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Classroom Orientation to the Use of the Public Library and Its Effect on Fifth and Sixth Grade Students

Leslie Edmonds
Loyola University Chicago

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CLASSROOM ORIENTATION TO THE USE OF
THE PUBLIC LIBRARY AND ITS EFFECT
ON FIFTH AND SIXTH GRADE STUDENTS

By
Leslie Edmonds

A Dissertation Submitted to the Faculty of the
Graduate School of Loyola University of Chicago in
Partial Fulfillment of the Requirements for the
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Doctor of Philosophy

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VITA

The Author, Martha Leslie Edmonds, is the daughter of Peter Robert Edmonds and Elizabeth (Donnovan) Edmonds. She was born on August 25, 1949 in Minneapolis, Minnesota.

Her elementary education was obtained in the public schools of Minneapolis, Minnesota. She is a 1967 graduate of New Trier Township High School, East, Winnetka, Illinois.

In September of 1967 she entered Cornell College, Mt. Vernon, Iowa and in May, 1971 she received a Bachelor of Arts degree with majors in secondary education and history. While attending Cornell College, she was active in the campus political club and a member of the Student Governing Board. In 1973 she entered the Graduate Library School of the University of Chicago. In June 1975 she was awarded the Master of Arts degree in library science.

Since September of 1973 she has been employed in a variety of libraries in the Chicago area. She first worked as librarian at the Erikson Institute for Early Education, then she was the Youth Services Librarian at the Rolling Meadows Public Library. She is currently employed at the Head Start Resource Center which is part of the Chicago Public Library. She has been active in the American Library Association and the Illinois Library Association and is the recipient of the 1982 Davis Cup, awarded by the Illinois Association for contributions to children's librarianship.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
VITA	iii
LIST OF TABLES	vi
CONTENTS OF APPENDICES	viii
Chapter	
I. INTRODUCTION	1
Definition of Terms	3
Purpose of the Study	5
Limitations of the Study	7
II. REVIEW OF THE LITERATURE	8
Public Library Use by Children	11
School/Public Library Cooperation	16
School Resource Center Activities/ Library Skills Instruction	18
Observation Methodology	21
Summary	23
III. THE METHOD	24
Introduction	24
Hypotheses	26
Sample	27
Procedure	28
Design and Analytic Paradigm	39
IV. RESULTS	43
Observational Data	43
Frequency	47
Analysis of Covariance/T-Tests	60
Tests of Control Variables	67
Summary	70
Student Questionnaire	73
Frequency	73
Analysis of Covariance/One-Way Test	78
Tests of Control Variables	87
Summary	93
Descriptive Data	96
Teachers Comments	97
Student Comments	97
Other Descriptive Data	98

	Page
V. CONCLUSIONS	101
Patterns of Use	102
Effects of the Treatment	105
Methodology	115
School/Public Library Cooperation	118
Further Study	119
REFERENCES	123
APPENDIX A	126
APPENDIX B	136
APPENDIX C	143
APPENDIX D	234
APPENDIX E	245
APPENDIX F	249

LIST OF TABLES

Table	Page
1. Articles Reviewed	10
2. Observational Data Organization	40
3. Observation - Frequency Distribution by Gender, Grade, School	49
4. Observation - Frequency Distribution by Teacher	50
5. Observation - Distance the Student Lives From the Library	51
6. Observational Data - Use of the Public Library by Frequency and Duration	53
7. Observed Activities For All Groups	56
8. Observed Activities For Control Groups	57
9. Observed Activities For Treatment Group	58
10. Observed Activities For Gifted Group	59
11. Observational Data - Circulation	61
12. Observation - Analysis of Covariance, Set I - Treatment Observations Minus Baseline Observation	63
13. Observation - Analysis of Covariance, Set II - Post-Treatment Observations Minus Baseline Observations	64
14. Observation - T-Test, Set I Treatment Minus Baseline	66
15. Observatoin - T-Test, Set II Post- Treatment Minus Baseline	68
16. Questionnaire - Frequency Distribution by Gender, Grade and School	76

	Page
17. Questionnaire - Frequency Distribution by Teacher	77
18. Questionnaire - Distance the Student Lives from the Library	77
19. Questionnaire - Number and Percentages of Positive Responses, All Groups	79
20. Questionnaire - Number and Percentages of Positive Responses, Control Group	80
21. Questionnaire - Number and Percentages of Positive Responses, Treatment Group	81
22. Questionnaire - Number and Percentages of Positive Responses, Gifted Group	82
23. Questionnaire - Question 1B - Positive Response	83
24. Questionnaire - Analysis of Covariance	85
25. Questionnaire - One-Way Test - Question 1A Have you used the Library in the past year? Student Response by Group	88
26. Questionnaire - One-Way Test - Question 2A I usually go to the Library to study Student Response by Group	89
27. Questionnaire - One-Way Test - Question 2B I usually go to the Library to meet friends Student Response by Group	89
28. Questionnaire - One-Way Test - Question 3F Do you use materials at the library for homework? Student Response by Group	90
29. Questionnaire - One-Way Test - Question 5A I do not go to the Library because I do not have enough time Student Response by Group	90
30. Questionnaire - One-Way Test - Combined Questions Student Response by Group	91

CONTENTS FOR APPENDICES

	Page
APPENDIX A Articles Previewed	126
APPENDIX B Project Documents	136
APPENDIX C Analysis of Covariance - Observational Data	143
I. Group, Set I, (Treatment-Baseline)	144
II. Group, Set II, (Post-Treatment-Baseline)	153
III. Group and Gender, Set I (Treatment-Baseline)	162
IV. Group and Gender, Set II (Post-Treatment-Baseline)	171
V. Group and School, Set I (Treatment-Baseline)	180
VI. Group and School, Set II (Post-Treatment-Baseline)	189
VII. Group and Grade, Set I (Treatment-Baseline)	198
VIII. Group and Grade, Set II (Post-Treatment-Baseline)	207
IX. Teacher, Set I (Treatment-Baseline)	216
X. Teacher, Set II (Post-Treatment-Baseline)	225
APPENDIX D Observational Data - T-Test	234
I. Set I, (Treatment-Baseline)	235
II. Set II, (Post-Treatment-Baseline)	240

APPENDIX E	Observational Data, One-Way Student Performance by Teacher	245
I.	Set I, (Treatment-Baseline)	246
APPENDIX F	Questionnaire - Analysis of Covariance	249
I.	Group	250
II.	Group and Gender	262
III.	Group and School	274
IV.	Group and Grade	286
V.	Teacher	298

CHAPTER I

INTRODUCTION

Society has long assumed that public library services ought to be available to children. Providing reading materials and information to youth is an essential part of public library service. However, there seems to be little agreement of what actually motivates children to use the library's resources or what activities we should provide to bring young patrons into the library.

Several factors affect children's use of the public library. As with all age groups, distance from the library is most influential. Children who live within walking distance of the library facility will use it more often than children who cannot walk to it.¹ It is also likely that children's use of libraries is strongly related to their parents' influence and use of the library. A third aspect of children's use of the public library is the need or motivation to do so as generated by teachers' recommendations and school assignments.

As there may be a possibility of manipulating the relationship between schools and public libraries on a local level, it would be useful to clarify what activities

¹Bernard Berelson, The Library's Public (New York Columbia University Press, 1949), p. 43.

are most beneficial to the student. We can have some expectation of developing programs between institutions that would help the child develop attitudes and skills that lead to effective, independent, and life-long use of the public library.

In this project, three schools and one public library cooperated to study the public library use by fifth and sixth graders. Two factors within the schools in this study can be identified as of interest in school/public library cooperation. First, the local school district has recognized independent use of resource center as a goal and has implemented a Resource Center Skills Continuum to educate students to use their school's resources. The skills continuum includes specific activities such as how to check out a book as well as affective activities that will promote enjoyment of reading, listening and viewing materials. These skills have been taught primarily by resource center teachers.

Secondly, it was assumed that once the student had successfully mastered these skills, s/he would also make use of the local public library and other research facilities effectively. This has not been the case. Students do not seem to transfer either the specific skills nor the positive attitudes in the skills continuum to their use of the public library. The staff of the public library have not observed

any significant improvement in students' ability to use the library's resources since the implementation of the Resource Center Skills Continuum. It appears that the transfer of skills from the school setting to the public library setting must be taught more directly if transfer is to take place.

One key to successful transfer of these skills may be the integration of the skills into class activities and assignments and reinforcement by the classroom teacher of the skills and attitudes introduced in the Resource Center Skills Continuum. In order to understand how to deal with research skills and attitudes most effectively, the present investigation was designed to answer the following general questions: (1) What is the pattern of use of the public library by upper elementary students?, (2) Can the students' independent use of the public library be increased by providing specific exercises and experiences in class that promote use of the public library?

Definition of Terms

In this study libraries are defined as public libraries established as separate governmental entities for the provision of materials and services to a community or group of citizens. Resource centers are agencies within the schools which provide materials and services for students, teachers and staff.

A librarian is a person employed in a public library who usually has a master's degree in library science. A resource center teacher is a person who is employed by a school district to maintain the resource center in a school. The resource center teacher is a certificated classroom teacher who has additional education in media and library science.

Both libraries and resource centers typically have a variety of media formats available to patrons. It will be helpful in this study to distinguish between print and non-print media. Print media include books, magazines, pamphlets and other media which must be read to be understood. Nonprint media include tape cassettes, phonodiscs, video and other materials which can be understood by viewing and/or listening. Reference media do not circulate and must be used in the library or resource center.

Library skills referred to in this study and in the literature are the general abilities one needs to use a library or resource center effectively and independently. Library skills instruction includes such activities as use of the card catalog, location of materials, study skills and library procedures. These skills may also be referred to as

research or retrieval skills. Affective characteristics include developing positive attitudes towards materials and library personnel.

Purpose of the study

The general purpose of this study was to gather behavioral data on public library usage by fifth and sixth grade students so that the institutions serving these children may have accurate information to use in planning programs for youth. If it is shown that when the classroom teacher advocates public library usage and when students are provided with directions in the classroom on how and why to use the public library, that students use it more often, for longer periods of time, and in more ways; then the school and the public library should continue to seek ways to integrate public library usage into the school curriculum. If teacher involvement and classroom activities have no significant effect on students, then time would be better spent in exploring other methods of encouraging public library usage.

The specific purposes of this study were threefold. One purpose was to determine if the school curriculum could be designed to increase effective use of the public library by students. The particular group involved in the study was fifth and sixth grade students. This group was chosen because the students are old enough to report their actions

accurately and because they have distinct research and recreational needs.

Another purpose of this study was to determine patterns of library use by students. While most librarians have impressions of what children do when they are in a library, there have been few attempts to note specific activities performed by children while in the library, or what use they made of the library's resources. Such information is useful in practical decision-making as well as in providing a general or broad view of library usage. Such questions as how much and what type of seating should be provided, or how to staff the public library after school hours can be answered by having accurate information as to how often children use the library, how long they stay, and what they do while they are there. For instance, if some children socialize as well as study and others work alone, the library might provide tables and group study areas and have separate quiet study areas to accommodate all patrons more effectively.

Coupled with the purpose of determining patterns of library use is the purpose of developing methods of research that are applicable to the study of library usage, and which will produce information for future library planning. If a resource center curriculum can be designed and

the results of that design can be measured and assessed, then a library program could be developed to provide better service for children and youth.

Limitations of the Study

The following are considered to be limitations of the study:

1. Although the class units are randomly assigned to the treatment groups, the classes in the study were volunteers not randomly selected from the population.
2. The lessons and questionnaires in this study were administered by each of the participating teachers to his/her own class following oral and written instructions from the researcher. The researcher, therefore, had limited control over the actual presentations given.
3. Parent consent forms were a requirement for student participation and the parent and student interest raised by reading the consent form may have aroused increased library use thus polluting the findings.
4. While most students in the study used the local public library, they may also have used other, nearby public libraries in neighboring communities. There was no measure of such use.

CHAPTER II

REVIEW OF THE LITERATURE

There are three main areas in the literature of education and librarianship that are related to the subject of this project. They are: (1) the use of public libraries by children, (2) public library and school cooperation, and (3) library skills instruction curriculum. Also of interest is literature on observational methodology.

Unfortunately, there is a dearth of research reported on the first three topics. In an ERIC search, there were approximately 1800 documents cited on school libraries or resource centers, 2000 citations on public libraries, but only 250 documents on public libraries and schools cooperating. Only seven documents on schools and libraries cooperating on projects involving students' library usage and skills instruction were cited.

Few projects using experimental design were reported. While there are articles cited in Education Index and Library Literature on the topics, most articles cited are practical with little or no experimental research reported. The need for research in these areas is often discussed.

In her presentation at the 1977 Allerton Park Institute on children's services in public libraries, Mary E. Kingsbury commented: "[T]he tyro about to launch out into the uncharted sea of research in children's services cannot expect to find many guiding lights to mark the reefs and shoals."¹ She also pointed out that "very few library publications are interested in children's services, and the few that are often seem reluctant to publish a research report with its tables and statistics."² In a 1982 article reviewing research related to children's services in public libraries, Marilyn Shontz stated:

Little of the research in children's and young adult services is of the historical or experimental type. Many surveys have been done, but most of the survey results are only useful in small geographic areas. Descriptive reports of special projects or programs are also plentiful, but again, applications of these to other situations are generally limited.³

In line with Shontz's findings, Table 1 indicates the types of articles, reports, or books found in the

¹Mary E. Kingsbury, "Keeping Out of Trouble: Research and Children's Services of Public Libraries," in Selma K. Richardson, ed., Children's Services of Public Libraries, (Urbana, IL: University of Illinois, 1978) p. 142.

²Ibid., p. 142.

³Marilyn Louise Shontz, "Selected Research Related to Children's and Young Adult Services in Public Libraries," Top of the News, 38, (Winter 1982), pp. 125-126.

literature. The figures represent the total number of items reviewed on the general topics pertinent to the study.

Table 1
ARTICLES REVIEWED

	Public Library Use by Children	Public Library/ School Cooperation	Library Skills Instruction Curriculum	Totals
No research reported	10	14	24	48
Non-experi- mental research	35	10	1	46
Experi- mental research	9	0	1	10
Totals	54	24	26	104

Citations for these articles are found in Appendix A.

Many articles reviewed were general essays with non-experimental design reported. Others were "how to" articles with non-experimental data reported. Many articles were about activities of high school or college students, or adults. In the summary of the pertinent research below, articles were chosen as representative of the type of information available or because they dealt with issues close to the present research rather than the general area of interest.

Public Library Use by Children

Many studies of public library usage were completed by 1940 and have been replicated from time to time. The findings vary little and contain little specific information on public library usage by children.

With financing from the Carnegie Corporation, a national survey of public libraries was conducted in 1947. The survey included personal interviews and analysis of all studies since 1930 having to do with library book use and users. The results of this were published by Bernard Berelson in the book, The Library's Public. He found that "Children and young people. . .use the public library much more than older people do."⁴ He also stated that one in three children and young people of school age might be called the "real user" of the public library, and about one in ten adults.⁵

Berelson also found that the drop-off of usage after a young person left school was dramatic. His conclusion was that the younger and better educated person was more likely to be a public library user. His only specific observation about children's use patterns was that the closer the individual lived to the library, the more likely he was to

⁴Berelson, The Library's Public, p. 126.

⁵Ibid., p. 125.

use it. Also, it appeared that students who used the public library were generally the more intelligent of the student group.⁶ No children were interviewed to obtain data and Berelson does, throughout the report, express concerns about the "representativeness and reliability" and "bias or incompleteness. . .inadequate sampling or defects in methods"⁷ used by studies summarized in his report. Most of Berelson's findings have been accepted and have been confirmed in more recent studies.

One such study of public library usage was done in Portage County, Ohio, by Kent State University in 1968. Surveys were made of adult patrons of the three principal libraries in the county.⁸ Again, distance from the library was a factor in library usage and the users were young and fairly well educated. There was some mention of the public library's relationship with the schools, but no specific information was given about school library services. There was no information on what students do when at the library, nor of particular library needs of the student.

⁶Ibid., p. 21.

⁷Ibid., p. LX.

⁸James B. Skellenger, Public Library Services in Portage County: an Analysis for Planning, (Kent, Ohio: Center for Urban Research, Kent State University, 1970), p. 40.

A study was conducted by John Benford to find the patterns of student usage of the Free Library of Philadelphia in the early 1970's. Students in grades 2-12 were surveyed. Results of what became known as the Philadelphia Project were: (1) enjoyment of reading decreased with increasing grade levels, (2) usage of the public library increased as grade level increased, and (3) fifty percent of the twelfth grade students found the public library more satisfying than the school library. It also was found that class assignments accounted for a high percentage of student library needs.⁹

Also in 1970, the New Haven Free Public Library commissioned a study of users and uses of the library. The study was done by Southern Connecticut State College in New Haven. The study included a survey of users in the children's department, and the main interest seems to have been how many people used the department at various times of day.¹⁰ This may be explained by the fact that this study was done to aid in future planning, and little information was reported on children's use of the library. The New Haven report is typical of the studies some public libraries have undertaken as part of a planning process.

⁹John Q. Benford, "The Philadelphia Project," Library Journal, 96, (June 15, 1971) p. 2041-47.

¹⁰Bernard S. Schlessinger, Users and Uses of the New Haven Free Public Library, (New Haven, Connecticut: New Haven Foundation, 1972), p.52.

In 1976, Adele Fasick and Claire England conducted a study of the Regina Public Library in Canada. Children aged six to twelve were interviewed. It was learned that most children used the public library to select books for personal reading and most children were satisfied with the public library. Users and non-users were similar as groups but the users did more reading and had a more positive self-image.¹¹

Another study dealing with student use of libraries was done by Myrette Ekechukwu in Seattle. In a questionnaire given to fifth grade students, Ekechukwu found that girls used the libraries more than boys did, that the greater the distance the children lived from the library, the less the children used the library, and the children liked the book collections in the libraries but disliked the rules of the libraries.¹²

Other studies of children's use of public libraries include three separate experimental studies done by William Harmer in Minneapolis, Margaret Fife in Atlanta, and a multi-city project done by Herbert Goldhor and John McCrossan.¹³ All involved study of summer programs.

¹¹Adele Fasick, and Claire England, Children Using Media (Regina, Canada: Regina Public Library, 1977).

¹²Shontz, "Selected Research," page 132.

¹³Ibid., p. 129.

Results were mixed, but generally children involved in summer reading programs in the public library showed some academic gains over those who did not participate. There was no exploration of what summer activities were most effective or what level of involvement children had in the program.

In 1980, the American Library Association published A Planning Process for Public Libraries in which

The planning process concentrates not on collecting information but on thinking about it and reaching appropriate conclusions.¹⁴

A Planning Process for Public Libraries does include a student survey appropriate for sixth graders. Undoubtedly this will stimulate data collection at the local level. It will demand some sophistication to carry out "the plan" and it will remain to be seen if data collected will provide further information on children's use of the public library.

Over the past forty years there has been some attempt to gather information in a systematic manner by use of surveys and questionnaires. There is only limited information collected on children's use of the public library.

¹⁴Vernon E. Palmour, Marcia C. Bellasai, and Nancy V. Dewath, A Planning Process for Public Libraries (Chicago: American Library Association, 1980), p. XII.

School/Public Library Cooperation

It would be desirable to have information on the relationships among the school, teachers, and resource center teachers, and the child's use of the public library. Unfortunately, such topics have rarely been researched and reported. Since the New York State Education Department's 1970 Report of the Commissioner of Education's Committee on Library Development recommended that school libraries, not public libraries, should serve children through grade six, many state library agencies have promoted multi-type library cooperation and specifically cooperation between school and public libraries. In 1977, Lois Fleming found that twenty-seven state libraries had reported on cooperative projects.¹⁵

Typical of such activity is a project conducted by Shirley Aaron at Florida State University in 1976. Aaron's survey focused on combined school/public library facilities in order to develop guidelines for cooperation and, "to determine which institutional structure had the most potential for improving school and public library services."¹⁶ In the conclusion of her report, Aaron mentioned legal and

¹⁵Lois D. Fleming, "Community Education and Public Libraries: Cooperation or Conquest?", Wilson Library Bulletin 52 (December, 1977), p. 321.

¹⁶Shirley L. Aaron, "Combined School Public Library Programs: An Abstract of a National Study", School Media Quarterly 12 (Fall 1978), p. 94.

financial concerns, materials selection and collection development, programming, personnel, and site characteristics. She did not explore how the school or public library served children or the relationship of library service to the curriculum of the school. The issues, as Aaron reported them, were administrative and political rather than directly service-related.

Esther Dyer in her doctoral dissertation at Columbia University in 1976 used the Delphi technique to investigate cooperation in library services to children. Dyer asked, through questionnaires, a panel of public library directors, coordinators of children's services in public libraries, school media supervisors, library educators, school superintendents, and others about the probability and desirability of certain events taking place in the next fifteen years. In summarizing her findings Dyer stated:

Cooperation between school and public library services to children is not expected to be a priority program in either institution. . .The abstract ideal of cooperation is reinforced, but actual implementation seems implausible.¹⁷

Neither of these studies dealt with how to move past institutional barriers to cooperation. There are reports of particular programs but there is no examination of the

¹⁷Esther R. Dyer, Cooperation in Library Service to Children (Metuchen, N.J.: Scarecrow Press, 1978), p.94.

influence of the teacher on student behavior or the effect of the school curriculum on student use of public library.

School Resource Center Activities/
Library Skills Instruction

Many school districts have produced curriculum guides on library skills instruction and resource center activities and use. There are also several national publications on this topic but very little is available on the theory or evaluation of skills instruction in resource centers. Most information seems to be on the practical level of how to teach particular skills, or how to manage a successful resource center program, rather than the theory or purpose of instruction or activity.

One report on school libraries which stands out as an exception to this is a project where data were gathered in several schools as part of the Knapp School Libraries Project. The project, funded by the Knapp Foundation, was initiated to provide models of improved school library service during the period of 1963 to 1968. Each school involved received funds and support to upgrade services. Evaluation of each program was an important aspect of the project.¹⁸

¹⁸Peggy Sullivan, ed., Realization: The Final Report of the Knapp School Libraries Project (Chicago: American Library Association, 1968), p. 200.

Students, faculty, project staff, and visitors were asked to comment on school library services and the changes made during the Knapp project. At the Casis School in Austin, Texas, students were questioned about the school library, and were observed in their use of the school library. Former students who were then seventh graders in a junior high school were also asked how the library at Casis had helped them. It was found that children were more aware of the variety of services of the library in the higher grades, a favorable attitude was evident at all grade levels and the students in all grades showed an understanding of library procedures.¹⁹

A total of one hundred four students were observed systematically and it was found that the time in the school library increased with age, and that there was little consistency in how long a visit each student made. Students spent their time checking out materials, socializing, working with librarians, and reading. Findings of the student questionnaire and the observed behavior were consistent with each other.²⁰

While the Knapp project and particularly the project at the Casis School provided the school library program much information on student use of the school library, there is

¹⁹Ibid., pp. 210-11.

²⁰Ibid.

little critical information about the programs of library instruction. The data appeared to have been collected to prove the existing program beneficial rather than to develop a theory of library instruction. There is no information given on the role of the teacher in student use of the school library, nor is there any mention of how Austin's public library might serve students.

Representative of a more recent program is the one described by Walker and Montgomery in the 1977 book, Teaching Media Skills. The instructional model presented is not "simply a theoretical construct"²¹ but a practical guide based on the authors' experience in the public schools of Montgomery County, Maryland. In fact, no theory appears to be presented in this book. About half the book has material on how to design and implement a program of library skills instruction, and the second half presents particular activities that support the program. Use of the public library is not mentioned. There is no indication that any experimental technique was used in the development of this program. There is information on how to teach library skills but little research is presented on library skills instruction.

²¹H. Thomas Walker and Paula Kay Montgomery, Teaching Media Skills (Littleton, Colorado: Libraries Unlimited, Inc., 1977), p. 9.

Observation Methodology

There is evidence in the literature that naturalistic observation is a legitimate and useful research methodology. The value of unobtrusive methods, according to Eugene Webb, Northwestern University, is that:

Interviews and questionnaires intrude as a foreign element into the social setting they would describe, they create as well as measure attitudes, they elicit typical roles and responses, they are limited to those who are accessible and will cooperate, and the responses are produced in part by dimensions of individual differences irrelevant to the topic at hand.²²

Webb points out that there are benefits in using simple observation. These benefits include: subjects are not aware of being tested, measurement does not work as an agent of change and there are no interviewer effects.²³

Webb cautions that observation has weaknesses as a data-gathering technique. A major concern is whether the observer is accurate and unbiased. Care must be taken to sample time and location carefully.²⁴

Ann Boehm of Teachers' College, Columbia University and Richard Weinberg of the University of Minnesota state

²²Eugene Webb, et. al., Unobtrusive Measures: Non-reactive Research in the Social Sciences (Chicago: Rand McNally, 1966), p. 1.

²³Ibid., p. 128

²⁴Ibid., p. 138

. . . in collecting and recording observations, the trained observer uses a system that allows a sampling of the situation . . . Through a sufficient number of objective observations, he is prepared to build valid inferences from a reliable rich data base of direct observations in natural settings.²⁵

They continued, in their book, to deal with the problems of observer reliability, effective sampling, ethical issues, such as subject privacy in observation, and the need to employ naturalistic observation in concert with other kinds of methods.

There are literally hundreds of observational techniques reported in the literature.²⁶ Many educators have used natural observation as a basis for particular research and theory development. For example, Ned Flanders developed a theory of teacher behavior based substantially on systematic observation of classroom activities. His system is elaborate, he works from a hierarchy of observations with the development of matrixes and coding of events.²⁷ It would seem, then, that observational methodology could be adapted to the systematic investigation

²⁵Ann E. Boehm and Richard A. Weinberg, The Classroom Observer: A Guide for Developing Observation Skills (New York: Teachers College Press, 1977), p.4.

²⁶Jane A. Stallings, Learning to Look: A Handbook on Classroom Observation and Teaching Models (Belmont, California: Wadsworth, 1977), pp. 19-22

²⁷Ned A. Flanders, Analyzing Teaching Behavior (Reading, Massachusetts: Addison-Wesley, 1970), pp. 74-75.

of other social or educational activities such as research in library usage.

Summary

This review has provided evidence that there are few precedents for use of experimental design in research on children's use of public libraries. Most research conducted has involved questionnaires, surveys, and interviews. The research indicated that distance from the library, class assignments, and self-image have an effect on use of public libraries in particular instances. Public library and school library cooperation is treated in the literature, but most information available is political, administrative, or descriptive of particular programs. No information or research was presented as to the effects of teacher-public library cooperation or how changes in the schools' curriculum might affect students' use of the public library. While there was much information available on techniques of library skills instruction, there was very little theory presented, nor was there information presented on how children might be introduced to use of the public library by school personnel.

Lastly, there is evidence in the literature that observational methodology might lend itself to investigation of student activity in the public library as this method has been used successfully in educational settings.

CHAPTER III

THE METHOD

Introduction

A quasi-experimental design was used to ascertain the effect of orientation to the public library in the classroom. Fifth and sixth grade teachers were asked to volunteer for the project. Teachers and their students were then assigned to groups. Teachers and students in the gifted program formed one group, and teachers and students in regular classes were randomly assigned to either the experimental group or the control group.

Both the gifted students and students in the experimental group received an orientation to the public library, and engaged in reinforcing activities for the two-week treatment period. These activities included a description of public library service by the youth services librarian, self-monitoring by the students and teacher led discussion in the classroom about the library. (See Appendix B for Library Update which was used as a self-monitoring device and an outline of the librarian's visit.) The control

received no treatment. Student behavior at the library was monitored to determine if the in-class activities affected student use of the public library. Students and teachers were also given a questionnaire at the end of the treatment period so that they could evaluate the library and confirm patterns of library use.

The library orientation was designed to emphasize several specific areas of library service available to students. First, students were encouraged to use the library and to plan to spend extra time there to find out about the services offered. Then students were encouraged to do homework at the library, and they were invited to come with or to meet friends at the library. The design of the orientation was influenced by input from teachers and library staff as to what would make the library attractive to fifth and sixth graders and what facts they needed to be successful in their library use.

The self-monitoring sheet (Library Update), the questionnaire and the observation data-gathering sheet were designed to measure the student behaviors that were emphasized in the library orientation by the librarian and the teachers and other activities that students could engage in while at the library. The observation data-gathering sheet was created, tested in the library for two weeks and revised by adding activities before it was used for this research.

The questionnaire similarly was created and tested at a neighboring library and revised before it was used in this research.

Hypotheses

1. There is no difference in the frequency (number of visits) with which students use the public library among the experimental group, the gifted group, and the control group.
2. There is no difference in duration (time in minutes) of visits to the public library by students among the experimental group, the gifted group, and the control group.
3. There is no difference in use of time (activities engaged in) at the public library by students among the experimental group, the gifted group, and the control group.
4. There is no difference in type of library materials checked out from the public library by students among the experimental group, the gifted group, and the control group.
5. There is no difference in the amount (number of items) of library materials checked out from the public library by students among the experimental group, the gifted group, and the control group.

6. There is no difference in baseline, experimental, and post-experimental measures among groups as tested on each aspect listed above.

7. There is no difference in level of satisfaction attained in the use of the public library by students assessed by a student questionnaire among the experimental group, gifted group, and the control group.

Hypotheses one through six were tested on observational data at the public library. Hypothesis number seven was tested by responses on a student questionnaire.

Sample

Samples of class units (one teacher and an average of 27 students per unit) were drawn from a population with the following characteristics: 100% suburban; 93% white; 3.4% hispanic; 2.2% oriental; and 1.4% black. There are three K-6 public schools in the community. The school district provides special education classes and has self-contained classes for academically gifted students (as defined by the school district). Other students are heterogeneously grouped in self-contained classrooms.

The sample was made up of fifth and sixth grade class units where the teachers volunteered to be part of the study. There were fourteen class units in the sample. The

regular, non-gifted class units were randomly assigned to the experimental group or the control group. The gifted class were assigned to the gifted group. The experimental group and the gifted group received the same treatment. The control group received no treatment.

After class units were randomly assigned to groups, individual students from each group were randomly selected to be participants in this study and monitored in their public library usage. Twenty-four students were selected from each group. All seventy-two students were monitored in library usage in the baseline, treatment, and post-treatment phases of the project. The project was carried out in the spring of 1982.

Procedure

The purposes of this study were to measure the pattern of student use of the public library and to determine if that pattern could be modified by implementing a program designed to encourage library use. The object of the treatment program in the classroom was to promote independent use of the library by the students involved.

This study involved four sites (the three schools and the public library) and three groups (twenty-four in each) of children. An experiment with treatment and controls was

carried out with the library use of students measured by observational data gathered at the library. Another aspect of this study was the need to establish baseline or normal library usage. As the library is a fixture in the community, it was assumed that children had established patterns of library usage so the experiment must be based on measuring change from these established patterns. To do this, observations were done before the experimental treatment, while the treatment was being administered, and in a post-treatment period. At the end of the treatment phase, the teachers, students, and the library staff were questioned about the effects of the treatments and asked to verify the findings based on observed behavior. These questionnaires provided descriptive data.

Overall, a before/after randomized design¹ with two experimental groups and a control group was the general model for the present study. The advantages of this design are that the random assignment to groups controls independent variables, and the use of a control group provides control for maturation and history of subjects.

¹Fred N. Kerlinger, Foundations of Behavioral Research, Second Edition, (New York: Holt, Rinehart and Winston, 1973), p. 335.

The weaknesses of this design are: (1) difficulty in generalizability to other settings, (2) a potential sensitizing effect on the pretest or baseline measures, and (3) the dependence on change scores demands substantial differences among groups for analysis to be productive. In the present study the pretest took the form of an observational period in which normal library use was established for fifth and sixth graders so the sensitizing effect was minimal.

The first step of the study was to call for volunteers from the twenty-two teachers who had fifth or sixth grade classes in the public schools of a northwest Chicago suburban school district. The project was explained to teachers in a letter and they were asked to cooperate in the research project. When the volunteer pool was established, parent consent forms were sent to parents or guardians of students in the volunteered classes who reside in the target community.

A list of the fourteen teachers participating in the project was made in the order that the acceptance slips were received. The teacher of the gifted was assigned to the gifted group by definition. The other thirteen teachers were divided into control and experimental groups by using

the Rand Corporation list of random digits.² Seven teachers were assigned to the experimental group and six teachers were assigned to the control group.

After student permission slips were collected from teachers, they were labeled according to the group assignment of the student's teacher. The residency of each student was verified. If the student was not a resident of the community served by the library, library records were checked to ascertain if the student had a library card. Students who either resided in the community or were nonresidents who had library cards on May 1, 1982 were qualified to be in the study.

Qualified students were then separated into the three groups and twenty-four students were selected at random from each group by using the Rand Corporation list of random digits. The seventy-two students selected in this way were then observed when they used the public library during the six-week observation period.

The next step of the study was to establish baseline or normal public library usage by students in the study. The sample of seventy-two fifth and sixth grade students was monitored in their usage of the public library for a

²Edward W. Minium, Statistical Reasoning in Psychology and Education, 2nd ed. (New York: Wiley and Sons, 1978) p. 547.

two-week period. Use was monitored for these seventy-two students. Information was gathered on frequency of library use (number of visits), duration (time in minutes) of visits, use of time while at the library and type and quantity of library materials checked out of the library. Also, during this time, the researcher met with teachers to explain the project fully and to insure teachers' understanding of their role in the project.

After baseline observations were collected, treatments were administered. The experimental and gifted groups received the same treatment. This treatment was the same that was offered to students not in the study. This treatment had several components. First, the classroom teacher asked students to obtain valid library cards from the public library, and students received an explanation sheet on procedures. Library card applications were made available to teachers to hand out to their students.

Secondly, the researcher visited the class for approximately one half hour and introduced the services and materials available at the public library, and the procedures for library usage (see lesson plan in Appendix B). The researcher also asked that the students keep a record of their visits to and use of the public library for a period of two weeks. They were provided with a checklist (Library Update) that aided them in this record-keeping activity. A copy of the Library Update is found in Appendix B. They

were asked to record how often they used the library and what they did when they were at the library. While both the researcher and the classroom teacher urged students to keep this record, it was made clear that there were no extrinsic rewards or punishments connected with the record-keeping, so that students would have no reason to alter the truth to please the teacher or researcher.

During the two weeks following the researcher's visit, teachers were asked to reinforce public library use in two ways. First, they were instructed to ask their class, after a period of one week, how many students visited the public library during the week and to discuss the students' activities. Secondly, teachers were instructed to remind students to use their record-keeping checklist and to keep track of their library use. The teachers collected the record-keeping checklist at the end of the two-week period. Class units in the control group did not engage in any of the treatment activities during the experimental phase of the project. These teachers were asked to conduct class and give assignments as usual with no special reference to use of the library.

During the baseline, treatment and post-treatment phases of the project, staff at the public library monitored the use of the library by twenty-four students from each group in the study. For two-week periods, data were gathered during the hours of: 4:00 p.m. to 9:00 p.m., Monday



through Thursday, 4:00 p.m. to 5:00 p.m. on Friday, 9:00 a.m. to 5:00 p.m. on Saturday, and 2:00 p.m. to 5:00 p.m. on Sunday, or, thirty-two hours per week. These are the hours that the public library is open, and students are out of school.

In order to monitor the individual students in their use, the Youth Services Department conducted a "Let Us Know Who You Are" campaign during the data-gathering periods. This consisted of having a sign-in sheet for the student's name and grade level at the Youth Services desk. All patrons of whatever age were asked to sign in so that the "library staff can get to know the users better."

In this way library staff was alerted when individual students who were to be monitored were in the library. As the Youth Services Department has, from time to time, collected data on usage, sponsored contests where patrons sign in, and asked children to report to librarians as part of programs, this did not alter patron use in any significant way. Also, as the librarian's desk used in this activity is in close proximity to the only public entrance to the room, it was unlikely that any patrons missed signing in. If students declined to sign in, library staff asked for grade and name and signed in for the student.

The researcher and two other library staff members engaged in the monitoring activity. Each staff person practiced the observational technique over several weeks,

and, to establish reliability, the researcher and library staff monitored the same student. Any discrepancies were discussed, and the process was refined until there were no discrepancies.

Monitoring also included use of the public access computer which is in the adult department. Since no one was allowed to use the computer without signing in and picking up the phone used with it, computer use by students in the study would be on record. Also, the amount of computer time would be recorded. Other parts of the adult department were not monitored as children's use of these areas had been observed to be minimal.

Use of the circulation department was not monitored. Though children use this service, the length of time spent there is out of the child's control. It depends on the number of staff and the number of patrons needing service who are at the circulation desk at any one time. Also, for the child, there is little choice as to what to do in the circulation department (i.e., wait in line, locate library card, check-out materials, etc.). It was not thought that the treatment in the classroom would affect the choice to use this department.

Frequency of use by individual students in the project was obtained by counting the number of times the students' names appeared on the sign-in sheets during the monitoring periods.

Duration of visits was obtained by noting on a sheet separate from the sign-in sheets when a student in the study arrived and when s/he left the Youth Services Department. When the staff member supervising the sign-in sheet noticed that a student in the study had arrived in the department, she unobtrusively noted on a separate sheet the name of the individual, the time, and a brief description of the person (e.g., blond, red shirt) on a data-gathering sheet. When the individual left the department, the time was noted so duration of visit could be obtained.

Activity data were gathered by using a time sampling technique. The observer checked what the student was doing for thirty seconds and noted the activity on the data collection sheet. When the student entered and left from the department, this was also noted.

Data were gathered as to what kinds of materials were checked out, and how many items were checked out. For each student in the study, on each visit to the library, it was noted how many items in each of the following categories were checked out: fiction books, non-fiction books, and non-book materials. The circulation system at the public library cannot give information on what individual patrons have checked out from the library; therefore, students were asked what materials they had chosen when they left the department. Since the library staff frequently talk with

patrons about materials, students in the study would not have found this unusual. Most students were asked about their choice of materials whether or not they were in the study.

A log of daily events external to the study was kept during all three phases of the experiment. Such information as weather conditions, community events, and school events were noted. Also, circulation statistics were noted and compared to circulation of past years so that any unusual influences during the treatment phase might be accounted for.

In order to ascertain if there were any post-experimental effects of the treatments, the same students monitored previously were monitored again. This monitoring was for the two-week period immediately after the treatment phase.

At the end of the treatment phase of data-gathering at the library, students received a questionnaire in their classroom administered by their teacher. The questionnaire asked about general patterns of usage and satisfaction with the public library. Questionnaires were signed so that the student could supply personal characteristics such as address, school and teacher. Teachers were also asked to fill out questionnaires pertaining to student reaction to the treatment and their evaluation of the benefits and limitations of the project.

These are the several instruments that were used during this project.

1. Student Information Sheets: The school district provided for each student in the randomly selected groups the name, address, sex, grade level and teacher.

2. Data-Gathering Sheets: These were used at the public library to record data on library use.

3. Daily Log: This was kept by the library staff to note weather and other external conditions of interest for each day that activities were monitored at the library.

4. Call for Volunteers: A letter explaining the project and the teachers' responsibility was sent to all fifth and sixth grade teachers in the community schools.

5. Student Questionnaire: This asked the student to evaluate his/her experiences at the library.

6. Teacher Questionnaire: This asked for an evaluation of student behavior during the project. Control and treatment group teachers received similar questionnaires but the treatment group teachers had extra questions pertaining to the evaluation of the treatment lesson and activities.

7. Student Handouts: Students were provided with an information sheet on how to obtain a card from the public library. Students in the treatment groups were given a record checklist in order to help them keep track of their use of the library.

8. Parental Permission: A letter explaining the project and asking for permission for student involvement was sent to parents or guardians of students in classes volunteered by their teachers for the project.

Design and Analytic Paradigm

Several kinds of data were collected. Anecdotal data were gathered and consisted of comments from teachers, students and library staff. Satisfaction in using the public library was assessed by the student questionnaire. Participants had an opportunity to evaluate the usefulness of the project and suggest modifications to lessons given in the classroom and services offered at the library.

Behavioral data were collected in five areas. These areas were: (1) frequency of public library usage (number of visits to the library), (2) duration (time in minutes) of library visits to the Youth Services Department, (3) quantity of library materials used (number of items), (4) type of library materials used (fiction, non-fiction, or non-book), and (5) use of time at the library (activities engaged in). In all cases, information was gathered from students before treatment to establish baselines or normal library usage. Data were then gathered during the treatment period in all five areas and compared to the baseline to obtain change scores.

The control variables were considered in the following combinations: 1) Group (treatment effect), 2) Teacher, 3) Gender and Group, 4) Grade and Group, and 5) School and Group. The observational categories and the individual questions on the questionnaire were the independent variables.

The analytic paradigm for the observational data is as follows:

TABLE 2
OBSERVATIONAL DATA ORGANIZATION

	Set I Change Scores Treatment Minus (-) Baseline	Set II Change Scores Post-Treatment Minus (-) Baseline
Experimental		
Gifted		
Control		

In the analysis of the questionnaire data the answer for each group was compared for each question as well as for answers to all the questions combined.

Analysis of covariance was used to test for significance. Distance the student lived from the library was the covariate. Analysis of covariance was selected because it allows for adjustment of initial difference between groups. In a randomized experiment it serves to increase the precision of measuring the treatment effect.³ Given that the distance the student lived from the public library is a strong factor in library usage, and since it can be measured, it can be controlled for in the analysis of covariance design. The strength of this design is that it can increase the power of analysis as compared with analysis of variance. The weakness is that measurement error and other non-experimental variance in the measurement can bias the treatment effect estimate.⁴ Since there was a need to control for distance from the library, analysis of covariance was the statistic of choice as it allows for the control needed.

To control non-experimental variance further, analysis of covariance was used to test the effect on behavior of the variables teacher, gender, grade and school. One-way tests with LSD (Least Significant Difference) contrasts were then used on the variables that showed significance in the

³Thomas D. Cook and Donald T. Campbell, Quasi-Experimentation: Design and Analysis Issues for Field Setting (Chicago: Rand McNally, 1979), p. 153.

⁴Ibid., p. 171.

analysis of covariance tests to ascertain which specific contrasts were significant. When the range of difference among groups was too small to be measured by the one-way tests, individual T-tests were used on all contrasts possible.

CHAPTER IV

RESULTS

Data were gathered in three ways. Observational Data were gathered at the public library continuously for six weeks, two weeks to establish baseline or normal library use, two weeks during the treatment period and two weeks immediately after the treatment period (post-treatment). The second type of data was collected by a questionnaire given to students in the fourteen participating classrooms after the treatment period. The third type of data that is presented is anecdotal, gathered from teachers by a questionnaire, comments of library staff, comments on the student questionnaire, and notes taken by the researcher during the study. Each type of data is presented in turn.

Observational Data

Data were collected and organized to test the experimental hypotheses. The hypotheses related to the observational data address the following: frequency of library use, duration of library visits, activities students engaged in while at the library, and type and amount of material checked out from the library by students. In all cases

the observational data were analyzed as change scores. The first change considered was the difference between observed behavior during the treatment period and the observed behavior during the baseline period (treatment minus baseline). The second change considered was the difference between observations made during the post-treatment period and the observations made during the baseline period (post-treatment minus baseline). Change scores were compared so that the comparisons made would be of growth or increased incidence of observed behaviors during the treatment and post-treatment periods. Using change scores takes into account habits in library use of students prior to the introduction of the experimental treatment.

As it was expected that the treatment would stimulate an increase in library use, frequency of visits, duration of visits and circulation were observed as they represent three different ways of measuring library use. Since it was also expected that the treatment would change the student's use of time at the library, the activities of students were observed. In particular, it was expected that there would be an increase in time spent reading and studying, talking with others, talking with staff and looking for material. The other activities that were observed represent other things that could be done by fifth and sixth graders at the library.

Several statistical tests were used on the data. All tests were run on a computer, using the Statistical Package for the Social Sciences (SPSS).¹ First, a frequency distribution was run to check that data were entered correctly and to gather information on the sample of students on which data were collected. Secondly, an analysis of covariance was used to test significance of the data collected. The dependent variable was group (control, treatment or gifted) and the covariate was distance the student lives from the library. Group and gender (male, female), group and grade level (fifth and sixth), group and school and teacher were also used, each in a separate test, as control variables in an analysis of covariance test to ascertain if gender, grade, school or teacher had significant influence on group performance.

The measure of distance the student lives from the public library was used as a covariate. Each student was asked to supply his or her address when filling out the questionnaire. The addresses were verified with a telephone book and a computer printout of addresses in the city served by the public library. Then each address was located on the official grid map of the city. After the address was located, north-south grids were counted between the address

¹Norman Nie et al., SPSS: Statistical Package For the Social Sciences, 2nd ed. (New York: McGraw-Hill, 1975).

and the library. East-west grids were counted in a like manner and the east-west and north-south figures were added together and noted as the distance for each student. This method was chosen because it is a fair representation of distance, it produces numeric figures that measure equal units and are comparable and because the scale of the available map did not lend itself to using miles as a unit of measure.

When there are more than two groups compared, analysis of covariance does not reveal which of the group contrasts are significant, so one-way analysis of covariance tests with LSD contrasts were run next. The LSD (Least-Significant Difference) test was used with the one-way analysis to contrast ranges of the means of the group tested. The LSD test is similar to running tests on each possible contrast, but it is more efficient as it computes all the contrasts among groups on a variable in just one computer run. The LSD test is the most sensitive to variance (the most powerful) of any of the contrasts available for use with the SPSS program. The LSD test is a systematic procedure for comparing pairs of group means and it is exact for unequal groups.²

Where the one-way tests yielded no significant difference between ranges or a chart of the particular significant contrasts, these were the last tests run. Where the

²Normal Nie et al. SPSS: Statistical Package For the Social Sciences, 2nd ed. (New York: McGraw-Hill, 1975).

LSD test did yield significance, but the contrasts between ranges was too small to yield a chart of contrasts, t-tests were run to contrast group performance. The results of the tests of significance follow.

Frequency:

There were seventy-two students in the observational study, twenty-four each from the control, experimental and gifted groups. In general, the sample drawn for the observation group was fairly evenly distributed on the characteristics of interest, gender, grade, school and teacher. The gifted group differed in these areas because the sample was drawn from only one classroom.

With the exception of the gifted group where there were more females, the sample was divided fairly evenly between males and females. In the total observation group there were twelve more females than males. In the control group there were two more males than females and in the experimental group there were four more females than males. The gifted group had the least even distribution with seventeen females and seven males in the group.

The total sample had more sixth graders (N=41) than fifth graders (N=31). The control group had seventeen fifth graders and seven sixth graders, the experimental group had

fourteen fifth graders and ten sixth graders and the gifted (N=24) was comprised of only sixth graders.

School distribution was slightly uneven among groups. School Three had the least students (N=11). School One had the second least (N=28) and School Two had the most students in the sample (N=33). The differences among groups are accounted for by the fact that the gifted group was drawn entirely from School Two. The control group had no students from School Two and the experimental group had only one student from School Three. Table 3 summarizes these results.

Twelve teachers taught students in the observation group. Two teachers did not have students in the observation group, as students were not randomly selected from their classes. There was one teacher, from School One, who taught students in the gifted group. Five teachers, three from School One and one each from Schools Two and Three, taught students in the experimental group. Six teachers, four from School One and two from School Three, taught students in the control group. The number of students any one teacher had in the observation group varied from one to twenty-four.

TABLE 3

OBSERVATION - FREQUENCY DISTRIBUTION
BY GENDER, GRADE, SCHOOL

	<u>TOTAL</u>		<u>CONTROL</u>		<u>EXPERIMENTAL</u>		<u>GIFTED</u>	
	<u>N</u>	<u>Per-centage</u>	<u>N</u>	<u>Per-centage</u>	<u>N</u>	<u>Per-centage</u>	<u>N</u>	<u>Per-centage</u>
<u>Gender</u>								
Male	30	41.7	13	54.2	10	41.7	7	29.2
Female	42	58.3	11	45.8	14	58.3	17	70.8
Total	72		24		24		24	
<u>Grade</u>								
Fifth	31	43.1	17	70.8	14	58.3	-	--
Sixth	41	56.9	7	29.2	10	41.7	24	100.0
Total	72		24		24		24	
<u>School</u>								
School #1	28	38.9	14	58.3	14	58.3	-	--
School #2	33	45.8	-	--	9	37.5	24	100.0
School #3	11	15.3	10	41.7	1	4.2	-	--
Total	72		24		24		24	

TABLE 4

OBSERVATION - FREQUENCY DISTRIBUTION
BY TEACHER

<u>Teacher</u>	<u>Number of</u> <u>Students</u> <u>in Class</u>	<u>Number of</u> <u>Students</u> <u>in Study</u>	<u>Percent</u> <u>of Total</u> <u>Number</u> <u>in Study</u>	<u>Group</u> <u>Desig-</u> <u>nation</u>	<u>School</u>
Teacher #1	27	24	33.3	Gifted	2
Teacher #2	31	5	6.9	Exp.	1
Teacher #3	28	4	5.7	Exp.	1
Teacher #4	24	5	6.9	Exp.	1
Teacher #5	25	9	12.5	Exp.	2
Teacher #6	23	1	1.4	Exp.	3
Teacher #7	22	7	9.7	Control	1
Teacher #8	23	7	9.7	Control	3
Teacher #9	23	3	4.2	Control	3
Teacher #10	22	1	1.4	Control	1
Teacher #11	24	5	6.9	Control	1
Teacher #12	26	1	1.4	Control	1
		72	100.0		

TABLE 5

OBSERVATION -
DISTANCE THE STUDENT LIVES FROM THE LIBRARY

	<u>Total</u>	<u>Control</u>	<u>Experimental</u>	<u>Gifted</u>
Mean	17.025	17.229	16.438	17.408
Median	15.967	16.250	15.500	15.750

Figures represent number of grid marks between student's home and the library.

The frequency distributions for frequency and duration of visits showed lower library use in the baseline period, increased use in the treatment period and a drop-off in use in the post-treatment period. This was true for all groups observed. For the control group one child visited the library for twenty minutes in the baseline period, six students visited in the treatment period and stayed a combined total of two hundred and eighty-two minutes, and in the post-treatment period, four control group students visited the library for a combined total of thirty minutes. In the baseline period, two experimental group students visited the library for a combined total of eighty minutes. In the treatment period, eighteen experimental group students were at the library for a total of nine hundred and

forty-seven minutes and in the post-treatment period five students in the experimental group visited for a total of two hundred and eleven minutes. Twelve gifted students visited the library in the baseline period for a total of four hundred and seventy-six minutes. Sixteen gifted students stayed at the library for a total of four hundred and ninety-one minutes in the treatment period and three gifted students stayed at the library for forty minutes in the post-treatment period. Table 6 summarizes library use during the observation period.

TABLE 6

OBSERVATIONAL DATA - USE OF THE PUBLIC LIBRARY
BY FREQUENCY AND DURATION

	<u>Baseline</u> <u>Observations</u>	<u>Treatment</u> <u>Observations</u>	<u>Post-</u> <u>Treatment</u> <u>Observations</u>
<u>Use For All Groups (N=72)</u>			
Frequency (no. of visits)	15	30	12
Duration	576 min.	1720 min.	281 min.
 <u>Use By</u> <u>Control Group (N=24)</u>			
Frequency	1	6	4
Duration	20 min.	282 min.	30 min.
 <u>Use By</u> <u>Experimental Group (N=24)</u>			
Frequency	2	18	5
Duration	80 min.	947 min.	211 min.
 <u>Use By Gifted Group (N=24)</u>			
Frequency	12	16	3
Duration	476 min.	491 min.	40 min.

The frequency distribution showed that, overall, students spent the most time reading and studying, talking with others and looking for materials and the least time using the bathroom or doing nothing (daydreaming, waiting to meet someone, etc.). As shown in Table 7 there was an increase in use for all groups during the treatment period in time spent reading and studying, talking with others, looking for materials and "other" activities. There was an increase from baseline to post-treatment in time spent talking with staff and decreases in all the other activities.

The control group spent the most time during the six weeks of observation looking for materials, talking with staff and reading and studying. The control group had an increase in use during the treatment period in looking for materials, talking with staff and reading and studying. There were small increases in the post-treatment period in talking with staff, talking with others and "other" activities. Table 8 summarizes these findings.

The experimental group spent the most time during the six weeks of observation reading and studying and talking with others and the least amount of time using the bathroom or doing nothing. These students spent a moderate amount of time doing "other" activities, talking with staff and looking for materials. The experimental group had a substantial

increase in the treatment period in talking with others and reading and studying. There was a small increase in activity in the post-treatment period in attending programs, looking for materials, talking with staff and "other" activities. There were decreases in use from baseline to the post-treatment periods in reading and studying. Table 9 summarizes these findings.

The gifted group spent, overall, the most time reading and studying, looking for materials and talking with others. In the treatment periods there was an increase in talking with others, talking with staff and reading and studying. There were no increases in activities from the baseline to the post-treatment period for the gifted group. Table 10 summarizes these findings.

Students in all groups were relatively inactive in the baseline period, the most active in the treatment period and the least active in the post-treatment period. Increase in use during the treatment period was strongest for the experimental group on the activities most closely aligned with the treatment (talking with others, and reading and studying). The gifted group had increases in the treatment period in these activities and in talking with staff. The control group increased in these areas also, but the increases were very small. In the post-treatment period, the experimental group and the control group had small increases and the gifted group had no increases.

TABLE 7

OBSERVED ACTIVITIES FOR ALL GROUPS

<u>Activity</u>	<u>Baseline Observations</u>	<u>Treatment Observations</u>	<u>Post- Treatment Observations</u>	<u>Total Observations</u>
A-Talking With Others	26	116	17	159
B-Talking With Staff	6	50	11	67
C-Reading/Studying	32	159	4	195
D-Using Card Catalog	7	5	3	15
E-Looking For Materials	25	70	11	106
F-Attending Library Programs	8	0	7	15
G-Using The Bathroom	2	1	0	3
H-Doing Nothing	0	3	0	3
I-Other	<u>7</u>	<u>40</u>	<u>5</u>	<u>52</u>
TOTAL	113	444	58	615

"Other" activities included signing the guest book, using the phone, looking at displays, getting a drink of water and using the Xerox.

TABLE 8

OBSERVED ACTIVITIES FOR CONTROL GROUP

<u>Activity</u>	<u>Baseline Observations</u>	<u>Treatment Observations</u>	<u>Post- Treatment Observations</u>	<u>Total Observations</u>
A-Talking With Others	0	6	2	8
B-Talking With Staff	1	16	6	23
C-Reading/Studying	0	13	0	13
D-Using Card Catalog	1	0	0	1
E-Looking For Materials	3	29	2	34
F-Attending Library Programs	0	0	0	0
G-Using The Bathroom	0	0	0	0
H-Doing Nothing	0	0	0	0
I-Other	<u>0</u>	<u>7</u>	<u>1</u>	<u>8</u>
TOTAL	5	71	11	87

"Other" activities included signing the guest book, using the phone, looking at displays, getting a drink of water and using the Xerox.

TABLE 9

OBSERVED ACTIVITIES FOR TREATMENT GROUP

<u>Activity</u>	<u>Baseline Observations</u>	<u>Treatment Observations</u>	<u>Post- Treatment Observations</u>	<u>Total Observations</u>
A-Talking With Others	9	89	9	107
B-Talking With Staff	1	18	4	23
C-Reading/Studying	12	116	2	130
D-Using Card Catalog	0	1	2	3
E-Looking For Materials	2	15	6	23
F-Attending Library Programs	0	0	7	7
G-Using The Bathroom	1	1	0	2
H-Doing Nothing	0	2	0	2
I-Other	<u>1</u>	<u>20</u>	<u>3</u>	<u>24</u>
TOTAL	26	262	33	321

"Other" activities included signing the guest book, using the phone, looking at displays, getting a drink of water and using the Xerox.

TABLE 10

OBSERVED ACTIVITIES FOR GIFTED GROUP

<u>Activity</u>	<u>Baseline Observations</u>	<u>Treatment Observations</u>	<u>Post- Treatment Observations</u>	<u>Total Observations</u>
A-Talking With Others	17	21	6	44
B-Talking With Staff	4	16	1	21
C-Reading/Studying	20	30	2	52
D-Using Card Catalog	6	4	1	11
E-Looking For Materials	20	26	3	49
F-Attending Library Programs	8	0	0	8
G-Using The Bathroom	1	0	0	1
H-Doing Nothing	0	1	0	1
I-Other	<u>6</u>	<u>13</u>	<u>1</u>	<u>20</u>
TOTAL	82	111	14	207

"Other" activities included signing the guest book, using the phone, looking at displays, getting a drink of water and using the Xerox.

Circulation to all groups during the observational period was low. As all observers (library staff) were accurate in their count of books taken out, it is assumed that this is an accurate reflection of circulation for fifth and sixth graders.

Fiction was most often checked out by all the groups and the nonprint material was checked out the least often. The gifted group checked out the most items and the control group checked out the least. Table 11 summarizes the frequency distribution of circulation.

Analysis of Covariance/T-Tests:

After determining, by use of the frequency distribution, that there were differences in observed behavior at the library among the groups, analysis of covariance was used to ascertain whether these differences were statistically significant. The analysis of covariance resulted in several significant comparisons. To determine how the groups contrasted, t-tests were run. The t-tests provided tests of student performance by treatment group (hypotheses One through Five). t-tests were used because the ranges of contrasts were too small to be measured by one-way tests with LSD contrasts. Two sets of change scores were compared on each variable. The first change measured was the difference between observations in the baseline and treatment

TABLE 11
OBSERVATIONAL DATA

CIRCULATION

	<u>Baseline Observations</u>	<u>Treatment Observations</u>	<u>Post- Treatment Observations</u>	<u>Total</u>
<u>All Groups</u>				
Fiction	18	24	8	50
Nonfiction	10	11	4	25
Nonprint	0	4	0	4
Total	28	39	12	79
<u>Control Group</u>				
Fiction	2	4	1	7
Nonfiction	0	0	2	2
Nonprint	0	0	0	0
Total	2	4	3	9
<u>Experimental Group</u>				
Fiction	2	3	4	9
Nonfiction	0	8	0	8
Nonprint	0	1	0	1
Total	2	12	4	18
<u>Gifted Group</u>				
Fiction	14	17	3	34
Nonfiction	10	3	2	15
Nonprint	0	3	0	3
Total	24	23	5	52

periods and the second change considered was the difference between the baseline and post-treatment periods.

In the treatment period the three groups of students varied significantly in duration of library visit, observed time talking with others, reading and studying and in the combined activities. In the post-treatment comparisons the three groups varied significantly in frequency and duration of visits, time spent looking for materials, in doing "other" activities and in the combined activities. There was no significant interaction effect in any test (α 0.05). The combined activities were arrived at by adding incidents of activity A through I together. Combined circulation was arrived at by adding the total number of items circulated. A summary of results of the analysis of covariance is found in Table 12 and Table 13. Individual analysis of covariance tables are found in Appendix C.

One-way tests were not run for gender as there were only two values possible and thus the contrasts were already drawn. One-way tests were run for treatment groups, but the variances among the groups was small enough so that the LSD contrast could not be drawn. T-tests were then run for all the contrasts possible for three groups on the variables that were significant in the analysis of covariance.

TABLE 12

OBSERVATION - ANALYSIS OF COVARIANCESET I - TREATMENT OBSERVATIONS MINUS BASELINE OBSERVATIONSComparison of Experimental, Control and
Gifted GroupsObservation

Frequency of visits	* No Significant Difference
Duration	Significance Difference
A-Talking With Others	Significance Difference
B-Talking With Staff	No Significant Difference
C-Reading/Studying	Significance Difference
D-Using Card Catalog	No Significant Difference
E-Looking For Materials	No Significant Difference
F-Attending Library Programs	No Significant Difference
G-Using The Bathroom	No Significant Difference
H-Doing Nothing	No Significant Difference
I-Other	No Significant Difference
Fiction	No Significant Difference
Non-fiction	No Significant Difference
Non-print	No Significant Difference
Combined Activities	Significance
Combined Circulation	No Significant Difference

* Analysis of Covariance was done using change scores.

TABLE 13

OBSERVATION - ANALYSIS OF COVARIANCESET II - POST-TREATMENT OBSERVATIONS MINUS BASELINE OBSERVATIONSComparison of Control, Experimental and
Gifted GroupsObservations:

Frequency of visits	* Significance Difference
Duration of visits	Significance Difference
A-Talking With Others	No Significant Difference
B-Talking With Staff	No Significant Difference
C-Reading/Studying	No Significant Difference
D-Using Card Catalog	No Significant Difference
E-Looking For Materials	Significance Difference
F-Attending Library Programs	No Significant Difference
G-Using The Bathroom	No Significant Difference
H-Doing Nothing	No Significant Difference
I-Other	No Significant Difference
Fiction	No Significant Difference
Non-fiction	No Significant Difference
Non-print	No Significant Difference
Combined Activities	Significance
Combined Circulation	No Significant Difference

* Analysis of covariance was done using change scores.

T-Tests:

To test student performance by treatment group (hypotheses One through Five) t-tests were used, as the ranges of contrasts were too small to be measured by the one-way tests with LSD contrasts. Several contrasts were done on the independent variables that were found significant in the analysis of covariance. The group contrasts run on each variable were I) control versus experimental, II) control versus gifted, and III) experimental versus gifted. All contrasts in the t-tests were done using change scores. The first change considered was the treatment period score minus the baseline score. The second change considered was the post-treatment period score minus the baseline score.

An analysis of the first set of change scores showed that in the treatment period the experimental group increased time at the library, increased in observed talking with others, reading and studying and in doing "other" things and increased in the combined activities. This increase for the experimental group was significantly greater than the increases for the gifted and control groups. The experimental group had significantly higher use than the gifted group in duration, talking with others and reading and studying. The experimental group had significantly higher use than the control group in talking with others, reading and studying, "other" activities and in the combined activities. The

TABLE 14

OBSERVATION - T-TEST
SET I - TREATMENT MINUS BASELINE

	<u>Contrast I</u> <u>(C vs. E)</u>	<u>Contrast II</u> <u>(C vs. G)</u>	<u>Contrast III</u> <u>(G vs. E)</u>
Duration (in minutes)			
X:C=10.9167			
E=36.1250	N	N	S
G=0.6250			
<hr/>			
Activity A - Talking With Others			
X:C=0.2500			
E=3.3333	S	N	S
G=0.1667			
<hr/>			
Activity C - Reading/ Studying			
X:C=0.5417			
E=4.3333	S	N	S
G=0.4167			
<hr/>			
Activity I - Other			
X:C=0.2917			
E=0.7917	S	N	N
G=0.1250			
<hr/>			
Combined Activities			
X:C=1.0417			
E=9.8333	S	N	N
G=2.9167			
<hr/>			

X=Mean of change score, lower mean denotes less increase in activity
 C=Control Group, E=Experimental Group, G=Gifted Group
 N=Not Significant, S=Significant at the 0.05 level

control and gifted groups had no significant contrasts for the first set of t-Tests. Results are summarized in Table 14. Individual t-Test results are found in Appendix D.

An analysis of the second set of change scores shows that during the post-treatment period the experimental group had higher change scores than the control and gifted groups for the variables of frequency, duration, looking at materials, "other" and combined activities. The gifted group had the lowest change scores for these variables. The gifted group contrasted significantly with the experimental group in frequency, duration, looking for materials and "other" activities. The gifted group contrasted significantly with the control group in duration, looking for materials and the combined activities. The control group and the experimental groups had no significant contrasts in the second set of t-tests. A summary of these results is found in Table 15. Individual t-tests results are found in Appendix D.

Tests of Control Variables:

Analysis of Covariance and one-way tests with LSD contrasts were run on the variables teacher, group and gender, group and grade and group and school to measure the effects of these variables on group performance. Two sets of change scores were compared. The first set was the difference between the baseline and the treatment periods and the second set was the difference between the baseline and post-treatment periods.

TABLE 15

OBSERVATION - T-TEST
SET II - POST-TREATMENT MINUS BASELINE

	<u>Contrast I</u> <u>(C vs. E)</u>	<u>Contrast II</u> <u>(C vs. G)</u>	<u>Contrast III</u> <u>(G vs. E)</u>
Frequency (# of visits)			
X:C=0.1250			
E=0.1250	N	N	S
G=-0.3750			
<hr/>			
Duration (in minutes)			
X:C=0.4167			
E=5.4583	N	S	S
G=-18.1667			
<hr/>			
Activity E - Looking For Materials			
X:C=0.0417			
E=0.1667	N	S	S
G=-0.7083			
<hr/>			
Activity I - Other			
X:C=0.0417			
E=0.0833	N	N	S
G=-0.3750			
<hr/>			
Combined Activities			
X:C=0.2500			
E=0.2917	N	S	S
G=-3.0000			

X=Mean of change score, lower mean denotes less increase in activity

C=Control Group, E=Experimental Group, G=Gifted Group

N=Not Significant, S=Significant at the 0.05 level

In the first comparison, neither school attended nor grade had any statistical effect on student performance. Gender was only significant on the variable "other". Girls were observed doing more "other" activities than boys. Student performance varied on the same variables for teacher as it did for experimental group. These variables were duration of visit, talking with others, reading and studying and the combined activities.

Significant contrasts appear between two experimental group classrooms and at least three other classes for the variables duration, talking with others, reading and studying and the combined activities. A third experimental group classroom contrasted with other classes in reading and studying. In each case the experimental group classes had significantly higher use during the treatment period and contrasted with the gifted class, another experimental group class and the control group class. Though all one-way tests confirmed significance with an alpha of 0.05, the contrasts involving the three teachers with only one student in the observation group were not considered meaningful. Individual tests are found in Appendix D.

In the second set of comparisons that deal with the change from the baseline to the post-treatment period, teacher, grade, and school had no significant effect on student performance. The only significant change for gender was that girls engaged in more "other" activities than boys.

Summary:

Analysis of the observational data yields much information on sample characteristics and the results of the tests of significance. They are summarized as follows:

1. Sample:

The control and experimental groups are similar in the characteristics of interest. The gifted sample differs as it was drawn from a small population so it is one teacher, one school and one grade. The control, experimental and gifted groups follow the same relative trends in use of the public library. There was the least use in the baseline period, increased use in the treatment period and a drop-off in use in the post-treatment period. Circulation was low for all groups in all three time periods.

2. Analysis of Grade, School, Gender, Teacher and Distance

- A. Grade and school attended had no significant effect on observed behavior at the library.
- B. Girls engaged in more "other" behavior at the library than boys during both the treatment and the post-treatment periods. Otherwise, gender had no significant effect on behavior.
- C. The covariate, distance, was not significant in any test done.

- D. Teachers did significantly influence student performance in the library. Two experimental group teachers out of the twelve teachers had significantly stronger influence on student behavior. The variables for which this was true are the following: duration, talking with others, reading/studying and combined activities. A third teacher had influence on the reading and studying time of her students. Three teachers had more effect on student behavior than the other teachers in the study.

These tests were done in order to control the variations in student performance extraneous to the treatment given them. The statistical tests show that grade, school, gender and distance had little or no effect on student performance as observed in this study. Individual teachers have an effect on students separate from the treatment.

3. Analysis of Treatment Effects

- A. The treatment had significant effect on the following variables: duration, talking with others, reading/studying and combined activities during the treatment period and duration, frequency, looking for materials, other and combined activities in the post-treatment period. Other variables showed no significant difference between groups.

- B. The experimental treatment had a positive effect in that when baseline activity was considered (change scores) the experimental group was more social (talked with others), spent more time reading and studying, did more "other" activities and were, overall, more active (combined activities) than the control group during treatment period. The experimental group was different from the gifted group in that the change scores were higher for the experimental group than for the gifted group for the variables of duration, talking with others and reading and studying.
- C. In the post-treatment period, the gifted group had low change scores, less activity in the post-treatment period than in the baseline, so that it contrasted with the experimental group and the control group on the variables of frequency, duration, "other" and combined activities and with the experimental group only on the variable, looking for materials. All use was low in the post-treatment period, but the experimental group lost the least amount of ground in this period.

Student Questionnaire

The questionnaires were given to all students in the fourteen participating classrooms. A copy of the questionnaire is found in Appendix B. The purpose of the questionnaire was to survey student opinion and satisfaction with the public library (hypothesis seven). The questionnaire was also designed to compare what students said they did at the library with what they were observed doing at the public library.

Similar tests of significance were used on the questionnaire as on the observational data. A frequency program was run to detect errors in entering data and to provide definition to the sample. Analysis of covariance was used with group, teacher, group and gender, group and grade and group and school as control variables on separate runs and with distance the student lives from the public library as the covariate. One-way analysis of variance with LSD contrasts was run on variables where there was significance in the analysis of covariance, in order to determine which group contrasts were significant when there were more than two groups tested. The results of these test follow and are reported in Tables 16 to 30.

Frequency:

There were two hundred ninety one students out of three hundred forty-four who filled out questionnaires

and lived in the community or had library cards. There were one hundred twelve student questionnaires out of one hundred forty from the control group, one hundred fifty-two questionnaires out of one hundred seventy-seven from the treatment group and twenty-seven questionnaires out of twenty-seven from the gifted group. Information on the gender, grade, school teacher and home address was available for each student who filled out a questionnaire.

A pattern of frequencies distribution similar to that of the frequencies distribution for the observation data was developed for the questionnaire. There is a fairly even distribution of males and females, fifth and sixth graders and numbers of teachers per group for the control and experimental groups but the gifted group differed in that it was made up of seventy-four per cent females, all sixth graders and had only one teacher for the group. The distribution for school was skewed in that the control group had no students from School Two and the gifted group had only students from School Two.

Again, as with the observation sample, the distance from home to the library was very even among groups. The variation of the mean distance was less than one unit of measure among the groups. A summary of the frequency distributions is found in Tables 16, 17 and 18.

For all questionnaires students were the least positive about attending library programs, going to the library to see friends or using cassettes from the library. Most students said that they did not use records or newspapers from the library. Two hundred thirty-seven students said that they had used the library in the past year and two hundred fifty-four students said that they found what they wanted at the library. Over ninety per cent of the students said that they used books at the library and for most students the library was open convenient hours and was in a convenient location.

The pattern of answers for the control, experimental and gifted groups followed closely the response pattern for all the groups together described above. An exception was that the gifted group made the fewest positive comments about the library, and the experimental group made the most.

For question 1B (Who the student goes to the library with) responses indicated that most students came to the library with friends or family. Very few came with their school class and some came alone. The control and experimental groups followed this pattern closely. The students in the gifted group differed in that they came to the library alone, more often than the other students.

TABLE 16

QUESTIONNAIRE - FREQUENCY DISTRIBUTION
BY GENDER, GRADE AND SCHOOL

	<u>Total</u>		<u>Control</u>		<u>Experimental</u>		<u>Gifted</u>	
<u>Gender</u>								
Male	147	50.5%	62	55.4%	78	51.3%	7	25.9%
Female	<u>144</u>	49.5%	<u>50</u>	44.6%	<u>74</u>	48.7%	<u>20</u>	74.1%
Total	291		112		152		27	
<u>Grade</u>								
Fifth	164	56.4%	63	56.3%	101	66.4%	--	
Sixth	<u>127</u>	43.6%	<u>49</u>	43.7%	<u>51</u>	33.6%	<u>27</u>	100%
Total	291		112		152		27	
<u>School</u>								
School #1	110	37.8%	44	39.3%	66	43.4%	--	
School #2	81	27.8%	--		54	35.5%	27	100%
School #3	<u>100</u>	34.4%	<u>68</u>	60.7%	<u>32</u>	21.1%	--	
Total	291		112		152		27	

TABLE 17

QUESTIONNAIRE - FREQUENCY DISTRIBUTION
BY TEACHER

	<u>N</u>	<u>Number of</u> <u>Students in</u> <u>Study</u>		<u>Group</u>	<u>School</u>
Teacher #1	27	27	9.3%	Gifted	2
Teacher #2	31	28	9.6%	Experimental	2
Teacher #3	28	26	8.9%	Experimental	2
Teacher #4	24	23	7.9%	Experimental	1
Teacher #5	25	22	7.6%	Experimental	1
Teacher #6	23	21	7.2%	Experimental	1
Teacher #7	22	22	7.6%	Control	1
Teacher #8	23	22	7.6%	Control	1
Teacher #9	23	19	6.5%	Control	3
Teacher #10	23	15	5.2%	Control	3
Teacher #11	23	18	6.2%	Control	3
Teacher #12	22	17	5.8%	Experimental	3
Teacher #13	24	15	5.2%	Experimental	3
Teacher #14	26	16	5.5%	Control	3

TABLE 18

QUESTIONNAIRE
DISTANCE THE STUDENT LIVES FROM THE LIBRARY

	<u>Total</u>	<u>Control</u>	<u>Experimental</u>	<u>Gifted</u>
Mean	18.163	18.906	17.740	17.463
Median	17.094	18.083	16.250	16.000

Figures represent number of grid marks between home and library

In tabulating the responses, the number of positive answers were counted so they could be compared. When students were asked for comments on the library in Question Six, no comment at all was considered neutral and not counted, complaints were counted as negative and favorable statements were counted as positive. For Question Six, then, the number of responses recorded (120) was considerably less than the total number of people (291) filling out questionnaires. The control group had only forty-one responses to Question Six and the experimental group had sixty-one responses. The gifted group had eighteen responses to this question. A summary of responses to questions on the student questionnaire is found in Tables 19 to 23.

Analysis of Covariance/One-Way Tests:

Analysis of covariance was used to determine if students answered the questionnaire differently by group. One-Way tests of significance were then run with LSD contrasts on variables that showed significance in the analysis of covariance to determine the nature of the contrasts. Group answers were compared on each question and, also, in order to compare overall performance on the questionnaire, the scores for all the questions were added together to form the combined question score. The positive answers were

TABLE 19

QUESTIONNAIRE
NUMBER AND PERCENTAGES OF POSITIVE RESPONSES
(ALL GROUPS) (N-291)

	<u>No. of Positive Responses</u>	<u>% of Positive Responses</u>
Q1A-Library Use	237	81.4
Q2A-Study	139	47.8
Q2B-See Friends	30	10.3
Q2C-Library Programs	25	8.6
Q2D-Take Materials Home	153	52.6
Q3A-Books	265	91.1
Q3B-Records	76	26.1
Q3C-Cassettes	45	15.5
Q3D-Newspaper	99	34.0
Q3E-Quiet Place	184	63.2
Q3F-Do Homework	198	68.0
Q3G-Librarian's Help	127	43.6
Q3H-Programs	94	32.3
Q4-Satisfaction	254	87.3
Q5A-Not Enough Time*	224	77.0
Q5B-Do Homework	160	55.0
Q5C-Library Not Open*	239	82.1
Q5D-Librarians Helpful	251	86.3
Q5E-Library Hard To Get To*	251	86.3
Q6-Comments N=120 (total comments)	67	55.8

*Questions are stated in the negative, so a "false" answer is positive and was tabulated as such.

TABLE 20
QUESTIONNAIRE
NUMBER OF POSITIVE RESPONSES
CONTROL GROUP (N=112)

	<u>No. of Positive Responses</u>	<u>%</u>
Q1A-Library Use	80	71.4
Q2A-Study	47	42.0
Q2B-See Friends	4	3.6
Q2C-Library Programs	9	8.0
Q2D-Take Materials Home	47	42.0
Q3A-Books	95	84.8
Q3B-Records	30	26.8
Q3C-Cassettes	14	15.2
Q3D-Newspaper	37	33.0
Q3E-Quiet Place	65	58.0
Q3F-Do Homework	67	59.8
Q3G-Librarian's Help	42	37.5
Q3H-Programs	33	29.5
Q4-Satisfaction	91	81.3
Q5A-Not Enough Time*	75	67.0
Q5B-Do Homework	57	50.9
Q5C-Library Not Open*	92	82.1
Q5D-Librarians Helpful	94	83.9
Q5E-Library Hard To Get To*	94	83.9
Q6-Comments N=41 (total comments)	21	51.2

*Questions are stated in the negative, so a "false" answer is positive and was tabulated as such.

TABLE 21

QUESTIONNAIRE
NUMBER OF POSITIVE RESPONSES
TREATMENT GROUP (N=152)

	<u>No. of Positive Responses</u>	<u>%</u>
Q1A-Library Use	130	85.5
Q2A-Study	68	44.7
Q2B-See Friends	19	12.5
Q2C-Library Programs	13	8.6
Q2D-Take Materials Home	88	57.9
Q3A-Books	143	94.1
Q3B-Records	42	27.6
Q3C-Cassettes	26	17.1
Q3D-Newspaper	46	30.3
Q3E-Quiet Place	96	63.2
Q3F-Do Homework	105	69.1
Q3G-Librarian's Help	70	46.1
Q3H-Programs	42	37.5
Q4-Satisfaction	137	90.1
Q5A-Not Enough Time*	125	82.2
Q5B-Do Homework	82	53.9
Q5C-Library Not Open*	124	81.6
Q5D-Librarians Helpful	131	86.2
Q5E-Library Hard To Get To*	133	87.5
Q6-Comments N=61 (total comments)	38	62.2

*Questions are stated in the negative, so a "false" answer is positive and was tabulated as such.

TABLE 22

QUESTIONNAIRE
NUMBER OF POSITIVE RESPONSES
GIFTED GROUP (N=27)

	<u>No. of Positive Responses</u>	<u>%</u>
Q1A-Library Use	27	100.0
Q2A-Study	24	88.9
Q2B-See Friends	7	25.9
Q2C-Library Programs	3	11.1
Q2D-Take Materials Home	18	66.7
Q3A-Books	27	100.0
Q3B-Records	4	14.8
Q3C-Cassettes	2	7.4
Q3D-Newspaper	16	59.3
Q3E-Quiet Place	23	85.2
Q3F-Do Homework	26	96.3
Q3G-Librarian's Help	15	55.6
Q3H-Programs	12	44.4
Q4-Satisfaction	26	96.3
Q5A-Not Enough Time*	24	88.9
Q5B-Do Homework	21	77.8
Q5C-Library Not Open*	23	85.2
Q5D-Librarians Helpful	26	96.3
Q5E-Library Hard To Get To*	24	88.9
Q6-Comments N=18 (total comments)	8	44.5

*Questions are stated in the negative, so a "false" answer is positive and was tabulated as such.

TABLE 23

QUESTIONNAIRE:
QUESTION 1B - POSITIVE RESPONSES

Q1B. I usually come to the library ...

	<u>All Groups</u>		<u>Control</u>		<u>Experimental</u>		<u>Gifted</u>	
Alone	39	13.4%	17	15.2%	15	10.0%	7	25.9%
With Family	94	32.3%	36	32.1%	51	33.6%	7	25.9%
With Friends	120	41.2%	37	33.0%	71	47.7%	12	44.4%
With School Class	5	1.7%	3	2.7%	2	1.2%	0	
No Answer	27	9.3%	17	15.2%	10	6.5%	0	
More Than One Answer	<u>6</u>	2.1%	<u>2</u>	1.8%	<u>3</u>	1.0%	<u>1</u>	3.7%
Total N	291		112		152		27	

coded as "1" and the negative answers were coded as "2", so that when the more the positive answers given by the students, the lower the mean scores.

Group was significant on the first question (Have you used the library during the past year?) and the combined question. Group was also significant for question 2-A (Do you use the Library for study?), 2-B (Do you meet friends at the library?), 3-F (Do you do homework at the library?) and 5-A (I don't have time to go to the library.). A summary of these results is found in Table 24 and individual tables are found in Appendix F.

In the six variables where treatment was a significant influence, there were at least two groups of the three contrasted. The control group contrasted with the experimental groups on all but one variable. Students in the control group responded significantly differently from both experimental groups on Question 1A (Have you used the library in the past year?), 2B (Do you meet friends at the library?), 5A (I do not go to the library because I do not have enough time.) and the combined question. The gifted group and the experimental group contrasted on question 2A (Do you use the library for study?), 2B (Do you meet friends at the library?) and 3F (Do you use library materials for homework?). A summary of these results is found in Tables 24 to 29.

TABLE 24
QUESTIONNAIRE: ANALYSIS OF COVARIANCE

	<u>Effect of the Treatment Among Groups</u>
<u>Q1A-Library Use</u>	Significant Difference
<u>Q1B-Who with</u>	No Significant Difference
<u>Q2A-Study</u>	Significant Difference
<u>Q2B-See Friends</u>	Significant Difference
<u>Q2C-Library Programs</u>	No Significant Difference
<u>Q2D-Take Materials Home</u>	No Significant Difference
<u>Q3A-Books</u>	No Significant Difference
<u>Q3B-Records</u>	No Significant Difference
<u>Q3C-Cassettes</u>	No Significant Difference
<u>Q3D-Newspaper</u>	No Significant Difference
<u>Q3E-Quiet Place</u>	No Significant Difference
<u>Q3F-Do Homework</u>	Significant Difference
<u>Q3G-Librarian's Help</u>	No Significant Difference
<u>Q3H-Programs</u>	No Significant Difference
<u>Q4-Satisfaction</u>	No Significant Difference
<u>Q5A-Not Enough Time</u>	Significant Difference
<u>Q5B-Do Homework</u>	No Significant Difference
<u>Q5C-Library Not Open</u>	No Significant Difference
<u>Q5D-Librarians Help</u>	No Significant Difference
<u>Q5E-Library Hard To Get To</u>	No Significant Difference
<u>Q6-Comments</u>	No Significant Difference
<u>Q-Combined</u>	Significant Difference

In question 1A (Have you used the library in the past year?), Table 24, the control group answered positively less often than the experimental group and the gifted group. There was no significant difference between the experimental group and the gifted group in answering this question. In question 2A (I usually go to the library to study), Table 25, the gifted group had significantly more positive answers than either the control or the experimental group. The experimental group was the least positive in answering this question. The experimental group did not contrast with the control group for question 2A.

To the statement, "I usually go to the library to meet friends", question 2B, Table 26, the control group students responded less positively than the students in the experimental group and the gifted group. The gifted group was significantly more positive than the experimental group about meeting friends at the library. In question 3F (Do you use the materials at the library for homework?), Table 27, the gifted group was significantly more positive than either the experimental group or the control group. The experimental group and the control group did not contrast significantly for this question.

In question 5A (I do not go to the library because I do not have enough time), Table 28, the control group said this statement was true more often than the experimental or

gifted group. The gifted group and the experimental group did not contrast significantly. For the combined question score (Table 29) the control group was the least positive overall and contrasted significantly with the experimental and the gifted groups. The gifted group was the most positive but did not contrast significantly with the treatment group.

For the six questions where there were significant contrasts by group, the control group was the least positive on five of the questions. The experimental group was the least positive in the other question. The gifted group was the most positive in answering each of the six questions.

Tests of Control Variables:

Analysis of covariance and one-way tests with LSD contrasts were run on the variables teacher, group and gender, group and grade and school to measure the effects of these variables on student answers to the questions on the questionnaire. There were seven variables (questions) where student answers were influenced by the classroom teacher. The LSD contrasts run on these variables compared the answers of students by class and, in all cases, there were several significant contrasts. The treatment did not seem to affect teacher influence as gifted, experimental and control group

TABLE 25

QUESTIONNAIRE: ONE-WAY TEST
QUESTION 1A - HAVE YOU USED THE LIBRARY IN THE PASY YEAR?
STUDENT RESPONSE BY GROUP

	Gifted	Experimental	Control
Gifted X= 1.0000			
Experimental X= 1.1391			
Control X= 1.2793	S	S	

X is the group mean, S denotes significance at an alpha level of 0.05. The higher the mean, the fewer positive responses.

TABLE 26
QUESTIONNAIRE: ONE-WAY TEST
QUESTION 2A - I USUALLY GO TO THE LIBRARY TO STUDY
STUDENT RESPONSE BY GROUP

	Gifted	Control	Experimental
Gifted X= 1.1111			
Control X= 1.5104	S		
Experimental X= 1.5342	S		

TABLE 27
QUESTIONNAIRE: ONE-WAY TEST
QUESTION 2B - I USUALLY GO TO THE LIBRARY TO MEET FRIENDS
STUDENT RESPONSE GROUP

	Gifted	Experimental	Control
Gifted X= 1.7407			
Experimental X= 1.8699	S		
Control X= 1.9573	S	S	

X is the group mean, S denotes significance at an alpha level of 0.05. The higher the mean, the fewer positive responses.

TABLE 28
QUESTIONNAIRE: ONE-WAY TEST
QUESTION 3F - DO YOU USE MATERIALS AT
THE LIBRARY FOR HOMEWORK?
STUDENT RESPONSES BY GROUP

	Gifted	Experimental	Control
Gifted X= 1.0370			
Experimental X= 1.2708	S		
Control X= 1.2872	S		

X is the group mean, S denotes significance at an alpha level of 0.05. The higher the mean, the fewer positive responses.

TABLE 29
QUESTIONNAIRE: ONE-WAY TEST
QUESTION 5A - I DO NOT GO TO THE LIBRARY BECAUSE I DO NOT
HAVE ENOUGH TIME
STUDENT RESPONSES BY GROUP

	Control	Experimental	Gifted
Control X= 1.6574			
Experimental X= 1.8099		S	
Gifted X= 1.8889			S

X is the group mean, S denotes significance at an alpha level of 0.05. The lower the mean, the fewer positive responses.

TABLE 30
QUESTIONNAIRE: ONE-WAY TEST
COMBINED QUESTIONS
STUDENT RESPONSES BY GROUP

	Gifted	Experimental	Control
Gifted X= 35.3333			
Experimental X= 43.0529			
Control X= 52.0893	S	S	

X is the group mean, S denotes significance at an alpha level of 0.05. The higher the mean, the fewer positive responses.

classes were included in significant contrasts for each of the significant variables.

The questions differing by teacher were 1A (Have you used the library in the past year?), 2A (Do you use the library to study?), 3D (Do you use the newspaper at the library?), 3F (Do you use library material for homework?), 5B (I go to the library to do my homework.), 6 (Comments) and the combined question score.

Teachers did influence student responses on the questionnaire. For each of the variables for which there were contrasts, there were several teachers involved in the contrasts. Teachers did not hold the same relative positions

in these contrasts and treatment received had no consistent effect on teacher influence.

Tests for gender showed that girls answered more positively than boys for questions 1A (Have you used the library in the past year?), 2D (Do you take library materials home?), 5D (Librarians are helpful.) and for the three questions about study and homework (2A, 3F and 5B). Boys stated that they used cassettes more often than girls stated this. Girls made more comments than boys.

Grade had the least effect of any of the control variables on student answers to questions asked on the questionnaire. Sixth graders said that they used the library to study (2A), attended library programs (2C) and used books (3A) more often than fifth graders said they did these things. Sixth graders made more comments than fifth graders.

School influence was significant for the responses to five questions and the combined question score. These questions were 1A (Have you used the library in the past year?), 3F (Do you use materials at the library for homework?), 5B (I go to the library to do homework), 5D (Librarians are helpful), 6 (Comments) and the combined question. Students from School Three were less positive significantly more often than students from the other two schools in every significant contrast.

Summary:

Analysis of the questionnaire data leads to the following conclusions.

1. Sample:

As in the observational data, the control and experimental groups are similar in the characteristics of interest. The gifted group differs from the other groups because it was drawn from one classroom and thus has only one teacher, one grade and one school represented. Again, the average distance from home to library was similar for all the groups.

All groups were positive about use of the public library according to the questionnaire (Hypothesis Seven). The groups varied somewhat in which specific services and materials were used.

2. Analysis of Grade, School, Gender, Teacher and Distance:

A. Gender. Girls reported, on the questionnaire, library use more often than boys. They also reported that they used the library for study or homework (Q2A, Q3F, Q5B) more often than the boys did. Girls reported taking materials home more often than did the boys and they said they went to the library for help more often than boys. On the questionnaire boys reported using cassettes more often than girls.

There were no other significant differences between boys and girls in how they responded to the questionnaire.

- B. Grade. On the questionnaire sixth graders said they attended library programs and used books more often than fifth graders. Sixth graders also reported that they used the library to study more often than fifth graders reported this. On other questions there was no significant difference in the answers of fifth and sixth graders.
- C. Teachers. Teachers did significantly influence students' answers on questions about the public library. Significant contrasts were found on the following questions: Q1A-Library Use, Q2A-Study, Q3D-Newspaper, Q3F-Homework, Q5A-Not Enough Time, Q5B-Homework, Q6-Comments and Q-Combined.

In all these contrasts except for Q5A-Not Enough Time each teacher showed significant differences with one or more of the other teachers in the study. No strong pattern of differences developed among these contrasts for particular teachers. Teacher #3 (gifted) had the most positive responses in four contrasts and Teacher #5 (experimental) had the most negative responses in four contrasts.

Other teachers did not hold the same relative position from contrast to contrast. In Q1A- Library Use the six teachers who had the most negative responses all taught in the same school (School Three). No other patterns appear in the contrasts and group (control, experimental or gifted) participation did not seem to affect the teacher contrasts.

- D. School. School did significantly influence student answers to questions about the public library. Significant contrasts were found on the following questions: Q1A-Library Use, Q3F-Homework, Q5D-Librarian Helpful, Q6-Comments, and Q-Combined.

School Three had the lowest number of positive responses on every significant contrast and in all these contrasts School Three differed significantly from both School One and School Two. School Three also has a slightly more transient student body than the other two schools.

3. Analysis of Treatment Effects:

The treatment affected student answers on the questionnaires. The following questions showed significant differences among groups: Q1A-Library Use, Q2A-Study, Q2B-See Friends, Q3F-Homework, Q5A-No Time, and Q-Combined.

The gifted group had the most positive responses in all of these significant contrasts and there were at least two significant contrasts for each of these variables. The gifted group reported using the library for study, meeting friends and doing homework at the library more often than the other two groups. The control group reported using the library less often than the other groups and the control group reported seeing friends less often than the other groups. The control group stated that they did not have enough time to go to the library more often than the other groups stated this.

Descriptive Data

Both teachers and students filled out questionnaires on the last day of the treatment period. All fourteen teachers returned completed questionnaires. Students were asked for additional comments on their questionnaire and many took the opportunity to add them. Library staff also noted comments made by students at the library. Information on weather, community events and circulation were recorded in a daily log during the observation period and library staff commented on the project. A summary follows.

Teachers Comments:

All fourteen teachers were positive about their involvement in the project. All teachers had used a public library in the past year, and all said they suggested to their students that they should use the public library. Ten out of the fourteen teachers felt that students knew how to use the library to meet their needs. All eight teachers in the experimental and gifted groups wanted to be involved in a similar program (treatment) in the following school year, and many commented that they would like to have the program expanded to more of the school year.

When teachers were asked what problems their students might have in using the public library, time, transportation and motivation ranked high. When asked for solutions to these problems, only one teacher mentioned more active encouragement by the teacher. The other teachers suggested more contact with the librarian and more class visits to the library as well as more parent involvement as solutions. Though every teacher could cite benefits of public library use by students, only one saw teacher attitudes and encouragement as a factor in that use.

Students Comments:

Student comments included generally positive statements ("It's a nice library" or "Librarians are nice") as

well as specific buying suggestions ("You need more books on bones and the human body"). The other common comment from the experimental and gifted groups was that the library does not have enough multiple copies of popular titles. This was the only type of comment that was different from group to group.

The students in all three groups who came to the library during the observation period were very interested in "being in an experiment." Though no student understood what data were being collected, they knew from the letter sent to the parents explaining the project that they were part of an experiment. Students in the experimental and gifted groups asked for "the lady who came to visit" to get suggestions of good books to read or to say hello. Other comments by students at the library were specific requests for information, specific requests for particular books or positive comments about the help received.

Other Descriptive Data:

Weather was probably not an important factor in this project. The baseline period had the best weather with nine nice days. The post-treatment period had four nice days with the rest of the weather being overcast and chilly. The treatment period had only three nice days with the rest being overcast and rainy.

There were no community or library events during either the baseline or post-treatment periods. During the treatment period there was community carnival for three days and Mother's Day fell within this period. The effects of these events on library use seemed minimal, so it is unlikely that outside events were a factor in student behavior. The only external factor that probably did have an effect on student use was that the post-treatment period came very close to the end of the school year and teachers gave very few research assignments during this time.

Because the public library changed circulation systems two weeks before the collection of the observational data, there is no way to make a direct comparison of circulation changes during the observation period. The circulation during the observation period did seem to be similar to circulation for the same time period in years past. The Youth Services Department continued to experience modest growth (8%) for the months of the observational period. The only circulation pattern that was unusual was that the books used in the librarian's visit were in extremely high demand. Several of the books were on reserve and one book, A View From the Cherry Tree by Willo Roberts (Atheneum, 1975), had more reserves on it than any children's book ever had in the library. The library owned twelve copies of the book and had forty reserves on it. Several teachers asked for copies

of the various books shared by the librarian and resource center teachers in all three schools reported increased demand for the books.

Library staff reported increased awareness of who was using the Youth Services Department and all staff members commented on the increased use by fifth and sixth graders during the treatment period. Staff indicated that they were comfortable with the method of gathering data and confident that the data gathered provided accurate representation of library use by fifth and sixth graders.

CHAPTER V

CONCLUSIONS

The object of this study was to ascertain how upper elementary students use a local public library and whether this use can be affected by specific activities done in the school classroom. It was also planned that a method of data collection would be developed that would facilitate replication of the present study as well as aid other librarians in finding out more about use of the public library by elementary school students. Data related to these concerns were collected and analyzed and information can be reported for each of these areas of concern as well as information concerning school-public library cooperation.

During the early stages of development, the emphasis changed somewhat. Originally it was thought that library skills needed to be reinforced in the public library setting, but it became clear from comments of both teachers and the students themselves, that library skills had been adequately presented and the mechanics of library use mastered. The need seemed to be for motivation to use the library and information on specific library procedures and holdings.

The study was designed to address these needs rather than skills reinforcement.

Patterns of Use:

The fifth and sixth graders in this study initially did not make enough use of the public library to have a discernible pattern of use. While all groups increased their use during the treatment period, the control group continued to use the public library the least throughout the observation. But, when use was stimulated by classroom activities, the students in the experimental groups changed their pattern of use. They came to the library to study, to meet with friends and to use the library's media. Students seemed to perceive the library's more traditional services (book and reference services) as useful.

It should be mentioned that most students in the treatment groups expressed enthusiasm for use of the library's computer. Most students were anxious to use the public access computer, but the library's equipment was unavailable for use for the entire observational period so no measure of use of this service was possible. Other than this, no significant interest was expressed for other library services such as library programs or nonbook media.

Two other trends emerged to complete the pattern of public library use by upper elementary students. They did

not take materials home very often. They seemed to much prefer to use materials at the library. The other aspect of use in this community that was not expected was that distance the student lived from the library did not affect actual use. It had some effect on the perception of what the public library had to offer, but few students said they had trouble getting to the library when they were asked directly about this on the questionnaire.

The pattern then, for these students, is one of non-use for those not encouraged to use the library in the classroom (control group). For students who did use the library the pattern was to use books at the library and also, most typically, they would come with or meet friends to socialize and to do homework. Distance lived from the library was not an important factor in library use. Also, students did not take materials home, though most of the library's collection is available for circulation. Students as a group did not seem to come to the library for programs or to use nonbook materials. The pattern that emerged is book oriented and is socially motivated and directed by needs for information for homework.

Two patterns of library use emerge, one was of no use at all and one was of the use of book materials and the library as a social center. It would seem that library promotion directly to fifth and sixth graders is essential

to getting these students to use the library. Without the support of teachers and activities in the classroom, students did not use the library. After the promotion of library services, use in the experimental group increased. If librarians wish to attract older elementary students, it would seem that promotion in school should be an integral part of library service. Librarians cannot expect students to use services they do not know or understand.

It is also the librarian's decision as to what to promote. In this study, books and reference services were introduced and the pattern of use reflected this bias. In this study, records, cassette tapes or periodicals could have been promoted with the expectation that their use would have increased. In addition, lack of non-print media use in this study suggests that these are areas for collection and evaluation and development.

As it was seen that fifth and sixth graders like to socialize, it is important for librarians to plan for this and capitalize on peer relationships when promoting the library. Stressing that the library is a friendly place and providing for both group and individual study would likely attract students who expect to meet friends at the library. Rules for acceptable socializing need to be clear, but if the library is seen as a place where many students go, it may attract individual students because it has the

acceptance of the group. It would seem that a realistic attitude toward student behavior, materials selection to meet fifth and sixth graders' needs specifically, and continued promotion are keys to lasting increases in the use of the library.

Effects of the Treatment

In addition to conclusions relating directly to the experimental hypotheses, there are several other conclusions to be made based on the data. Results of analysis of the hypothesis will be presented first, then the interpretation of the results will be presented.

Hypotheses:

There are two tests for hypotheses one to five as stated in Hypothesis Six. Test One considered the change between performance in the baseline and the treatment periods and Test Two treated the change in performance between the baseline and post-treatment periods. Each hypothesis will be considered in turn on both tests.

1. There was no difference in the frequency (number of visits) with which students use the public library among treatment group A, treatment group B and the control group.

In Test One the data analysis showed that Hypothesis One should not be rejected because there was no significant difference in the number of visits to the public library among groups. However, in Test Two, Hypothesis One can be rejected as the gifted group used the public library significantly less in the post-treatment period than either the control or the experimental group.

2. There is no difference in duration (time in minutes) of visits to the public library by students among the experimental group, the gifted group and the control group.

Again, the two tests were run and in both tests Hypothesis Two was rejected. In Test One the experimental differed significantly from the gifted group and in Test Two gifted group differed significantly from experimental group and the control group.

3. There is no difference in usage of time (activities engaged in) at the public library by students among the experimental group, the gifted group and the control group.

If one considers the measure of activities as the combined activities, Hypothesis Three can be rejected on both Test One and Test Two. In Test One the control group engaged in significantly fewer activities than the experimental group. The gifted group spent the least amount of the time in the library so, in Test Two, the gifted group was significantly less active than experimental group or the control group.

If one considers the measure of activities as the individual activities observed, the results of Test One and Two are mixed. Three out of nine activities showed significance among groups in Test One, and two out of nine activities showed significance among groups in Test Two. Because there were some significant differences in activities, Hypothesis Three would also be rejected with this measure.

Both Hypotheses Four and Five deal with circulation of library materials.

4. There is no difference in type of library materials checked out from the public library by students among the experimental group, the gifted group and the control group.

5. There is no difference in the amount (number of items) of library materials checked out from the public library by students among the experimental group, the gifted group and the control group.

There were no significant differences in circulation among groups so neither hypothesis Four or Five was rejected.

Hypothesis Six dealt with the two tests run on the observational data. Hypothesis Seven concerns data collected by the student questionnaire.

6. There is no difference in baseline, experimental and post-experimental measures among groups as tested on each aspect above.

7. There is no difference in the level of satisfaction attained in the use of the public library by students assessed by a student questionnaire among the experimental group, the gifted group and the control group.

Hypothesis Seven cannot be rejected on the basis of question four on the questionnaire as there was no significant difference in the opinions among groups. All groups

were positive about the use of the library and stated that they were successful in finding what was wanted when they went to the library. In addition to the specific findings relating directly to the hypotheses, there were some general findings of interest.

The treatment did have significant impact on student behavior. Though frequency of visit was not significantly different from group to group, the total amount of time spent at the public library and the number of activities engaged in at the public library did differ. Students in the experimental group spent more time at the library and behaved differently while there than the students in the control group.

While the treatment had impact on student behavior during the treatment period, it had little effect during the post-treatment period. One reason for this may have been the fact that the post-treatment period fell very close to the end of the school year and teachers gave fewer research assignments during this time. Also, there may have been a feeling by students that they did not need to study or use the library because school demands were lessened. Future study would be needed to ascertain if the time of the school year has significant effect on student behavior.

The gifted group was less affected by the treatment than the experimental group. The gifted group was, without the treatment, already using the library so that there was

less change in their behavior from baseline use to treatment use. Also, the treatment seemed to have no lasting effect on the gifted group as student use of the library dropped off more for this group than the others during the post-treatment period. One might conclude that the gifted students have a background or history of public library use and are already "sold on libraries" so extra promotion of library service caused less change for this group than the others. It may also be that the gifted students were more motivated to use the public library by school assignments than the other groups so that when the school assignments stopped in the post-treatment period, the gifted students stopped using the library.

It is difficult to tell why the gifted students' pattern of use was different from the pattern of non-gifted students, just as it is difficult to state that their behavior was typical or representative of all gifted students. It may be that materials and services that are of interest to the non-gifted students are not interesting or enticing to gifted students. If this is the case, then higher level activities and promotion of adult materials would be more effective with gifted groups.

Another conclusion to be drawn from the data is that the treatment had more effect on the experimental group students' behavior than on their expressed satisfaction with the library. The stimulation of the classroom teacher to

use the public library, the introduction of library service and the self-monitoring stimulated the experimental group to act differently from the other groups but not necessarily to think differently about the library.

The treatment was aimed at increasing use of the library. The experimental group spent more time at the library (duration) than the other groups, so in this sense the treatment was effective. It was also expected that the treatment would encourage students to talk with staff, talk with others and spend more time reading and studying. During the treatment the students in the experimental and gifted groups met the librarian and were encouraged to come to the library with friends or to plan to meet friends at the library. The library was described as a place where these students and their friends were welcome and a place that they could use to socialize. During the treatment period both the librarians and the teachers encouraged students to use the library for study and recreational reading. The treatment was effective in promoting these activities in that the experimental group did spend more time socializing and talking with others and reading and studying and they were generally more active than the other groups as they did more "other" things and had a higher combined score.

There were several activities where there were no significant differences among groups either on the questionnaire or in the observation. These activities, however, were not ones emphasized in the treatment. The focus of the treatment was important in that the effects of the treatment were greatest in the areas that were promoted and the least important in the areas not emphasized by the treatment.

All groups saw the public library as a supplier of books more often than of other forms of materials. Groups took about the same amount of time to use the card catalog and find materials and to interact with library staff. All groups thought the library was accessible, except that the control group thought that they did not have the time to use the library. In all these areas, it is not so much that the treatment had no effect, but that all students had positive attitudes, accurate perceptions of the collection and skill in library use before the study began.

Several of the hypotheses could not be rejected. One of the areas in which the treatment did not affect students was circulation. There was no significant difference in the type of materials checked out. All over circulation was low for all students observed. No one group was different from the others.

One reason students may not take materials home is that they do the work at the library and have no need to

take material out. Another reason students may not take materials home is that they do not wish to run the risk of losing materials or having overdue fines. Though lost and overdue materials are fairly infrequent, many students expressed concern about these matters to the librarian during her visit to the classroom.

The other reason students may not have checked out materials is that the public library collection may not contain what fifth and sixth graders want. Many students did comment that the library needed more copies of books on particular topics and more copies of popular titles. The pattern of use indicates that library needs are based on class assignments or books that are popular among groups of students so that the public library may need to examine its practice of purchasing few multiple copies of titles in the collection.

The study showed that some teachers had an affect on student use of the library separate from the treatment. Several teachers exerted influence on their students' answers to the questionnaire and three teachers influenced the students' observed behavior. The most likely explanation for teacher influence on the questionnaire is that the teacher administered the questionnaire and had the opportunity to discuss the answers with the students. Students may have obtained the idea of the "right" answers from such discussions.

The teachers who influenced student behavior had all promoted library use prior to the beginning of the project. The cumulative effect of this prior promotion of the library by these teachers plus the treatment made the students use the library more often. However, other teachers in the study had promoted the use of the library earlier in the school year also, so it is unlikely that the prior behavior of the teachers accounted for the differences in student performance by teacher. The three teachers who had significantly positive effects on the students' behavior were very enthusiastic about the project and may have embellished the treatment or been more aggressive in carrying out the activities suggested for use during the treatment period. On the other hand, the treatment had an effect on student use of the library as measured by several variables regardless of the teacher or the teacher's enthusiasm or zeal in administering the treatment.

The teachers in this study undoubtedly were the key in influencing student behavior. Some teachers had an effect on student behavior over and above the treatment, but as the treatment was primarily teacher directed, all teachers played an essential role in motivating children to use the library. If librarians wish to promote library use by students, they would do well to work with teachers. Librarians need to make clear to teachers what the library has to offer students and in what ways the teacher can help

students become more effective library users. As teachers have the ability to influence their students, it is important that librarians work with teachers when implementing library service to students.

Methodology

The original concern of this study was to find out what motivates children to use the public library and what impact classroom activities might have on student use of the public library. The student questionnaire was used to measure student perception of the public library services and the observational technique was used to measure the students' actual use of the public library. It was expected that the results of the analysis of these measures would be similar, that student perception and student's use of the public library would be similar.

This was not the case. The observational data and the questionnaire differed on several points. More than eighty percent (81.4%) of the students said that they used the library in the past year, yet actual library use during the observation period particularly the base time period by these students was low. Only about 10% of the students said that they went to the public library to see friends, but socializing with friends was the second most often observed behavior. About 52% of the students said on the

questionnaire that they used the public library to get materials to take home, but circulation for these students during the observational period was low.

It was also expected that the control variables of teachers, school, distance, gender and grade would influence students in similar ways on the questionnaire and in the observation. This was true for grade only. Though students answered differently by grade on four questions, grade did not seem to be an important factor on the questionnaire or in the observation.

Girls answered eleven out of twenty-two questions differently from boys but they used the library in a similar way to boys (except "other"). School did not influence observed behavior of students at the library; however, on six of the twenty-two questions the school attended did affect answers.

Teachers influenced student behavior in the observation and on the questionnaire but the magnitude of the variations among teachers was quite different. In the observation three teachers varied on four variables. On the questionnaire, several teachers varied on eight of the twenty-two questions. Since teachers administered the questionnaire, this may explain their increased influence on the questionnaire.

The differences in these results of the analysis of the questionnaire and the observation data leads to the conclusion that fifth and sixth grade students perceive public

library services in one way and use them in another. Assuming that the instruments used to measure perception and use are accurate, students were more positive in answering questions about the public library than they are in actual use of the public library. Also, teachers and the school setting had more influence on students when they were at school, than when students were out of school.

Though there are some explanations for why these particular students perceived public library service in one way and used them in another, it is not clear what causes attitudes to be positive and use to be low. The implication is that it is easy for students to state positive values but the commitment to act on them takes more effort. We should, therefore, look at data on library use collected from questionnaires with a good deal of caution if we want to predict use patterns or patron behavior from that data. Since questionnaires are fairly commonly used as a measurement tool in libraries, it is important to note, that, in this study, the questionnaire data did not match behavior. Questionnaire data needs to be examined carefully and used with caution when they are to be used as the basis of library planning or evaluation.

As many libraries are using questionnaires to gather information for planning and budgeting, it is important that the data gathered is an accurate reflection of user

attitudes and habits. This study demonstrates that there is some reason to doubt the accuracy of data gathered by questionnaire from children. Either questionnaires need to be developed that are a more reliable measure of actual behavior and attitudes or other methods of data gathering need to be used to determine how children actually use the library or what changes the library can make to serve children more effectively. Further study is needed to delineate a general rule about the relationship of questionnaire data and actual library use.

School/Public Library Cooperation

Normal public library use by non-gifted fifth and sixth graders was virtually non-existent during the baseline observation period. Only three visits were made by the forty-eight non-gifted students during a two-week period. Judging by the increase in use by the experimental group, activities in the school classroom can affect use of the public library.

During the school year, regular students don't seem to use the public library frequently under normal conditions. Teachers do seem to be able to provide motivation to use the public library, without giving direct assignments to do so. In this way teachers influence the independent use of the public library by their students. It would seem, too, that gifted students may be influenced to use the

the library by the teacher as well as by personal habits. The treatment had little effect, not because the teacher was ineffective, but because encouragement to use the public library is already a part of the curriculum for gifted students.

This being the case, it is a benefit to students to have the institutions, the school and the public library, cooperate to provide instruction and motivation for independent use of the public library. In other communities the form of the cooperation will be dependent on local conditions but the involvement of the public librarian, the teacher and the participation of the student in self monitoring did have a positive effect in this study. Further study in other settings is needed to understand the generalizability of the treatment.

Further Study

There are two kinds of studies that could be done to gain further understanding of elementary school student use of the public library. First, the present study needs to be replicated in other communities, with different school and library personnel. If the findings of this study are general rather than specific to the particular setting, other studies using the same or similar methods should produce the same or similar results.

The other kind of study needed is one that would follow student use of the public library for a longer period of time, perhaps over a full year or longer. Though the practical problems of a longitudinal study are difficult to overcome, data should be gathered over time and the treatment period extended to see the long-lasting effect of a program of cooperation between school and library.

Many other changes of design suggest themselves as productive. The age of the students could be changed to see if patterns of use change among elementary aged children. Other factors such as use of the library by parents and siblings or economic status of the family, could be considered. Though the questionnaire was loosely based on the student questionnaire suggested in A Planning Process For Public Libraries¹ it seemed to elicit only positive response so questions might be added that deal directly with problems students have with the public library. One could also test to see whether student IQ or school performance affects use of the public library.

¹Vernon E. Palmour, Marcia C. Bellassi and Nancy V. Dewath, A Planning Process For Public Libraries, (Chicago: American Library Association, 1980), pp. 198-202.

Lastly, aspects of the treatment could be changed to see the effect of promoting various activities and of using various methods of promotion. For instance, if classes visit the library, do students come to the library more or less often on their own? If teachers assign use of the public library directly, is there long lasting effect on independent library use? Such questions are important and further study is needed to find the answers.

In this study, data were collected to see how fifth and sixth grade children use the public library and whether the classroom teacher and the librarian could stimulate library use and affect student behavior. Though nothing approaching absolute control by teachers was established, students were affected by promotion of public library use in the classroom. These findings suggest that this is an area of study that should be pursued in other settings and that the instruments should be further developed.

These fifth and sixth grade students seemed to perceive the library in a positive way but use it rarely. They viewed the traditional book and reference orientation of the library as the most useful services offered. They also seemed to use the library as a place to meet friends and socialize while they did homework. They did not take material out often, but used it at the library instead. This pattern suggests that the library has to be more active in

promoting all its services and to seek every opportunity to stimulate actual library use by students if it is to do its job of providing materials and information to youth effectively.

Fifth and sixth grade students need to understand library services, see them as an important supplement to school work and to have actual experience in independent use of a library to become library users. Teachers and librarians can work together with young people to increase library use and to improve information access to students.

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APPENDIX A

APPENDIX A

ARTICLES PREVIEWED

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APPENDIX B

APPENDIX B

PROJECT DOCUMENTS

Parent Consent Form:

Project Title: Classroom Orientation to the Use of the
Public Library and Its Effect on Fifth and
Sixth Grade Students

I, the parent/guardian of _____,
a minor _____ years of age, consent to his/her participa-
tion in a program of research being conducted by Leslie
Edmonds, entitled "Classroom Orientation to the Use of the
Public Library and Its Effect on Fifth and Sixth Grade
Students."

I understand that no risk is involved and that I may
withdraw my child from participation at any time without
prejudice.

.....

Signature of Parent

.....

Date

Observation Form:

Student _____ Date _____

Time of Arrival _____ Time of Departure _____ Duration of Visit _____

1 2 3 4 5 6 7 8

Time:

Activities

- 1. Talking with others:
parent, peer, sibling,
other _____
- 2. Talking with library
staff _____
- 3. Reading/studying _____
- 4. Card catalog _____
- 5. Looking for materials _____
- 6. Playing games _____
- 7. Computer _____
- 8. Library programs _____
- 9. Bathroom _____
- 10. Nothing _____
- 11. Other _____

Circulation

Fiction (Print) _____
 Non-fiction (Print) _____
 Non-print _____

Did the student find what he/she wanted?

Did the student ask questions? What?

SCHOOL _____

TEACHER _____

Self-monitoring Library Update

Keep this in your desk at school or some place where you won't forget it. After you visit the public library, fill out a Library Update report. Fill out one report each time you go to the public library. If you need another Library Update report, ask your teacher for one.

Library Update

When?	Day:	Monday	Tuesday	Wednesday		
		Thursday	Friday	Saturday	Sunday	
	Time:	Morning	Afternoon	Evening		

What? What things did you do? Check off what you did.

- 1. Use library materials to help with school work
- 2. Use library materials for fun
- 3. Attend a library program
- 4. Use the computer
- 5. Talk with friends
- 6. Check library materials out to take home
- 7. Ask librarian for help
- 8. Other:

Who? Who did you go with?

Did you see anyone you knew?

Who?

Librarian's Visit:

Lesson Outline

1. Introduce self and explain visit. Ask students the following:

What kinds of books do you like to read?

Where do you get books to read?

How many people have been to the public library in the past year? month?

Where is the library?

Hand out library pamphlet. Answer questions about library cards, etc.

2. Go over purpose of Library Update and introduce library services by explaining items on the Update.
3. Present the following books and invite students to come to the public library to check out these or others.

A VIEW FROM THE CHERRY TREE, Willo Roberts
Atheneum 1975

WESTING GAME, Ellen Raskin
Dutton, 1978

TUCK EVERLASTING, Natalie Babbitt
Farrar, 1975

LIZARD MUSIC, Manus Pinkwater
Dodd, 1976

SECRETS OF THE SHOPPING MALL, Richard Peck
Delacorte, 1979

4. Leave Updates with teachers and let students look at books and copy down titles of books of interest.

NAME _____
 ADDRESS _____
 SCHOOL _____
 TEACHER _____

STUDENT QUESTIONNAIRE:

1. Have you used the Rolling Meadows Public Library during the past year?

_____ Yes _____ No

If you have been to the library, choose one of the following:

- _____ I usually come alone
 _____ I usually come with my family
 _____ I usually come with friends
 _____ I usually come with my school class

2. I usually go to the public library

- _____ to study
 _____ to meet friends
 _____ to attend programs or with my school class
 _____ to get materials to use at home for fun

3. What do you use when you go to the public library? Please circle your answer to each one.

- | | | |
|--|-----|----|
| a. Books | Yes | No |
| b. Records | Yes | No |
| c. Cassettes | Yes | No |
| d. Newspapers or Magazines | Yes | No |
| e. A quiet place to study | Yes | No |
| f. Materials to use for homework | Yes | No |
| g. Librarians to help answer questions | Yes | No |
| h. Library programs | Yes | No |

4. Do you usually find what you want at the public library?

Yes No

5. Which of the following statements about the public library are true for you? Please check true or false for each item.

a. I do not go to the public library, because I do not have enough time.

True False

b. I go to the library to do my homework.

True False

c. The library is not open the hours I want to use it.

True False

d. The librarians are helpful.

True False

e. The library is difficult to get to. I have no transportation to get there.

True False

6. Are there any more things you would like to say about the Rolling Meadows Library?

APPENDIX C

ANALYSIS OF COVARIANCE

OBSERVATIONAL DATA

Group - Set I

(Treatment-Baseline)

Frequency

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.828	1	1.818	2.105	0.151
Main Effects: Group	3.429	2	1.714	1.974	0.147
Explained	5.257	3	1.752	2.018	0.120
Residual	59.062	68	0.869		
Total	64.319	71	0.906		

Duration

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3435.524	1	3435.524	1.679	0.199
Main Effects: Group	15267.090	2	7633.543	3.730	0.029
Explained	18702.625	3	6234.207	3.046	0.035
Residual	139167.375	68	2046.579		
Total	157870.000	71	2223.521		

Activity A - Talking With Others

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	16.561	1	16.561	1.377	0.245
Main Effects: Group	151.355	2	75.678	6.294	0.003
Explained	167.917	3	55.972	4.655	0.005
Residual	817.578	68	12.023		
Total	985.495	71	13.880		

Activity B - Talking With Staff

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.284524	1	1.284524	0.308	0.581
Main Effects: Group	1.036	2	0.518	0.124	0.883
Explained	2.320	3	0.773	0.185	0.906
Residual	283.677	68	4.172		
Total	285.997	71	4.028		

Activity C - Reading/Studying

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	18.066	1	18.066	0.756	0.388
Main Effects: Group	231.539	2	115.770	4.843	0.011
Explained	249.605	3	83.202	3.481	0.020
Residual	1625.375	68	23.903		
Total	1874.980	71	26.408		

Activity D - Using Card Catalog

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.031	1	0.031	0.133	0.717
Main Effects: Group	0.203	2	0.102	0.440	0.646
Explained	0.234	3	0.078	0.338	0.798
Residual	15.710	68	0.231		
Total	15.9447	71	0.225		

Activity E - Looking For Materials

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.280	1	3.280	0.387	0.536
Main Effects: Group	8.595	2	4.297	0.506	0.605
Explained	11.875	3	3.958	0.466	0.707
Residual	576.996	68	8.485		
Total	588.870	71	8.294		

Activity F - Attending Library Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.186	1	1.186	1.339	0.251
Main Effects: Group	1.682	2	0.841	0.949	0.392
Explained	2.868	3	0.956	1.079	1.364
Residual	60.242	68	0.886		
Total	63.117	71	0.889		

Activity G - Using The Bathroom

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.116	1	0.116	2.778	0.100
Main Effects: Group	0.024	2	0.012	0.289	0.750
Explained	0.140	3	0.047	1.119	0.348
Residual	2.84696	68	0.042		
Total	2.986	71	0.042		

Activity H - Doing Nothing

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.181	1	1.181	2.670	0.107
Main Effects: Group	0.074	2	0.037	0.543	0.584
Explained	0.255	3	0.085	1.252	0.298
Residual	4.620	68	0.068		
Total	4.875	71	0.069		

Activity I - Other

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.001	1	0.001	0.000	0.983
Main Effects: Group	5.788	2	2.894	1.865	0.163
Explained	5.789	3	1.930	1.243	0.301
Residual	105.350	68	1.552		
Total	111.319	71	1.568		

Combined Activities

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	87.409	1	87.409	0.665	0.418
Main Effects: Group	999.839	2	499.920	3.802	0.027
Explained	1087.250	3	362.417	2.756	0.049
Residual	8941.980	68	131.500		
Total	10029.230	71	141.257		

Circulation - Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.227	1	1.227	0.572	0.452
Main Effects: Group	2.764	2	1.382	0.644	0.528
Explained	3.992	3	1.331	0.620	0.605
Residual	145.994	68	2.147		
Total	149.986	71	2.112		

Circulation - Non-Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.013	1	0.0139	0.010	0.921
Main Effects: Group	4.733	2	2.366	1.824	0.169
Explained	4.745	3	1.582	1.219	0.310
Residual	88.240	68	1.298		
Total	92.986	71	1.310		

Circulation - Nonbook

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.137	1	0.137	0.986	0.324
Main Effects: Group	0.189	2	0.094	0.678	0.511
Explained	0.326	3	0.1090	0.781	0.509
Residual	9.452	68	0.139		
Total	9.77886	71	0.138		

Combined Circulation

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2.533	1	2.533	0.534	0.468
Main Effects: Group	2.777	2	1.389	0.293	0.747
Explained	5.310	3	1.770	0.373	0.773
Residual	322.685	68	4.745		
Total	327.995	71	4.620		

OBSERVATIONAL DATA
Group - Set II
(Post-Treatment-Baseline)

Frequency

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.275	1	1.275	3.650	0.060
Main Effects: Group	3.851	2	1.925	5.513	0.006
Explained	5.125	3	1.708	4.892	0.004
Residual	23.749	68	0.349		
Total	28.875	71	0.407		

Duration

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2211.913	1	2211.913	2.835	0.097
Main Effects: Group	7104.8280	2	3552.414	4.553	0.014
Explained	9316.7925	3	3105.581	3.980	0.011
Residual	53057.4535	68	780.257		
Total	62374.195	71	878.510		

Activity A - Talking With Others

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	7.111	1	7.111	3.749	0.057
Main Effects: Group	3.799	2	1.899	1.001	0.373
Explained	10.910	3	3.637	1.917	0.135
Residual	128.965	68	1.897		
Total	139.875	71	1.970		

Activity B - Talking With Staff

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.699	1	0.699	1.461	0.231
Main Effects: Group	1.399	2	0.700	1.461	0.239
Explained	2.099	3	0.700	1.461	0.233
Residual	32.554	68	0.479		
Total	34.653	71	0.488		

Activity C - Reading/Studying

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.412	1	0.412	0.085	0.771
Main Effects: Group	6.759	2	3.380	0.701	0.500
Explained	7.171	3	2.390	0.496	0.687
Residual	327.935	68	4.823		
Total	335.106	71	4.720		

Activity D - Using Card Catalog

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.062	1	0.062	0.331	0.567
Main Effects: Group	1.006	2	0.503	2.690	0.075
Explained	1.067	3	0.356	1.904	0.137
Residual	12.710	68	0.187		
Total	13.778	71	0.194		

Activity E - Looking For Materials

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.519	1	3.519	2.540	0.116
Main Effects: Group	9.539	2	4.770	3.442	0.038
Explained	13.058	3	4.353	3.141	0.031
Residual	94.219	68	1.386		
Total	107.277	71	1.511		

Activity F - Attending Library Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.978	1	3.978	2.583	0.113
Main Effects: Group	4.282	2	2.141	1.390	0.256
Explained	8.261	3	2.754	1.788	0.158
Residual	104.725	68	1.540		
Total	112.986	71	1.591		

Activity G - Using The Bathroom

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.092	1	0.092	3.417	0.069
Main Effects: Group	0.030	2	0.015	0.558	0.575
Explained	0.122	3	0.041	1.511	0.219
Residual	1.823	68	0.024		
Total	1.944	71	0.027		

Activity H - Doing Nothing

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0				
Main Effects: Group	0				
Explained	0				
Residual	0				
Total	0				

Activity I - Other

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.093	1	0.093	0.242	0.624
Main Effects: Group	3.129	2	1.565	4.049	0.022
Explained	3.223	3	1.074	2.780	0.048
Residual	26.277	68	0.386		
Total	29.500	71	0.415		

Combined Activities

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	68.240	1	68.240	2.921	0.092
Main Effects: Group	163.947	2	81.973	3.509	0.035
Explained	232.187	3	77.396	3.313	0.025
Residual	1588.458	68	23.360		
Total	1820.645	71	25.643		

Circulation - Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2.088	1	2.088	1.948	0.167
Main Effects: Group	3.628	2	1.814	1.692	0.192
Explained	5.716	3	1.905	1.778	0.160
Residual	72.894	68	1.072		
Total	78.6116	71	1.107		

Circulation - Non-Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.118	1	0.118	0.136	0.713
Main Effects: Group	2.363	2	1.182	1.361	0.263
Explained	2.481	3	0.827	0.953	0.420
Residual	59.018	68	0.868		
Total	61.500	71	0.866		

Circulation - Nonbook

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0				
Main Effects: Group	0				
Explained	0				
Residual	0				
Total	0				

Combined Circulation

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.213	1	1.213	0.656	0.421
Main Effects: Group	11.437	2	5.719	3.091	0.052
Explained	12.650	3	4.217	2.279	0.087
Residual	125.794	68	1.850		
Total	138.444	71	1.950		

OBSERVATIONAL DATA
Group and Gender
Set I
(Treatment-Baseline)

Frequency

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.828	1	1.818	2.078	0.154
Main Effects:	4.397	3	1.466	1.666	0.183
Group	3.429	2	1.714	1.949	0.151
Gender	0.968	1	0.968	1.100	0.298
Two-Way Interaction	0.912	2	0.456	0.519	0.598
Explained	7.138	6	1.190	1.352	0.247
Residual	57.181	65	0.880		
Total	64.319	71	0.906		

Duration

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3435.524	1	3435.524	1.677	0.200
Main Effects:	20387.934	3	6795.977	3.318	0.025
Group	15267.090	2	7633.543	3.727	0.029
Gender	5120.844	1	5120.844	2.500	0.119
Two-Way Interaction	901.844	2	450.922	0.220	0.803
Explained	24725.313	6	4120.883	2.012	0.077
Residual	133144.688	65	2048.380		
Total	157870.000	71	2223.521		

Activity A - Talking With Others

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	16.561	1	16.561	1.330	0.253
Main Effects: Group	155.501	3	51.834	4.163	0.009
Gender	151.355	2	75.678	6.779	0.004
	4.146	1	4.146	0.333	0.566
Two-Way Interaction	4.041	2	2.021	0.162	0.851
Explained	176.104	6	29.351	2.357	0.040
Residual	809.391	65	12.452		
Total	985.495	71	13.880		

Activity B - Talking With Staff

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.284	1	1.284	0.309	0.580
Main Effects: Group	35.548	3	4.516	1.088	0.361
Gender	1.036	2	0.518	0.125	0.883
	12.513	1	12.513	3.014	0.087
Two-Way Interaction	1.351	2	0.676	0.163	0.850
Explained	16.184	6	2.697	0.650	0.690
Residual	269.813	65	4.151		
Total	285.997	71	4.028		

Activity C - Reading/Studying

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	18.066	1	18.066	0.741	0.392
Main Effects:	260.277	3	86.759	3.561	0.019
Group	231.539	2	115.770	4.751	0.012
Gender	28.738	1	28.738	1.179	0.281
Two-Way Interaction	12.896	2	6.448	0.265	0.768
Explained	291.240	6	48.540	1.992	0.079
Residual	1583.741	65	24.365		
Total	1874.980	71	26.408		

Activity D - Using Card Catalog

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.031	1	0.031	0.128	0.722
Main Effects:	0.212	3	0.071	0.295	0.829
Group	0.203	2	0.102	0.424	0.656
Gender	0.009	1	0.009	0.036	0.850
Two-Way Interaction	0.118	2	0.059	0.245	0.783
Explained	0.360	6	0.060	0.250	0.957
Residual	15.584	65	0.240		
Total	15.944	71	0.225		

Activity E - Looking For Materials

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.280	1	3.280	0.397	0.531
Main Effects:					
Group	35.292	3	11.764	1.425	0.243
Gender	8.595	2	4.297	0.521	0.597
	26.697	1	26.697	3.235	0.077
Two-Way Interaction	13.789	2	6.899	0.836	0.438
Explained	52.369	6	8.728	1.057	0.397
Residual	536.501	65	8.254		
Total	588.870	71	8.294		

Activity F - Attending Library Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.186	1	1.186	1.316	0.256
Main Effects:					
Group	2.149	3	0.716	0.794	0.501
Gender	1.682	2	0.841	0.933	0.399
	0.467	1	0.467	0.518	0.474
Two-Way Interaction	1.166	2	0.583	0.647	0.527
Explained	4.501	6	0.750	0.832	0.550
Residual	58.609	65	0.902		
Total	63.111	71	0.889		

Activity G - Using The Bathroom

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.116	1	0.116	2.694	0.106
Main Effects:	0.036	3	0.012	0.275	0.843
Group	0.024	2	0.012	0.280	0.757
Gender	0.011	1	0.011	0.266	0.608
Two-Way Interaction	0.029	2	0.015	0.336	0.716
Explained	0.181	6	0.030	0.699	0.652
Residual	2.805	65	0.043		
Total	2.986	71	0.042		

Activity H - Doing Nothing

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.181	1	0.181	2.627	0.110
Main Effects:	0.128	3	0.043	0.617	0.606
Group	0.074	2	0.037	0.534	0.589
Gender	0.054	1	0.054	0.784	0.379
Two-Way Interaction	0.077	2	0.039	0.561	0.573
Explained	0.387	6	0.064	0.933	0.477
Residual	4.488	65			
Total	4.875	71			

Activity I - Other

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.001	1	0.001	0.094	0.983
Main Effects:	12.607	3	4.202	2.767	0.049
Group	5.788	2	2.894	1.906	0.157
Gender	6.819	1	6.819	4.490	0.038
Two-Way Interaction	0.008	2	0.004	0.003	0.997
Explained	12.615	6	2.103	1.385	0.234
Residual	98.704	65	1.519		
Total	111.319	71	1.568		

Combined Activities

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	87.409	1	87.409	0.661	0.419
Main Effects:	1332.801	3	444.267	3.358	0.024
Group	999.839	2	499.920	3.778	0.028
Gender	332.961	1	332.961	2.517	0.118
Two-Way Interaction	8.982	2	4.491	0.034	0.967
Explained	1429.191	6	238.199	1.800	0.113
Residual	8600.039	65	132.308		
Total	10029.230	71	141.257		

Circulation - Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.227	1	1.227	0.564	0.456
Main Effects:	5.721	3	1.907	0.876	0.458
Group	2.764	2	1.382	0.635	0.533
Gender	2.957	1	2.957	1.358	0.248
Two-Way Interaction	1.489	2	0.744	0.342	0.712
Explained	8.437	6	1.406	.6465	0.693
Residual	141.549	65	2.178		
Total	149.986	71	2.112		

Circulation - Non-Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.013	1	0.013	0.009	0.923
Main Effects:	4.755	3	1.585	1.170	0.328
Group	4.733	2	2.366	1.747	0.182
Gender	0.023	1	0.023	0.017	0.898
Two-Way Interaction	0.182	2	0.091	0.067	0.935
Explained	14.950	6	0.825	0.609	0.722
Residual	88.036	65	1.354		
Total	92.986	71	1.310		

Circulation - Nonprint

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.137	1	0.137	0.968	0.329
Main Effects: Group	0.315	3	0.105	0.742	0.531
Gender	0.189	2	0.094	0.666	0.517
	0.126	1	0.126	0.893	0.348
Two-Way Interaction	0.122	2	0.061	0.431	0.652
Explained	0.574	6	0.096	0.676	0.670
Residual	9.204	65	0.142		
Total	9.778	71	0.138		

Combined Circulation

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2.533	1	2.533	0.518	0.474
Main Effects: Group	6.483	3	2.161	0.442	0.724
Gender	2.777	2	1.389	0.284	0.754
	3.705	1	3.705	0.758	0.387
Two-Way Interaction	1.376	2	6.88	0.141	0.869
Explained	10.391	6	1.732	0.354	0.905
Residual	317.603	65	4.886		
Total	327.995	71	4.620		

OBSERVATIONAL DATA
Group and Gender
Set II
(Post-Treatment-Baseline)

Frequency

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.275	1	1.275	3.691	0.059
Main Effects: Group	4.471	3	1.490	4.315	0.008
Gender	3.182	2	1.591	4.606	0.013
	0.620	1	0.620	0.796	0.185
Two-Way Interaction	0.677	2	0.339	0.980	0.381
Explained	6.423	6	1.071	3.099	0.010
Residual	22.452	65	0.345		
Total	28.875	71	0.407		

Duration

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2211.913	1	2211.913	2.832	0.097
Main Effects: Group	7442.848	3	2480.949	3.177	0.030
Gender	6441.324	2	3220.662	4.124	0.021
	338.017	1	338.017	0.433	0.513
Two-Way Interaction	1957.715	2	978.857	1.253	0.292
Explained	11612.477	6	1935.413	2.478	0.032
Residual	50761.719	65	780.949		
Total	62374.195	71	878.510		

Activity A - Talking With Others

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	7.111	1	7.111	3.768	0.057
Main Effects: Group	6.970	3	2.323	1.231	0.306
Gender	2.425	2	1.213	0.643	0.529
	3.171	1	3.171	1.681	0.199
Two-Way Interaction	3.139	2	1.569	0.832	0.440
Explained	17.220	6	2.870	1.521	0.185
Residual	122.655	65	1.887		
Total	139.875	71	1.970		

Activity B - Talking With Staff

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.699	1	0.699	1.489	0.227
Main Effects: Group	1.709	3	0.570	1.213	0.312
Gender	1.092	2	0.546	1.162	0.319
	0.309	1	0.309	0.659	0.420
Two-Way Interaction	1.716	2	0.858	1.827	0.169
Explained	4.124	6	0.687	1.463	0.205
Residual	30.529	65	0.470		
Total	34.653	71	0.488		

Activity C - Reading/Studying

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.412	1	0.412	0.083	0.774
Main Effects:	11.314	3	3.771	0.764	0.518
Group	4.409	2	2.204	0.447	0.642
Gender	4.555	1	4.555	0.9231	0.340
Two-Way Interaction	2.585	2	1.298	0.263	0.770
Explained	14.321	6	2.387	0.484	0.818
Residual	320.785	65	4.935		
Total	335.106	71	4.720		

Activity D - Using Card Catalog

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.062	1	0.062	0.335	0.565
Main Effects:	1.100	3	0.367	1.982	0.125
Group	0.919	2	0.460	2.483	0.091
Gender	0.095	1	0.095	0.512	0.477
Two-Way Interaction	0.587	2	0.294	1.587	0.212
Explained	1.750	6	0.292	1.576	0.168
Residual	12.028	65	0.185		
Total	13.778	71	0.194		

Activity E - Looking For Materials

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.519	1	3.519	2.471	0.121
Main Effects:	9.690	3	3.230	2.269	0.089
Group	8.933	2	4.466	3.137	0.050
Gender	0.151	1	0.151	0.1601	0.746
Two-Way Interaction	1.515	2	0.757	0.532	0.590
Explained	14.724	6	2.454	1.723	0.130
Residual	92.553	65	1.424		
Total	107.277	71	1.511		

Activity F - Attending Library Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.978	1	3.978	2.561	0.114
Main Effects:	4.286	3	1.429	0.919	0.437
Group	4.194	2	2.097	1.350	0.266
Gender	0.003	1	0.003	0.002	0.964
Two-Way Interaction	3.732	2	1.866	1.201	0.307
Explained	11.996	6	1.999	1.287	0.276
Residual	100.989	65	1.554		
Total	112.986	71	1.591		

Activity G - Using The Bathroom

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.092	1	0.092	3.385	0.070
Main Effects:	0.073	3	0.024	0.893	0.449
Group	0.019	2	0.010	0.356	0.702
Gender	0.043	1	0.043	1.574	0.214
Two-Way Interaction	0.021	2	0.011	0.393	0.676
Explained	0.185	6	0.031	1.142	0.348
Residual	1.759	65	0.027		
Total	1.944	71	0.027		

Activity H - Doing Nothing

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0				
Main Effects:	0				
Group	0				
Gender	0				
Two-Way Interaction	0				
Explained	0				
Residual	0				
Total	0				

Activity I - Other

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.093	1	0.093	0.242	0.624
Main Effects:	3.179	3	1.060	2.634	0.057
Group	3.171	2	1.586	3.941	0.024
Gender	0.050	1	0.050	0.124	0.725
Two-Way Interaction	0.073	2	0.036	0.091	0.914
Explained	3.346	6	0.558	1.386	0.234
Residual	26.154	65	0.402		
Total	29.500	71	0.415		

Combined Activities

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	68.240	1	68.240	2.896	0.094
Main Effects:	191.052	3	63.684	2.703	0.053
Group	135.357	2	67.679	2.872	0.064
Gender	27.105	1	27.105	1.150	0.287
Two-Way Interaction	29.689	2	14.844	0.630	0.536
Explained	288.980	6	48.163	2.044	0.072
Residual	1531.665	65	23.564		
Total	1820.645	71	25.643		

Circulation - Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2.088	1	2.088	1.945	0.168
Main Effects:	4.852	3	1.617	1.506	0.221
Group	2.927	2	1.463	1.363	0.263
Gender	1.224	1	1.224	1.140	0.290
Two-Way Interaction	1.882	2	0.941	0.876	0.421
Explained	8.822	6	1.470	1.369	0.240
Residual	69.789	65	1.074		
Total	78.611	71	1.107		

Circulation - Non Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.118	1	0.118	0.135	0.714
Main Effects:	3.370	3	1.123	1.286	0.287
Group	1.715	2	0.857	0.982	0.380
Gender	1.007	1	1.007	1.153	0.287
Two-Way Interaction	1.234	2	0.617	0.706	0.497
Explained	4.722	6	0.787	0.901	0.500
Residual	56.778	65	0.874		
Total	61.500	71	0.866		

Circulation - Nonprint

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0				
Main Effects: Group Gener	0 0 0				
Two-Way Interaction	0				
Explained	0				
Residual	0				
Total	0				

Combined Circulation

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.213	1	1.213	0.684	0.411
Main Effects: Group Gender	15.888 8.737 4.451	3 2 1	5.296 4.368 4.451	2.988 2.465 2.512	0.037 0.093 0.118
Two-Way Interaction	6.148	2	3.074	1.734	0.185
Explained	23.249	6	3.875	2.186	0.055
Residual	115.195	65	1.772		
Total	138.444	71	1.950		

OBSERVATIONAL DATA
Group and School
Set I
(Treatment-Baseline)

Frequency

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.828	1	1.828	2.023	0.160
Main Effects: Group	3.627	4	0.907	1.004	0.412
School	3.429	2	1.714	1.897	0.158
	0.198	2	0.099	0.110	0.896
Two-Way Interaction	0.129	1	0.129	0.142	0.707
Explained	5.584	6	0.931	1.030	0.414
Residual	58.735	65	0.904		
Total	64.319	71	0.906		

Duration

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3435.524	1	3435.524	1.658	0.202
Main Effects: Group	19294.074	4	4823.516	2.327	0.065
School	15267.090	2	7633.543	3.683	0.031
	4026.984	2	2013.492	0.972	0.384
Two-Way Interaction	430.633	1	430.633	0.208	0.650
Explained	23160.250	6	3860.042	1.863	0.101
Residual	134709.750	65	2072.458		
Total	157870.000	71	2223.521		

Activity A - Talking With Others

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	16.561	1	16.561	1.363	0.247
Main Effects: Group	169.832	4	42.458	3.495	0.012
School	151.355	2	75.678	6.229	0.003
	18.477	2	9.238	0.760	0.472
Two-Way Interaction	9.446	1	9.446	0.778	0.381
Explained	195.840	6	32.640	2.687	0.022
Residual	789.655	65	12.149		
Total	985.495	71	13.880		

Activity B - Talking With Staff

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.284	1	1.284	0.303	0.584
Main Effects: Group	9.235	4	2.309	0.545	0.703
School	1.036	2	0.518	0.122	0.885
	8.200	2	4.100	0.969	0.385
Two-Way Interaction	0.333	1	0.333	0.079	0.780
Explained	10.853	6	1.809	0.427	0.858
Residual	275.145	65	4.233		
Total	285.997	71	4.028		

Activity C - Reading/Studying

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	18.066	1	18.066	0.770	0.384
Main Effects:	311.501	4	77.875	3.317	0.016
Group	231.539	2	115.770	4.931	0.010
School	79.962	2	39.981	1.703	0.190
Two-Way Interaction	19.414	1	19.414	0.827	0.367
Explained	348.982	6	58.164	2.477	0.032
Residual	1525.999	65	23.477		
Total	1874.980	71	26.408		

Activity D - Using Card Catalog

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.031	1	0.031	0.128	0.722
Main Effects:	0.278	4	0.069	0.289	0.884
Group	0.203	2	0.102	0.423	0.657
School	0.074	2	0.037	0.155	0.857
Two-Way Interaction	0.008	1	0.008	0.034	0.855
Explained	0.316	6	0.053	0.219	0.969
Residual	15.628	65	0.240		
Total	15.944	71	0.225		

Activity E - Looking For Materials

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.280	1	3.280	0.389	0.535
Main Effects:	36.526	4	9.131	1.082	0.373
Group	8.595	2	4.297	0.509	0.603
School	27.931	2	13.966	1.655	0.199
Two-Way Interaction	0.528	1	0.528	0.063	0.803
Explained	40.334	6	6.722	0.797	5.76
Residual	548.537	65	8.439		
Total	588.870	71	8.294		

Activity F - Attending Library Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.186	1	1.186	1.285	0.261
Main Effects:	1.864	4	0.466	0.505	0.732
Group	1.682	2	0.841	0.911	0.407
School	0.182	2	0.037	0.155	0.857
Two-Way Interaction	0.041	1	0.041	0.045	0.834
Explained	3.091	6	0.515	0.558	0.762
Residual	60.020	65	0.923		
Total	63.111	71	0.889		

Activity G - Using The Bathroom

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.116	1	0.116	2.830	0.097
Main Effects:	0.200	4	0.050	1.216	0.312
Group	0.024	2	0.012	0.294	0.746
School	0.176	2	0.088	2.139	0.126
Two-Way Interaction	0	1	0	0.001	0.978
Explained	0.316	6	0.053	1.283	0.278
Residual	2.670	65	0.041		
Total	2.986	71	0.042		

Activity H - Doing Nothing

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.181	1	0.181	2.611	0.111
Main Effects:	0.174	4	0.436	0.626	0.646
Group	0.074	2	0.037	0.531	0.591
School	0.100	2	0.050	0.721	0.490
Two-Way Interaction	0.003	1	0.003	0.045	0.832
Explained	0.358	6	0.060	0.860	0.529
Residual	4.517	65	0.069		
Total	4.875	71	0.069		

Activity I - Other

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.001	1	0.001	0	0.983
Main Effects:	13.592	4	3.398	2.275	0.071
Group	5.788	2	2.894	1.938	0.152
School	7.804	2	3.902	2.617	0.081
Two-Way Interaction	0.646	1	0.646	0.432	0.513
Explained	14.238	6	2.373	1.589	0.165
Residual	97.081	65	1.494		
Total	111.319	71	1.568		

Combined Activities

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	87.409	1	87.409	0.662	0.419
Main Effects:	1312.315	4	328.079	2.485	0.052
Group	999.839	2	499.920	3.787	0.028
School	312.476	2	156.238	1.183	0.313
Two-Way Interaction	48.004	1	48.004	0.364	0.549
Explained	1447.730	6	241.288	1.828	0.107
Residual	8581.500	65	132.023		
Total	10029.230	71	141.257		

Circulation - Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.227	1	1.227	0.550	0.461
Main Effects:	3.735	4	0.934	0.419	0.795
Group	2.764	2	1.382	0.620	0.541
School	0.971	2	0.486	0.218	0.805
Two-Way Interaction	0.026	1	0.026	0.012	0.914
Explained	4.989	6	0.831	0.373	0.894
Residual	144.997	65	2.231		
Total	149.986	71	2.112		

Circulation - Non-Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.013	1	0.013	0.101	0.921
Main Effects:	9.143	4	2.286	1.773	0.145
Group	4.733	2	2.366	1.835	0.168
School	4.413	2	2.207	1.711	0.189
Two-Way Interaction	0.001	1	0.001	0	0.982
Explained	9.159	6	1.527	1.184	0.326
Residual	83.826	65	1.290		
Total	92.986	71	1.310		

Circulation - Nonprint

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.137	1	0.137	0.950	0.333
Main Effects: Group	0.251	4	0.063	0.435	0.783
School	0.189	2	0.094	0.654	0.523
	0.062	2	0.031	0.215	0.807
Two-Way Interaction	0.019	1	0.019	0.133	0.716
Explained	0.407	6	0.068	0.470	0.828
Residual	9.371	65	0.144		
Total	9.778	71	0.138		

Combined Circulation

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2.533	1	2.533	0.522	0.472
Main Effects: Group	10.127	4	2.532	0.522	0.720
School	2.777	2	1.389	0.286	0.752
	7.349	2	3.675	0.758	0.473
Two-Way Interaction	0.106	1	0.106	0.022	0.883
Explained	12.765	6	2.127	0.439	0.850
Residual	315.230	65	4.850		
Total	327.985	71	4.620		

OBSERVATIONAL DATA
Group and School
Set II
(Post-Treatment-Baseline)

Frequency

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.275	1	1.275	3.525	0.065
Main Effects: Group	4.065	4	1.016	2.810	0.032
School	0.914	2	0.457	1.264	0.289
	0.214	2	0.107	0.296	0.744
Two-Way Interaction	0.026	1	0.026	0.072	0.789
Explained	5.366	6	0.894	2.473	0.032
Residual	23.509	65	0.362		
Total	28.875	71	0.407		

Duration

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2211.913	1	2211.913	2.817	0.098
Main Effects: Group	9107.844	4	2276.961	2.900	0.028
School	2148.972	2	1074.486	1.368	0.262
	2003.016	2	101.508	1.276	0.286
Two-Way Interaction	17.285	1	17.285	0.022	0.883
Explained	11337.043	6	1889.507	2.406	0.037
Residual	51037.152	65	785.187		
Total	62374.195	71	878.510		

Activity A - Talking With Others

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	7.111	1	7.111	3.830	0.055
Main Effects:	12.060	4	3.015	1.624	0.179
Group	1.951	2	0.976	0.525	0.594
School	8.261	2	4.131	2.225	0.116
Two-Way Interaction	0.014	1	0.014	0.008	0.930
Explained	19.185	6	3.198	1.722	0.130
Residual	120.689	65	1.857		
Total	139.875	71	1.970		

Activity B - Talking With Staff

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.699	1	0.699	1.415	0.239
Main Effects:	1.750	4	0.438	0.886	0.478
Group	0.591	2	0.296	0.598	0.553
School	0.351	2	0.176	0.355	0.702
Two-Way Interaction	0.084	1	0.084	0.170	0.682
Explained	2.534	6	0.422	0.855	0.533
Residual	32.119	65	0.494		
Total	34.653	71	0.488		

Activity C - Reading/Studying

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.412	1	0.412	0.085	0.772
Main Effects:	18.705	4	4.676	0.962	0.434
Group	2.398	2	1.199	0.247	0.782
School	11.946	2	5.973	1.229	0.299
Two-Way Interaction	0.002	1	0.002	0	0.985
Explained	19.119	6	3.187	0.655	0.686
Residual	315.987	65	4.861		
Total	335.106	71	4.720		

Activity D - Using Card Catalog

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.062	1	0.062	0.320	0.573
Main Effects:	1.137	4	0.284	1.472	0.221
Group	0.589	2	0.295	1.526	0.225
School	0.132	2	0.066	0.341	0.713
Two-Way Interaction	0.023	1	0.023	0.119	0.731
Explained	1.222	6	0.204	1.054	0.399
Residual	12.556	65	0.193		
Total	13.778	71	0.194		

Activity E - Looking For Materials

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.519	1	3.519	2.450	0.122
Main Effects:	10.419	4	2.605	1.814	0.137
Group	4.362	2	2.181	1.519	0.227
School	0.880	2	0.440	0.306	0.737
Two-Way Interaction	0	1	0	0	0.993
Explained	13.938	6	2.323	1.618	0.156
Residual	93.339	65	1.436		
Total	107.277	71	1.511		

Activity F - Attending Library Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.978	1	3.978	2.502	0.119
Main Effects:	5.633	4	1.408	0.886	0.478
Group	2.720	2	1.360	0.855	0.430
School	1.350	2	0.675	0.425	0.656
Two-Way Interaction	0.012	1	0.012	0.008	0.930
Explained	9.623	6	1.604	1.009	0.428
Residual	103.362	65	1.590		
Total	112.986	71	1.591		

Activity G - Using The Bathroom

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.092	1	0.092	3.416	0.069
Main Effects:	0.107	4	0.027	0.994	0.417
Group	0.033	2	0.017	0.622	0.540
School	0.077	2	0.038	1.431	0.247
Two-Way Interaction	0.003	1	0.003	0.122	0.728
Explained	0.202	6	0.034	1.253	0.292
Residual	1.743	65	0.027		
Total	1.944	71	0.027		

Activity H - Doing Nothing

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0				
Main Effects:	0				
Group	0				
School	0				
Two-Way Interaction	0				
Explained	0				
Residual	0				
Total	0				

Activity I - Other

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.093	1	0.093	0.234	0.630
Main Effects:	3.389	4	0.847	2.119	0.088
Group	0.945	2	0.472	1.181	0.313
School	0.260	2	0.130	0.325	0.724
Two-Way Interaction	0.024	1	0.024	0.061	0.806
Explained	3.507	6	0.584	1.462	0.205
Residual	25.993	65	0.400		
Total	29.500	71	0.415		

Combined Activities

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	68.240	1	68.240	2.938	0.091
Main Effects:	242.472	4	60.618	2.609	0.043
Group	22.852	2	11.426	0.492	0.614
School	78.525	2	39.263	1.690	0.192
Two-Way Interaction	0	1	0	0	0.996
Explained	310.712	6	51.785	2.229	0.051
Residual	1509.933	65	23.230		
Total	1820.645	71	25.643		

Circulation - Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2.088	1	2.088	1.876	0.176
Main Effects:	4.146	4	1.036	0.931	0.452
Group	2.338	2	1.169	1.050	0.356
School	0.518	2	0.259	0.232	0.793
Two-Way Interaction	0.021	1	0.021	0.019	0.891
Explained	6.255	6	1.043	0.937	0.475
Residual	72.356	65	1.113		
Total	78.611	71	1.107		

Circulation - Non-Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.118	1	0.118	0.131	0.719
Main Effects:	2.615	4	0.654	0.723	0.579
Group	0.898	2	0.449	0.497	0.611
School	0.252	2	0.126	0.139	0.870
Two-Way Interaction	0.001	1	0.001	0.001	0.973
Explained	2.734	6	0.456	0.504	0.803
Residual	58.765	65	0.904		
Total	61.500	71	0.866		

Circulation - Nonprint

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0				
Main Effects: Group School	0 0 0				
Two-Way Interaction	0				
Explained	0				
Residual	0				
Total	0				

Combined Circulation

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.213	1	1.213	0.627	0.431
Main Effects: Group School	11.499 5.308 0.062	4 2 2	2.875 2.654 0.031	1.487 1.372 0.016	0.217 0.261 0.984
Two-Way Interaction	0.031	1	0.031	0.016	0.899
Explained	12.743	6	2.124	1.098	0.373
Residual	125.701	65	1.934	1.934	
Total	138.4444	71	1.950	1.950	

OBSERVATIONAL DATA
Group and Grade
Set I
(Treatment-Baseline)

Frequency

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.828	1	1.828	2.052	0.157
Main Effects: Group	3.608	3	1.203	1.350	0.266
Grade	3.429	2	1.714	1.925	0.154
	0.179	1	0.179	0.201	0.656
Two-Way Interaction	0.096	1	0.096	0.108	0.744
Explained	5.532	5	1.106	1.242	0.300
Residual	58.787	66	0.891		
Total	64.319	71	0.906		

Duration

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3435.524	1	3435.524	1.636	0.205
Main Effects: Group	15439.184	3	5146.395	2.450	0.071
Grade	15267.090	2	7633.543	3.635	0.032
	172.094	1	172.094	0.082	0.776
Two-Way Interaction	375.586	1	375.586	0.179	0.674
Explained	19250.313	5	3850.062	1.833	0.118
Residual	138619.688	66	2100.298		
Total	157870.000	71	2223.521		

Activity A - Talking With Others

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	16.561	1	16.561	1.337	0.252
Main Effects:					
Group	151.403	3	50.468	4.074	0.010
Grade	151.355	2	75.678	6.110	0.004
	0.048	1	0.048	0.004	0.951
Two-Way Interaction	0.008	1	0.008	0.001	0.980
Explained	167.972	5	33.594	2.712	0.027
Residual	817.523	66	12.387		
Total	985.495	71	13.880		

Activity B - Talking With Staff

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.284	1	1.284	0.303	0.584
Main Effects:					
Group	1.481	3	0.494	0.117	0.950
Grade	1.036	2	0.518	0.122	0.885
	0.446	1	0.446	0.105	0.747
Two-Way Interaction	3.576	1	3.576	0.844	0.362
Explained	6.342	5	1.268	0.299	0.912
Residual	279.655	66	4.237		
Total	285.997	71	4.028		

Activity C - Reading/Studying

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	18.066	1	18.066	0.738	0.393
Main Effects:	234.138	3	78.046	3.190	0.029
Group	231.539	2	115.710	4.732	0.012
Grade	2.599	1	2.599	0.106	0.746
Two-Way Interaction	8.021	1	8.021	0.328	0.569
Explained	260.225	5	52.045	2.127	0.073
Residual	1614.756	66	24.466		
Total	1874.980	71	26.408		

Activity D - Using Card Catalog

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.031	1	0.031	0.130	0.720
Main Effects:	0.263	3	0.088	0.370	0.775
Group	0.203	2	0.102	0.429	0.653
Grade	0.059	1	0.059	0.251	0.618
Two-Way Interaction	0.009	1	0.009	0.040	0.842
Explained	0.303	5	0.061	0.256	0.935
Residual	15.641	66	0.237		
Total	15.944	71	0.225		

Activity E - Looking For Materials

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.280	1	3.280	0.385	0.537
Main Effects:	9.296	3	3.099	0.365	0.779
Group	8.595	2	4.297	0.505	0.606
Grade	0.702	1	0.702	0.082	0.775
Two-Way Interaction	14.747	1	14.747	1.733	0.193
Explained	27.323	5	5.465	0.642	0.668
Residual	561.548	66	8.508		
Total	588.870	71	8.294		

Activity F - Attending Library Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.186	1	1.186	1.301	0.258
Main Effects:	1.698	3	0.566	0.621	0.604
Group	1.682	2	0.841	0.922	0.403
Grade	0.017	1	0.017	0.018	0.893
Two-Way Interaction	0.033	1	0.033	0.036	0.850
Explained	2.918	5	0.584	0.640	0.670
Residual	60.193	66	0.912		
Total	63.111	71	0.889		

Activity G - Using The Bathroom

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.116	1	0.116	2.701	0.105
Main Effects:	0.026	3	0.009	0.201	0.896
Group	0.024	2	0.012	0.285	0.756
Grade	0.002	1	0.002	0.040	0.842
Two-Way Interaction	0.003	1	0.003	0.079	0.779
Explained	0.146	5	0.029	0.676	0.643
Residual	2.841	66	0.043		
Total	2.986	71	0.042		

Activity H - Doing Nothing

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.181	1	0.181	2.728	0.103
Main Effects:	0.241	3	0.080	1.209	0.314
Group	0.074	2	0.037	0.555	0.577
Grade	0.167	1	0.167	2.517	0.117
Two-Way Interaction	0.064	1	0.064	0.959	0.331
Explained	0.486	5	0.097	1.463	0.214
Residual	4.389	66	0.066		
Total	4.875	71	0.069		

Activity I - Other

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.001	1	0.001	0	0.983
Main Effects: Group	8.140	3	2.713	1.736	0.168
Grade	5.788	2	2.894	1.851	0.165
	2.352	1	2.352	1.505	0.224
Two-Way Interaction	0.009	1	0.009	0.006	0.939
Explained	8.150	5	1.630	1.043	0.400
Residual	103.169	66	1.563		
Total	111.319	71	1.568		

Combined Activities

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	87.409	1	87.409	0.650	0.423
Main Effects: Group	1000.515	3	333.505	2.482	0.069
Grade	999.839	2	499.920	3.720	0.029
	0.676	1	0.676	0.005	0.944
Two-Way Interaction	72.065	1	72.065	0.536	0.467
Explained	1159.992	5	231.998	1.726	0.141
Residual	8869.238	66	134.382		
Total	10029.230	71	141.257		

Circulation - Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.227	1	1.227	0.557	0.458
Main Effects:	2.774	3	0.925	0.420	0.739
Group	2.764	2	1.382	0.627	0.537
Grade	0.010	1	0.010	0.004	0.947
Two-Way Interaction	0.571	1	0.571	0.259	0.612
Explained	4.572	5	0.914	0.415	0.837
Residual	145.414	66	2.203		
Total	149.986	71	2.112		

Circulation - Non-Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.013	1	0.013	0.010	0.920
Main Effects:	6.720	3	2.234	1.745	0.166
Group	4.733	2	2.366	1.849	0.166
Grade	1.970	1	1.970	1.539	0.219
Two-Way Interaction	1.790	1	1.790	1.399	0.241
Explained	8.506	5	1.701	1.329	0.263
Residual	84.480	66	1.280		
Total	92.986	71	1.310		

Circulation - Nonprint

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.137	1	0.137	0.960	0.331
Main Effects: Group	0.218	3	0.073	0.510	0.677
Grade	0.189	2	0.094	0.661	0.520
	0.030	1	0.030	0.209	0.649
Two-Way Interaction	0.003	1	0.003	0.020	0.889
Explained	0.358	5	0.072	0.502	0.774
Residual	9.420	66	0.143		
Total	9.778	71	0.138		

Combined Circulation

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2.533	1	2.533	0.528	0.470
Main Effects: Group	4.545	3	1.515	0.316	0.814
Grade	2.777	2	1.389	0.289	0.750
	1.768	1	1.768	0.368	0.546
Two-Way Interaction	4.164	1	4.164	0.868	0.355
Explained	11.242	5	2.248	0.468	0.798
Residual	316.753	66	4.799		
Total	327.995	71	4.620		

OBSERVATIONAL DATA
Group and Grade
Set II
(Post-Treatment-Baseline)

Frequency

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.275	1	1.275	3.560	0.064
Main Effects: Group	3.859	3	1.286	3.592	0.018
Grade	2.561	2	1.281	3.576	0.034
	0.009	1	0.009	0.024	0.877
Two-Way Interaction	0.104	1	0.104	0.291	0.591
Explained	5.238	5	1.048	2.925	0.019
Residual	23.636	66	0.358		
Total	28.875	71	0.407		

Duration

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2211.913	1	2211.913	2.757	0.102
Main Effects: Group	7104.922	3	2368.307	2.952	0.039
Grade	4700.598	2	2350.299	2.930	0.060
	0.093	1	0.093	0	0.991
Two-Way Interaction	107.023	1	107.023	0.133	0.716
Explained	9423.859	5	1884.772	2.349	0.050
Residual	52950.336	66	802.278		
Total	62374.195	71	878.510		

Activity A - Talking With Others

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	7.111	1	7.111	3.681	0.059
Main Effects:	4.931	3	1.644	1.644	0.471
Group	4.782	2	2.391	2.391	0.297
Grade	1.132	1	1.132	1.132	0.447
Two-Way Interaction	0.336	1	0.336	0.174	0.678
Explained	12.378	5	2.476	1.281	0.282
Residual	127.497	66	1.932		
Total	139.875	71	1.970		

Activity B - Talking With Staff

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.699	1	0.699	1.433	0.236
Main Effects:	1.413	3	0.471	0.965	0.415
Group	0.730	2	0.365	0.747	0.478
Grade	0.014	1	0.014	0.028	0.867
Two-Way Interaction	0.320	1	0.320	0.656	0.421
Explained	2.433	5	0.487	0.997	0.427
Residual	32.220	66	0.488		
Total	34.653	71	0.488		

Activity C - Reading/Studying

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.412	1	0.412	0.085	0.772
Main Effects:	10.636	3	3.545	0.728	0.539
Group	10.632	2	5.316	1.091	0.342
Grade	3.877	1	3.877	0.796	0.376
Two-Way Interaction	2.583	1	2.583	0.530	0.469
Explained	13.631	5	2.726	0.560	0.730
Residual	321.475	66	4.871		
Total	335.106	71	4.720		

Activity D - Using Card Catalog

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.062	1	0.062	0.325	0.570
Main Effects:	1.026	3	0.342	1.797	0.156
Group	0.636	2	0.318	1.673	0.196
Grade	0.020	1	0.020	0.105	0.747
Two-Way Interaction	0.134	1	0.134	0.705	0.404
Explained	1.222	5	0.244	1.284	0.281
Residual	12.556	66	0.190		
Total	13.778	71	0.194		

Activity E - Looking For Materials

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.519	1	3.519	2.472	0.121
Main Effects:	9.705	3	3.235	2.272	0.088
Group	7.543	2	3.772	2.649	0.078
Grade	0.166	1	0.166	0.116	0.734
Two-Way Interaction	0.096	1	0.096	0.067	0.796
Explained	13.320	5	2.664	1.871	0.111
Residual	93.958	66	1.424		
Total	107.277	71	1.511		

Activity F - Attending Library Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.978	1	3.978	2.550	0.115
Main Effects:	4.720	3	1.573	1.008	0.395
Group	2.307	2	1.154	0.739	0.481
Grade	0.437	1	0.437	0.280	0.598
Two-Way Interaction	1.301	1	1.301	0.834	0.365
Explained	9.999	5	2.000	1.282	0.282
Residual	102.987	66	1.560		
Total	112.986	71	1.591		

Activity G - Using The Bathroom

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.092	1	0.092	3.374	0.071
Main Effects:	0.057	3	0.019	0.705	0.553
Group	0.053	2	0.026	0.973	0.383
Grade	0.027	1	0.027	1.011	0.318
Two-Way Interaction	0.004	1	0.004	0.145	0.705
Explained	0.153	5	0.031	1.127	0.355
Residual	1.792	66	0.027		
Total	1.944	71	0.027		

Activity H - Doing Nothing

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0				
Main Effects:	0				
Group	0				
Grade	0				
Two-Way Interaction	0				
Explained	0				
Residual	0				
Total	0				

Activity I - Other

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.093	1	0.093	0.235	0.629
Main Effects:	3.136	3	1.045	2.631	0.057
Group	1.854	2	0.927	2.332	0.105
Grade	0.007	1	0.007	0.018	0.894
Two-Way Interaction	0.045	1	0.045	0.112	0.739
Explained	3.274	5	0.655	1.648	0.160
Residual	26.225	66	0.397		
Total	29.500	71	0.415		

Combined Activities

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	68.240	1	68.240	2.850	0.096
Main Effects:	170.712	3	56.904	2.377	0.078
Group	136.317	2	68.158	2.847	0.065
Grade	6.766	1	6.766	0.283	0.597
Two-Way Interaction	1.462	1	1.462	0.061	0.806
Explained	240.414	5	48.083	2.008	0.089
Residual	1580.231	66	23.943		
Total	1820.645	71	25.643		

Circulation - Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2.088	1	2.088	1.915	0.171
Main Effects:	4.479	3	1.493	1.369	0.260
Group	4.329	2	2.164	1.985	0.146
Grade	0.851	1	0.851	0.780	0.380
Two-Way Interaction	0.071	1	0.071	0.065	0.800
Explained	6.638	5	1.328	1.217	0.311
Residual	71.973	66	1.090		
Total	78.611	71	1.107		

Circulation - Non-Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.118	1	0.118	0.132	0.717
Main Effects:	2.414	3	0.805	0.902	0.445
Group	1.122	2	0.561	0.629	0.537
Grade	0.051	1	0.051	0.057	0.811
Two-Way Interaction	0.071	1	0.071	0.079	0.779
Explained	2.603	5	0.521	0.583	0.713
Residual	58.896	66	0.892		
Total	61.500	71	0.866		

Circulation - Nonprint

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0				
Main Effects: Group Grade	0 0 0				
Two-Way Interaction	0				
Explained	0				
Residual	0				
Total	0				

Combined Circulation

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.213	1	1.213	0.640	0.426
Main Effects: Group Grade	11.921 9.596 0.484	3 2 1	3.974 4.798 0.484	2.098 2.533 0.256	0.109 0.087 0.615
Two-Way Interaction	0.283	1	0.283	0.150	0.700
Explained	13.418	5	2.684	1.417	0.230
Residual	125.026	66	1.894		
Total	138.444	71	1.950		

OBSERVATIONAL DATA

Teacher

Set I

(Treatment-Baseline)

Frequency

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.828	1	1.828	2.116	0.151
Main Effects: Teacher	11.528	11	1.048	1.213	0.299
Explained	13.356	12	1.113	1.288	0.250
Residual	50.963	59	0.864		
Total	64.319	71	0.906		

Duration

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3435.524	1	3435.524	1.793	0.186
Main Effects: Teacher	41398.461	11	3763.496	1.964	0.049
Explained	44834.005	12	3736.167	1.950	0.046
Residual	113036.005	59	1915.864		
Total	157870.000	71	2223.521		

Activity A - Talking With Others

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	16.561	1	16.561	1.704	0.197
Main Effects: Teacher	395.366	11	35.942	3.697	0
Explained	411.927	12	34.327	3.531	0.001
Residual	573.568	59	9.721		
Total	985.495	71	13.880		

Activity B - Talking With Staff

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.284	1	1.284	0.300	0.586
Main Effects: Teacher	31.827	11	2.893	0.675	0.756
Explained	33.111	12	2.759	0.644	0.796
Residual	252.886	59	4.286		
Total	285.997	71	4.028		

Activity C - Reading/Studying

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	18.066	1	18.066	0.821	0.369
Main Effects: Teacher	558.244	11	50.749	2.306	0.020
Explained	576.311	12	48.026	2.182	0.024
Residual	1298.670	59	22.011		
Total	1874.980	71	26.408		

Activity D - Using Card Catalog

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.031	1	0.031	0.117	0.733
Main Effects: Teacher	0.463	11	0.042	0.161	0.999
Explained	0.493	12	0.041	0.157	0.999
Residual	15.451	59	0.262		
Total	15.944	71	0.225		

Activity E - Looking For Materials

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.280	1	3.280	0.365	0.548
Main Effects: Teacher	54.814	11	4.983	0.554	0.858
Explained	58.094	12	4.841	0.538	0.881
Residual	530.777	59	8.996		
Total	588.870	71	8.294		

Activity F - Attending Library Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.186	1	1.186	1.770	0.284
Main Effects: Teacher	2.089	11	0.190	0.187	0.998
Explained	3.275	12	0.273	0.269	0.992
Residual	59.835	59	1.014		
Total	63.111	71	0.889		

Activity G - Using the Bathroom

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.116	1	0.116	2.783	0.101
Main Effects: Teacher	0.405	11	0.037	0.881	0.563
Explained	0.521	12	0.043	1.039	0.426
Residual	2.465	59	0.042		
Total	2.986	71	0.042		

Activity H - Doing Nothing

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.181	1	0.181	2.682	0.107
Main Effects: Teacher	0.703	11	0.064	0.945	0.505
Explained	0.884	12	0.074	1.090	0.385
Residual	3.990	59	0.068		
Total	4.875	71	0.69		

Activity I - Other

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.001	1	0.001	0	0.983
Main Effects: Teacher	22.353	11	2.032	1.348	0.222
Explained	22.354	12	1.863	1.235	0.282
Residual	88.965	59	1.508		
Total	111.319	71	1.568		

Combined Activities

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	87.409	1	87.409	0.733	0.395
Main Effects: Teacher	2906.646	11	264.240	2.216	0.025
Explained	2994.055	12	249.505	2.092	0.031
Residual	7035.176	59	119.240		
Total	10029.230	71	141.257		

Circulation - Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.227	1	1.227	0.505	0.480
Main Effects: Teacher	5.281	11	0.480	0.197	0.997
Explained	6.508	12	0.542	0.223	0.997
Residual	143.477	59	2.432		
Total	149.986	71	2.112		

Circulation - Non-Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.013	1	0.013	0.010	0.922
Main Effects: Teacher	14.820	11	1.347	1.017	0.443
Explained	14.833	12	1.236	0.933	0.521
Residual	78.153	59	1.325		
Total	92.986	71	1.310		

Circulation - Nonprint

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.137	1	0.137	0.868	0.355
Main Effects: Teacher	0.332	11	0.030	0.191	0.998
Explained	0.469	12	0.039	0.248	0.994
Residual	9.309	59	0.158		
Total	9.778	71	0.138		

Combined Circulation

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2.533	1	2.533	0.492	0.486
Main Effects: Teacher	21.810	11	1.983	0.385	0.957
Explained	24.343	12	2.029	0.394	0.960
Residual	303.652	59	5.147		
Total	327.995	71	4.620		

OBSERVATIONAL DATA

Teacher

Set II

(Post-Treatment-Baseline)

Frequency

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.275	1	1.275	3.340	0.073
Main Effects: Teacher	5.084	11	0.462	1.211	0.300
Explained	6.359	12	0.530	1.389	0.197
Residual	22.516	59	0.382		
Total	28.875	71	0.407		

Duration

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2211.913	1	2211.913	2.659	0.108
Main Effects: Teacher	11078.488	11	1007.135	1.211	0.300
Explained	13290.402	12	1107.533	1.331	0.226
Residual	49083.793	59	831.928		
Total	62374.195	71	878.510		

Activity A - Talking With Others

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	7.111	1	7.111	3.863	0.054
Main Effects: Teacher	24.160	11	2.196	1.193	0.312
Explained	31.271	12	2.606	1.416	0.185
Residual	108.604	59	1.841		
Total	139.875	71	1.970		

Activity B - Talking With Staff

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.699	1	0.699	1.435	0.236
Main Effects: Teacher	5.204	11	0.473	0.971	0.482
Explained	5.904	12	0.493	1.010	0.452
Residual	28.749	59	0.487		
Total	34.653	71	0.488		

Activity C - Reading/Studying

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.412	1	0.412	0.082	0.775
Main Effects: Teacher	39.416	11	3.583	0.716	0.719
Explained	39.828	12	3.319	0.663	0.779
Residual	295.278	59	5.005		
Total	335.106	71	4.720		

Activity D - Using Card Catalog

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.062	1	0.062	0.296	0.588
Main Effects: Teacher	1.380	11	0.125	0.600	0.821
Explained	1.442	12	0.120	0.575	0.854
Residual	12.336	59	0.209		
Total	13.778	71	0.194		

Activity E - Looking For Materials

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.519	1	3.519	2.240	0.140
Main Effects: Teacher	11.079	11	1.007	0.641	0.786
Explained	14.598	12	1.216	0.774	0.674
Residual	92.680	59	1.571		
Total	107.277	71	1.511		

Activity F - Attending Library Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.978	1	3.978	2.328	0.132
Main Effects: Teacher	8.172	11	0.743	0.435	0.934
Explained	12.150	12	1.013	0.592	0.840
Residual	100.835	59	1.709		
Total	112.986	71	1.591		

Activity G - Using The Bathroom

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.092	1	0.092	3.420	0.069
Main Effects: Teacher	0.272	11	0.025	0.925	0.523
Explained	0.364	12	0.030	1.133	0.352
Residual	1.580	59	0.027		
Total	1.944	71	0.027		

Activity H - Doing Nothing

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0				
Main Effects: Teacher	0				
Explained	0				
Residual	0				
Total	0				

Activity I - Other

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.093	1	0.093	0.217	0.643
Main Effects: Teacher	4.051	11	0.368	0.857	0.586
Explained	4.145	12	0.345	0.804	0.645
Residual	25.355	59	0.430		
Total	29.500	71	0.415		

Combined Activities

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	68.240	1	68.240	2.852	0.097
Main Effects: Teacher	340.791	11	30.981	1.295	0.250
Explained	409.031	12	34.086	1.425	0.181
Residual	1411.614	59	23.926		
Total	1820.645	71	25.643		

Circulation - Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	2.088	1	2.088	1.730	0.193
Main Effects: Teacher	5.326	11	0.484	0.401	0.950
Explained	7.414	12	0.618	0.512	0.899
Residual	71.197	59	1.207		
Total	78.611	71	1.107		

Circulation - Non-Fiction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.118	1	0.118	0.119	0.731
Main Effects: Teacher	3.059	11	0.278	0.281	0.987
Explained	3.177	12	0.265	0.268	0.992
Residual	58.323	59	0.989		
Total	61.500	71	0.866		

Circulation - Nonprint

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0				
Main Effects: Teacher	0				
Explained	0				
Residual	0				
Total	0				

Combined Circulation

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.213	1	1.213	0.576	0.451
Main Effects: Teacher	12.947	11	1.177	0.559	0.854
Explained	14.160	12	1.180	0.560	0.865
Residual	124.284	59	2.107		
Total	138.444	71	1.950		

APPENDIX D

OBSERVATIONAL DATA

T-Test

Duration - Set I

Group:	F Value	2-Tail Prob.	<u>Pooled</u> Variance Estimate			<u>Separate</u> Variance Estimate		
			T Value	Deg. of Freedom	2-Tail Prob.	T Value	Deg. of Freedom	2-Tail Prob.
Control vs. Experimental	1.63	0.247	-1.91	46	0.063	-1.91	43.49	0.063
Control vs Gifted	7.24	0.607	0.84	46	0.403	0.84	45.47	0.403
Experimental vs. Gifted	1.31	0.517	2.57	46	0.013	2.57	45.17	0.014

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Standard Error</u>	<u>N of Cases</u>
Control	10.9167	39.895	8.144	24
Experimental	36.1250	50.979	10.406	24
Gifted	0.6250	44.466	9.077	24

Activity A - Talking with Others - Set I

Group:	F Value	2-Tail Prob.	<u>Pooled</u> Variance Estimate			<u>Separate</u> Variance Estimate		
			T Value	Deg. of Freedom	2-Tail Prob.	T Value	Deg. of Freedom	2-Tail Prob.
Control vs. Experimental	42.87	0.00	-2.69	46	0.010	-2.69	24.07	0.013
Control vs Gifted	6.38	0.00	0.18	46	0.860	0.18	30.03	0.860
Experimental vs. Gifted	6.72	0.00	2.61	46	0.012	2.61	29.70	0.014

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Standard Error</u>	<u>N of Cases</u>
Control	0.2500	0.847	0.173	24
Experimental	3.3333	5.546	1.32	24
Gifted	0.1667	2.140	0.437	24

Activity C - Reading/Studying

Group:	F Value	2-Tail Prob.	<u>Pooled Variance Estimate</u>			<u>Separate Variance Estimate</u>		
			T Value	Deg. of Freedom	2-Tail Prob.	T Value	Deg. of Freedom	2-Tail Prob.
Control vs. Experimental	11.55	0.00	-2.54	46	0.014	-2.54	26.95	0.017
Control vs Gifted	2.77	0.018	2.35	46	0.023	2.35	37.68	0.024
Experimental vs. Gifted	4.16	0.001	0.13	46	0.897	0.13	33.45	0.897

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Standard Error</u>	<u>N of Cases</u>
Control	0.5417	2.064	0.421	24
Experimental	4.3333	7.013	1.432	24
Gifted	0.4167	4.211	0.860	24

Combined Activities - Set I

Group:	F Value	2-Tail Prob.	<u>Pooled</u> <u>Variance Estimate</u>			<u>Separate</u> <u>Variance Estimate</u>		
			T Value	Deg. of Freedom	2-Tail Prob.	T Value	Deg. of Freedom	2-Tail Prob.
Control vs. Experimental	1.61	0.259	-1.94	46	0.059	-1.94	43.61	0.59
Control vs Gifted	1.38	0.444	0.65	46	0.522	0.65	44.85	0.522
Experimental vs. Gifted	2.23	0.061	2.60	46	0.012	2.60	40.19	0.013

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Standard Error</u>	<u>N of Cases</u>
Control	2.9167	10.830	2.211	24
Experimental	9.8333	13.751	2.807	24
Gifted	1.0417	9.215	1.881	24

Frequency - Set II

Group:	F Value	2-Tail Prob.	<u>Pooled</u> <u>Variance Estimate</u>			<u>Separate</u> <u>Variance Estimate</u>		
			T Value	Deg. of Freedom	2-Tail Prob.	T Value	Deg. of Freedom	2-Tail Prob.
Control vs. Experimental	1.86	0.142	0.00	46	1.000	0.00	42.16	1.000
Control vs Gifted	2.51	0.032	2.91	46	0.005	2,91	28.80	0.006
Experimental vs. Gifted	1.35	0.480	2.61	46	0.012	2.61	45.01	0.012

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Standard Error</u>	<u>N of Cases</u>
Control	0.125	0.448	0.092	24
Experimental	0.125	0.612	0.125	24
Gifted	-0.3750	0.711	0.145	24

Frequency - Set II

Group:	F Value	2-Tail Prob.	<u>Pooled</u> Variance Estimate			<u>Separate</u> Variance Estimate		
			T Value	Deg. of Freedom	2-Tail Prob.	T Value	Deg. of Freedom	2-Tail Prob.
Control vs. Experimental	35.59	0.00	-0.88	46	0.385	-0.88	24.29	0.389
Control vs Gifted	73.78	0.00	2.26	46	0.028	2.26	23.62	0.033
Experimental vs. Gifted	2.07	0.087	2.38	46	0.022	2.38	41.00	0.022

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Standard Error</u>	<u>N of Cases</u>
Control	0.4167	4.652	0.950	24
Experimental	5.4583	27.754	5.665	24
Gifted	-18.1667	39.962	8.157	24

Activity E - Looking for Materials - Set II

Group:	F Value	2-Tail Prob.	<u>Pooled</u> <u>Variance Estimate</u>			<u>Separate</u> <u>Variance Estimate</u>		
			T Value	Deg. of Freedom	2-Tail Prob.	T Value	Deg. of Freedom	2-Tail Prob.
Control vs. Experimental	2.69	0.021	-1.14	46	0.258	-1.14	38.03	0.260
Control vs Gifted	15.92	0.00	1.71	46	0.094	1.71	25.88	0.099
Experimental vs. Gifted	5.92	0.00	2.14	46	0.038	2.14	30.55	0.040

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Standard Error</u>	<u>N of Cases</u>
Control	-0.0417	0.464	0.095	24
Experimental	0.1667	0.761	0.155	24
Gifted	-0.7083	1.853	0.378	24

Activity I - Other - Set II

Group:	F Value	2-Tail Prob.	Pooled Variance Estimate			Separate Variance Estimate		
			T Value	Deg. of Freedom	2-Tail Prob.	T Value	Deg. of Freedom	2-Tail Prob.
Control vs. Experimental	6.09	0.00	-0.38	46	0.709	-0.38	30.36	0.710
Control vs Gifted	20.48	0.00	2.16	46	0.036	2.16	25.24	0.041
Experimental vs. Gifted	3.36	0.005	2.13	46	0.038	2.13	35.26	0.040

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Standard Error</u>	<u>N of Cases</u>
Control	0.0417	0.204	0.042	24
Experimental	0.0833	0.504	0.103	24
Gifted	-0.3750	0.924	0.189	24

Combined Activities - Set II

Group:	F Value	2-Tail Prob.	<u>Pooled Variance Estimate</u>			<u>Separate Variance Estimate</u>		
			T Value	Deg. of Freedom	2-Tail Prob.	T Value	Deg. of Freedom	2-Tail Prob.
Control vs. Experimental	11.65	0.00	-0.04	46	0.972	-0.04	26.92	0.972
Control vs Gifted	14.61	0.00	2.48	46	0.017	2.48	26.13	0.020
Experimental vs. Gifted	1.25	0.592	1.94	46	0.059	1.94	45.42	0.059

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Standard Error</u>	<u>N of Cases</u>
Control	0.2500	1.622	0.331	24
Experimental	0.2917	5.536	1.130	24
Gifted	-3.000	6.200	1.265	24

APPENDIX E

Observational Data
One-Way Test
Student Performance by Teacher
Set I,
(Treatment - Baseline)

Duration

Teacher #	3	10	12	6	7	1	11	9	4	8	2	5
Group	E	C	C	E	C	G	C	C	E	C	E	E

Teacher #3
X= -18.7500

Teacher #10
X= 0.0

Teacher #12
X= 0.0

Teacher #6
X= 0.0

Teacher #7
X= 0.0

Teacher #1
X= .6250

Teacher #11
X= 2.0000

Teacher #9
X= 8.3333

Teacher #4
X= 17.8000

Teacher #8
X= 28.7243

Teacher #2
X= 56.6000

Teacher #5
X= 63.3333

S denotes contrasts that are significant at the 0.05 level. X denotes mean change scores, the lower the mean, the less increase in activity. C=Control, E=Experimental and G=Gifted. Teachers are listed in rank order with the lowest mean first.

Activity A - Talking with Others

Teacher #	3	10	11	12	6	7	1	9	8	4	5	2
Group	E	C	C	C	E	C	G	C	C	E	E	E

Teacher #3 E
X= -2.0000

Teacher #10 C
X= 0.0

Teacher #11 C
X= 0.0

Teacher #12 C
X= 0.0

Teacher #6 E
X= 0.0

Teacher #7 C
X= 0.0

Teacher #1 G
X= .1667

Teacher #9 C
X= .2857

Teacher #8 C
X= .5714

Teacher #4 E
X= 1.0000

Teacher #5 E S S S S S S S
X= 5.2857

Teacher #2 E S S S S S S S
X= 5.6000

S denotes contrasts that are significant at the 0.05 level. X denotes mean change scores, the lower the mean, the less increase in activity. C=Control, E=Experimental and G=Gifted. Teachers are listed in rank order with the lowers mean first.

Activity C - Reading and Studying

Teacher #	3	1	10	11	12	6	7	9	8	4	2	5
Group	E	G	C	C	C	E	C	C	C	E	E	E

Teacher #3
X= -3.0000

Teacher #1
X= -.3636

Teacher #10
X= 0.0

Teacher #11
X= 0.0

Teacher #12
X= 0.0

Teacher #16
X= 0.0

Teacher #7
X= 0.0

Teacher #9
X= .4286

Teacher #8
X= 1.4286

Teacher #4
X= 4.0000

Teacher #2
X= 6.2000

Teacher #5
X= 7.2222

S denotes contrasts that are significant at the 0.05 level.
Z denotes mean change scores, the lower the mean, the less increase in activity. C=Control, E=Experimental and G=Gifted. Teachers are listed in rank order with the lowers mean first.

APPENDIX F

**QUESTIONNAIRE:
ANALYSIS OF COVARIANCE**

I. Group

Q1A - Library Use

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	3.554	1	3.554	26.848	0.000
Main Effects: Group	1.855	2	0.928	7.007	0.001
Explained	5.410	3	1.803	13.620	0.000
Residual	37.069	280	0.132		
Total	42.478	283	0.150		

7 cases missing (2.4%)

Q1B - Come To The Library With...

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.310	1	0.310	0.543	0.462
Main Effects: Group	1.751	2	0.876	1.536	0.217
Explained	2.061	3	0.687	1.205	0.308
Residual	141.922	249	0.570		
Total	143.982	252	0.571		

38 cases missing (13.1%)

Q2A - Study

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0	1	0	0	0.993
Main Effects: Group	4.174	2	2.087	8.813	0.000
Explained	4.174	3	1.391	5.875	0.001
Residual	59.684	252	0.237		
Total	63.858	255	0.250		

35 cases missing (12%)

Q2B - Meet Friends

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0	1	0	0.003	0.955
Main Effects: Group	0.994	2	0.497	5.603	0.004
Explained	0.995	3	0.332	3.736	0.012
Residual	22.364	252	0.089		
Total	23.358	255	0.092		

35 cases missing (12%)

Q2C - Attend Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0	1	0	0.001	0.970
Main Effects: Group	0.006	2	0.003	0.033	0.967
Explained	0.006	3	0.002	0.023	0.995
Residual	22.552	252	0.089		
Total	22.558	255	0.088		

35 cases missing (12%)

Q2D - Materials For Home

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.014	1	0.014	0.059	0.809
Main Effects: Group	1.043	2	0.522	2.118	0.122
Explained	1.058	3	0.353	1.432	0.234
Residual	62.062	252	0.246		
Total	63.120	255	0.248		

35 cases missing (12%)

Q3A - Books

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.145	1	0.145	3.454	0.064
Main Effects: Group	0.061	2	0.030	0.726	0.485
Explained	0.206	3	0.069	1.635	0.182
Residual	10.310	246	0.042		
Total	10.516	249	0.042		

41 cases missing (14.1%)

Q3B - Records

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.171	1	1.171	6.067	0.014
Main Effects: Group	0.411	2	0.205	1.065	0.346
Explained	1.581	3	0.527	2.732	0.044
Residual	47.461	246			
Total	49.043	249			

41 cases missing (14.1%)

Q3C - Cassettes

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.192	1	0.192	1.371	0.243
Main Effects: Group	0.236	2	0.118	0.842	0.432
Explained	0.429	3	0.143	1.018	0.385
Residual	34.514	246	0.140		
Total	34.943	249	0.140		

41 cases missing (14.1%)

Q3D - Newspapers

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.936	1	0.936	4.050	0.045
Main Effects: Group	1.129	2	0.565	2.444	0.089
Explained	2.065	3	0.688	2.980	0.032
Residual	56.833	246	0.231		
Total	58.899	249	0.237		

41 cases missing (14.1%)

Q3E - Quiet Place To Study

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.136	1	1.136	5.263	0.023
Main Effects: Group	0.881	2	0.441	2.042	0.132
Explained	2.017	3	0.672	3.116	0.027
Residual	53.085	246	0.216		
Total	55.103	249	0.221		

41 cases missing (14.1%)

Q3F - Homework

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.002	1	0.002	0.009	0.926
Main Effects: Group	1.408	2	0.704	3.739	0.025
Explained	1.410	3	0.470	2.495	0.061
Residual	44.639	237	0.118		
Total	46.049	240	0.192		

41 cases missing (14.1%)

Q3G - Librarian Help

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.413	1	1.413	5.728	0.017
Main Effects: Group	0.187	2	0.093	0.379	0.685
Explained	1.600	3	0.533	2.162	0.093
Residual	58.473	237	0.247		
Total	60.073	240	0.250		

29 cases missing (10%)

Q5E - Difficult To Get To

Source of Variatiion:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.534	1	1.534	6.842	0.009
Main Effects: Group	0.353	2	0.177	0.788	0.456
Explained	1.887	3	0.629	2.806	0.040
Residual	53.132	237	0.224		
Total	55.019	240	0.229		

50 cases missing (17.2%)

Q4 - Find What You Want

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.049	1	0.049	0.702	0.403
Main Effects: Group	0.105	2	0.053	0.755	0.471
Explained	0.154	3	0.051	0.738	0.531
Residual	16.501	237	0.070		
Total	16.656	240	0.069		

50 cases missing (17.2%)

Q5A - No Time

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.053	1	0.053	0.312	0.577
Main Effects: Group	1.317	2	0.659	3.905	0.021
Explained	1.370	3	0.457	2.707	0.046
Residual	39.974	237	0.169		
Total	41.343	240	0.172		

50 cases missing (17.2%)

Q5B - Homework

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.203	1	0.203	0.841	0.360
Main Effects: Group	1.236	2	0.618	2.557	0.079
Explained	1.440	3	0.480	1.985	0.117
Residual	62.376	258	0.242	0.242	
Total	63.815	261	0.245	0.245	

29 cases missing (10.0%)

Q5C - Not Open When Needed

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.142	1	0.142	0.970	0.326
Main Effects: Group	0.044	2	0.022	0.152	0.859
Explained	0.186	3	0.062	0.425	0.736
Residual	37.735	258	0.146		
Total	37.923	261	0.145		

29 cases missing (10%)

Q5D - Librarians Are Helpful

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.184	1	0.184	2.605	0.108
Main Effects: Group	0.051	2	0.025	0.360	0.698
Explained	6.235	3	0.078	1.109	0.346
Residual	18.238	258	0.071		
Total	18.473	261	0.071		

29 cases missing (10%)

Q5E - Difficult To Get To

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.802	1	0.802	6.850	0.009
Main Effects: Group	0.056	2	0.028	0.238	0.788
Explained	0.857	3	0.286	2.442	0.065
Residual	30.195	258	0.117		
Total	31.053	261	0.119		

29 cases missing (10%)

Q6 - Comments

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.690	1	0.690	2.864	0.092
Main Effects: Group	0.944	2	0.472	1.959	0.143
Explained	1.634	3	0.545	2.260	0.082
Residual	62.181	258	0.241		
Total	63.815	261	0.245		

29 cases missing (10%)

WQ - Combined Questions

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	8459.355	1	8549.395	8.562	0.004
Main Effects: Group	7406.668	2	3703.334	3.709	0.026
Explained	15956.063	3	5318.688	5.326	0.001
Residual	281588.536	282	998.541		
Total	297544.625	285	1044.016		

29 cases missing (10%)

QUESTIONNAIRE:
Group and Gender

Q1A - Talking With Others

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.020	1	1.020	12.534	0.000
Main Effects: Group	0.950	3	0.317	3.893	0.010
Gender	0.354	2	0.177	2.174	0.116
	0.463	1	0.463	5.689	0.018
Two-Way Interaction	0.403	2	0.202	2.479	0.086
Explained	2.373	6	0.396	4.862	0.000
Residual	20.176	248	0.081		
Total	22.549	254	0.089		

36 cases missing (12.4%)

Q1B - Talking With Staff

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.310	1	0.310	0.542	0.462
Main Effects: Group	2.893	3	0.964	1.688	0.170
Gender	1.997	2	0.999	1.748	0.176
	1.142	1	1.142	1.999	0.159
Two-Way Interaction	0.250	2	0.125	0.219	0.804
Explained	3.452	6	0.575	1.007	0.421
Residual	140.530	246	0.571		
Total	143.982	252	0.571		

38 cases missing (13.1%)

Q2A - Study

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.004	1	0.004	0.018	0.894
Main Effects:	5.352	3	1.784	7.659	0.000
Group	3.350	2	1.675	7.191	0.001
Gender	1.203	1	1.203	5.163	0.024
Two-Way Interaction	0.505	2	0.252	1.084	0.340
Explained	5.861	6	0.977	4.194	0.000
Residual	57.768	248	0.233		
Total	63.630	254	0.251		

36 cases missing (12.4%)

Q2B - Meet Friends

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.000	1	0.000	0.004	0.947
Main Effects:	0.989	3	0.330	3.823	0.011
Group	0.983	2	0.491	5.696	0.004
Gender	0.007	1	0.007	0.079	0.779
Two-Way Interaction	0.168	2	0.084	0.976	0.378
Explained	1.158	6	0.193	2.237	0.040
Residual	21.390	248	0.086		
Total	22.548	254	0.089		

36 cases missing (12.4%)

Q2C - Attend Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.000	1	0.000	0.003	0.959
Main Effects: Group	0.009	3	0.003	0.032	0.992
Gender	0.007	2	0.003	0.037	0.963
	0.003	1	0.003	0.035	0.851
Two-Way Interaction	0.162	2	0.081	0.899	0.408
Explained	0.171	6	0.029	0.9316	0.928
Residual	22.377	248	0.090		
Total	22.548	254	0.089		

36 cases missing (12.4%)

Q2D - Materials For Home

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.019	1	0.019	0.077	0.782
Main Effects: Group	1.732	3	0.577	2.359	0.072
Gender	0.618	2	0.309	1.264	0.284
	0.987	1	0.987	4.032	0.046
Two-Way Interaction	0.011	2	0.006	0.023	0.977
Explained	1.762	6	0.294	1.200	0.307
Residual	58.237	238	0.245		
Total	59.999	244	0.246		

46 cases missing (15.8%)

Q3A - Books

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.072	1	0.072	2.289	0.132
Main Effects: Group	0.080 0.020	3 2	0.027 0.010	0.847 0.318	0.469 0.728
Gender	0.049	1	0.049	1.051	0.215
Two-Way Interaction	0.047	2	0.023	0.737	0.479
Explained	0.200	6	0.033	1.051	0.393
Residual	7.539	238	0.032		
Total	7.739	244	0.032		

46 cases missing (15.8%)

Q3B - Records

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.269	1	1.269	6.599	0.011
Main Effects: Group	0.679 0.253	3 2	0.226 0.126	1.177 0.657	0.319 0.519
Gender	0.321	1	0.321	1.668	0.198
Two-Way Interaction	0.027	2	0.014	0.071	0.931
Explained	1.876	6	0.329	1.712	0.119
Residual	45.778	238	0.192		
Total	47.754	244	0.196		

46 cases missing (15.8%)

Q3C - Cassettes

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.234	1	0.234	1.688	0.195
Main Effects: Group	0.776	3	0.259	1.866	0.136
Gender	0.126	2	0.063	0.456	0.634
	0.546	1	0.546	3.936	0.048
Two-Way Interaction	0.139	2	0.070	0.502	0.606
Explained	1.149	6	0.192	1.382	0.223
Residual	32.989	238	0.139		
Total	34.138	244	0.140		

46 cases missing (15.8%)

Q3D - Newspaper

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.905	1	0.905	3.897	0.050
Main Effects: Group	1.131	3	0.377	1.622	0.185
Gender	1.031	2	0.515	2.218	0.111
	0.025	1	0.025	0.109	0.741
Two-Way Interaction	0.820	2	0.410	1.765	0.173
Explained	2.857	6	0.476	2.049	0.060
Residual	55.305	238	0.232		
Total	58.162	244	0.238		

46 cases missing (15.8%)

Q3E - Quiet Place To Study

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.932	1	0.932	4.425	0.036
Main Effects: Group	2.319	3	0.773	3.670	0.013
Gender	0.496	2	0.248	1.178	0.310
	1.497	1	1.497	7.107	0.008
Two-Way Interaction	0.283	2	0.141	0.671	0.512
Explained	3.534	6	0.589	2.796	0.012
Residual	50.554	240	0.211		
Total	54.088	246	0.220		

44 cases missing (15.1%)

Q3F - Homework

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.002	1	0.002	0.010	0.919
Main Effects: Group	2.891	3	0.964	5.279	0.002
Gender	0.979	2	0.490	2.683	0.070
	1.457	1	1.457	7.981	0.005
Two-Way Interaction	0.716	2	0.358	1.960	0.143
Explained	3.608	6	0.601	3.295	0.004
Residual	43.808	240	0.183		
Total	47.416	246	0.193		

44 cases missing (15.1%)

Q3G - Librarians Help

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.365	1	1.365	5.531	0.019
Main Effects:	0.640	3	0.213	0.864	0.460
Group	0.065	2	0.032	0.132	0.877
Gender	0.513	1	0.513	2.078	0.151
Two-Way Interaction	0.394	2	0.197	0.798	0.451
Explained	2.399	6	0.400	1.620	0.142
Residual	59.227	240	0.247		
Total	61.626	246	0.251		

44 cases missing (15.1%)

Q3H - Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.707	1	1.707	7.780	0.006
Main Effects:	1.579	3	0.526	2.399	0.069
Group	0.159	2	0.080	0.363	0.696
Gender	1.247	1	1.247	5.684	0.018
Two-Way Interaction	0.417	2	0.209	0.951	0.388
Explained	3.703	6	0.617	2.813	0.012
Residual	52.652	240	0.219		
Total	56.355	246	0.229		

Q4 - Find What You Want

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.065	1	0.065	0.917	0.339
Main Effects: Group	0.365	3	0.122	1.722	0.163
Gender	0.051	2	0.026	0.364	0.695
	0.283	1	0.283	4.004	0.047
Two-Way Interaction	0.139	2	0.069	0.980	0.377
Explained	0.569	6	0.095	1.341	0.240
Residual	16.970	240	0.071		
Total	17.538	246	0.017		

44 cases missing (15.1%)

Q5A - No Time

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.173	1	0.173	0.960	0.328
Main Effects: Group	2.429	3	0.810	4.503	0.004
Gender	1.655	2	0.827	4.602	0.011
	0.628	1	0.628	3.494	0.063
Two-Way Interaction	0.036	2	0.018	0.100	0.904
Explained	2.637	6	0.440	2.445	0.026
Residual	45.668	254	0.180		
Total	48.305	260	0.186		

30 cases missing (10.3%)

Q5B - Homework

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.206	1	0.206	0.871	0.352
Main Effects: Group	2.758 0.838	3 2	0.919 0.419	3.879 1.767	0.010 0.173
Gender	1.515	1	1.515	6.394	0.012
Two-Way Interaction	0.477	2	0.239	1.007	0.367
Explained	3.441	6	0.574	2.420	0.027
Residual	60.197	254	0.237		
Total	63.638	260	0.245		

30 cases missing (10.3%)

Q5C - Not Open When Needed

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.143	1	0.143	0.971	0.325
Main Effects: Group	0.069 0.056	3 2	0.023 0.028	0.157 0.191	0.925 0.826
Gender	0.021	1	0.021	0.140	0.709
Two-Way Interaction	0.292	2	0.146	0.994	0.372
Explained	0.505	6	0.084	0.572	0.753
Residual	37.387	254	0.147		
Total	37.892	260	0.146		

30 cases missing (10.3%)

Q5D - Librarians Are Helpful

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.185	1	0.185	2.657	0.104
Main Effects:	0.573	3	0.191	2.750	0.043
Group	0.018	2	0.009	0.128	0.880
Gender	1.523	1	1.523	7.579	0.007
Two-Way Interaction	0.054	2	0.027	0.392	0.676
Explained	0.813	6	0.135	1.948	0.074
Residual	17.655	254	0.070		
Total	18.467	260	0.071		

30 cases missing (10.3%)

Q5E - Difficult To Get To

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.790	1	0.790	6.833	0.009
Main Effects:	0.106	3	0.035	0.305	0.822
Group	0.070	2	0.035	0.302	0.740
Gender	0.032	1	0.032	0.277	0.599
Two-Way Interaction	0.046	2	0.023	0.199	0.819
Explained	0.942	6	0.157	1.358	0.232
Residual	29.364	254	0.116		
Total	30.306	260	0.117		

30 cases missing (10.3%)

Q6 - Comments

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.214	1	1.214	5.754	0.017
Main Effects:	7.143	3	2.381	11.281	0.000
Group	0.393	2	0.196	0.930	0.396
Gender	6.061	1	6.061	28.716	0.000
Two-Way Interaction	1.314	2	0.657	3.112	0.046
Explained	9.671	6	1.612	7.637	0.000
Residual	58.887	279	0.211		
Total	68.558	285	0.241		

5 cases missing (1.7%)

Combined Questions

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	8549.395	1	8549.395	8.502	0.004
Main Effects:	7608.555	3	2536.185	2.522	0.058
Group	7016.379	2	3508.189	3.489	0.032
Gender	201.884	1	201.884	0.201	0.654
Two-Way Interaction	841.348	2	420.674	0.418	0.659
Explained	16999.313	6	2833.219	2.818	0.011
Residual	280545.313	279	1005.539		
Total	297544.625	285	1044.016		

5 cases missing (1.7%)

QUESTIONNAIRE:
Group and School

Q1A - Library Use

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.020	1	1.020	13.061	0.000
Main Effects:	2.152	4	0.538	6.891	0.000
Group	0.043	2	0.022	0.278	0.758
School	1.665	2	0.832	10.661	0.000
Two-Way Interaction	0.016	1	0.016	0.200	0.655
Explained	3.187	6	0.531	6.804	0.000
Residual	19.361	248	0.078		
Total	22.549	254	0.089		

36 cases missing (12.4%)

Q1B - Come To The Library With...

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.310	1	0.310	0.544	0.461
Main Effects:	2.517	4	0.629	1.107	0.354
Group	2.071	2	1.036	1.822	0.164
School	0.766	2	0.383	0.674	0.511
Two-Way Interaction	1.300	1	1.300	2.287	0.132
Explained	4.127	6	0.688	1.210	0.302
Residual	139.855	246	0.569		
Total	14..982	252	0.571		

38 cases missing (13.1%)

Q2A - Study

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.004	1	0.004	0.017	0.895
Main Effects:	4.620	4	1.155	4.871	0.001
Group	2.417	2	1.208	5.096	0.007
School	0.471	2	0.235	0.992	0.372
Two-Way Interaction	0.193	1	0.193	0.815	0.368
Explained	4.818	6	0.803	3.386	0.003
Residual	58.812	248	0.237		
Total	63.630	254	0.251		

36 cases missing (12.4%)

Q2B - Meet Friends

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.000	1	0.000	0.004	0.947
Main Effects:	1.082	4	0.271	3.128	0.016
Group	0.757	2	0.379	4.378	0.014
School	0.100	2	0.050	0.578	0.562
Two-Way Interaction	0.011	1	0.011	0.125	0.724
Explained	1.094	6	0.182	2.107	0.053
Residual	21.454	248	0.087		
Total	22.548	254	0.089		

36 cases missing (12.4%)

Q2C - Attend Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.000	1	0.000	0.003	0.958
Main Effects:	0.573	4	0.143	1.618	0.170
Group	0.023	2	0.012	0.132	0.876
School	0.568	2	0.284	3.205	0.042
Two-Way Interaction	0.000	1	0.000	0.006	0.941
Explained	0.574	6	0.096	1.080	0.375
Residual	21.974	248	0.089		
Total	22.548	254	0.089		

36 cases missing (12.4%)

Q2D - Materials For Home

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.019	1	0.019	0.078	0.781
Main Effects:	1.116	4	0.279	1.156	0.331
Group	0.728	2	0.364	1.509	0.223
School	0.370	2	0.185	0.768	0.465
Two-Way Interaction	1.464	1	1.464	6.068	0.014
Explained	2.598	6	0.433	1.795	0.101
Residual	57.401	238	0.241		
Total	59.999	244	0.246		

46 cases missing (15.8%)

Q3A - Books

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.072	1	0.072	2.290	0.132
Main Effects:	0.079	4	0.020	0.625	0.645
Group	0.009	2	0.004	0.135	0.874
School	0.048	2	0.024	0.752	0.473
Two-Way Interaction	0.052	1	0.052	1.641	0.201
Explained	0.204	6	0.034	1.072	0.380
Residual	7.535	238	0.032		
Total	7.739	244	0.032		

46 cases missing (15.8%)

Q3B - Records

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.269	1	1.269	6.621	0.011
Main Effects:	0.493	4	0.123	0.643	0.632
Group	0.091	2	0.045	0.237	0.789
School	0.135	2	0.067	0.351	0.704
Two-Way Interaction	0.361	1	0.361	1.884	0.171
Explained	2.124	6	0.354	1.846	0.091
Residual	45.630	238	0.192		
Total	47.754	244	0.196		

46 cases missing (15.8%)

Q3C - Cassettes

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.234	1	0.234	1.669	0.198
Main Effects:	0.463	4	0.116	0.826	0.510
Group	0.095	2	0.047	0.337	0.714
School	0.233	2	0.116	0.830	0.437
Two-Way Interaction	0.063	1	0.063	0.449	0.503
Explained	0.760	6	0.127	0.903	0.493
Residual	33.378	238	0.140		
Total	34.138	244	0.140		

46 cases missing (15.8%)

Q3D - Newspaper

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.905	1	0.905	3.933	0.048
Main Effects:	2.136	4	0.534	2.319	0.058
Group	0.874	2	0.437	1.899	0.152
School	1.030	2	0.515	2.237	0.109
Two-Way Interaction	0.326	1	0.326	1.417	0.235
Explained	3.368	6	0.561	2.438	0.026
Residual	54.794	238	0.230		
Total	58.162	244	0.238		

46 cases missing (15.8%)

Q3E - Quiet Place To Study

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.932	1	0.932	4.394	0.037
Main Effects:	1.857	4	0.464	2.189	0.071
Group	0.543	2	0.272	1.280	0.280
School	1.035	2	0.518	2.440	0.089
Two-Way Interaction	0.388	1	0.388	1.830	0.177
Explained	3.178	6	0.530	2.497	0.023
Residual	50.910	240	0.212		
Total	54.088	246	0.220		

44 cases missing (15.1%)

Q3F - Homework

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.002	1	0.002	0.011	0.917
Main Effects:	5.501	4	1.375	7.880	0.000
Group	0.822	2	0.411	2.356	0.097
School	4.067	2	2.033	11.651	0.000
Two-Way Interaction	0.026	1	0.026	0.148	0.700
Explained	5.529	6	0.921	5.280	0.000
Residual	41.887	240	0.175		
Total	47.416	246	0.193		

44 cases missing (15.1%)

Q3G - Librarians Helpful

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.365	1	1.365	5.515	0.020
Main Effects:	0.865	4	0.216	0.874	0.480
Group	0.082	2	0.041	0.165	0.848
School	0.738	2	0.369	1.491	0.227
Two-Way Interaction	0.000	1	0.000	0.001	0.975
Explained	2.230	6	0.372	1.502	0.178
Residual	59.396	240	0.247		
Total	61.626	246	0.251		

44 cases missing (15.1%)

Q3H - Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.707	1	1.707	7.859	0.005
Main Effects:	1.593	4	0.398	1.834	0.123
Group	0.423	2	0.212	0.975	0.379
School	1.261	2	0.630	2.903	0.057
Two-Way Interaction	0.933	1	0.933	4.294	0.039
Explained	4.233	6	0.705	3.248	0.004
Residual	52.122	240	0.217		
Total	56.355	246	0.229		

44 cases missing (15.1%)

Q4 - Find What You Want

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.065	1	0.065	0.910	0.341
Main Effects: Group	0.353	4	0.088	1.239	0.295
School	0.013	2	0.007	0.093	0.911
	0.271	2	0.136	1.902	0.151
Two-Way Interaction	0.011	1	0.010	0.136	0.713
Explained	0.428	6	0.071	1.000	0.426
Residual	17.110	240	0.071		
Total	17.538	246	0.071		

44 cases missing (15.1%)

Q5A - No Time

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.173	1	0.173	0.957	0.329
Main Effects: Group	1.863	4	0.466	2.581	0.038
School	1.251	2	0.626	3.468	0.033
	0.062	2	0.031	0.173	0.841
Two-Way Interaction	0.445	1	0.445	2.468	0.117
Explained	2.481	6	0.413	2.292	0.036
Residual	45.825	254	0.180		
Total	48.305	260	0.186		

30 cases missing (10.3%)

Q5B - Homework

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.206	1	0.206	0.901	0.343
Main Effects:	5.069	4	1.267	5.537	0.000
Group	0.669	2	0.334	1.461	0.234
School	3.827	2	1.913	8.361	0.000
Two-Way Interaction	0.233	1	0.233	1.018	0.314
Explained	5.508	6	0.918	4.011	0.001
Residual	58.130	254	0.229		
Total	63.638	260	0.245		

30 cases missing (10.3%)

Q5C - Not Open When Needed

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.143	1	0.143	0.976	0.324
Main Effects:	0.342	4	0.086	0.584	0.674
Group	0.135	2	0.067	0.461	0.631
School	0.294	2	0.147	1.002	0.369
Two-Way Interaction	0.188	1	0.188	1.284	0.258
Explained	0.673	6	0.112	0.766	0.597
Residual	37.218	254	0.147		
Total	37.892	260	0.146		

30 cases missing (10.3%)

Q5D - Librarians Are Helpful

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.185	1	0.185	2.665	0.104
Main Effects: Group	0.663	4	0.166	2.391	0.051
School	0.058	2	0.029	0.418	0.659
	0.612	2	0.306	4.415	0.013
Two-Way Interaction	0.015	1	0.015	0.226	0.640
Explained	0.863	6	0.144	2.075	0.057
Residual	17.604	254	0.069		
Total	18.467	260	0.071		

30 cases missing (10.3%)

Q5E - Difficult To Get To

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.790	1	0.790	6.967	0.009
Main Effects: Group	0.707	4	0.177	1.558	0.186
School	0.034	2	0.017	0.150	0.861
	0.633	2	0.317	2.791	0.063
Two-Way Interaction	0.010	1	0.010	0.085	0.771
Explained	1.506	6	0.251	2.214	0.042
Residual	28.800	254	0.113		
Total	30.306	260	0.117		

30 cases missing (10.3%)

Q6 - Comments

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.214	1	1.214	5.859	0.016
Main Effects:	6.424	4	1.606	7.747	0.000
Group	1.320	2	0.660	3.184	0.043
School	5.342	2	2.671	12.885	0.000
Two-Way Interaction	3.084	1	3.084	14.876	0.000
Explained	10.722	6	1.787	8.621	0.000
Residual	57.836	279	0.207		
Total	68.558	285	0.241		

5 cases missing (1.7%)

Combined Questions

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	8549.395	1	8549.395	8.928	0.003
Main Effects:	21802.066	4	5450.516	5.692	0.000
Group	3921.266	2	1960.633	2.047	0.131
School	14395.398	2	7197.699	7.516	0.001
Two-Way Interaction	23.914	1	23.914	0.025	0.875
Explained	30375.375	6	5062.563	5.287	0.000
Residual	267169.250	279	957.596		
Total	297544.625	285	1044.016		

5 cases missing (1.7%)

QUESTIONNAIRE:
Group and Grade

Q1A - Talking With Others

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.020	1	1.020	12.525	0.000
Main Effects:	0.653	3	0.218	2.672	0.048
Group	0.612	2	0.306	3.757	0.025
Grade	0.165	1	0.165	2.031	0.155
Two-Way Interaction	0.605	1	0.605	7.427	0.007
Explained	2.277	5	0.455	5.594	0.000
Residual	20.272	249	0.081		
Total	22.549	254	0.089		

36 cases missing (12.4%)

Q1B - Talking With Staff

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.310	1	0.310	0.541	0.463
Main Effects:	1.820	3	0.607	1.060	0.367
Group	1.795	2	0.898	1.568	0.210
Grade	0.069	1	0.069	0.120	0.729
Two-Way Interaction	0.483	1	0.483	0.844	0.359
Explained	2.613	5	0.523	0.913	0.473
Residual	141.370	247	0.572		
Total	143.982	252	0.571		

38 cases missing (13.1%)

Q2A - Study

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.004	1	0.004	0.018	0.892
Main Effects:	5.435	3	1.812	8.052	0.000
Group	2.111	2	1.055	4.691	0.010
Grade	1.285	1	1.285	5.711	0.018
Two-Way Interaction	2.171	1	2.171	9.648	0.002
Explained	7.609	5	1.522	6.764	0.000
Residual	56.021	249	0.225		
Total	63.630	254	0.251		

36 cases missing (12.4%)

Q2B - Meet Friends

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.000	1	0.000	0.004	0.947
Main Effects:	0.983	3	0.328	3.783	0.011
Group	0.874	2	0.437	5.045	0.007
Grade	0.000	1	0.000	0.005	0.943
Two-Way Interaction	0.002	1	0.002	0.027	0.870
Explained	0.986	5	0.197	2.276	0.048
Residual	21.562	249	0.087		
Total	22.548	254	0.089		

36 cases missing (12.4%)

Q2C - Attend Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.000	1	0.000	0.003	0.958
Main Effects: Group	0.364	3	0.121	1.365	0.254
Grade	0.026	2	0.013	0.144	0.866
	0.359	1	0.359	4.034	0.046
Two-Way Interaction	0.037	1	0.037	0.418	0.518
Explained	0.402	5	0.080	0.903	0.480
Residual	22.147	249	0.089		
Total	22.548	254	0.089		

36 cases missing (12.4%)

Q2D - Materials For Home

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.019	1	0.019	0.076	0.783
Main Effects: Group	1.112	3	0.371	1.504	0.214
Grade	0.933	2	0.467	1.895	0.153
	0.366	1	0.366	1.488	0.224
Two-Way Interaction	0.001	1	0.001	0.004	0.948
Explained	1.131	5	0.226	0.919	0.469
Residual	58.867	239	0.246		
Total	59.999	244	0.246		

46 cases missing (15.8%)

Q3A - Books

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.072	1	0.072	2.326	0.129
Main Effects:	0.210	3	0.070	2.249	0.083
Group	0.001	2	0.000	0.010	0.990
Grade	0.179	1	0.179	5.735	0.017
Two-Way Interaction	0.007	1	0.007	0.232	0.630
Explained	0.290	5	0.058	1.861	0.102
Residual	7.449	239	0.031		
Total	7.739	244	0.032		

46 cases missing (15.8%)

Q3B - Records

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.269	1	1.269	6.603	0.011
Main Effects:	0.456	3	0.152	0.790	0.500
Group	0.201	2	0.100	0.522	0.594
Grade	0.097	1	0.097	0.505	0.478
Two-Way Interaction	0.087	1	0.087	0.453	0.501
Explained	1.812	5	0.362	1.885	0.098
Residual	45.942	239	0.192		
Total	47.754	244	0.196		

46 cases missing (15.8%)

Q3C - Cassettes

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.234	1	0.234	1.674	0.197
Main Effects: Group	0.384	3	0.128	0.917	0.434
Grade	0.087	2	0.043	0.310	0.734
	0.154	1	0.154	1.102	0.295
Two-Way Interaction	0.103	1	0.103	0.735	0.392
Explained	0.721	5	0.144	1.032	0.400
Residual	33.417	239	0.140		
Total	34.138	244	0.140		

46 cases missing (15.8%)

Q3D - Newspaper

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.905	1	0.905	3.871	0.050
Main Effects: Group	1.108	3	0.369	1.580	0.195
Grade	0.984	2	0.492	2.104	0.124
	0.003	1	0.003	0.012	0.913
Two-Way Interaction	0.246	1	0.246	1.052	1.036
Explained	2.260	5	0.452	1.932	0.090
Residual	55.902	239	0.234		
Total	58.162	244	0.238		

46 cases missing (15.8%)

Q3E - Quiet Place To Study

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.932	1	0.932	4.385	0.037
Main Effects:	1.076	3	0.359		0.171
Group	0.418	2	0.209		0.376
Grade	0.253	1	0.253		0.276
Two-Way Interaction	0.851	1	0.851	4.004	0.047
Explained	2.859	5	0.572	2.690	0.022
Residual	51.229	241	0.213		
Total	54.088	246	0.220		

44 cases missing (15.1%)

Q3F - Homework

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.002	1	0.002	0.010	0.919
Main Effects:	1.562	3	0.521	2.847	0.038
Group	0.969	2	0.485	2.650	0.073
Grade	0.128	1	0.128	0.700	0.403
Two-Way Interaction	1.772	1	1.772	9.690	0.002
Explained	3.336	5	0.667	3.648	0.003
Residual	44.080	241	0.183		
Total	47.416	246	0.193		

44 cases missing (15.1%)

Q3G - Librarians Help

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.365	1	1.365	5.473	0.020
Main Effects:					
Group	0.138	3	0.046	0.185	0.907
Grade	0.097	2	0.049	0.195	0.823
	0.011	1	0.011	0.044	0.835
Two-Way Interaction	0.020	1	0.020	0.079	0.779
Explained	1.523	5	0.305	1.221	0.300
Residual	60.103	241	0.249		
Total	61.636	246	0.251		

44 cases missing (15.1%)

Q3H - Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.707	1	1.707	7.696	0.006
Main Effects:					
Group	0.349	3	0.116	0.524	0.666
Grade	0.234	2	0.117	0.528	0.590
	0.016	1	0.016	0.073	0.787
Two-Way Interaction	0.856	1	0.856	3.854	0.051
Explained	2.911	5	0.582	2.625	0.025
Residual	53.444	241	0.222		
Total	56.355	246	0.229		

Q4 - Satisfaction

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.065	1	0.065	0.910	0.341
Main Effects:	0.097	3	0.032	0.451	0.716
Group	0.094	2	0.097	0.662	0.517
Grade	0.014	1	0.014	0.202	0.654
Two-Way Interaction	0.194	1	0.194	2.721	0.100
Explained	0.355	5	0.071	0.997	0.420
Residual	17.183	241	0.071		
Total	17.538	246	0.017		

44 cases missing (15.1%)

Q5A - No Time

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.173	1	0.173	0.950	0.331
Main Effects:	1.803	3	0.601	3.309	0.021
Group	1.733	2	0.867	4.773	0.009
Grade	0.002	1	0.002	0.011	0.915
Two-Way Interaction	0.026	1	0.026	0.146	0.703
Explained	2.002	5	0.400	2.205	0.054
Residual	46.304	255	0.182		
Total	48.305	260	0.186		

30 cases missing (10.3%)

Q5B - Homework

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.206	1	0.206	0.893	0.345
Main Effects: Group	1.391 1.389	3 2	0.464 0.694	2.007 3.006	0.113 0.051
Grade	0.148	1	0.148	0.642	0.424
Two-Way Interaction	3.144	1	3.144	13.613	0.000
Explained	4.741	5	0.948	4.105	0.001
Residual	58.897	255	0.231		
Total	63.638	260	0.245		

30 cases missing (10.3%)

Q5C - Not Open When Needed

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.143	1	0.143	0.696	0.326
Main Effects: Group	0.057 0.035	3 2	0.019 0.018	0.129 0.119	0.943 0.887
Grade	0.008	1	0.008	0.056	0.813
Two-Way Interaction	0.084	1	0.084	0.568	0.452
Explained	0.284	5	0.057		
Residual	37.608	255	0.147		
Total	37.892	260	0.146		

30 cases missing (10.3%)

Q5D - Librarians Are Helpful

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.185	1	0.185	2.636	0.106
Main Effects:	0.203	3	0.965	0.965	0.410
Group	0.122	2	0.061	0.870	0.420
Grade	0.152	1	0.152	2.169	0.142
Two-Way Interaction	0.210	1	0.210	2.999	0.085
Explained	0.598	5	0.120	1.706	0.134
Residual	17.870	255	0.070		
Total	18.467	260	0.071		

30 cases missing (10.3%)

Q5E - Difficult To Get To

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.790	1	0.790	6.867	0.009
Main Effects:	0.147	3	0.049	0.425	0.735
Group	0.098	2	0.049	0.426	0.654
Grade	0.073	1	0.073	0.635	0.426
Two-Way Interaction	0.037	1	0.037	0.319	0.572
Explained	0.973	5	0.195	1.692	0.137
Residual	29.333	255	0.115		
Total	30.306	260	0.117		

30 cases missing (10.3%)

Q6 - Comments

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.214	1	1.214	5.499	0.020
Main Effects:	5.446	3	1.815	8.220	0.000
Group	2.945	2	1.472	6.668	0.001
Grade	4.364	1	4.364	19.761	0.000
Two-Way Interaction	0.065	1	0.065	0.297	0.586
Explained	6.726	5	1.345	6.091	0.000
Residual	61.832	280	0.221		
Total	68.558	285	0.241		

5 cases missing (1.7%)

Combined Questions

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	8549.395	1	8549.395	8.597	0.0004
Main Effects:	7943.973	3	2647.991	2.663	0.048
Group	7885.613	2	3942.807	3.965	0.020
Grade	537.304	1	537.304	0.540	0.463
Two-Way Interaction	2602.121	1	2602.121	2.617	0.107
Explained	19095.500	5	3819.100	3.840	0.002
Residual	278449.125	280	994.461		
Total	297544.625	285	1044.016		

5 cases missing (1.7%)

QUESTIONNAIRE:

Teacher

Q1A - Library Use

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.020	1	1.020	13.336	0.000
Main Effects: Teacher	3.179	13	0.245	3.198	0.000
Explained	4.198	14	0.300	3.922	0.000
Residual	18.351	240	0.076		
Total	22.549	254	0.089		

36 cases missing (12.4%)

Q1B - Come To the Library With...

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.310	1	0.310	0.531	0.467
Main Effects: Teacher	4.980	13	0.383	0.657	0.803
Explained	5.289	14	0.378	0.648	0.823
Residual	138.693	238	0.583		
Total	143.982	252	0.571		

38 cases missing (13.1%)

Q2A - Study

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.004	1	0.004	0.018	0.892
Main Effects: Teacher	9.975	13	0.767	3.433	0.000
Explained	9.979	14	0.713	3.189	0.000
Residual	53.650	240	0.224		
Total	63.630	254	0.251		

36 cases missing (12.4%)

Q2B - Meet Friends

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.000	1	0.000	0.004	0.947
Main Effects: Teacher	1.598	13	0.123	1.409	0.156
Explained	1.599	14	0.114	1.308	0.203
Residual	20.949	240	0.087		
Total	22.548	254	0.089		

36 cases missing (12.4%)

Q2C - Attend Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.000	1	0.000	0.003	0.958
Main Effects: Teacher	1.097	13	0.084	0.944	0.509
Explained	1.098	14	0.078	0.877	0.584
Residual	21.451	240	0.089		
Total	22.548	254	0.089		

36 cases missing (12.4%)

Q2D - Materials For Home

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.019	1	0.019	0.079	0.779
Main Effects: Teacher	5.186	13	0.399	1.675	0.067
Explained	5.205	14	0.372	1.561	0.092
Residual	54.793	230	0.238		
Total	59.999	254	0.246		

46 cases missing (15.8%)

Q3A - Books

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.072	1	0.072	2.775	0.133
Main Effects: Teacher	0.337	13	0.026	0.813	0.646
Explained	0.409	14	0.029	0.917	0.541
Residual	7.329	230	0.032		
Total	7.739	244	0.032		

46 cases missing (15.8%)

Q3B - Records

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.269	1	1.269	6.816	0.010
Main Effects: Teacher	3.651	13	0.281	1.508	0.115
Explained	4.920	14	0.351	1.887	0.029
Residual	42.834	230	0.186		
Total	47.754	244	0.196		

46 cases missing (15.8%)

Q3C - Cassettes

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.234	1	0.234	1.705	0.193
Main Effects: Teacher	2.338	13	0.180	1.311	0.207
Explained	2.572	14	0.184	1.339	0.186
Residual	31.565	230	0.137		
Total	34.138	244	0.140		

46 cases missing (15.8%)

Q3D - Newspapers

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.905	1	0.905	4.084	0.044
Main Effects: Teacher	6.263	13	0.482	2.173	0.011
Explained	7.169	14	0.512	2.310	0.005
Residual	50.993	230	0.222		
Total	58.162	244	0.238		

46 cases missing (15.8%)

Q3E - Quiet Place To Study

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.932	1	0.932	4.446	0.036
Main Effects: Teacher	4.515	13	0.347	1.657	0.071
Explained	5.447	14	0.389	1.856	0.032
Residual	48.641	232	0.210		
Total	54.088	246	0.220		

44 cases missing (15.1%)

Q3F - Homework

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.002	1	0.002	0.011	0.916
Main Effects: Teacher	8.570	13	0.659	3.938	0.000
Explained	8.572	14	0.612	3.657	0.000
Residual	38.844	232	0.167		
Total	47.416	246	0.193		

44 cases missing (15.1%)

Q3G - Librarian's Help

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.365	1	1.365	5.684	0.018
Main Effects: Teacher	4.546	13	0.350	1.456	0.135
Explained	5.911	14	0.422	1.758	0.046
Residual	55.715	232	0.240		
Total	61.626	246	0.251		

44 cases missing (15.1%)

Q3H - Library Programs

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.707	1	1.707	7.831	0.006
Main Effects: Teacher	4.084	13	0.314	1.441	0.141
Explained	5.790	14	0.414	1.898	0.027
Residual	50.564	232	0.218		
Total	56.355	246	0.229		

44 cases missing (15.1%)

Q4 - Find What You Want

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.065	1	0.065	0.919	0.339
Main Effects: Teacher	1.091	13	0.084	1.189	0.288
Explained	1.156	14	0.083	1.170	0.300
Residual	16.382	232	0.071		
Total	17.538	246	0.071		

44 cases missing (15.1%)

Q5A - No Time

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.173	1	0.173	0.967	0.326
Main Effects: Teacher	4.247	13	0.327	1.831	0.039
Explained	4.419	14	0.316	1.769	0.044
Residual	43.886	246	0.178		
Total	48.305	260	0.186		

30 cases missing (10.3%)

Q5B - Homework

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.206	1	0.206	0.936	0.334
Main Effects: Teacher	9.224	13	0.710	3.200	0.000
Explained	9.430	14	0.674	3.057	0.000
Residual	54.208	246	0.220		
Total	63.638	260	0.245		

30 cases missing (10.3%)

Q5C - Not Open When Needed

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.143	1	0.143	0.968	0.326
Main Effects: Teacher	1.406	13	0.108	0.732	0.731
Explained	1.549	14	0.111	0.749	0.724
Residual	36.343	246	0.148		
Total	37.892	260	0.146		

30 cases missing (10.3%)

Q5D - Librarians Are Helpful

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.185	1	0.185	2.642	0.105
Main Effects: Teacher	1.084	13	0.083	1.193	0.285
Explained	1.269	14	0.091	1.296	0.210
Residual	17.198	246	0.070		
Total	18.467	260	0.071		

30 cases missing (10.3%)

Q5E - Difficult To Get To

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	0.790	1	0.790	7.054	0.008
Main Effects: Teacher	1.969	13	0.151	1.352	0.184
Explained	2.759	14	0.197	1.760	0.045
Residual	27.547	246	0.112		
Total	30.306	260	0.117		

30 cases missing (10.3%)

Q6 - Comments

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	1.214	1	1.214	6.256	0.013
Main Effects: Teacher	14.733	13	1.133	5.838	0.000
Explained	15.948	14	1.139	5.868	0.000
Residual	52.610	271	0.194		
Total	68.558	285	0.241		

5 cases missing (1.7%)

WQ - Combined Questions

Source of Variation:	Sum of Squares	Deg. of Freedom	Mean Square	F	Sig. of F
Covariate: Distance	8549.395	1	8549.395	8.984	0.003
Main Effects: Teacher	31110.676	13	2393.129	2.515	0.003
Explained	39660.125	14	2832.866	2.977	0.000
Residual	257884.500	271	951.603		
Total	297544.625	285	1044.016		

5 cases missing (1.7%)

APPROVAL SHEET

The dissertation submitted by Leslie Edmonds has been read and approved by the following committee:

Dr. Mary Jane Gray, Director
Chair, Curriculum and Instruction, Loyola

Dr. Todd Hoover
Assistant Professor, Curriculum and Instruction,
Loyola

Dr. Gwendolyn Trotter
Associate Professor, Curriculum and Instruction,
Loyola

Dr. Peggy Sullivan
Dean, College of Professional Studies,
Northern Illinois University

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December 8, 1983
Date

Mary Jane Gray
Director's Signature