme does not seem to have been in serious need of a library.²¹

Dr.Branscomb did similar analysis of the data regarding the use of books from the reserve collection of libraries. Here too, only slight correlation was observed between

scholastic standing and library use.²²

In another approach to the problem of the use of library materials in class work, the use by different sections of a large course of the books placed on reserve for that course was investigated. A course in history with an enrolment of 247 students was chosen for the study. Four instructors taught the several sections and all used the same library reserves, which consisted of 293 volumes. Average circulation per student studying under the four teachers was, 17.50, 8.25, 9.50 and 0.16. An examination of grades given in these sections shows no decided variation from the norm in any case. According to Dr. Branscomb, though it is not proper to generalize from this instance, it does afford a perfect illustration of the looseness and carelessness with which many instructors regard the library aspects of their courses.²³

Even though the above studies have come from only one institution, their results are likely to be applicable to other institutions because the commonly accepted programmes of instruction are followed in this institution and secondly the average library use by the students of this institution approximates so closely with figures of library use found in other institutions. Dr. Branscomb has rightly concluded :

The facts seem to give one explanation and probably the primary explanation of why students use the library so little. They do not use the library's books because in a great deal of their work they do not have to; they can do quite acceptable work, in some cases possibly better work, without doing so.... One gets the impression from the data surveyed.... that the library is a stage removed from the vital center of the work of teaching. The use of its resources, though highly recommended by all professors, is to a large extent a work of supererogation. A large number of teachers apparently could ^{get} along very well without extensive libraries, at least for the greater number of their students.... The fact which confronts one is that the library is not functioning in close and vital connection with the teaching program.²⁴

In the fourth chapter of his report, Dr. Branscomb has discussed the traditional form of teaching in American Colleges, its criticism and then surveyed the teaching programmes of some institutions where library is integrated with teaching. He has named this chapter 'Teaching with Books'.

Teaching with books

Dr. Branscomb has described the conventional method of college teaching as one which tends to make the student

responsible to the course rather than to the subject matter of the field, to separate him from the literature of the subject, and to inculcate a deference to the authorities.... rather than to develop critical discernment and independent judgement.²⁵ In contrast the newer methods give the student more freedom, make him more responsible for his own education, and endeavour to test more adequately the progress he makes.²⁶ The trend is toward a greater use of books and related material, rather than less. A number of institutions by adoption of certain specific procedures have been able to bring about a marked increase in the use of their libraries by their students and presumably in the amount of reading they do. Dr. Branscomb has surveyed the instructional and library use programmes of the following institutions in his study.

1. ~~South~~ Western College,
2. Antioch College,
3. Lawrence College,
4. Olivet College,
5. Bennington College,
6. Reed College,
7. Stephens College.

His general observations on the working of these institutions and particularly their adoption of certain practices to increase the library use of students enrolled

in these colleges are given below :

.... One may be permitted a further word as to the factors responsible for the success of the institutions discussed in securing a better than average use of books on the part of their students or a marked increase over previous rates. In certain instances plainly and in all instances no doubt a variety of influences were at work. Nevertheless a common feature which runs through all these cases has been the modification to some degree of the traditional system of instruction. In each of the colleges mentioned one finds efforts on the one hand to discover the individual with his special difficulties and interests, and on the other hand to shift in some part the responsibility to the individual for his own education. This is no proof that such newer modes of education are better. But it does show students will read, if the institution makes it clear that it really regards this as of fundamental importance.²⁷

Dr. Branscomb in his exhaustive study has investigated other technical and administrative aspects of the college libraries. They are not relevant to the present study and therefore, not discussed.

It would be obvious from the above passages that Dr. Branscomb's is one of the most exhaustive, well-designed and penetrating studies of college libraries. This perhaps

is the reason why many later studies in this area have again and again referred to his findings and techniques.

2.4. The Librarian and the Teacher in General Education

Prof. B.Lamar Johnson and Mrs.Eloise Lindstrom have reported the library-instructional activities at Stephens College in their report entitled 'The Librarian and Teacher in General Education.'²⁸ Dr.Branscomb has used this institution in his survey as reported earlier. A brief review of the library-instructional activities of the Stephens College are given below.

Stephens' is a junior college for women, with an enrolment of more than 2200 in 1948 when the report was written. The educational programme is a functional programme of general education for women.The individual student is the central unit of the college programme and various techniques have been developed to individualize instruction for her. Constant experimentation and appraisal of the programme has been done from time to time.'

College libraries in Stephens College have developed from the college philosophy. Libraries are functional and adopted to the college programmes. The librarian has dual position as Dean of Instruction and Librarian. Professor Johnson was occupying this position when the report was made. Other staff members of the library also are members of the instructional staff.

A number of libraries cater to the needs of students and faculty. There is a general library with a stock of 30,000 books and periodicals, 500 pictures and about 3000 phonographic records. There are five conference rooms and listening room facilities adjacent to the library building. In addition to the general library are ; divisional libraries, classroom libraries, dormitory libraries and even personal libraries for the students. All these libraries together have a stock of 50,000 books and periodicals, 3000 records, 4000 slides, 3200 pictures and film-strips and a few films. It may be noted that at Stephens College, library materials are not limited to books and periodicals but include various types of audio-visual materials. Expenditure on the library was \$ 52,046.86 for the year the report was written. Expenditure on the library per student has varied between \$ 17.62 to \$ 25.71 during the period of experimentation.

There is very close contact between the instructional and library staff at Stephens College on all matters of instruction and library use. The librarians do the following types of instructional work in addition to their technical duties. They get acquainted with course outlines, participate in workshops on teaching plans, take part in departmental meetings, teach students and faculty members in the use of

library facilities, co-operate with teachers in what is called 'library-laboratory' teaching when a teacher spends the whole period in the library with his students, share teaching of some courses with some of the instructors, teach entire courses from the planning to the evaluation stage and teach through extra-class activities in and through the library.

Teachers on their part actively co-operate with the librarians by organizing classroom libraries, using library collections instead of a few text books to teach their specific courses, teaching in the library, making an extensive use of audio-visual materials in teaching, and using library for testing and evaluation of the students and for their own professional development.

There is no set pattern in the use of libraries by the students. Varying uses of the libraries are made by different teachers and students for the many types of courses. Stephens College has not made any attempt to appraise the results of this programme of library - instructional activities. But the following observations in the report speak for themselves.

Circulation of library materials has increased to a very great extent. During a five year period of observation, it is reported that the average borrowal of books from the general collection increased from 9 per student to 30 per student. This rise in the withdrawal rate is all the more significant when it is realized that books were available to

students easily in the many libraries after the experiment was commenced than before. Amounts of reading done by Stephens students and discussed with their instructors have varied from 7,000 to 20,000 pages per year. In one year 436 girls in a course read a total of 8,600 books covering 1,534 titles. It has also been observed that many of the students enrolled in Stephens College have carried their reading habits into adulthood after graduation. Professor MacLean, has rightly commented, 'At present the students of the College are reading more than three times as much, with obviously greater enthusiasm. And they are reading material that counts because it is carefully geared to their interests, their known needs, their fluid and changing anxieties and enthusiasms, and to their reading abilities as these evolve and mature.' 29

It can be clearly seen that students can be made to read more if the teachers, administrators and librarians co-operate to make the library an integral part of the instructional programme.

2.5. College Teaching and the College Library

Dr. Patricia B. Knapp has attempted to discover what the college library contributes to the education of the college student.³⁰ Her study was conducted at Knox College, Galesburg,

Illinois, in the spring quarter of 1954. The basic purpose of the study was to examine as objectively and realistically as possible the direct contribution of the library to the education of the college students : that is, to analyze student use of the library for course and non-course purposes in terms of general educational objectives, specific course objectives and teaching methods.

Information about objectives and teaching methods were derived from official statements of the college and from lengthy interviews with the teaching faculty. Information about the students, collected from the registrar's office, included, for every student enrolled, data on sex, class level, scholastic aptitude (American Council on Education General Education Test Score), subject major, scholastic achievement (grade point average), and grade for each course taken during the quarter investigated. Information on student use of the library consisted primarily of complete circulation records for the quarter. A questionnaire was used to spot-check the use of library materials, not recorded in circulation.

A considerable part of the study was concerned with the statistical measurement of the association between library borrowing and the sex, academic class level, scholastic aptitude, and scholastic achievement of the student borrower. Analysis was also made to investigate the contribution of

the library to the instructional process by trying to find answers to the questions :

1. What is the extent of the library's contribution to course work ?
2. What is the nature of the library's contribution to the program ?
3. What factors limit the library's contribution to the instructional program ?
4. What should the library contribute to the educational program ?

In Spring 1954, seven hundred and forty students were registered at Knox College. The library had a total collection of 79,144 holdings, subscribed to more than three hundred periodicals, and had a collection of six hundred sound recordings. The total library expenditure in 1953-54, at Knox College, was \$ 35,206 which works out to \$ 45.43 per student. The library provided all services in a good modern library and had its stacks open to students.

Student characteristics associated with library use

Dr. Knapp has studied the student use of the library and its association with a number of student characteristics. Her findings are as follows.

Ninety four per cent of the loans made from the library to the students were for course purposes. Reserve loans

amounted to 62 per cent of total course loans, indeed to more than half, that is 59 per cent of all loans. The reserve loans are almost double the number of reserve titles withdrawn. It is clear that for the most part students read what they felt they were expected to read. And for the most part instructors expected students to read certain specified titles rather than to select freely materials on given topics.³¹

At Knox non-reserve or general ^{loans} amounted to 4 per student for the quarter. Equated to the academic year, this is 12, matching Branscomb's average precisely. But per capita reserve loans of 5.61, when equated to the academic year, amounted to 16.83, far below the Branscomb average, far below, in fact, the figure for any of the studies he summarized. Dr. Knapp has not explained this wide variation in per capita loans on the basis of institutional variation. According to her, 'perhaps the hey day of the reserve collection is over.' But she has pointed out that the decrease in per capita use of the reserve collection is not matched by a corresponding increase in per capita use of the general collection.³³

Approximately, 90 per cent of reserve loans were made to 40 per cent of the students; 90 per cent of course loans to 51 per cent of the students. For each circulation category,

less than one-fifth of the student body accounted for half the circulation; about half of the student body accounted for 90 per cent of the circulation. At Knox College, students who made no use of the library or withdrew zero books from the general collection were 46.51 per cent, and those who made negligible use, that is borrowed less than 1 book per month from the general collection, were 65.58 per cent.³⁴

The per capita borrowing of women was higher than that of men in every circulation category, but the difference was statistically significant only for course withdrawals from the general collection, where the average woman borrowed four books for the three borrowed by the average man. The association between scholastic aptitude and library use was found to be almost non-existent. (Coefficient of correlation between withdrawals from the general collection for course work and students' ACE scores was 0.126).

Grade-point average is the accepted measure of scholastic achievement. The association between this measure and the library use of students, measured by their borrowings is again unimpressive, the coefficients of correlation being 0.123 for reserve loans and 0.238 for course borrowings for the general collection.³⁵

At Knox there was an increase in per capita withdrawals from freshmen to seniors for almost all circulation categories. Association between academic class and library use was found to be not only statistically significant, but higher than that for any other student characteristic variable considered in the study.³⁶

Dr.Knapp has summarized her findings on the student use of library in the following statements :

1. Student use of the college library occurred almost exclusively in connection with course work.
2. Most borrowing was from the reserve collection, that is, it consisted of titles on required or optional reading lists.
3. A small proportion of the student body was responsible for a large proportion of borrowings.
4. There was a statistically significant but slight association between borrowing and the sex, scholastic aptitude, scholastic achievement, and academic class of the student borrowers.
3. Ranking highest in relative significance of its association with borrowing was academic class, which is probably more an indication of course demands at each level than it is a real student attribute.³⁷

Most of these findings are in agreement with investigations reported by Branscomb. One can only agree with Dr.Knapp

when she comments.... 'patterns of student use of the typical liberal arts college library had changed little in the past decade or two.'³⁸

It is not possible in this brief review of Dr.Knapp's report to give the details of the techniques employed by her to study the contribution of library to the instructional process. Only the summary of her findings are given below.

The extent of the contribution of the Knox College library to the instructional program was measured on the basis of several scales of student borrowing. These scales indicated that one fourth of the courses accounted for almost 90 per cent of total circulation ; about one - third of the courses accounted for 90 per cent of non - reserve circulation. Little more than one-fourth of the courses stimulated three or more loans per student enrolled; about one-eighths of the courses stimulated three or more loans per student from the general collection. About one-fourth of the courses were 'dependent' - stimulating at least four out of five students enrolled to borrow - on the total collection;less than one-tenth were 'dependent', in the same sense, on the general collection.

Detailed examination of individual library-dependent courses, and of certain others, revealed considerable variety in teaching methods and student borrowing. But one or more of three dominant patterns of borrowing appeared to some

degree in every one. These were : first, reading of the same few titles by most students; second, reading of several different titles by different students; and third, reading selected and organized around topics or problems. The third pattern was least prevalent.

Subject field and type of material were, naturally enough, factors limiting the number of courses to which the library contributed, though subject field was less important than expected. More important than expected were the factors of class-size and class level. Small, advanced classes were the only classes to stimulate extensive and/or problem-solving use of the library.

Among the general educational objectives stated in the college catalog and mentioned in faculty interviews were some that could be achieved only through student use of the library. The evidence that the library contributed to a selected minority of courses- and, therefore, played a major part in the college experience of only a selected minority of the students - indicates that these library - use objectives were not effectively implemented by the curriculum.³⁹

Like Dr. Branscomb, Dr. Knapp in her equally exhaustive and searching probe on the educational functions of the college library has concluded that the library is far from the heart of the college.⁴⁰

2.6. Attendance And Use of the Science Library of M.I.T.

A study of the actions of library users of M.I.T. Science Library has been reported by G.C.Bush, H.P.Gallihar and P.M.Morse on behalf of the institute's Operations Research Project.⁴¹

Data was collected through a questionnaire handed to persons entering the library during a typical five day period, January 5 to 9, 1955. All questions except the last concerned the actions of attendees, not their opinions. The data collected through 2,700 questionnaires was punched on I.B.M. Cards and tabulated. The following are the findings :

Ratio of total visits to total enrolments has been computed for different categories of users. This ratio ranges from 0.02 to 0.87 for the different departments, 0.16 to 1.24 for graduate students, 0.21 to 0.57 for undergraduates, and 0.02 to 0.29 for the staff.

Use of library at different periods of time during the working hours has been reported. Undergraduates predominated in nearly all periods. Graduate students use the library mostly between 3 p.m. to 5 p.m. and staff between 1 p.m. to 3 p.m.

The ratio of first visits to the library and the total visits during the five day period is 0.503 for all readers,

which means that nearly one-half of the use of library during this period was by different users.

Types of library use has been computed for the different categories of readers. Many use it as 'study hall', bringing their own materials to read; others use library materials. Undergraduates mostly use the library for 'study hall' purposes; 661 undergraduates have stated using the library as 'study hall' whereas only 309 use library materials. The ratio of 'study hall' use to library use for undergraduate students is 2.14. Graduate students appear to be making more use of library materials during their stay in the library; 287 graduates using library materials in contrast to only 143 who use the library as 'study hall'. The ratio of 'study hall' use to library use for the graduate students is 0.5 and for the staff 0.06. The staff, thus, seems to make no use of the library for 'study hall' purposes.

Circulation of books during the five day period was 0.46 per undergraduate, 0.22 per graduate and 0.23 per staff member. Comparable figures for periodicals are 0.08, 0.10 and 0.07, and for reports 0.03, 0.01 and 0.01 for the three categories namely, undergraduates, graduates and staff.

Data has been gathered for non-availability of library materials to readers for various reasons. Unavailable books

per user range between 0.08 to 0.42 for the different categories of users. Similar figures are given for periodicals and reports. Periodicals and reports show much higher rate of availability; the figures for non-availability for periodicals ranging between 0.1 to 0.16 and for reports between 0.02 to 0.06.

Effectiveness of the library has been measured as the ratio between materials used (borrowed and used in the reading room) to materials demanded. Overall effectiveness of the library is reported as 89 per cent; effectiveness for books and periodicals being 85 per cent and 93 per cent. Effectiveness is in no case lower than 70 per cent for different categories of users and materials.

It has been attempted to fit the statistical behaviour of users into mathematical models. Without going into the technicality of these procedures, the findings are reported below :

About 40 per cent of the attendees enter the library intending to use it only as a study hall, the rest enter it intending to use the library facilities to some extent. Of this latter 60 per cent, the probability of those, still in the library, leaving the library in ^{any} given minute is approximately 1/100, independent of their previous length of stay, which corresponds to a mean stay of 100 minutes. The library appears to be fairly heavily used, because

during the five day period 1400 users used it for three use tasks per visit and 200 users for eight tasks per visit on an average (A task is defined as any one of the activities ; consult books, borrow them, consult catalogues and so on). Of the tasks, 8.4 per cent consisted of withdrawal and 91.6 per cent 'on the spot' use of library. On the spot use of library consisted of 26.3 per cent book consultation and 45.9 per cent periodical consultation. This shows that other use of the library is much more than circulation of materials for home reading.

It is clear that the M.I.T. Science Library is effectively used, especially by the graduate students and staff.

2.7. Who Uses University Libraries ?

Another study of the uses and users of four M. I. T. libraries has been reported by Dr. Nicholson and Dr. Barlett⁴². The four largest libraries of the M. I. T. namely, General and Humanities, Science, Engineering and Dewey (Economics and Industrial Management) were surveyed from May 11, 1960 to May 19, 1960 through a questionnaire which was distributed to 8,660 users, including 603 non-M.I.T. users. Final examination was approaching when the survey was done.

It is reported that during this period 46 per cent of the users of the libraries were undergraduates, 35.5 per cent

graduates, 11.8 per cent faculty staff and 3.3 per cent others. 71.9 per cent of the undergraduates used the libraries for class preparation and only 14.9 per cent for research. Comparable figures for graduate students are 52.4 per cent and 37.2 per cent; for the staff research use is 56.4 per cent and class preparation 31.1 per cent. The library appears to be most heavily used between 1 p.m. to 2 p.m.

2.8. Student Library Habits

Mr. John Weatherford conducted an experimental survey at Miami University in February, 1959.⁴³ He tried to observe the library habits of undergraduate students and to develop a method which could be economically and uniformly applied to many universities. He used a questionnaire to study library use instead of the charging records and used a sample instead of the entire student body, unlike Dr. Patricia Knapp. It is Mr. Johnson's contention that use of call slip data is not practicable for large enrolments and where call slips are not used in charging books.

The survey was conducted at the beginning of second semester. The exhaustive questionnaire used was intended to find out the grade-point average of the student, his class (Junior, Freshmen etc.), his major, books borrowed from

reserve and general collections, how many books were specifically required for courses, how many were read for recreation, books read for different subjects, how many books which were borrowed read more than half through, how many not read at all and so on.

The following results of his survey are reported by Mr. Johnson :

Approximately half the students accounted for 86 per cent of books borrowed, a third accounted for 75 per cent. Generally students read little or much depending upon how much they had to read, not on how much independent reading they did. Generally independence in reading went unrewarded by grades obtained by the students. About 25 per cent students read half of every book borrowed, 15 per cent failed to read the books they borrowed.

Mr. Johnson has concluded that the questionnaire with sample approach is an effective way to examine student library use in universities. He has further stated that numbers cannot express the subtle relations between students and books, but all the same they are useful if kept in proper perspective.

2.9. Purdue University Libraries Attitude Survey

Purdue University Library Staff Association Research Committee has reported a Libraries Attitude Survey⁴⁴. The survey attempted to study attitudes of undergraduate students

towards the university library, other library systems and the university in general. Data was collected from a 10 per cent stratified sample of the undergraduate students enrolled in Purdue University during 1959-60. Attitude was measured by a scale for measuring attitudes towards any institution by H. Remmers and I. Kelly, and a brief questionnaire. The scale contained twenty six statements ranging from 'is perfect in every way' to 'is the most hateful of all institutions.' The questionnaire collected information to place the students in various categories and required them to rate elements of Purdue University Library. The following are the findings of this survey :

About 73.8 per cent of students had strongly favourable attitudes towards the university library. Their attitudes towards the American library system and Purdue University were also strongly favourable, but they only moderately favoured their high school libraries. No significant differences in the attitudes are found when the students are categorized by school, class, rank in high school, graduation class or how frequently they used the library. Attitude towards the library and the frequency of its use by students of different disciplines at Purdue is as under :

	'Strongly favourable attitude'	'Frequently used'
Science majors	81.6 %	34.2 %
Humanities majors	69.2 %	46.2 %
Education majors	76.8 %	30.1 %
Engineering majors	72.8 %	18.6 %
Behaviour Sciences majors	69.0 %	55.2 %

Upper class men and those getting acceptable grades appear to be using the library slightly more than lower classmen and low graders. However no significant difference in attitudes towards library among students with different grades is found. The undergraduates considered the card catalogue as the most useful element in the library followed by current periodicals, open shelves, readers guide, reserve book room and reference librarian. The ratings were pretty same for frequent users or otherwise.

The Research Committee has honestly accepted that its study does not add to the knowledge of the library's role in higher education.

2.10. The Use of Books And Libraries In a College of Physical Education

Mr. Edward R. Reid-Smith has studied the use of books and libraries in a College of Physical Education in U.K.⁴⁵ A survey of the use of books and libraries by women students of a College of Physical Education was carried out in parts of two academic years. A questionnaire seeking

information on the authors and titles of books read, the dates on which these books were read, sources of getting books (such as college library, local library, home town public library, borrowed from friends or own copy), whether read as obligatory or recommended or voluntary and so on. The survey was completely voluntary and so only 43 forms were returned from the 135 distributed. Mr. Reid-Smith has cautioned that the results cannot be thought as representative for the above reason.

It has been reported that total reading per student per year was 52.5 titles for the first year students, out of which 27 per cent was recommended reading and 73 per cent voluntary. For the second year and third year students the per capita reading reported is 41.5 titles and 24.7 titles, approximately equally divided between recommended and voluntary reading. It appears that first year students read more books than second and third year students, though the percentage of reading for the recommended titles is about double in second and third years as compared to the first year students.

Most of the students appear to be depending upon the college library for getting books; 38 per cent first year students, 70 per cent second year students and 77 per cent third year students stating that this is the main source

for them to get books.

The students have listed fifty two different periodicals as read. But 19 students out of the 43 have not read a single periodical. That is about 50 per cent do not read any periodicals for study or pleasure. No use of periodicals appears to have been done in essay work. Only professional magazine reported as read by one student each from second and third years is 'Times Educational Supplement'. Other popular magazines are 'Punch', 'Woman's Own' and 'Readers Digest' read by eight, seven and five students respectively.

Mr. Reid-Smith has made the following concluding observations :

Out of 165 students in the college, 135 volunteered to take part in reading survey. At the end of the year only 43 students returned the completed forms. Great divergence in reading of students is evident. No reading trends are discernible, though there is some evidence to suggest that personal characteristics are modified by length of time spent in college and imminence of examinations. There was an almost total lack of the use of city library services by students, as far as borrowing is concerned for the students of this college. It is not so for other colleges. The City library librarian reports a high

percentage of Training College students using the facilities of this library.

It may be noted that one surprising finding of Mr. Reid-Smith is the decreasing extent of library use by the students from the lower to higher academic class, which is opposed to the findings of many other studies, some of them reported earlier. Is it because of the particular nature of the College of Physical Education ? Or is there some other factor involved ?

2.11. Sampling And Short Period Usage in the Purdue University

Mr. A.K. Jain has studied the usage of Purdue University Library through sampling and short period survey in 1964.⁴⁶ He has used what has been called 'relative usage' of the library facilities. Relative usage has been defined as :

$$R = \frac{H + I}{S}$$

where

- R is relative usage
- S is total collection of titles
- H is the home used material or in other words titles borrowed for home reading
- I is in-library used material

Independent samples of monograph titles based on language, country of publication, year of publication etc. are used to find out relative usage for each of them.

The study was done during the period July 1 to August 4, 1964. Five percent of all titles in the library are used in the samples for different categories of materials. Home use was determined by counting books taken for home reading during this period from the call slips. In-library use was determined in the following manner. Library patrons pick up titles from the shelves and leave them on tables after use. This is taken as a measure of in-library use. It is admitted that though this is not very realistic - some titles on the tables might be 'rejected' instead of 'used' - it has been used. All left titles found on tables early in the morning and late in the evening daily during July 2 to August 4, 1964 were counted. The study was limited to books in D D C 330 - 379.

Mr. Jain has reported the following results. Education titles had three to four times more usage than other groups. Relative use decreased with age of books, that is number of years since date of publication. It was highest for books published in U.S.A. and in English. Relative usage of graduate students was three times as much as undergraduates and four times as much as faculty (Number of titles used per 100 persons being 25 for graduate students, 8.8 and 6.5 for undergraduates and faculty respectively). It was found that during the period of study, 65.4 per cent titles were lying on the shelves, 4.6 per cent

checked out, 6.0 per cent on reserve or reference, 4.6 per cent on indefinite loans, 0.9 per cent missing and 18.5 per cent not traceable.

Mr. Jain has fitted regression models by quantifying year of publication, year of accession and country of publication as independent variables with relative usage as the dependent variable. He has, however, reported that estimates of regression coefficients are subject to large sampling errors.

Mr. Jain has given what he has called 'percentage use generated' for different categories of books, based on the above stated independent variables. For Economics (D D C 330 - 339) the percentage use generated ranges between 2.1 to 16.2.

Mr. Jain used a questionnaire for surveying the Purdue University Library use between July 21 and August 7, 1964. The following are the findings of this survey. The purpose of visiting the library has been reported as follows by the users.

Use of own materials	-	33 per cent
Use of library material	-	21 per cent
Check out for home use	-	3 per cent
Use of library and own materials		19 per cent

When asked, 'If checking out' items now did you intend when you came to borrow or get interested in them

as a result of browsing ? ' the replies were; came to borrow by 59 per cent, browsing by 34 per cent and for both by 7 per cent. About 46 per cent preferred and 29 per cent did not prefer to use library materials in the library. Reasons for those preferring are; better study atmosphere (46 per cent), avoid mislaying material (17 per cent), easier to refer to other sources (12 per cent), and to save the trouble of carrying material home (8 per cent). Those not preferring library stated reasons like, more comfortable at home (40 per cent), need for larger period (29 per cent), can use at leisure (16 per cent), and use in conjunction with other material or type writer (7 per cent). On an average a patron spent 2.2 hours in the library and used three titles during a visit. Thus he spent 0.7 hours per title used in the library which may be compared with 7.7 hours per title usage at home obtained in the same survey.

Mr. Jain has used a different approach to study library use and appears to have used appropriate statistical techniques in his study, which has been reported very briefly above.

2.12. Effect of a Public Library Summer Reading Club on Reading Skills

Herbard Goldhor and John McCrossan have investigated the effect of a public library summer reading club on reading

skills of 1,718 fourth grade children in Evansville in 1962.⁴⁷ Multiple regression analysis was used to study the effect of age, sex, I.Q., socio-economic measure, reading grade received in fourth grade, spring reading test and reading club membership (all independent variables) upon the fall reading test score (dependent variable). Partial regression coefficients for the seven independent variables are reported as ; 0.01 for age, 0.02 for sex, 0.09 for I.Q., 0.08 for socio-economic measure, 0.21 for fourth grade reading test score, 0.59 for spring reading test score and 0.04 for club membership. The t values for only spring reading test score and club membership are significant at 1 per cent level. Thus, though club membership had a smaller influence than certain other factors determining the children's grade at the end of a summer reading club programme, that influence was probably a real one and not due to chance.

The study has shown that reading club membership of a public library is one of the factors which influences reading skill, though previous reading ability has greater weight in its prediction.

2.13. Assessing the Undergraduate's Use of the University Library

Mr. Gorham Lane has attempted to assess the undergraduate's use of the University of Delaware Library in 1961-62.⁴⁶

The data was collected through a questionnaire and circulation records for a 20 per cent sample of students in 1961-62. It is reported that the majority of undergraduates showed poor uses (percentage ranging from 48 to 72 for no withdrawals). Senior students use more books than juniors and book withdrawals by those who remained in the university are shown to be heavier than those who dropped out. The differences are small and not statistically significant for the above categories. Correlational relationship between scholastic standing in high school or grade point average in college and number of books withdrawn also failed to reach statistical significance.

2.14. Patterns of Student Use of a College Library

Dr. Barkey has reported on the patterns of student use of a college library.⁴⁹ The study was done in 1962 and 1963, and the usual method of collecting data for a sample of students on book charges and the borrowers class, sex and grade point average was followed. The findings of this study also are on the usual lines : about 63 per cent students borrowed no books, little or no relationship between books borrowed and grades obtained and slightly heavier per capita reading by women students in comparison to men. Thus like Branscomb, Dr. Barkey concludes : From the students stand point one could say that these students

neglected the library resources because they found that they did not need to use them in order to do acceptable work.

2.15. The Availability of Library Service and Academic Achievement

Dr. Richard D. Walker has studied the influence of antecedent library service upon academic achievement of University of Illinois freshmen.⁵⁰ The basic design selected for the study was that of comparing the grade-point averages of college students with varying levels of library service available to them while secondary school students.

A sample of 552 students enrolled at the University of Illinois as freshmen during the academic year 1961-62 was selected for use in this study. The purpose of analysis was to determine the effect of the level of library service available to high school students on their college achievement. The technique of multiple regression analysis was used to compute the regression coefficients for the variables while controlling for the aptitude and ability of each student. High school percentile rank and SCAT (Cooperative School and College Abilities Test) scores were used as measures for control. As a measure of academic achievement, the grade-point averages for all students completing two full

semesters of work at the University of Illinois were computed.

The availability and level of public library service was determined for all townships in the state of Illinois by use of six measuring devices commonly given as indicators of the level of library service : (1) library material resources, (2) library material resources per capita, (3) total library expenditures, (4) total library expenditures per capita, (5) library circulation, and (6) library circulation per capita. Similar computation was done for the availability and level of school library services. The four measuring devices were: (1) library material resources, (2) library material resources per student, (3) total library expenditure, less salaries, and (4) total library expenditures, less salaries, per student.

Three analyses were run on the data for the group of students selected for the sample. The first involved all 552 students representing all parts of the state. The second group was made up of 86 students living in the City of Chicago, and the third group consisted of the remaining 466 students who lived outside the city limits of Chicago. It was decided to separate the Chicago students from the entire sample to eliminate the effect

of skewness in the distribution of values in the Public Library Index. For the 86 students from the City of Chicago the mean Public Library Index value was 66.139, for the non-Chicago sample 5.543 and for the entire sample 14.982.

The partial regression coefficients for the independent variables including Public and School Library Index were computed and tested for significance through the 'students' t test for the three samples. t values for the regression coefficients for Public as well as School Library Index were not found to be significant at .05 level for any sample.

Dr.Walker has concluded : When multiple regression analysis was used to test the significance of the difference between means, it was found that significant differences did not exist between the students with a high level of library service available to them and those with poor or no library service available to them when ability and aptitude were controlled. In otherwords, students who had widely varying levels of library service available did approximately the same quality of work as measured by the grade-point average.

Dr.Walker's is a well-designed study of availability of library service and its effect on academic achievement.

He has stressed the need of control in the variation of aptitude and ability in such studies, and he has used multiple regression analysis as the statistical technique specifically for this purpose. He has suggested that further research should try to investigate the effect of the use of library services on academic achievement. The present study is an attempt in this direction.

A number of studies on the use of academic libraries and other related problems in U.S.A. and U.K. have been briefly reviewed above. A few such studies done in India are reported below.

2.16. Secondary School Libraries in U.P.

An extensive survey of secondary school libraries in Uttar Pradesh was done by Dr.S.D.Adaval, Mr.S.P.Swami and Mr.Malti Agrawal in 1953-54.⁵¹ Dr.Adaval has directed this survey as a research project for the Ministry of Education, Government of India. The survey covered 616 intermediate colleges and secondary schools in U.P. with an average enrolment of 450. Included in the sample were different categories of institutions such as boys, girls, government, non-government, rural and urban.

Data was collected through an exhaustive questionnaire on all aspects of the working of the school library, another questionnaire to expert librarians in India

and observation of the functioning of libraries by visits to them by the research staff. 616 questionnaires were received back from the heads of the institutions from the 1200 sent originally. Out of the 150 expert librarians, 42 returned the completed questionnaire. Analysis of data was done separately for boys and girls institutions, high schools and intermediate colleges and for government and non-government institutions. The following are the findings of the survey.

Buildings and furniture :

No institution had a separate library building to house the library materials. Only 14.5 per cent institutions have independent library and reading room, about 85 per cent having one combined room to serve both the purposes. Size of library rooms is very small. A room of 5000 sq.ft. is reported by 59 per cent of institutions for the library, whereas only 13 per cent intermediate colleges claim to have a library space of more than 1000 sq.ft. In about 2 out of 3 institutions the library room is used for purposes other than the library's. The library rooms lack the atmosphere of a proper library in the majority of cases; 55 per cent reporting no decoration on walls. There is hardly any suitable furniture - in fact any furniture - in these library rooms. About half do not have bookshelves of uniform size, 38 per cent are without a single chair and majority having one or two

almirahs, six to eight chairs and two to five tables. None of them possess any other equipment such as bulletin boards, display cases, filing cabinets, map cases etc.

Books :

Most of the libraries surveyed have a poor and uneven stock of books. On an average the libraries report a collection of five books per student. The expert librarians have suggested a norm of six to ten books per student in these libraries and Dr. Rangnathan has suggested a collection of 24 books per capita. Seventy-five per cent libraries have a collection of less than 3,500 books and about one-fourth less than 1000 books. There is a larger percentage of books in languages in comparison to science and aesthetics. There is a negligible stock of books on Indian culture, art and past history. In about 50 per cent libraries no attempt is made to know the needs and interests of pupils, in others such attempts are neither systematic nor exhaustive. The libraries are full of unwanted and useless books. Dr. Adaval recommends that such books should be immediately discarded. He has also recommended that book collections must be increased from 5 per capita to double this number during the second five year plan.

Staff :

Libraries are not mere collection of books. They must be used by students and teachers. For an active use of library

materials, there should be professional staff assisting and guiding students in such libraries. The expert librarians have suggested one full time trained librarian, one part time librarian-cum-clerk and two attenders as the bare minimum for each library. What is the actual position ? Only about one fourth of the libraries surveyed claim to have a full time librarian, 70 per cent reporting only part time librarian. Only 10.7 per cent have reported having two persons in charge of the library, about 83.3 per cent having only one person in charge of it. How are these persons qualified ? About 37.7 per cent have studied upto matric (secondary school level), 39.9 per cent upto intermediate and hardly 15 per cent had some professional training. Most of them have had the experience of running school libraries; about 60 per cent have an average of four years of such experience. The expert librarians have suggested that the librarian in school libraries should at least be a graduate. Dr. Adaval has recommended that in addition to this basic degree, the librarian should have some professional training as well. He has recommended the state government and the universities to institute special courses of two to three months duration for the training of librarians.

The school librarians are reported to enjoy poor economic and social status. About 45 per cent were getting

a salary of less than Rs. 70 per month. About half the part time librarians (52.8 per cent) were not getting any extra allowance for their extra work, the remaining getting a sum of Rs. 5 to 15 per month. Indeed the librarian appears to be lower than the school clerk in socio-economic status. The expert librarians have suggested that the full time school librarian should be paid as much as the teacher in a school. Dr. Adval recommends that the librarian should be given the emoluments paid to a trained graduate teacher.

Administration and Organization :

It would be quite clear from what has been described above that one can expect only a poor administrative organization of the school libraries in U.P. Only 16 per cent libraries followed any recognized system of classification, 14 per cent reporting that they followed the Dewey Decimal system. About half have sent no reply to the enquiry about system of classification used. Only 48 institutions have reported keeping card catalogues, about 533 keep subjectwise registers. Many use the accession register as the catalogue.

Very few libraries keep any record of student reading. Usually the books are issued datewise in a register. No accurate figures for student use of library facilities.

are available. About a little more than half (55 per cent) issue less than 30 books per day to their students, only 7.5 per cent issuing more than 50 books per day. Very few institutions have provided special library periods in their time table. About half of the institutions keep their libraries and reading rooms open throughout the working hours of the school, about one-fourth for half the school time and the rest 25 per cent have not replied to this query. Many institutions (479 out of 616) do not have any library committee. In 50 per cent institutions books are ordered by the principal, 25 per cent have no information to give in this regard and only in 20 per cent institutions the librarian is incharge of ordering books.

Financial Conditions :

Almost the entire income (90 per cent) of the libraries is through special fees charged from the students. The state government's contribution is a paltry 4.2 per cent, donations and local bodies contributing negligible amounts of 2.8 per cent and 0.5 per cent. Expenditure on books has been reported as 64 per cent, 26.4 per cent being on staff salaries and 9.6 per cent for other expenses. Expenditure per student

works out to Rs. 1=37 for books and Rs. 2=12 for the total expenditure. This is very low in comparison to the norms recommended.

Co-ordination with other agencies :

Hardly any coordination of the activities of school libraries is reported with any other libraries. Only 8 out of the 616 libraries obtain loans of library materials from public libraries. Only in 0.6 per cent of the institutions surveyed any arrangements for mutual co-operation with agencies like Department of Planning, All India Radio or Information Office, exist. About 78.4 per cent have no contact with such agencies, nor do they receive any books, pamphlets, journals etc. - most of them free of cost - from them.

Dr. Adawal has painted a realistic picture of school libraries in U.P. which is frightening to any one in the field of education. What is worse is the fear that, conditions of school libraries in other states of India may not be very different from the libraries surveyed by Dr. Adawal and that they have hardly changed during the last two decades or so.

2.17. Library Service in Secondary Schools in Madras State

Mr. V. B. Murthi has done a pilot survey for the South India Teachers Union Council of Educational Research, on

library service in secondary schools in Madras state in 1963.⁵² It is an investigation similar to the one reported above.

The survey was intended to ascertain the nature and extent of library services and facilities available in the secondary schools of the then Madras State. Mr. Murthi was expected to give suitable recommendations regarding library facilities and suggest ways and means to improve the existing conditions.

Data was collected through a questionnaire prepared in consultation with teachers, heads of institutions and some research workers. The sample chosen consisted of 24 schools from the Chingleput district, which represented the rural area, and 22 schools from the Madras district which was considered as urban area. Out of these 46 schools, 28 were under private and 18 under public management. The median for rural schools was 21 teachers and 475 pupils in contrast to 29 teachers and 950 pupils for the urban schools. The following sections briefly describe Mr. Murthi's findings :

Stock of books :

The libraries report a low book stock in general, three-fourth have less than 6,300 books, the median for books per pupil being 6 for the whole sample. Sixty per cent

of the book stock is in English language, only 30 per cent books are in Tamil the regional language. There is a complete dearth of reference books, encyclopedias, year books etc., the median being 38 for the entire sample, 23 for the rural sample and 129 for the urban. Periodicals subscribed by the schools are few, the median value is 7 for all schools and 3.5 for rural schools. Books added to the libraries are less than one per student per year (0.7 books per student). The urban and private schools lead in purchase of new books per year, the figures being 500 books for urban schools, 533 for private schools, 375 for rural schools and 300 for public schools. Hardly any library reported having books on the theory and practice of education.

Staff :

No qualified librarian is reported on the staff of most of the schools surveyed. Only 3 schools have a full time librarian and three librarians had some professional training. Other schools usually had part time teacher librarians, some had clerks or attenders looking after the library. Most part timers have other duties besides their library responsibilities. The starting salary of a librarian is reported as Rs.90=00, the same as paid to a clerk. Only six libraries are

reported to be kept open during the working hours of the schools.

Buildings :

Twenty two out of the forty six schools do not have separate rooms for the book collections they own. About a third of the libraries are housed in single rooms. Ten schools have reported having satisfactory space for their libraries, but only six provide reading rooms in addition to the stacks. In most schools shelf-space is so inadequate that books are kept in double rows or piled on one another. Furniture like shelves, chairs, tables etc. are not provided in most libraries.

Use of library :

Lack of full time librarian, non-availability of space and non-provision of reading rooms restrict the use of library to a great extent. Only six libraries are kept open throughout the school hours, as they have full time librarians. Only three libraries had provision for reading rooms for a unit of fifty students. No records are kept for reading in the library or consulting library materials. The median value of books issued in 1963-64 was 2,000 for the entire sample; 3,750 for the urban schools, 857 for rural schools, 3,500 for private schools

and 750 for public schools. Per capita borrowal for the whole group comes to 3.1 books. Comparable per capita figures for urban, rural, private and public are 4, 1.8, 3.8 and 2 respectively.

Technical aspects :

Books are not classified according to any known system of classification in 38 out of 46 libraries. Only 41 libraries reported following the Colon classification and 1 Cutter's. Only 4 use card catalogues; rest use accession register as a catalogue. On an average, 13.4 books are issued to the teachers per year. None of the schools appeared to have any provision for guiding pupils' reading. Very few have book selection committees and like the U.P. schools, the head of the institution selects the books to be purchased.

Special practices to promote library use :

Thirty seven schools have stated that classroom instruction is correlated with library use. But only twenty five schools have class libraries and eleven have provision of one library period per week in their time table. Twenty four schools do nothing to promote library use, others have reported the display of new books, holding reading competitions and forming literary societies.

Finance :

Main source of income is from library fees, about Rs. 1.1 per pupil per year. Like the U.P. school libraries. there is negligible income from donations or grants. The Re.1=00 per pupil collected is spent towards the purchase of books, though this petty amount is hardly enough for the libraries to grow at the minimum standard. Very few schools have received government grants under the library improvement scheme or any other scheme. No school has received grants for putting up library rooms or equipping them with furniture. Very small amounts have been spent towards these heads by the schools.

Mr.Murthy's survey has more or less repeated the findings of the survey of school libraries in U.P. done about a decade earlier. One can find in this dismal picture perhaps the explanation for the fact, that the average Indian student is completely unprepared through his school education to undertake independent study, when he enters the college.

Like Dr.Adaval, Mr. Murthy has made several recommendations for improving the conditions of the school libraries. Whether these recommendations have been implemented or not is another matter.

2.18. Reading Performance in Higher Education

Mr.A.P.Shrivastava has reported on the reading needs and problems in Indian universities.⁵³ He had undertaken a survey of reading needs and problems of post-graduate students in Rajasthan University, who take the university library as the main basis for the supply of reading materials. Data was collected through a questionnaire, which sought information, in addition to the above, on problems of accommodation faced by students, annual expenditure incurred by them, utilization of the university library and their hobbies and difficulties.

The report points out the low reading performance of the post-graduate students, their reading habits being limited to guide books. Mr.Shrivastava has listed the following factors which are responsible for the low reading performance of students :

Their family background, faults of people in the authority, language problems, physical disability of students, student-teacher ratio in higher education institutions and so on. Mr.Shrivastava has given some suggestions for the improvement in the low reading performance of university students.

2.19. A Survey of University of Delhi Library

Prof. Carl M. White had made a study of the library of the University of Delhi in 1965 at the request of the then Vice-Chancellor Dr.C.D.Deshmukh.⁵⁴ Professor White had come to the Delhi University as a Ford Foundation consultant. Professor White's is perhaps the only systematic study of the library of a higher education institution in India.

According to Professor White the problems of a university library are complex and many. The library ^{the} on one hand is connected to all academic programmes of the university and on the other its internal working depends upon the coordination of its many different units. If any one of its units is disturbed, its entire working is affected which in turn dislocates the academic programmes.

The University Library in perspective :

The University of Delhi Library along with 35 colleges libraries served about 30,000 students and 1,800 teachers in 1965. The library staff of about 100 had 25 per cent professional librarians. The total collections of the university and college libraries totalled 2,30,000 volumes, out of which 1,68,263 were housed in the main library

building which was opened in 1958. The following table gives an idea of the growth of the University Library in two decades.⁵⁵

Table 8 : Growth of Delhi University Library from 1945-46 to 1964-65.

	Statistics for 1964-65	Percentage of Increase over 1945-46
1. Number of students	29,550	840
2. Book stock	2,33,998	462
3. Current periodicals	3,478	1091
4. Professional staff	25	525
5. Book issued each year	2,73,355	655
6. Expenditure on books and periodicals	4,02,658	674
7. Expenditure on staff	3,17,936	2394
8. Total expenditure	7,98,448	995

Delhi University library compares very favourably with other university libraries in India. It was one of the ten university libraries^{which} had a collection of more than 1,50,000

volumes and one of the eight which had a total expenditure of Rs.2,00,000.

But it appears that the comparatively rich book stock of this library is rather poorly used. In 1965, the main library had only 13,880 registered members or less than half the student enrolment. The number of books issued, on an average, per member per year are 16 and per student per year only 7.6. How poorly does this figure compare with similar statistics for students in America quoted by Dr.Branscomb ? Each member needs no more than two books per month from the main library. Professor White has commented that the library is more or less a conventional but useless accessory in University of Delhi. It appears that the teachers do not motivate students to learn and read in the library. They expect students to absorb their lectures which are tested by external examinations. The library has been called the 'heart' of the university. It is the teacher who would make it so. It is heartening to note that the Delhi University Teachers Association has submitted a plea for more aggressive library development policy through a memorandum to the Vice-Chancellor.

Book Collections :

Professor White found that the university and 35 college libraries in 1965 had a total collection of 8,72,034 volumes. The growth rate for book collections for the last five years, was found to be twenty per cent. Twenty three teachers and heads of the departments have commented upon the adequacy of the library collections. About 66 per cent rate the library collections adequate for undergraduate and post-graduate instruction but not to support research of post-graduate students or teachers.

It was found in this survey that there were only 62.6 per cent titles for a English course from the standard works available. Gaps were found in syllabi requirements and books on shelves. When evaluated on Winchell's guide to reference work, the library collections were found to be only ten per cent. The journals subscribed by the library were compared with Ulrich's Periodical Directory of 2,000 essential titles. The library subscribed only 44 per cent of these essential journals. Strength of book collection was found to be only 38 per cent when measured in terms of selected book lists (variation of 10 to 80 per cent for different

disciplines). It is thus clear that the book stock, which appears substantial, is uneven and inadequate for instructional and research purposes.

Library administration :

Professor White reports that the Delhi University Library had yet to achieve satisfactory standards of organization in 1965. The reasons for this state of affairs are weak and uneven financial support, inadequate professional staff and lack of grants for staff development. Professor White has wondered how with a professional staff of only 25, the library has been able to achieve so much. He has also disagreed with the U.G.C. recommendations of separate departmental libraries and pointed out their several defects. The trend all over the world is to centralize library collections on university campuses. At Delhi, it was found that 54 per cent titles in Economics were duplicated in the main library and the departmental library. The staff is equally divided on the issue of departmental versus central library. But all of them wanted a strong central library.

Library services :

Main library has a registered membership of only about half of the student body. A questionnaire about

library services was given to 673 students and 53 teachers. Asked to rate the different services of the library, post-graduate and undergraduate students award the top rank to getting books to help them get ready for examination. Research students want a rich collection to support research in their field.

It was found that the typical Delhi University student who uses the library at all is doing post-graduate or research work or undergraduate work for honours, he reaches the library in about 30 minutes, visits it 3 times a week and spends about one hour in the library on each visit.

Most students are not obliged to use the library.

Book selections are mostly done by the library's professional staff in the order section. It is urgently desirable for the different departments to actively co-operate in book selection, in fact they should have the primary responsibility in this matter. Most of the teachers are willing to do this, as is shown by positive indication by 47 teachers as against the negative indication by only one teacher. The library owns Library of Congress and British Museum printed catalogues and other book lists.

Financial administration :

Ratio of library expenditure to total expenditure was

9.45 per cent in Delhi University for the year 1964-65, which is quite high in comparison to the average ratio of 4.04 per cent for all Indian university libraries. The library is not however, spending on books according to the recommendations of the U.G.C. Library Advisory Committee, which has suggested an expenditure of Rs. 15=00 per student and Rs. 200=00 per teacher. At this rate Delhi University Library would have to spend Rs. 8,06,450 on books, almost double than what was spent in 1964-65.

Acquisition and circulation of books :

A typical book takes four to five months in processing from the date of ordering. Binding of books and periodicals take equally long time (average 5 to 6 months). Readers have opined by and large (20 to 1) that library services are impaired by such delays. The library also needs to have photo copying services. Readers should be instructed in the proper use of catalogues and oriented to the system of classification.

Circulation of books is found unsatisfactory by a majority of users. About 60 per cent succeed in getting a book from the reserved collection, but only 35 per cent from the general collection.

Long view of library development :

According to Professor White, Delhi University Library has many favourable factors. Among these are; location in

India's capital city, a record of work of high academic quality (Centres for Advanced Study in five departments), diversified student population (23 per cent from outside Delhi), a compact campus and professional maturity of academic staff.

The library needs an expenditure of Rs. 94,50,000 to take it to world standards. The library should increase the annual additions from the 17,500 to 19,000 volumes to about 27,500 volumes, which is nearer to the growth rate of comparable libraries in U.S.A., U.K. and Germany. Professor White has recommended the creation of a union catalogue of materials in all libraries in the University, centralization of their administration and increasing inter library co-operation.

Professor White has done an excellent job in pin-pointing the strong and weak points of the Delhi University Library. His survey gives us an idea of conditions in other university libraries in India.

The studies on different aspects of libraries and their working reported above indicate a few trends, which are apparent despite the differences in their designs, tools and techniques used and findings reported.

It is clear that the library is not fully integrated in the academic programmes of universities and other

institutions of higher learning. Student use of library materials and services is found to be much lower than desired. Most of what the students read is related to their course requirements. A large majority of students do not make any use of the library, but still manage to get acceptable grades. Thus no relationship is observed in the use of library services and its effect on the formal education of students as measured by success in examinations. The library appears to be far from being the heart of the university. Teachers appear to be directly responsible for this state of affairs, though the librarians have also to share part of the blame.

Another fact which is evident from the studies reviewed is the need for systematization of the design of studies which enquire into the effects of library use on the characteristics of its users. It is particularly necessary to control variation in ability and aptitude of students in studies on the efficacy of library use.

The present study is an attempt to find out the effect of library use on the academic achievement of post-graduate students in the M.S. University of Baroda. The next chapter describes how attempts to control the variation of ability and intelligence are made in this study, while trying to find out the effect of library use on academic achievement.

2.20. Summary

A few studies on use of libraries in educational institutions have been briefly reviewed in this chapter. Studies on use of college and university libraries in U.S.A. and U.K. are discussed in the first part of the chapter, followed by a few surveys done in India.

Most of the studies in America relate to libraries in colleges and universities, the extent of their use by students and the influence of library use on student characteristics such as sex, academic class, scholastic aptitude and scholastic achievement. Studies done by Dr. Harvie Branscomb and Dr. Patricia Knapp are exhaustive and searching enquiries into the relationship of the college library and instructional programmes.

Many of these studies have concluded that college students make poor use of libraries. It is so because they do not need to use library facilities and a large majority among them manage to get acceptable grades with no use or poor use of libraries. Little co-operation between the teachers and librarians is reported in the findings of these studies and it appears to^{be} the most important reason for the low student library use. The general conclusion appears to be that the library is still to prove its worth as an educational agency.

Two surveys on the conditions of school libraries and one on a university library in India are reported in the second part of this chapter. The school library surveys paint a dismal picture of the all round poor conditions of school libraries in two states in India. The survey of the University of Delhi Library is a balanced account of the conditions of this particular library, its strong and weak points and the need to reorganize its working.

REFERENCES

1. Douglas Waples, et al. The Evaluation of Higher Institutions, Vol.4, The Library (Chicago: University of Chicago Press, 1936).
2. The third criterion of weighted educational expenditure per student does not appear to have been used in correlational studies. It has not been reported in the statistical results stated throughout the report.
3. Harvie Branscomb, Teaching with Books, A Study of College Libraries (Chicago : Association of American Colleges, 1940).
4. Carl M, White, 'Trends in the Use of College Libraries', A.E.Kuhlman, ed., College and University Library Service (Chicago: American Library Association, 1938), p.15.

5. Ibid., Table 2, p.17.
6. Branscomb, p.15.
7. E.W. McDairmid, Jr., 'Conditions Affecting the Use of the College Library', Library Quarterly, V (1935) Table IX, p.70.
8. Harry L. Johnson, 'A Study of the Use of Five College Libraries' (Unpublished Master's Thesis, University of Iowa, 1938) Quoted by Branscomb, p.20.
9. Branscomb, p.24.
10. Dr.Parker had made his unpublished manuscript available to Dr.Branscomb. Quoted by Branscomb, p.25.
11. Branscomb, Table 5, p.26.
12. Ibid, Table 6, p.27.
13. Ibid, p.29.
14. McDairmid, p.75.
15. Branscomb, Table 13, p.35.
16. Ibid, pp.36-37.
17. Ibid, p.38.
18. McDairmid, p.63.
19. A.C.Eurich, 'The Significance of Library Reading among College Students,' School and Society, XXXVI (1932),p.92.
20. Branscomb, p.43.
21. Ibid, p.49.
22. Ibid, p.51.
23. Ibid.

24. Ibid, pp.52-53.
25. Ibid, pp.62-63.
26. Ibid, p.63.
27. Ibid, p.75.
28. B.Lamar Johnson and Eloise Lindstrom, The Librarian and the Teacher in General Education : A Report of Library - Instructional Activities At Stephens College (Chicago: American Library Association, 1948).
29. Ibid, p.vi. Malcolm S.MacLean, Professor of Education, University of California has written the foreward to this report.
30. Patricia B.Knapp, College Teaching and the College Library, ACRL Monograph 23 (Chicago : American Library Association, 1959).
31. Ibid, p.17.
32. Ibid, p.19.
33. Ibid.
34. Ibid, Table 4, p.23.
35. Ibid, p.25.
36. Ibid, p.27.
37. Ibid, p.29.
38. Ibid
39. Ibid, pp. 92-93.
40. Ibid, p.93.
41. G.C.Bush, et al., 'Attendance and Use of the Science Library at M. I. T., ' American Documentation, VII (April, 1956), pp.87-109.

42. Natalie N. Nicholson and Eleanor Bartlett, 'Who Uses University Libraries,' College and Research Libraries, XXIII (May, 1962), pp.217-222 and 257-259.
43. John Weatherford, 'Student Library Habits', College and Research Libraries, XXII (September, 1961), pp.369-371).
44. Purdue University Libraries Attitude Survey, 1959-60 (Lafayette : Purdue University Library Staff Association, 1964). Reviewed in Library Quarterly, XXXV (January,1965) by Joe W.Krans, pp.67-68.
45. Edward R. Reid-Smith, 'The Use of Books and Libraries in a College of Physical Education', Education Libraries Bulletin, University of London Institute of Education, (Summer, 1965), pp.1-14.
46. A.K.Jain, 'Sampling and Short Period Usage in the Purdue University', College and Research Libraries, XXVII (May, 1966), pp.211-218.
47. Herbert Goldhor and John McCrossan, 'An Exploratory Study of the Effect of a Public Library Summer Reading Club On Reading Skills', The Library Quarterly, XXXVI (January, 1966), pp. 14-24.
48. Gorham Lane, 'Assessing the Undergraduates Use of the University Library', College and Research Libraries, XXVII (July,1966), pp.277-282.
49. Patric Barkey, 'Patterns of Student Use of a College Library,' College and Research Libraries XXVI (March,1965). pp.115-118.

50. Richard D.Walker, The Availability of Library Service and Academic Achievement (Springfield : Illinois State Library, 1963).
 51. S.B.Adaval, et. al., Secondary School Libraries in Uttar Pradesh, (Allahabad : Department of Education, Allahabad University, 1957).
 52. V.B.Murthi, Library Service in Secondary Schools in Madras State, A Pilot Survey for the S.I.T.U.Council of Educational Research (Madras : The S.I.T.U.Council of Education Research, 1963).
 53. A.P.Shrivastava, Reading Performance in Higher Education, 1964 (Jaipur : Department of Library Science, Rajasthan University, 1965).
 54. Carl M.White, A Survey of the University of Delhi Library (Delhi : Planning Unit, University of Delhi, 1965).
 55. Ibid, Table 1, p.5.
-