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Evaluating Library-Use Instruction

Although library-use instruction programs have become popular during the 1970s, they are often not given the same type of support by library and college or university administrators as the more traditional library services. The paper contends that appropriate evaluation is an important element in gaining this support and describes the development and results of a systematic assessment of library-use instruction at DePauw University.

All social institutions or subsystems, whether medical, educational, religious, economic, or political, are required to provide "proof" of their legitimacy and effectiveness in order to justify society's continued support.[1]

During the 1970s library-use instruction has enjoyed a renewed popularity.[2] Each passing year has brought reports from more and more academic libraries that they too have established library-use instruction programs. A survey of the number of conferences on this topic and the articles published in the library literature confirms that library-use instruction has been revived. Despite these developments, few academic libraries accord library-use instruction programs the same degree of importance as the more traditional services of the library.

Often library-use instruction programs are an "extra" service that a few librarians or even a single librarian, working at the

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grass-roots level, have been willing to provide in addition to their other responsibilities. As a result, there is a history of library-use instruction programs floundering as the librarians responsible for them have changed positions or simply lost their initial enthusiasm when the work load became too great a burden.

A common concern among librarians promoting library-use instruction programs is how to gain the same kind of continuing support from the library and college or university administration as that received by traditional library services such as cataloging, circulation, acquisitions, and reference. Certainly there are many ways of seeking this support, but a most important method that should be part of any library-use instruction program is that of systematic evaluation.

In the field of education, evaluation is customarily divided into two types: formative evaluation and summative evaluation. Familiarity with the rationale and techniques associated with both types of evaluation is important for librarians developing library-use instruction programs. This article deals with both aspects of evaluation but focuses primarily upon summative evaluation. Formative evaluation is concerned with the development of a program and is useful in making methods of instruction more effective. Summative evaluation deals with efforts to assess the overall effectiveness of a program and to gain additional support for the program.[3]

This does not mean the same test or questionnaire cannot be used for both types

of evaluation. However, most formative evaluation is intended to provide short-term feedback, and the program developer often does not have time for a highly sophisticated statistical analysis or for other complex procedures to be carried out. Formative evaluations often are simplified, more error-prone versions of tests or questionnaires used for later summative evaluations.[4] Also, a good summative evaluation will have formative implications.

Summative evaluation reports are usually directed toward those individuals who set policy at various levels, such as library and college or university administrators. It is these individuals who decide whether to continue funding a program or whether to increase or decrease support available for a program. It is this type of evaluation that librarians will find most useful in gaining further support for their library-use instruction programs, and this article provides an example of the systematic summative evaluation of a library-use instruction program at one academic library.

In May 1976 the Council on Library Resources awarded DePauw University a one-year grant as part of the Council's Library Service Enhancement Program. The Council on Library Resources established this grant program to "stimulate additional activities intended to result in the more imaginative, effective involvement of the academic library in the teaching/learning program."[5] Using the information available in the literature provided by such leaders in library-use instruction as Knapp, Farber, Wiggins, Hackman, and others,[6-10] one of the authors initiated the development of a library-use instruction program at DePauw University beginning in the fall of 1976.

The program will be described only briefly here since it has been reported in more detail elsewhere.[11] The librarian planning the program placed considerable emphasis on a common instructional experience for freshman students through which they would develop a basic level of library skills and a positive attitude toward the academic library. He intended that the freshman library-use instruction program would serve as the foundation for more advanced library-use instruction later in the academic careers of students.

It is not yet possible to conduct a summative evaluation on the role of the freshman library-use instruction program as the foundation for more advanced library-use instruction. However, a summative evaluation of the freshman part of the program in terms of the development of basic library skills and positive attitudes toward the library has been completed. The efforts made to evaluate this part of the library-use instruction program at DePauw University are reported in this article. Included is information on how the evaluators considered each of the major areas of summative evaluation, such as the objectives of the program, test selection, design of the evaluation, and statistical analysis.

THE DePAUW LIBRARY-USE INSTRUCTION PROGRAM

The freshman library-use instruction program consisted of the following elements. First, during the beginning week of each semester a librarian presented a brief slide lecture to each of the freshman English and basic communication classes. This presentation introduced the students to the personnel, collections, and services of the library. At the end of the presentation, the librarian made the students aware of a self-guided tour pamphlet that could be obtained near the main entrance of the library so students could tour the library at their own convenience.

The purpose of this presentation was to give students very early in their academic career the impression that the library contained a wealth of resources and a variety of services, and that there were people in the library to help them make use of these services and resources. In short, the presentation was not intended to promote skill development, but rather concentrated on fostering a positive attitude on the part of the students toward the academic library.

The second element of the program occurred later in the semester and concentrated on skill development. For instructional purposes, two forty-five minute slide presentations, accompanied by instructional booklets and worksheets, were given to each of the freshmen in English and basic communication classes. These presentations provided the student with instructions on

how to make introductory use of each of the major collections of the library and how to develop a basic search strategy to obtain information needed for compositions that were part of the usual course requirements.

This second element of the program had rather modest objectives. The instruction emphasized actual library use and finding information in each of the major collections for use in the writing of compositions. While a variety of topics were discussed, the librarians making the presentations spent relatively little time on details such as the constituent parts of the catalog card or elements of *Readers' Guide* citations. Instead, the librarians emphasized the type of information that could be obtained from each of the major library collections and the development of a search strategy.

From the conception of the program a concern existed both for formative and summative evaluation. Formative evaluation was needed to provide information for the continued improvement of the program. The completed worksheets, interviews with instructors, and questionnaires completed by the students provided information for this type of evaluation. At that point the need for immediate feedback for modification of the program did not lend itself to the development of rigorous tests and questionnaires more appropriate for summative evaluation.

However, since only a one-year grant supported the program, the developer recognized that summative evaluation would be very important to gain the necessary support from the library and university administration in order to continue the program. It would take more than the results from hastily made questionnaires or impressions gained from interviewing instructors to convince the administrators. A major commitment of time and resources therefore was devoted to the development of summative evaluation procedures.

The librarians involved in the program considered several methods of evaluation, including the more traditional measures of library services such as reference and circulation statistics. They decided that, in addition to these methods of evaluation, a paper-and-pencil type test could provide useful information for summative evaluation purposes concerning the skills and attitudes the students developed as a result of the program.[12]

A survey of library literature revealed very little helpful information on available tests. As noted by Bloomfield, many of the more popular published tests place considerable emphasis on such details as parts of the catalog card and elements of *Readers' Guide* citations.[13] These tests did not appear to match very closely the goals and objectives of the program being developed at DePauw University. Carolyn Kirkendall, director of the Project LOEX Clearinghouse at Eastern Michigan University, provided a number of locally produced library-use tests.

The quality and objectives of these tests varied greatly, and their usefulness was questioned since there was no information available concerning their development. (This concern proved to be well founded considering the number of seemingly reasonable questions that later proved unreliable.) Finally, in an effort to gain the benefit of both their expertise and their objectivity, two professors from DePauw University—one in political science and one in sociology—were employed in the efforts to develop a useful library-use test.

CREATING A RELIABLE EVALUATION INSTRUMENT

An understanding of how the authors fashioned a reliable and valid systematic evaluation design can be acquired by reviewing the methodology in a step-by-step manner. The framework for the evaluation consists of four basic parts.

The first consisted of considering the test in terms of validity and reliability; these are the two major criteria in education in defining the quality of an evaluation design.

Validity concerns the question of whether the test measures what it purposes to measure. Validity in the measurement of test items can be determined by a variety of methods, many of which can be quite complex and time-consuming. In this case validity of measurement was obtained through the criterion of face validity.[14]

Reliability concerns the consistency of measurement observed over repeated assessments. An instrument may be unreliable

because the characteristics being measured may be unstable, or the procedures may change from one application to another. This criterion was particularly important in this study, and the method used to develop a reliable test is discussed in more detail later in this article.

After a test of the items of measurement for reliability and validity, the second step involved the extraction and combining of the most valid and reliable items into a library-use questionnaire administered to samples of freshman English students before library-use instruction began.

Third, the administration of the instruction program took place in some of the pretested classes—with others being left to serve as "control" classes wherein no instructional intervention occurred.

Fourth, it was then possible to compare pre- and posttest results on library-use attitudes and skills for the test and control classes to evaluate the effects of the instructional program.

Such quasi-experimental designs require that instruments used to measure the effects of instruction be reliable.[15] Since the critical issue for our study was that of assessing the effects of instruction, it was absolutely necessary to make certain that observed changes were not the result of undue variability of the testing instrument. One of the most positive features of this study is that of the pretesting of the evaluation instrument for reliability. As previously mentioned, few library-use competence tests found in the literature have adequately addressed this problem.

The test-retest method was used to determine the reliability of items on the library-use attitudes and skills test.[16] The original draft of the evaluation test consisted of ten attitudinal items concerning student library utilization and twenty-six items to test library-use competence. This test was administered to 102 freshman students at DePauw University enrolled in a variety of introductory freshman-level courses the semester prior to the beginning of library-use instruction on a universitywide basis.

Three weeks later in the semester the identical test was administered to the same students; their test-retest responses were carefully compared. The attitudinal items were assessed for reliability using item analysis and Pearson correlation coefficients. Items that demonstrated either a positive or negative trend from test to retest and items with a correlation coefficient of less than .70 were considered unreliable and hence dropped from the test.[17] Items that are consistent on *both* the aggregate (i.e., do not generate either higher or lower mean responses) and the individual level (i.e., the same person tends to answer in a consistent manner over time) are necessary to conduct a valid evaluation of effects.

Library-use skills items were considered reliable if more than 50 percent and fewer than 90 percent of the students answered the items correctly. (The figures 50 percent and 90 percent were selected based on the authors' judgments that these were reasonable a priori cutoff points for overly easy and overly difficult items, respectively.)

On the basis of this process of elimination of inconsistent attitudinal items and overly difficult and overly easy skill items, some six attitudinal and twenty skills items of strong reliability were selected from the draft evaluation instrument (see appendix for items used).

The pretest instrument was then administered to 162 freshman students enrolled in several freshman English composition courses. There were 133 freshman test subjects; during the semester these students were given library-use instruction by reference librarians.

Twenty-nine students (two separate classes taught by the same instructor) were treated as a control group, which received no library instruction. At the time of the experiment, the students in the control group did not receive any library instruction that either the instructor or the authors were aware of.

Eight weeks later in the semester all 162 students were again given the original test, hence allowing the comparison of the pretest and posttest scores of the experimental and control subjects.

THE EFFECTS OF INSTRUCTION UPON SKILLS ACQUISITION

Table 1 reports the overall findings derived from the evaluation study with respect to skills acquisition. It should be noted that

TABLE 1

COMPARISON OF TEST/RETEST SCORES FOR CONTROL AND TEST CLASSES

	Control Classes N = 29		Test Classes N = 133	
	Pretest	Posttest	Pretest	Posttest
Mean Score*	12.4	12.2	12.2	14.9
Standard error of the mean difference		.48		.26
Difference of means		.2		2.7
Statistical Summary†		$t = .42$		$t = 10.30$
		$df = 28$		$df = 132$
		Not Significant		Significant at $p < .001$

*Scores refer to responses on a 20-item skills test.

†The t ratio test of the significance of differences of means for matched observations (test/retest format) is being used to evaluate the differences observed. Since the direction of change is predicted, a one-tailed test is used to assess the level of confidence of the t scores.

the control group students exhibited a very slight decline in their aggregate skills scores (from an average of 12.4 to 12.2 items answered correctly on a 20-item test), while the instructed students registered a mean aggregate gain of 2.7 items on the retest.

The t ratio test for matched observations was used to evaluate the degree of statistical significance of the difference in means for the test and control group, with the result that the amount of change in the control group proves insignificant while the change in the test group proves highly significant.

The findings reported in table 1 indicate that the instruction received by students was effective in improving library information search skills. The difference of means between pre- and posttests for the test group indicate the significance of effect, and the comparison of that difference with the results of the control group assures us that the difference observed in the test group was not an artifact of time or shared environment.

The interpretation of the 14.9 posttest score can be made in relation to the gain possible on this test. From an average pretest score of 12.2 the students could gain a possible 7.8 on a twenty-item test. A gain of 2.7 represents 34.6 percent of the total possible gain of 7.8 on a test where both the overly easy and the overly difficult items have been eliminated.

The interpretation of the 14.9 score for instructed freshman can be even more meaningful when it is compared to some relevant reference group norm. To the end of establishing such a norm for interpretative comparison, the graduating seniors of DePauw's 1977 class were surveyed. Ap-

proximately half of the members of the class were selected at random, with 60 percent (ninety-five students) completing and returning questionnaires. The mean score for the seniors was 14.8, indicating that the library-use instruction can bring freshman students to the level of competence on general library skills of graduating seniors (who have four years of library-use experience!) within the period of a single semester and within the context of three brief sessions with librarians.

In assessing the value of instruction programs, it is very important to determine whether the effects of instruction are generalized or specific—that is, whether just some or all kinds of students derive benefit from instruction. The question must be raised whether library-use instruction is appropriate for all levels of students or whether it might be "too elementary" for the brightest students and/or "too difficult" for the slower students. In table 1 it is important to note that the standard error of the mean difference (a measure of variation about the average amount of change evidenced by individuals) for the test students is almost half that of the control group—an indication that the effect of instruction was quite uniform among students instructed. Table 2 displays the data from the evaluation study in a way that the question of generalizability of effects can be more directly assessed.

Table 2 investigates the degree of improvement demonstrated by slower, average, and brighter students—as classified by scores on the Scholastic Aptitude Test (S.A.T.).[18] It should be noted that in all three classifications the amount of im-

TABLE 2

COMPARISON OF TEST/RETEST SCORES ACROSS S.A.T. VERBAL LEVELS

	Low S.A.T. Verbal Level: Lower Than 500* N = 39		Medium S.A.T. Verbal Level: 500 to 549 Range N = 49		High S.A.T. Verbal Level: 550+ Range N = 32	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Mean Score (20-item scale)	11.6	14.6	12.2	14.6	12.8	16.0
Standard error of the mean difference		.45		.51		.43
Difference of means		3.0		2.4		3.2
Statistical Summary		$t = 6.67$		$t = 4.71$		$t = 7.44$
		$df = 38$		$df = 48$		$df = 31$
	Significant at $p < .001$†		Significant at $p < .001$		Significant at $p < .001$	

*S.A.T. scores were not available for 13 students.
†Level of significance of one-tailed tests.

provement registered is statistically significant to a high degree. (It also should be pointed out that this is *not* a test of any hypothesis concerning the effect of the S.A.T. on the impact of library-use instruction. Such a hypothesis regarding instruction effects would involve a much different research design and the employment of very different statistical procedures. In this study the authors used S.A.T. scores only to assess the uniformity of learning rates.)

It is encouraging to observe that both the slower students (with S.A.T. verbal scores below 500) and the brighter students (with scores of 550+) register mean gains of 3.0 items or better. The uniformity of positive results across the three categories of student aptitude demonstrates that all kinds of students stand to benefit from library-use instruction.

THE EFFECTS OF INSTRUCTION UPON STUDENT ATTITUDES

Two types of attitudinal analysis must be accomplished in a systematic summative evaluation. First, the attitudes of subjects of instruction *toward the instruction presented* must be assessed; and, second, the degree of attitude change of subjects toward the phenomenon or skill area of instruction must be measured.

The first type of question will inform the evaluator of the degree to which subjects view instruction as beneficial—an important aspect of instruction given the fact that self-motivated learning tends to be retained longer than enforced mastery.[19] The second type of question will assess the degree of effect instruction has upon relevant attitudes of impact—i.e., attitudes that the instruc-

tion was designed to alter in some manner.

Table 3 reports the results of a survey of student participants in the library-use program. A fairly strong pattern of positive responses is evidenced in each of the questions asked. A clear majority of students instructed in the program found instruction to be informative and useful, and only a small proportion of the students believed that the program was repetitious.

The final area of evaluation is that of attitude change resulting from instruction. It must be noted that relatively little *overall* attitude change was registered; mean responses on the six attitude questions differed only marginally as between pre- and posttest scores. Most interestingly, however, although overall attitude change was not dramatic, attitude change *was* important for that group of students initially holding negative attitudes toward libraries. Table 4 displays the pattern of response typical of these students. It should be noted that, although the control students demonstrated no net change in their attitudes on the question of viewing libraries as unexpectedly interesting places to be in, the test group students register a strongly positive pattern of change on this question.

It appears that either attitudes about libraries are far more difficult to influence or measure than are library-use skills, or the particular program at DePauw University was less effective in influencing attitudes than it was in influencing library-use skills. It is understandable that three brief sessions with librarians might have little impact on the attitudes of students toward the library considering that a number of studies have concluded that four years of college experi-

TABLE 3

Participant Attitudes Toward Library Instruction:
Post-Instruction Student Impression (N = 177)*

Question: Were the classroom
presentations on the Library Search
Process.

	Very Much So 5	4	3	2	Not At All 1	Not Sure & No Answer
Useful?	15%	40%	40%	5%	0%	1%
	(27)	(70)	(70)	(8)	(0)	(2)
Informative?	25%	44%	27%	3%	1%	2%
	(44)	(77)	(47)	(5)	(1)	(3)
A Waste of Time?†	1%	6%	18%	27%	43%	5%
	(2)	(10)	(32)	(48)	(76)	(9)
Enjoyable?	4%	14%	49%	20%	19%	2%
	(7)	(24)	(86)	(36)	(21)	(3)
Repeating What You Already Knew?	6%	11%	37%	23%	21%	2%
	(11)	(20)	(65)	(40)	(37)	(4)

*These questions were part of a *separate* survey form completed by students involved in the program each semester. The results are used for formative evaluation, i.e., to modify the program to make it more effective.

†Attitude measurement scales must contain a mixture of negative and positive items to avoid the adverse effects of "response set" phenomena. On the question of effects of survey structure upon attitude measurement see Seymour Sudman and Norman Bradburn, *Response Effects in Surveys: A Review and Synthesis* (Chicago: Aldine Pub. Co., 1974), p.28–66.

ences have little effect on the attitudes and values held by many students.[20] The authors suggest that further research is indicated to determine skills-change versus attitude-change problems in library-use instructional programs.

TABLE 4

Comparison of Pre- and Post-Instruction
Responses of Test and Control Respondents
Who Are Likely to Find Libraries to Contain
Interesting Things

Question: When I go to a library I often spend more time than I planned because I find so many interesting things.

Responses: Strongly Agree (5 points): Agree (4): Undecided (3): Disagree (2): Strongly Disagree (1):

Comparison Group: All control and test group students who gave 1 and 2 responses on the pretest survey

	Control Classes N = 12	Test Classes N = 67
Gains (toward agreeing responses)*	+3	+35
No Change	6	35
Losses	−3	−11
Net Score	0	+24

*Changes aggregated in scale units

Test/retest scores are subject to "regression toward the mean" effects, particularly when extreme values are compared in a before and after framework. In this case, however, *both* the control and test groups are subject to the same regression effects (to the extent they are present in this instance). On the problem of regression toward the mean see Donald T. Campbell, "Reforms as Experiments," in James A. Caporaso and Leslie L. Roos, Jr., eds., *Quasi-Experimental Approaches: Testing Theories and Evaluating Policy* (Evanston: Northwestern Univ. Pr., 1973), p.196–97.

Conclusions

This article has sought to accomplish two goals: to provide a model of evaluation and its application, which may be of use to others interested in systematic assessment of instructional programs; and to present evidence of the utility of library-use instruction. From the previous discussion, and from evidence collected in the DePauw University library-use instruction program, it would seem that library-use instruction is an important element in enhancing the role of the academic library in the educational process through promoting increased skill development and, to a more limited degree, positive attitudinal change on the part of students involved.

The evaluation model described did answer the questions as to whether the students increased their general library-use skills and whether students from different aptitude groups benefited in this respect from library-use instruction. The evaluation model was less successful in addressing questions relating to attitudinal changes resulting from such instruction.

From the number of questions that proved unreliable on this part of the pretest questionnaire it may be surmised that the DePauw study instrument either requires revision, or it requires the employment of a supplementary methodology (such as documenting student behavior) to measure any

attitudinal changes that may occur. This area proved to be much more complex and difficult to study than was supposed at the beginning of the study.

The evaluation model used did indicate that library-use instruction is an activity that can prove its worth in a systematic assessment of its impact. The authors believe that the careful application of systematic assessment to library-use programs can be very important in obtaining adequate, long-term support for such programs from library and college or university administrators.

Using such methods, it is possible to obtain useful information, such as the fact that freshman students can develop library-use skills equal to those of graduating seniors through relatively little instruction; or, taken from another point of view, the library skills of graduating seniors are no better than those of freshman students after brief instruction. These and related findings generated by evaluation studies can be very important in gaining needed administrative support for a library-use instruction program.

The information provided in this article and other related information quantifying the results of the library-use instruction program at DePauw University proved helpful in gaining administrative support for a successful grant proposal to the Council on Library Resources and the National Endowment for the Humanities under their joint College Library Program.

It is hoped that this example will encourage others active in promoting library-use instruction programs to apply the principles of systematic assessment in evaluating the achievement of instructional objectives in their particular programs.

REFERENCES

1. Edward A. Suchman, *Evaluative Research* (New York: Russell Sage Foundation, 1967), p.2.
2. Library-use instruction in academic libraries has a long history and has gone through several cycles of popularity dating back to before the turn of the century. For more complete information on the history of library-use instruction see Kenneth Brough, *Scholar's Workshop: Evolving Concepts of Library Service* (Urbana, Ill.: Univ. of Illinois Pr., 1953) and Johnnie Givens, "The Use of Resources in the Learning Experience," *Advances in Librarianship* 4:149–74 (1974).
3. Scarvia B. Anderson and others, *Encyclopedia of Educational Evaluation* (San Francisco: Jossey-Bass, 1973), p.406.
4. Ibid., p.177.
5. *20th Annual Report of the Council on Library Resources, Inc.* (Washington, D.C.: Council on Library Resources, 1976), p.55.
6. Patricia B. Knapp, "Suggested Program of College Instruction in the Use of the Library," *Library Quarterly* 26:224–31 (July 1956).
7. Evan Farber, "Library Instruction Throughout the Curriculum: Earlham College Program," in John Lubans, ed., *Educating the Library User* (New York: Bowker, 1974), p.145–62.
8. Marvin Wiggins, "The Development of Library Use Instruction Programs," *College & Research Libraries* 33:473–79 (Nov. 1972).
9. Martha Hackman, "Proposal for a Program of Library Instruction," *Drexel Library Quarterly* 7:299–308 (July–Oct. 1971).
10. For an extensive bibliography on library-use instruction see Maureen Krier, "Bibliographic Instruction: A Checklist of the Literature, 1931–1975," *Reference Services Review* 4:7–31 (Jan.–March 1976).
11. A full report of the activities carried out as a result of the Library Service Enhancement Program grant to DePauw University is available from ERIC. See James Martindale and Larry Hardesty, *Library Service Enhancement Program, DePauw University, Grant Proposal and Quarterly Reports*, U.S. Educational Resources Information Center, ERIC Document ED 145 839, March 1978.
12. The authors recognize that there are a number of useful 'alternatives to paper-and-pencil type tests in evaluating a program. For an excellent discussion of these methods see Eugene Webb and others, *Unobtrusive Measures: Nonreactive Research in the Social Sciences* (Chicago: Rand McNally & Co., 1966).
13. Masse Bloomfield, "Testing for Library-Use Competence," in Lubans, ed., *Educating the Library User*, p.221–31.
14. The authors recognize that face validity is only one of several validity checks, and in part their judgment here was based on Earl R. Babbie, *The Practice of Social Research* (Belmont: Wadsworth, Inc., 1973), p.360.
15. For an excellent exposition of methodological concerns regarding systematic evaluation see Donald T. Campbell and Julian C. Stanley, *Experimental and Quasi-Experimental De-*

signs for Research (Chicago: Rand McNally & Co., 1963), p.1–22.

16. For a discussion of the test/retest reliability technique see H. W. Smith, *Strategies of Social Research: The Methodological Imagination* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975), p.58–61.

17. For a discussion of the uses of Pearson correlation coefficients see Kenneth Bailey, *Methods of Social Research* (New York: Free Press, 1978), p.341. The coefficient is a measure of association between two measures; in this case, the more similar the response of individuals on pre- and posttest items the higher the measure of reliability of the item in question.

18. For a discussion of the Scholastic Aptitude Test see Oscar Krisen Buros, ed., *The Seventh Mental Measurements Yearbook* (Highland Park, N.Y.: The Gryphon Press, 1972), p.646–50.

19. On motivation and retention of learning see Herbert J. Klaumeirer, *Learning and Human Attitudes: Education Psychology* (New York: Harper & Row, 1961), p.319–77.

20. For a somewhat dated but excellent overview of research findings concerning the impact of college experiences on the attitudes and values of students see Paul Heist, "Student Characteristics: College and University," in Robert L. Ebel, ed., *Encyclopedia of Educational Research* (4th ed., New York: Macmillan Co., 1969), p.1323–25.

APPENDIX: LIBRARY-USE INSTRUCTION EVALUATION INSTRUMENT

Pre-Tested Attitude Items: Response Categories = Likert Scale—Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree.

1. I find a library a very comfortable place to work when I need to go there.
2. Walking into a library is like going into church because I'm in awe of the surroundings.
3. I only go to a library when someone makes me go.
4. When I go to a library, I often spend more time than I planned because I find so many interesting things.
5. A person should only ask a librarian for help when it looks as if they aren't busy.
6. Normally a librarian can only help you when you know what you're looking for.

Skills Test: Directions: In the following exercise read each item carefully. Decide which area of the library is the most logical place to *start* your search for the information described in the item. Respond to each item by placing the IDENTIFICATION NUMBER of your choice in the blank preceding it.

Library Area: 1 Card Catalog
2 Index Area
3 Reference Area
4 Rotary File of Periodical Holdings

5 Periodicals Reading Room
6 New York Times & Index
7 Government Documents
8 Abstracts

1	1. Wilson, John Arthur, *Modern Practice in Leather Manufacturing*		7	11. Book with a Superintendent of Documents classification #
3/7	2. Census data on Putnam Co., Indiana		2	12. Find current information on the fad of tie-dyeing
5	3. A current *Newsweek* for browsing		7	13. Supreme Court decisions
5	4. You want to make a current comparison of the *Indianapolis Star* and the *Chicago Tribune*		3	14. Birthdates for Albert Schweitzer and Lawrence Welk
1	5. *Games People Play*		6	15. Day-to-day coverage of the Kent State "incident"
7	6. Congressional debates on the Alaska pipeline		2	16. Magazine article on ESP
3	7. Who's Who in the Humanities		2	17. Review in a magazine of Alistair Cooke's *America*
4	8. A professor sends you to read an article in May 1975 *Society*		1/3	18. Bibliography of resources on black Americans
1	9. Watchmaking information to check out of the library		3	19. Ten longest bridges in the world
4	10. Does the Library subscribe to *Ms.*, *Ebony*, or *Time*?		3/7	20. Organization chart of the U.S. Postal Service