A Study of the Feasibility of Teaching Selected Library Science Courses by Tape and Two-Way Amplified Telephone Communication

Marguerite Baechtold

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A STUDY OF THE FEASIBILITY OF TEACHING
SELECTED LIBRARY SCIENCE COURSES BY
TAPE AND TWO-WAY AMPLIFIED
TELEPHONE COMMUNICATION

by
Marguerite Baechtold

A Project Report
Submitted to the
Faculty of the School of Graduate
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of the
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Western Michigan University, Ed.S., 1968
Library Science

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The purpose of this project was to explore the educational and technical feasibility of providing off-campus instruction through the medium of tape and amplified telephone to students who might not otherwise be able to pursue a course of study in library science because of geographic isolation.

Its scope was limited in two ways: (1) it was tried in only one geographic location, and (2) it was implemented for only one course. The site was selected on the basis of a preliminary survey. Benton Harbor in Berrien County, Michigan was chosen. The selection of the course was based on the need revealed in a questionnaire, on the suitability of course content, and on the schedule of offerings. Course 512 - Basic Reference Service was selected and serves as a basis for the following report which: (1) describes the problem and outlines possible solutions; (2) presents the hypothesis and identifies underlying assumptions; (3) describes the procedure, including materials, arrangements, and budget; and (4) summarizes the results, draws conclusions, and makes certain recommendations.

The writer is indebted to those whose assistance, advice, and cooperation made it possible to complete the project. Special gratitude is extended to the students who enrolled in the Course 512 - Basic Reference Service, both on the campus at Western Michigan University and in extension at Benton Harbor during the Fall term of 1967. Thanks are offered to Carl Snow and the Graphics Design staff at the Audio-Visual Center of Western
Michigan University, and to the Research Assistants in the Department of Librarianship for technical support.

The competent assistance provided by William Hessel, Librarian at Lake Michigan College, who served as teaching aide, is worthy of special recognition, and the cooperation of the administration of Lake Michigan College in providing classroom space is hereby acknowledged.

Robert Maitland of Michigan Bell Telephone Company was especially helpful in making the communications arrangements which were so essential to the project. Leroy Lebbin, a colleague in the Department of Librarianship, was the loyal courier who transported the tapes to and from Benton Harbor.

Finally, gratitude and appreciation are expressed to members of the faculty of Western Michigan University who gave advice and read the manuscript. These are: Dr. Laurel Grotzinger and Martin Cohen, both of the Department of Librarianship and Dr. Daniel Moore, Director of the Educational Resources Center. An additional thank you goes to Dr. Jean Lowrie, Head of the Department of Librarianship, for bringing the project and the investigator together.
I. INTRODUCTION

Statement of Problem

The library profession shares with a number of other fields the dubious distinction of having more jobs to fill than people to fill them. A continual gap between the number of unfilled positions and the number of professionally trained persons has persisted for several years. Added to the need for staff to meet the demands of both the population and the knowledge explosions are the potentially more acute shortages which will be caused by impending retirements and the need for updating the preparation of many librarians at all levels. Data prepared for the recent Crisis in Library Manpower Conference reveal that the span of years 1930-1939 marks the time when the greatest number of public librarians completed their highest academic degree. Equally startling is the fact that 76 per cent of the school librarians completed their degrees before 1954. Women comprise 85 per cent of the public library personnel. Almost one-fourth (23.5%) of them will be eligible for retirement by 1970. Projecting data from a 1962 report of Drennan and Darling, 94 per cent of the then employed school librarians will become retirees sometime during the decade of the 1970's.

Michigan has been experiencing the same kind and degree of critical


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shortages which are showing up in library manpower surveys on the national level. Library education for the state is provided in three universities at the graduate and undergraduate level and in a number of state colleges at only the undergraduate level. Two of the universities are located in the populous environs of Detroit and within fifty miles of Detroit, both in the southeast corner of the state. A total of sixteen counties, concentrated in the southwestern part of the state, are serviced by Western Michigan University in Kalamazoo. The Department of Librarianship within the School of Graduate Studies offers two undergraduate curricula: (1) teacher-librarian for those seeking certification as school librarians, and (2) pre-professional for those planning to enter public, academic, or special library work. The typical program for the Master of Science degree consists of certain basic courses commonly taken by all students. These are supplemented by courses in administration, bibliography, materials, and services which relate to a student's specialization: i.e., public, academic, school, or special librarianship. The fifth year degree program, accredited by the American Library Association in 1959, has an enrollment of about 300 students during the academic year and approximately 200 summer session students. In order to provide instruction for a rapidly expanding enrollment, the faculty has been increased from three persons full-time in 1963 to eleven in 1967-68. The curriculum is determined by departmental recommendations, university regulations, and the requirements of the Committee on Accreditation of the American Library Association. It also reflects suggestions from an Advisory Committee composed of the State Librarian, the State School Library Supervisor, and representatives of public, school, academic, and special libraries.

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The Department has long been aware of the problems of personnel. A need for qualified librarians to staff libraries and material centers made possible by federal funds has been formally noted in the minutes of the Departmental Advisory Committee. On one occasion it was reported that some libraries had been forced to hire high school graduates and some positions had to be left unfilled. As a result the Department of Librarianship at Western Michigan University is confronted with a multi-faceted problem. How can the local manpower shortage be met? Can the Department extend its services or utilize some far-reaching techniques in its instructional program? What segments of instruction could be incorporated into an expanded program? What instructional planning would be needed to implement this kind of instruction?

The problem becomes more acute and complex when those people who are interested, ready, and available to fill positions cannot because of distance pursue the educational program necessary to qualify them for those positions. One way in which a university can meet its obligation to reach potential candidates is through a planned program of field services or extension offerings, a long-accepted supplement to campus instruction. Recently, however, critical manpower shortages in certain fields have caused university administrators to review the offerings and apply innovative patterns to extension teaching. Sheats and Dow report that "a desire for experimentation in the design and presentation of content, the challenge which bright and experienced adults offer [are making extension teaching attractive to faculty members who] now display a marked interest in such

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1 Western Michigan University. School of Graduate Studies, Department of Librarianship, "Advisory Committee Minutes," March 11, 1966.
activities.¹

The existing pattern of off-campus instruction at Western Michigan University's Department of Librarianship has been to offer a cycle of basic courses plus those administration and materials courses which are suitable for extension teaching. Since 1961 extension offerings have reached a total of 359 students who have been enrolled in library science courses offered at one principal off-campus location. During this time, class size has ranged from nineteen to forty-eight.² On one other occasion, a class was offered for eighteen students at another location on a trial basis.

The library science program on campus has been characterized by a high percentage of commuting students. Of the 312 students enrolled during the academic year 1967-68, 149 (47 per cent) were part-time students. This percentage has remained fairly constant during recent years. This is likely to continue, since University regulations require that students in a degree program meet a residency requirement of one semester or the equivalent in summer sessions.

The commuting student and the part-time enrollee are major considerations in planning library science offerings at Western Michigan University. This emphasis coupled with an increasing number of unfilled positions, caused representatives of the Michigan State Library and library supervisors who are sensitive to manpower needs of southwestern Michigan to request that off-


²Western Michigan University Division of Field Services Report. (See Appendix_A)
campus offerings be expanded. The requests reflect primarily the need in the school and public library fields since personnel for these positions are frequently recruited from among teachers or housewives who are pursuing a delayed or an additional career.

Scheduling of faculty becomes a basic concern in any attempt to expand off-campus offerings. In every instance those courses which can be taught in extension during the afternoons, evenings, or on Saturdays must also be taught on campus at convenient hours for employed students. Thus, faculty who are involved in extension teaching are doubly taxed in meeting both programs.

Without a large extension faculty, but faced with the need to expand its outreach, library educators have several options: (1) offer instruction by some form of television, possible video-taped; (2) employ programmed instruction or correspondence courses, or (3) give instruction by telephone. The choice rests in part on the degree to which the faculty are interested in becoming involved in innovative practices. It depends also on the suitability of any one of these options as an instructional method. Inevitably, the economics of the situation becomes one of the determining factors.

Television is the medium which offers the best substitute for actual instruction. The impact of the personality and the apparent presence of the teacher are not lost. On the other hand, teacher-student communication is sacrificed. A closed-circuit broadcast limits reception to an area within the circuit and defeats the objective of reaching beyond the radius of campus instruction. The expensive equipment it requires tends to nullify its usefulness as an expedient measure. Video-taped presentations depend on the availability of equipment, require specialized preparation, and are still
relatively expensive.

Certain types of training and continuing education have traditionally been available through correspondence courses, but this as a method of preparing for professional librarianship has never been advocated by the American Library Association. There is currently one experiment underway which is designed to test the effectiveness of a combination of correspondence plus campus teaching for certain kinds of instruction in librarianship.1

Experience with teaching by telephone gives indication of becoming a satisfactory instructional method. The use of amplified telephonic communication is one of the many ways in which educators are seeking means of reaching more students more effectively across a rapidly expanding range of instructional content. Both the population explosion and the information explosion are creating the need for innovative planning and experimentation which will accomplish educational purposes without sacrificing or jeopardizing educational outcomes.

None of these methods is new or untried. They have been tested as educational methods, but not in the field of library education. It seemed reasonable, then, in the quest for a workable means of reaching more students, to employ a research technique within the framework of the existing curriculum and staff. The investigator was asked to explore the feasibility of one method, the tele-lecture, in connection with the teaching of a scheduled reference course.

1Articulated Instructional Media program, funded by the Carnegie Corporation, is being developed jointly by the University of Wisconsin Extension Division and the Library School.
Hypothesis

The project which is the subject of this report was initiated as one attempt to provide a solution to the library manpower problem in a specific geographic area of southwestern Michigan. If library education could be made accessible to potential students, would the supply of professionally trained librarians be increased? It was based on the following hypothesis: If certain components of classroom instruction are incorporated, teaching by tape and amplified telephone communication is educationally and technically feasible for selected library science courses. Certain components of classroom instruction are identified as: (1) rapport between instructor and students, (2) comparable instructional content, and (3) visual and graphic supplements to instruction. Amplified telephone communication is defined as instruction which is transmitted through regular telephone lines and amplified to permit two-way communication. In testing this hypothesis, it is assumed that it is an appropriate function of the university to offer extension education at qualified off-campus locations. It is further assumed that the off-campus instruction reflects the kind and quality of instruction which characterizes on-campus teaching.¹

Within the scope of this project it is theorized that extension education offered by tape and amplified telephone communication could be an effective means of reaching more students with education for librarianship, provided the components of campus instruction are incorporated.

Review of Related Literature and Research

Teaching involves communication. Over the centuries man has invented a variety of devices for communication with more and more people. But their application to education was slow to emerge. Now there is a new sense of urgency. Better education must be available to an exploding population. But improvement depends on able teachers, who are scarce. In the typical classroom the best of them communicate only with a small group. Radio and television have been used. Although the telephone is older, only recently has it been regarded as an instrument for teaching. In this way the ablest teachers can inspire more students to learn. The result should be better education for more pupils which is one of the urgent needs of the modern world.

--Alvin C. Eureich
Vice President and Director
Fund for the Advancement of Education

Among the first to utilize telephonic communication for purposes of instruction were those who work with the homebound, handicapped or hospitalized students. Examination of the literature reveals that this has been primarily on a one-to-one or tutorial basis.

The use of the telephone has expanded from individual to group instruction bringing enrichment in the form of resource people to supplement basic instruction in both the public schools and higher education. One pioneer in developing the potential of tele-learning for purposes of enrichment is Michael Bellis, a linguist and one-time member of the faculty at University of Omaha. He later became Educational Director of American Telephone and Telegraph. He is credited with being instrumental in planning

some of the outstanding tele-lecture projects including one at Stephens College in Missouri, where during the 1958-59 academic year outstanding resource persons lectured by telephone.

The use of telephone lines to bring elementary and secondary school children into contact with important resource people has been reported in educational journals with rather regular frequency during the past six to eight years. Grimes\(^1\) relates an interview technique which made it possible for students in a suburban New Jersey community to discuss issues with parents and other knowledgeable persons. Since these were local residents, the total investment for the school district was a one-time installation charge. An extension of this concept took the direction of a closed circuit telephone system in which nine schools were linked with a central school from which calls to distant places could be initiated. By means of an amplifying device called Edu-phone, each of the nine schools could listen in and participate. According to McDivitt,\(^2\) one example of this technique and equipment has been operative since 1962, and has ranged from individual speech therapy to foreign language instruction. A more recent application is functioning through the New York Board of Cooperative Educational Services\(^3\) in a project known as Tele-Learning. Children and teachers in every classroom of the member schools can have two-way communication with each other or with resource personalities within and beyond the country.


The Ford Foundation supported a plan in Oregon where, over a four year period, tele-lectures were broadcast over the school's public address system to large group instruction areas. Team teaching efforts in the fields of sociology and psychology provided the lectures.

Celebrities and resource people have been "plugged in" to family sociology courses in a similar way. One project, according to Wall, capitalized on the familiar manner of a telephone conversation to promote two-way communication with the guest lecturer. Its apparent success, based on subjective replies, is measured by a 70 per cent response from high school students in the range of "O.K.", "fine" or "great".

At the university level, Stephens College in Columbia, Missouri, has been bringing off-campus resource persons to their classes as enrichment since the school year 1958-59. Data gathered for the U. S. Office of Education from these experimental classes compared with control groups indicate a measurement of interest, if not content mastery. Investigators report that (1) students in the experimental classes did more voluntary outside reading in preparation for the lectures, (2) the students in the tele-lecture groups improved in their ability to ask pertinent questions and gained poise and self confidence in talking with state and national personalities. Based on the number continuing to advanced study, it was concluded that the tele-lecture was responsible for a 10 per cent increase in interest.

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2 Helena Wall, "We Did It This Way: Telelearning in a High School Class in Family Sociology," Journal of Family Living, XXVII (May, 1965), 301-3.

in the field of study. In the judgment of the faculty members, tele-lecture technique increases rather than decreases the role of the teacher.

The Fund for the Advancement of Education became interested in the further potentialities of teaching by amplified telephone communication, and granted support to two similar projects based on the "master teacher" approach. One of these was an extension of the Stephens College plan, this time linking six other colleges by means of a conference call arrangement. The second originated at Columbia University in New York City and reached four southern colleges via tele-lecture. In each of these instances, students at the cooperating colleges had an opportunity to share a level of instruction which would not otherwise have been available to them. In reporting the Stephens project, Madden asserts that "it demonstrated that for different kinds of subjects and for teachers using various instructional techniques, the telephone, amplified and provided with additional microphones can be an effective way of carrying on inter-institutional programs."

A number of universities have used tele-lecture techniques for the purpose of in-service presentations, continuing education programs, or as a means of maintaining a line of communication with graduates and alumni groups. For example, La Crosse State College in Wisconsin in May of 1962 presented a University of Wisconsin professor in a lecture on "The Nuclear Reactor."

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2 Bell Telephone System, p. 11.

3 Jolly and Madden, p. 41.

4 Bell Telephone System, p. 9.

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The purpose was to test the potential of this technique for bringing to a small campus or a small community people who might not otherwise be accessible to these groups. All the respondents to the evaluation at the conclusion of the lecture rated it as either a "very effective" or "effective" method of teaching and learning, with 66 per cent indicating that it was "as effective as a lecture in person".

The Iowa Audio-Visual Association circumvented a budgetary limitation by using a tele-lecture device to bring noted specialists to their membership audience.¹ A faculty audience at University of Wisconsin-Milwaukee was able to hear three experts in the fields of communication and education. They felt the "benefit was commensurate with the expense."²

Searching the literature of librarianship, business, and education produces little in the way of providing a basis in research for the use of the tele-lecture in a conventional classroom teaching situation. Some of the support for using the tele-lecture in this kind of instructional setting must be drawn from the related experiments in which the teacher is not immediately and directly involved with the learner. Two examples of this are programmed instruction and instructional television. In both of these areas there exist studies which indicate that while these methods may not improve instruction, neither are they less effective than traditional methods. They may not be any better for the learner but they do him no harm. In a Pennsylvania State University study involving the teaching of elementary


economics by means of televised instruction, Reede and Reede\textsuperscript{1} found that several college campuses were able to teach economics simultaneously with no marked differences in learning effectiveness. Implicit in these findings is the fact that direct and personal contact with the instructor does not significantly affect the learning achievement of the student. It may provide other benefits, but the extent of learning is not lessened by remoteness of the instructor.

The effectiveness of television in providing intellectual stimulation has been tested in a U. S. Office of Education, Title VII Project carried out in secondary schools in Maine.\textsuperscript{2} At the end of a full year of instruction in mathematics broadcast with the cooperation of local television stations, it was concluded that interest or regard for the program was not dependent upon contact with the project teachers.

In yet another experiment in teaching mathematics at the college level, Alexander\textsuperscript{3} ascertained that when two sections are taught by closed circuit television and two others are taught "live" by an instructor there was no significant difference in mean achievement between the sections.

The complete depersonalization of instruction is reached in the use of the teaching machine to impart information. At Southern Illinois


University, Wendt undertook to find out if freshmen could be instructed in the use of the library as well by teaching machines as with lectures by the library staff. No significant difference was found in the gains in achievement scores between the machine group and the lecture group. A retention test at the end of the quarter revealed that the same results held. From this, the inference can be drawn that learning acquired by remote instruction also has lasting power.

In an attempt to ascertain the effect of the personal relationship factor in counseling, Gilbert and Ewing found when they studied four different combinations of imparting information, that the personal factor may be overemphasized. While there was an evident preference for the normal pattern of counseling, it was found that students learned as much or more from programmed counseling.

When three methods of communication were tested comparatively by Brooks and Wulftange, results showed no significant difference in the level of comprehension for all three methods of presentation. Face-to-face reading, audiotape, and television were the methods used to test listener response to oral interpretation in this study.

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1 Paul R. Wendt, et al., *A Study to Determine the Extent to Which Instruction to University Freshmen in the Use of the University Library Can Be Turned Over to Teaching Machines* (Carbondale, Ill.: Southern Illinois University, 1963).


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The relative effectiveness of a taped lecture versus one delivered live by an instructor was studied in ten matched groups of military personnel. The findings of this study are in accord with Brooks and Wulfange in that no difference between live and taped lecture was evidenced. Data gathered and reported in the addendum to the same study are also pertinent to the present investigation. It was found that correlations between achievement and aptitude suggest that learning is determined by aptitude rather than any particular method of instruction.

A more comprehensive analysis of taped recorded teaching at the college level has been carried out by Popham in two studies conducted respectively in Kansas and California. The conclusions were that taped lectures are an effective teaching device when evaluated in terms of learning, interest, and enjoyment. In the first study, the follow-up discussion was led by the instructor. Discussions for the second experiment were moderated by a student-leader. The conclusion held even when the instructor had "almost no personal contact with the students." The investigator further concluded that the ability of a particular individual to handle this method of communication might be a factor since both experiments were carried out by the same instructor.

The example in the literature which most closely approximates the present investigation is one which tested the feasibility of providing in-

1Joseph F. Follettie, Effects of Training Response Mode, Test Form, and Measure on Acquisition of Semi-Ordered Factual Materials (Fort Benning, Georgia: U. S. Army Infantry Human Research Unit, 1961).

service instruction about mental retardation for regular classroom teachers in remote areas.¹ Twelve sites in three states were selected as centers for a seven weeks' course offering college credit. Throughout the extent of the course, tape recorded lectures were presented at each location at a time mutually convenient to those enrolled. Visuals accompanied the lectures. A forty-five minute question and answer period on a conference call hook-up was scheduled at a time when students at all twelve participating centers could present their previously formulated questions. On the basis of data gathered from a pretest and a posttest in both knowledge and attitude, the investigator concluded that students taking the course by tele-lecture can achieve as well as students taking the course on campus. This conclusion was drawn from the findings that there was a significant difference at the .01 level in both knowledge and attitude. On a rating scale, 82.5 per cent reported the course as good or excellent. A total of 94.1 per cent would recommend a similarly presented course to others. The data were also analyzed to draw conclusions about the performance of non-credit students in contrast to those taking the course for credit. Again, a difference significant at the .01 level provided the basis for a conclusion that students who take a tele-lecture course for credit do better than students who take a tele-lecture course without credit. Some difficulties in telephone reception, including background noise, and weather interference, were reported.

The literature is replete with examples of the telephone being used to communicate with homebound students, or to bring a resource person to a group of students in either public school or higher education. With the exception of the Rapp study there are virtually no examples of the telelecture being used for sustained instruction. To determine the validity of attempting to teach without the face-to-face rapport which the traditional instructional setting provides for student and instructor, it is necessary to apply the findings from experiments in education. There is on record research which supports the general conclusion that students who receive instruction from a taped lecture can learn, not better than, but as well as, when a lecture is delivered live.

The following chapters discuss an experiment in offering library education to persons who, because of employment or place of residence, cannot come to the university campus for the instruction.

The Nature of the Tele-Lecture

The word "tele-lecture" has not yet appeared in most recent dictionaries. It is a term coined for the purpose of describing transmission of lecture content over telephone lines to a group of listeners or learners assembled at one or more places at any distance from the point of delivery. Its only requirement is the existence of or the possibility for installation of telephone lines. In contrast to the early use of the telephone for teaching the homebound or hospitalized, tele-lecture employs instruments which free the instructor or lecturer to use his hands for working with notes, writing on a blackboard or using visuals. At the receiving end, the voice is amplified for group listening. Microphones and necessary facilities are installed to make convenient two-way communication possible. It has been
used in several ways, such as: (1) to enrich undergraduate and graduate instruction, (2) to share a master teacher or professor, (3) to effect mutual programming involving more than one academic institution, (4) to present short courses, conferences and institutes and (5) to offer continuing education to business and industry.¹

Enrichment of both undergraduate and graduate instruction is accomplished by using this means of communication technology to bring students into immediate and direct contact with lecturers or speakers regardless of where they might be. Students at the University of Omaha heard Dr. Neil Miller² of Yale University present theories and philosophies of psychology from a location in New Haven. While he was Presidential Press Secretary, Pierre Salinger³ gave students in the Middle West a first hand account of the role and responsibility of that post direct from his office in the White House. These presentations reached the students with a timeliness which could never be achieved if they had to await an open space in the complex schedule of nationally and internationally prominent figures.

The University of West Virginia made Dr. Oliver Chitwood,⁴ a leading authority on American history, available to students at a distance of several thousand miles. At the time, he was eighty-six years old and quite unlikely to accept an invitation to speak at a distant location.

¹Bell Telephone System, passim.
²Bell Telephone System, p. 8.
³Bell Telephone System, p. 8.
⁴Bell Telephone System, p. 9.
The excellence of outstanding professors can be shared by more than one institution of higher education in much the same way as exchange of professors occurs, only without the removal of either from his home university. The Universities of Omaha and Colorado implemented such an exchange by uniting courses in industrial and social psychology offered at their respective campuses. On two occasions during the semester each professor visited the other campus for personal appearances, but the balance of instruction was transmitted by telephone.¹

Courses or special lectures which involve the use of resources beyond the university can be achieved by means of mutual programming. A demonstration of this occurred at the time of the first National Telelecture Conference at the University of Omaha in December, 1962. On this occasion an art editor, an artist, and a director of a museum spoke from California, Pennsylvania, and New York City respectively. Each presentation was received by students and faculty at the Universities of Omaha, Oklahoma, Syracuse and Wisconsin.²

Still another variety of mutual programming brings students into communication with resources and resource persons not ordinarily available to them. This occurred when advanced students at the Universities of Maryland, Wisconsin, Omaha, and Syracuse were programmed into a discussion on outer space presented jointly by the Director of the National Weather Satellite Center, a representative of the National Aeronautics and Space

¹Bell Telephone System, p. 10.
²Bell Telephone System, p. 12.
Administration, and a famous rocket expert and author.  

In-service training for business and industry often takes the form of institutes and conferences geared to a specific problem or topic of mutual concern. Groups convened for management conferences profit from lectures delivered by a number of experts from wherever they might currently be.

Sales representatives gathered together for a training program may draw on the expertise of specialists representing the various phases of the sales effort. Similar programming makes it possible for smaller conferences to be scheduled simultaneously at a number of geographic locations. They can join together by tele-lecture for those parts which pertain to all or they can pursue separately those issues which concern each group alone.²

Each of the uses of the tele-lecture described in the preceding paragraphs has a definite potential for use in teaching at the college level, but whatever the application, careful pre-planning is necessary for optimum results. Bell System Communications Consultants are prepared to recommend suitable equipment or devise adaptations to special needs. Experience indicates that telephone company instruments and facilities should be used since results are unsatisfactory when makeshift equipment is used.³ Equipment must be sufficiently flexible to permit: (1) communication between the moderator and a speaker only at the time the call is initiated, (2) amplification of voices of both moderator and speakers in a question and answer period,

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¹ Bell Telephone System, p. 13.
² Bell Telephone System, p. 16.
³ Rapp, p. 41.

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and (3) amplification of only the speaker's voice during a major presentation.

Visuals, graphics, and appropriate instructional aids are vital as supplements to a tele-lecture presentation. Preparation of these should conform to the principles of audio-visual production. They should be simple, clear, and in keeping with the content. In some instances, it is desirable to provide duplicated copies of diagrams or schematic drawings on which listeners can make notations while observing the same graphic on the screen.¹

Projection operations must be as unobtrusive as possible to prevent distraction. Sufficient darkness to project satisfactorily, but enough light to retain a classroom atmosphere should be maintained.

A visual image of the speaker projected for the benefit of listeners has been affirmed to be a key to rapport between speaker and listeners. For extended presentations, more than one pose provides variety.

To summarize, amplified telephonic communication is being tried as an instructional measure to achieve enrichment for both undergraduate and graduate education. Ordinary telephone service and equipment are utilized to transmit and receive the lectures and any two-way discussion which ensues. Sharing master teachers on an inter-institutional basis and bringing resource people not otherwise accessible are two means of providing greater enrichment as the use of this teaching medium becomes more sophisticated. Keys to its effectiveness lie in providing suitable visuals and graphics to accompany the audio presentation.

¹ Interview with Dr. Imy Holt, Biology Department, Western Michigan University, August 17, 1967.
II. PROCEDURE

Genesis of the Experiment

Initial planning for the project predated the tele-lecture experiment by several years. In line with the contemporary trend within graduate library schools to move into the extension field to make more professional training available, the Department of Librarianship at Western Michigan University offered its first extension course in 1962 at Lansing. This class had an enrollment of twenty-six persons and drew students from a radius of fifty miles. A projected schedule of courses to be offered over a period of four years was planned and announced. Subsequently, a similar program was requested by a group of about fifty librarians in the greater Muskegon area. In response to this request, one course, 512 (Basic Reference Service) was offered in Muskegon in 1964, but it fell short of the expectation. Only nineteen students enrolled and supporting resources and materials were not readily accessible.¹

Requests for a similar center in southwestern Michigan reached the Department of Librarianship at this time, but where or when this could be established could not immediately be determined. Concomitantly the faculty at Western Michigan University were exploring the possibility of lectures presented by means of educational television. Teaching courses in non-conventional ways such as telephone hookups was discussed in a meeting of the

¹Western Michigan University. School of Graduate Studies, Department of Librarianship, Annual Report, 1964-65.
Advisory Committee early in 1965. Support for this was cited in the experience of the Argonne Laboratories, Argonne, Illinois in offering a science course which reached 700 students via telephone network.\(^1\)

Early in 1966, a five-year proposal for expansion of the library school program was prepared by Dr. Jean Lowrie, Head of the Department of Librarianship. A priority item was the possible development of an extension center to serve southwestern Michigan.\(^2\) Later that year a Committee on Methods of Extension Teaching (COMET), with Dr. Laurel Grotzinger as chairman, was appointed to explore the need to set up core teaching centers in southwest Michigan. This committee deliberated on the scarcity of extension faculty and decided that, although the courses might be taught by educational television or recordings, they would concentrate their investigation on the tele-lecture method.\(^3\)

**Survey of Need**

In an effort to assess the real need for expanding off-campus instruction, a survey of a wide geographic area of southwestern Michigan, including public and school librarians in Berrien, Cass, St. Joseph, and Van Buren counties, was made. Respondents were asked to indicate whether they would be willing to enroll in a course offered by tele-lecture and pay

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\(^1\)Western Michigan University. School of Graduate Studies, Department of Librarianship, Minutes of Advisory Committee Meeting, February 19, 1965.

\(^2\)Western Michigan University. School of Graduate Studies, Department of Librarianship, Minutes of Faculty Meeting, January 19, 1966.

\(^3\)Western Michigan University. School of Graduate Studies, Department of Librarianship, Minutes of Faculty Meeting, October 12, 1966.
tuition provided that (1) an accessible geographical location could be es-
lished, (2) a convenient time could be arranged, and (3) a needed course
would be offered. There were fifty unqualified "yes" answers and twenty-
four negative responses. In some cases, approval of the program was ex-
pressed even though the individual was not personally interested.

Two possible locations had been tentatively considered on the ba-
sis of available space, book collection, and technical assistance. These
were Niles and Benton Harbor. Twenty six of the respondents favored Benton
Harbor, while eighteen preferred Niles. They were also asked if they would
enroll if the course were offered at the center which they had not selected.
The responses were about evenly divided between yes and no: eighteen to
twenty respectively.

An opportunity was given respondents to nominate other locations
where a course might be given in the future. Decatur, Three Rivers,
Cassopolis, Stevensville, St. Joseph, Andrews University and Watervliet
were among those mentioned.

Given the choice of terms when the course might be offered, forty-
nine favored the fall 1967 semester over the winter 1967 semester. The
clock hours considered to be most convenient for those responding were ei-
ther 4:30 - 6:00 p.m. or 7:00 - 8:30 p.m. Preference for days of the week
was about evenly divided among the first four week days, with Friday and
Saturday getting only a limited number of votes.

A final item on the questionnaire was a list of four courses:
(1) 230 - Organization of Library Materials, (2) 510 - Selection of Books
and Related Materials, (3) 512 - Reference Service, and (4) Introduction to
Cataloging and Classification, all basic courses in the Department. Among
these 530 (Cataloging) and 512 (Reference) received eighteen and seventeen votes respectively. The 230 (Organization) course had the least number of preferences with nine votes, and 510 (Selection) had ten votes.

The response reported above represented a forty-eight per cent return, with seventy-four out of 154 responding. In some cases reasons were given for failure to complete the questionnaire. Some indicated that they had had the courses listed. Some expressed a preference for workshops. A few of the addressees had moved from the area, or were no longer working in the library where the questionnaire was directed.

The course 512-Basic Reference Service was selected. It was scheduled to be offered Tuesdays and Thursdays 5:00 - 6:30 p.m. during the Fall 1967 term at Lake Michigan College in Benton Harbor, since this was the location favored by the respondents to the questionnaire, and the college librarian at Lake Michigan College had expressed interest in having a course taught experimentally at that location. The choice of location was predicated upon the fact that the holdings at Lake Michigan College Library were sufficient to support instruction. This was confirmed by the investigator's checking the holdings against the titles on the check-list of reference tools to be examined and evaluated by the class.

It is commonly expected that students enrolled in extension courses will need to make an occasional trip to the campus or to nearby libraries to use the resources of the university library. Since the area from which the enrollment was to be drawn has a number of adequately stocked reference collections in college and public libraries, the provision for materials was

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1 Interview with Dr. Marvin DeBoer, Division of Field Services, Western Michigan University, May 10, 1967.
assessed by the investigator to be adequate to support instruction.

**Communications Arrangements**

Early in the planning phase, Michigan Bell Telephone Company was contacted to explore the technical arrangements necessary for tele-lecture installations. It was determined that amplified telephone communication can be accomplished wherever telephone service is in effect. For this experimental project, the arrangements were made through the Western Michigan University Centrix installation, with a speakerphone unit replacing the usual telephone instrument. This unit consisted of two parts: (1) the receiver with "on" and "off" switches and (2) the amplifier which is capable of picking up sound from any location without having to hold an instrument. The speakerphone was installed in the office area of the investigator.

Since the classroom at Lake Michigan College would be in use for other purposes throughout the day, it was necessary to install private telephone service for the express purpose of this project. This line could be activated only when the portable instrument was connected by means of a jack. The portable equipment consisting of a receiver and amplifier was stored between class sessions.

**Methodology**

The original design for the experiment was structured to give instruction to three classes, two on the campus and one extension class at Benton Harbor. The control group was to be taught on campus by conventional method. The experimental group on campus was to be taught by the same method and the lectures taped for use with the tele-lecture presentation to the Benton Harbor class. Taping was necessary in order to insure
duplicate content, since the off-campus class at Benton Harbor met at a different time. Data gathered from the three classes concerning the method of presentation, the effect of taped instruction, and performance of students was to be analyzed and compared. It was theorized that the findings would indicate whether the extension class had learned as well as the campus class taught by conventional means. A determination could also be made as to whether the campus class had been adversely affected as a result of the taping.

Two unforeseen circumstances, a prolonged teachers' strike at Lake Michigan College, and a breakdown in publicity announcing the course, resulted in an enrollment considerably less than that which the survey had indicated could be expected.\(^1\) The strike which delayed the opening of Lake Michigan College for several weeks in September of 1967 left doubts in the minds of many, including the instructor, about whether the physical facilities would be available for the extension class. The normal channels for publicizing extension courses apparently did not function in this instance perhaps because no other course in librarianship had ever been offered at this center.\(^2\) In any event, announcements came too late for prospective students to make the necessary arrangements.

A decision was made that despite the small enrollment there was value to be gained by proceeding with the experiment. It would be

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\(^1\)Only five students enrolled.

\(^2\)To ascertain whether these were the reasons for the discrepancy between the anticipated enrollment and the actual enrollment, a follow-up questionnaire was prepared and sent to all respondents of the first questionnaire. (Appendix D).
necessary only to forego the comparative analysis of data because of the disparity in class size. The project as originally designed could proceed in every other respect.

Instruction on campus began on August 29, 1967 and at Benton Harbor on September 12, 1967. Taping of the campus presentation for later transmittal to Benton Harbor was accomplished by setting up a mobile unit consisting of one tape recorder monitored by a graduate assistant, and a second tape recorder fully connected and equipped with clear tape to serve as back-up, in case of equipment failure. If a lecture should extend beyond the length of one tape, the transfer to the second unit could be accomplished without noticeable interruption. A lavelier microphone and an extended tether to the tape recorder provided the instructor with sufficient leeway to walk about the room, distribute materials, show slides and transparencies on a slide or overhead projector, or write on the blackboard.

During the taping of each presentation a cue sheet was prepared by the graduate assistant for the later guidance of the teaching aide at Benton Harbor. This accompanied the tape and provided instructions for projecting slides, transparencies, or making blackboard notations.

Technical assistance at the receiving end of the tele-lecture was provided by a teaching aide. He was in attendance throughout the class session and was responsible for setting up recording and projection equipment. Visuals were synchronized with the tape in accordance with instructions on the cue sheet. He distributed materials to the class. At the completion of the taped presentation, he initiated the
call to the instructor who was standing by on the Western Michigan University campus.

Opportunity for spontaneous questions was provided by stopping the tape at any time during the lecture. Only what was pertinent to both classes was recorded on tape. This was accomplished by means of a pre-arranged signal from the instructor to the person who monitored the tape recorder. Because the lecture was delivered live before a class, normal pauses for reflection and note taking were provided in the recording. This was a teaching tape, not a lecture tape.

Since there was a fourteen day delay between the first session of the on-campus class and the first session of the off-campus class, it was possible to transport the tape to Benton Harbor for replay at the scheduled hour. On Tuesdays and Thursdays the instructor was available at the speakerphone at anytime throughout the scheduled class session. Contact could be made by the teaching aide's initiating a call to Western's campus at Kalamazoo. Thus the off-campus students had the same opportunities for questions, discussions, or clarification of content at assignments as was afforded the on-campus students.

A major concern throughout the planning and the implementation of this project was that provision for the customary teacher-student relationship be made. Every possible device for off-setting the remoteness of the instructor, for lessening the onus of the disembodied voice was to be employed. Three methods of accomplishing this were incorporated into the plan: (1) on-site visits, (2) exchange of photographic images of instructor and enrollees, and (3) two-way communication during part of every session.
The instructor made a personal visit to the class at Benton Harbor on three occasions. The first of these was the opening session of the course. At this time the usual procedures for starting a new course were accomplished. An overview of the course was given, requirements were discussed, and the introductory lecture was given. Members of the class were asked to fill out a personal data sheet by supplying answers to questions about their academic background and experience which would be helpful to the instructor in establishing identity of these individuals.

The second visit to the class was scheduled about mid-way through the term. Part of this session was used to administer a short test. This had been announced in advance with the intent of providing the class with the security of knowing that they were being tested under the same conditions as the campus class. They were not being tested in absentia. The balance of the session was devoted to continuing the course content and the usual discussion or questions and answers.

Once more during the course, on the last meeting date, the instructor appeared at Benton Harbor to conduct the class in person. At this time it was possible to synthesize the material covered during the term. Part of the session was devoted to an evaluation questionnaire.

On the occasion of the instructor's first visit to the class, a polaroid camera was used to make individual photographs of each person enrolled. These were mounted in the space provided on the personal data sheet. On the personal data sheet, each student was asked to supply information about his academic preparation and any experience. The purpose was to have before the instructor a visual image of each person at
the time of the tele-lecture discussions. The photograph coupled with
the personal data established an identity for each individual.

Slides were made to supply a visual image of the instructor for
the class. These portrayed their teacher in a variety of poses, at the
speakerphone, with the tape recording equipment, lecturing before the
campus class. They were intended for projection at the outset of each
class session, while the taped lecture was being played, and at any time
when no other slide was being shown. Since there was a variety of poses,
there was some measure of relief from the monotony of the prolonged view-
ing of a still picture.

Since the instructor was available at Western Michigan Univer-
sity's campus throughout the scheduled class session, it was mechanically
possible to initiate a two-way discussion at any time. In practice, the
class assembled, heard the taped lecture and then the teaching aide ini-
tiated the call to discuss or raise questions. Individuals simply iden-
tified themselves by name and proceeded with the question or topic of
discussion. This period of two-way communication provided an opportunity
for the instructor to elaborate on a point, clarify an assignment or make
comments pertinent to the off-campus class only.

The class session on campus was recorded exactly as it occurred.
No editing was done. The graduate assistant who monitored the tape re-
corder prepared a cue sheet in outline form. This included instructions
concerning the showing of visuals, distribution of any materials, and any
notations to be placed on the blackboard.

The tapes were recorded on one side only in order to transport
the tape of each class session promptly to Benton Harbor. About half-way
through the course, the second slide of the tapes was recorded. The tapes were recorded thus:

<table>
<thead>
<tr>
<th>Tape #1</th>
<th>Side 1 - Lecture #1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Side 2 - Lecture #11</td>
</tr>
<tr>
<td>Tape #2</td>
<td>Side 1 - Lecture #2</td>
</tr>
<tr>
<td></td>
<td>Side 2 - Lecture #12</td>
</tr>
</tbody>
</table>

The cue sheet was typed and placed in the container to accompany the tape.

Visuals and graphics to supplement the instruction consisted of the same kind and calibre as any instructor might use for campus teaching: films, slides, transparencies, diagrams or charts. Whenever possible, they were prepared in duplicate for two reasons: (1) insurance against loss or damage in transit and (2) the advantage accrued to the instructor by having before him the same constructs as the class was viewing.

Some of the visuals were common to all units of instruction; some were peculiar to a specific category of reference tools. As each new unit was introduced, for example, a slide showing these titles was shown because recognition of the physical format of these works was deemed to be important. Then, as unique features of separate titles were described, those which could profit by graphic representation were illustrated. Whenever pertinent, actual pages or single entries were reproduced photographically. Ideas or concepts which could best be transmitted schematically were prepared as mounted transparencies. When the actual appearance of the page or entry was needed, the illustration was prepared photographically. Since there was some interest in experimenting with different kinds of visuals, it was advantageous to use some of both. A selected list of
visuals accompanies this report in Appendix A.

Items for visual presentation were selected by the instructor on the basis of the need for graphic illustration. They were prepared by the Western Michigan University Graphic Design Center according to specifications delineated by the instructor. Carousel and overhead equipment were used for projection.

The characteristic content of a basic reference course includes an introduction to the nature of and procedures in reference work, an inquiry into the types of reference tools, and a study and evaluation of an extensive checklist of representative titles. Some practical experience in the form of problems involving the use of reference tools is desirable. For both the on-campus and the off-campus sections, it was possible to incorporate all these elements into the teaching. As each category of reference aids was approached, some introductory background material on its special properties was provided. The instructor stressed the similarities and differences within each group. Illustrations drawn from the checklist provided students with some specific examples for the most effective use of these tools by reference librarians working with patrons.

Budget

Early in the planning phase a tentative budget was prepared cooperatively by representatives of the Field Services Division and the Department of Librarianship. It was determined at that time that items such as professional services, services of the teaching aid, reimbursement for travel expenditures, rental for classroom space, charges for visuals and telephone charges must be budgeted. Anticipated revenue calculated at the
university rate per semester hour would be measured against anticipated costs to estimate the economic feasibility of the experiment. Necessary projection equipment and a request for clerical help or the services of a graduate assistant were included in the budgetary request. Budget details appear in Appendix C.
III. FINDINGS

In the course of this project, data were compiled to assist the investigator in drawing conclusions about the educational and technical feasibility of the tele-lecture as a satisfactory method of extension instruction in library science. In the paragraphs which follow, findings in the area of (1) characteristics of students enrolled, (2) educational considerations, (3) technical aspects, and (4) cost will be reported. Data relating to the characteristics of library science students were collected by means of a questionnaire distributed to students enrolled in the Course 512-Basic Reference Service both on campus and at Benton Harbor. In a structured questionnaire, they were asked to indicate their academic preparation, their status immediately prior to entering library school, and the factor which influenced them to pursue further study. A rating scale on which they were asked to indicate to what degree they were influenced was incorporated in the questionnaire (Appendix B). This questionnaire had been pre-tested on a random selection of library science students not enrolled in the course.

Characteristics of Library Science Students

An effective program of extension offerings depends to a large measure on the degree to which the planning relates to the needs of the prospective students. Based on data gathered from those students who participated in this experimental project, certain characteristics of the library science student at Western Michigan University can be identified.
The educational preparation of these students is predominantly in the arts field, with only a few bachelor or master of science degrees reported. Most of the undergraduate majors are in the humanities and education. In this group of students, both full and part-time study patterns are represented. About 20 per cent were not taking a full program of study at the time this poll was taken. Few of these students had taken any library science courses at any other institution. The time of these graduate students is not divided with any course of study outside of library science since only two indicated that they are enrolled in any other courses. Continuing education, the need for the master's degree, and job insurance or preparation for employment ranked high among the factors. Self-improvement expressed as "to do a better job in present position" has been responsible for motivating some students to enroll. Cataloging, reference, and work with children or young people were about equally represented among the students' stated preferences for areas of service. The maturity level of students in the on-campus sections reflected undergraduates in the twenty to thirty years age bracket. The reverse was true in the off-campus class. The married woman is represented in this survey in both full-time and part-time student status.

**Educational Considerations**

The disparity in class size virtually ruled out the possibility of any comparative analysis of academic performance. With the control feature removed because of the change from original design, the investigator was left with only her own judgment as a measurement of academic performance. On the basis of the criteria used to evaluate the written
assignment, tests, practical problems, and class participation, those enrolled in the Benton Harbor class ranked on a par with the on-campus sections. The performance could be said to range from very capable to moderately weak, with final grades ranging from A to B minus. The on-campus sections had the same range with an occasional C being earned by undergraduates and foreign students.

Attitudes toward the tele-lecture as a method of instruction were reported by means of a questionnaire directed with some modifications to both the on-campus and the Benton Harbor classes. (Appendix B) Responses from the off-campus class, those on the receiving end of the experimental teaching, indicate that although they knew at the time of enrollment that this would be the method of instruction, they faced it with some degree of apprehension. When asked to indicate their expectations for this type of instruction, comments such as "lack of two-way communication," "difficulty in concentrating," and "poor teacher-student rapport" were reported. One was slightly concerned, but still expected "to learn in full the subject matter."

Those who acknowledged a change in attitude toward taped-telephone instruction, reported a more favorable attitude after completing the course. All those enrolled in the Benton Harbor class expressed satisfaction with the format (taped lecture plus two-way communication), and rejected the option for direct telephone communication for the full hour and a half. All but one, when asked if they at any time felt hampered by this method of instruction, replied in the negative. The one "yes" response was accompanied by comment to the effect that she "would have felt more at ease talking to the instructor face-to-face." One
student registered late and was not present for the first on-site visit when other students and the instructor had the opportunity to become acquainted. This could be responsible for the one negative response. No difficulty was experienced in respect to course content or materials as a result of this kind of teaching. Some assignments needed minor clarification.

The group reaction to the tape was generally favorable, although there was one comment to the effect that they should not be more than forty-five minutes in length. The class was in agreement that a good voice, speaking ability, and ability to organize material are essential qualities for a tele-lecture instructor to possess. The visuals were evaluated as "good", "helpful", or "too few".

The role of the teaching aide was the focus of one question. Respondents volunteered the opinions that willingness, ability to operate equipment, careful preparation, some teaching ability, and knowledge of the subject are important.

"Was the remoteness of the instructor a barrier?" had a negative response in every case. Personal visits of the instructor were considered to be helpful. Up to three were suggested to be desirable by the members of this class. All but one would enroll for another tele-lecture course and all but one would recommend this kind of course offering to others.

An unstructured questionnaire directed to the campus class provided an opportunity for the cooperating group to give opinions about their role in the experiment. "Good lectures" were considered to be essential to this kind of instruction. They, like the extension class, found the format satisfactory. Visuals were considered "good" "helpful". Some
expressed the opinion that "more use could have been made of visuals."
Nearly three quarters of the class would "consider a course presented by
tele-lecture" if they were to enroll in an off-campus class.

The instructor found the telephone satisfactory as a medium for
teaching. The anticipated barrier of distance did not exist after the
first class session. Discussions and question-answer periods were con­
ducted in the customary classroom manner. One advantage observed was
that questions were carefully constructed; the "casual" question never
reached the telephone. The duplicate visuals and the personal data
sheets with photograph attached served the intended purpose. As report­
ed by the class the three visits to Benton Harbor were helpful for the
instructor too. They provided the opportunity to renew rapport with the
group. The instructor was favorably impressed by the fact that the cus­
tomary teaching situation could be simulated in the tele-lecture setting.

Technical Aspects

Preparation of the tape concurrently with teaching the on-campus
class was demonstrated to be an effective measure in pacing the delivery.
Feed-back from the Benton Harbor class, supported by observations of the
teaching aide, indicated that sufficient allowance was provided for note­
taking, reflection, and comprehension. The cue sheets which accompanied
the tape guaranteed a measure of synchrony between the taped lecture and
the visuals which could not be achieved in the projection of these were
left to chance. Given the opportunity to express a preference for direct
telephone communication over a taped presentation, the Benton Harbor
class, without exception, favored the tape. They reported informally
that they experienced some security in knowing that they could have a re-play if necessary. Awareness that telephone charges were mounting during the lecture can develop an inhibition which interferes with a student's giving full attention to the lecture. During the taped lecture, they could be attentive in a more relaxed manner, secure in the knowledge that two-way communication would follow.

There were no operational flaws in the speakerphone equipment. Neither transmission nor receiving was adversely affected by the need to work with notes or move around the room. The portability of the equipment in Benton Harbor was an important feature, since the classroom was used for other purposes throughout the day. It was possible to arrange telephone and projection equipment in such a way that there was no need to disarrange the class between the taped portion of the session and the time for two-way communication.

Telephone service functioned well with the exception of two instances when interference from cross-conversations occurred. Attempts were made to replace the call in the hope of getting a clear line. On one of the occasions when this failed to obtain a clear connection, the teaching aide went to another phone and placed a call to the operator requesting that she attempt to get a clear line. This, too, was unsuccessful and the discussion had to be terminated for that evening. A follow up call to the Service Department of Michigan Bell resulted in the explanation that on both occasions when this problem occurred, there was inclement weather, and that water-soaked cables can be responsible for cross-conversation. A written request was forwarded to the Michigan Bell Telephone Company for an engineering solution.
**Cost**

The charges remained within the projected budget. Telephone service including installation charges amounted to slightly more than one hundred dollars ($115.87) for the total period of the experiment. Toll charges for the twice-weekly two-way communication periods averaged about fourteen dollars per month. The remuneration for the teaching aide was fifteen dollars per session or a total of three hundred fifteen dollars. Rental for classroom space at Lake Michigan College was three dollars per class session, or a total of seventy-two dollars. Preparation of visuals amounted to less than twenty-five dollars. The cost of the tapes was not quite twelve dollars.

In summary, the findings of this investigation indicate that the extension program for library science reaches students who are engaged in part-time rather than full-time study. They are likely to be married women, thirty years of age and older, who are motivated to pursue further study to prepare themselves for a second career. The desire to perform better in their present positions has influenced some to engage in continuing education. Those enrolled in the Benton Harbor class performed on a par with those enrolled on campus. No difficulty was experienced as a result of the taped lectures, and the visuals enhanced their comprehension, according to their responses to questionnaires. The teaching aide played a significant role in the experiment. While telephone communication was generally satisfactory, cross-conversation interfered with transmission on two occasions. This was attributed to weather conditions. The cost of the project remained within the anticipated outlay.

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CONCLUSIONS AND RECOMMENDATIONS

Educational and Technical Feasibility

On the basis of previous research and the experience of this project, certain generalizations can be made about the feasibility of offering extension courses in library science by taped tele-lecture method. The subjective measures applied to students' academic performance indicate that this is a satisfactory instructional method. There is no indication that it results in superior performance or that students prefer this method. Simply stated, the performance of students involved in the project indicates that it is possible to learn as well from this method as from instruction offered on campus. This generalization is based on the findings of this project and is consistent with previous research carried out by Popham (supra, p. 15) and Rapp (supra, p. 16). The hypothesis as stated earlier is this report (p. 7) was supported.

The importance of incorporating certain components of classroom instruction cannot be underestimated. The preliminary visit, with the dual benefit accruing to both students and instructor, nullifies the possible charge of the disembodied voice in a tele-lecture. Identity of students thus established is reinforced by the subsequent reminders furnished by the photographs. From this experience it can be generalized that the remoteness of the instructor is offset by the degree to which such factors are built into the plan for instruction.

The technical aspects of presenting a course by tele-lecture have
been sufficiently refined to render this mechanically feasible in spite of the incidents of interference. The disturbance caused by cross-conversation is not unique to this project. Madden reports that one of the lecturers in the Stephens College project declined an invitation to lecture a second time because he "was hanged once." According to Rapp one center in the Colorado State experiment experienced transmission difficulties traceable only in part to faulty equipment. All available data seem to indicate that these are chance happenings, and not due to inherent weaknesses in the technical arrangements. It is to be hoped that engineers who can produce Tel-star might find a solution to the problem of conversation crossing from one telephone line to another. Viewed in perspective, it must be recognized that any teaching situation calls for some degree of flexibility and adaptability on the part of the instructor. The anxiety associated with this temporary interference probably caused the investigator no greater need for adjustment than might be required in classroom teaching on campus during any given term.

Expansion of Offerings without Additional Faculty

If teaching by telephone, with the modifications described earlier in this report, can be accepted as educationally sound and technically possible then it follows that this is a way that extension offerings in library science can be expanded with fewer demands on faculty time than

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1 Jolly and Madden, p. 31.
2 Rapp, p. 41.

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would be required if they had to travel more than one hundred miles weekly to teach. Among several possibilities to be explored are:
(1) offering an extension course concurrently with a campus class, 
(2) offering an extension class live or by tape at a separately scheduled time, or (3) offering extension courses concurrently at more than one site.

The economics of off-campus instruction by means of amplified telephone communication as revealed in this experimental project require that an enrollment of eighteen to twenty would be essential to meet the costs. An item which would be a one-time investment is the cost of visuals and the tapes. While these might be augmented or updated, this would not be a repetitive charge. A formula for pro-rating professional remuneration in the case of concurrent offerings would have to be determined.

Criteria for Tele-Lecture Courses

The importance of incorporating the components of instruction; e.g., teacher-student rapport, comparable content and materials, and visuals, is basic to a decision about which course or courses are suitable to this type of teaching. Since there was no need to alter assignments or instructional presentations, and since the reaction of the classes was similar and sometimes identical, it is inferred that the course involved in this project meets the criteria of tele-lecture teaching. On the basis of this experience, the writer is of the opinion that any of the basic courses would be equally effective if the aforementioned components are a part of the instructional planning. Because of the
subjective judgment and spontaneous discussion associated with materials and reading interest courses, these subjects might be less adaptable to this form of instruction.

The writer has concluded that no unique aptitude or talent is required for teaching personnel. Any faculty member who is competent to present the prescribed course content and who can transmit messages by telephone can fulfill the requirements of this modified form of telelecture. Recognition on the part of the instructor that this is one way of reaching people who could not otherwise pursue the study is necessary to offset personal anxiety about the mechanical demands or organizational pattern. Some improvement might accrue to campus instruction as a result of the need for well organized lectures and carefully directed discussions which the tele-lecture imposes.

Types of Visuals

Visuals appear to be necessary to supplement this kind of instruction. They are most effective for the student when they are incorporated and focused specifically on the item of content being presented. There is danger of distraction if the best principles of audio–visual presentation are not observed. Concepts chosen for visual presentation must be planned, organized and prepared in advance of the time when the course is offered. The first time an extension course is offered by tele-lecture, released time should be provided to accomplish this. It is estimated that a block of time equivalent to one-half the allowance for teaching the course would be needed for planning. Production time would depend on the availability of the Graphics Design personnel. It
is desirable that the visuals be pre-tested with a class on campus.

While it was valuable within the framework of this project to experiment with different kinds of visuals, it is imperative for future tele-lecture teaching that the slides and transparencies be coordinated so they are consistent in format. This is necessary not only for the technical aspects of projection, but also to eliminate the need for the student to adapt to the differences. The procedures for projection must be as unobtrusive as possible.

**Guidelines for Planning Tele-lecture Presentations**

Certain principles can be formulated for guidance in planning tele-lecture presentations in library science:

1. Advance publicity must precede the offering of the course. Students should know that they are registering for a course presented by amplified telephone communication.

2. A few on-site visits are a necessary part of tele-lecture teaching. A logical pattern is at the beginning, in the middle, and at the end of the term.

3. Well organized presentations, forty-five minutes to one hour in length can be taped, preferably in a teaching situation in order to pace for note-taking and reflection.

4. Identity of students and instructor can be renewed at each session by means of photographs.

5. Duplicate sets of visuals assist the instructor as well as the students because he too can view what they are seeing.

6. Technical aspects of the arrangements should be customized to fit the specific needs. Microphones should replace...
telephone receiver if the size of the room warrants it. A test call should be put through in advance of the first class.

7. The teaching aide should be an interested participant in the venture.

8. A minimum enrollment should be established in accordance with projected cost of the tele-lecture measured against anticipated income from tuition.

Need for Research

A planned program of further study concerning the effectiveness of tele-lecture teaching of library science courses is needed to develop conclusive data. Another offering should be scheduled with matched groups so that more detailed data can be analyzed comparatively. It would be advisable to do a tele-lecture with other types of library science courses to test further the criteria evolved from this study. An experiment with a different schedule of on-site visits might yield some useful guides as to the importance of this element in countering unfavorable attitudes toward remote teaching. A significant test of the potential of tele-lecture teaching whenever a faculty is not numerically adequate to expand extension offerings could be based on a multi-location hook-up; e.g., two or more classrooms at once. The possibility of linking the campus instruction simultaneously with two off-campus classes should be explored. A variant of this could be arranged by presenting a common body of taped presentations with the periods of two-way communication adjusted to the meeting times scheduled for each class. The academic performance of an extension class taught by tele-lecture and the academic performance of an extension class taught
conventionally should be studied.

Because changing concepts about the role of all kinds of libraries in the educative process have caused the already critical manpower shortages to mount to frightening proportions, the profession looks to library education at both the undergraduate and graduate levels to supply personnel. Concerned people in every institution of higher education which offers a program in library science face an obligation to find ways of reaching potential candidates for beginning and advanced study in librarianship. A modified method of tele-lecture teaching can be one way of meeting this obligation.
SELECTED LIST OF VISUALS

Groups of Reference Tools

- Encyclopedias
- Yearbooks and Almanacs
- Dictionaries
- Biographical
- Indexes
- Government Publications
- Miscellaneous

Specific Reference Tools

- Lincoln Library of Essential Information
- McGraw Hill Encyclopedia of Science and Technology
- World Almanac
- Statistical Abstract
- Oxford English Dictionary
- Shorter Oxford English Dictionary
- Golden Dictionary
- Dictionary of Slang and Unconventional English (Partridge)
- Roget's Thesaurus
- Dictionary of Americanisms on Historical Principals (Mathews)
- Dictionary of American English on Historical Principles (Craigie)
- Dictionary of Acronyms
- Rhyming Dictionary
- Webster's Biographical Dictionary
- Chamber's Biographical Dictionary
- Current Biography
- Concise Dictionary of American Biography
- Dictionary of American History
- Webster's Geographical Dictionary

Reference Techniques and Procedures

- Indexing
- Inserted pages
- Telescoped pages
- Language differences in foreign encyclopedias
- Calendar for encyclopedia supplements
- Indexing in quotation books
- Typical biographical entry

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**TYPICAL CUE SHEET FOR TELE-LECTURE PRESENTATION**

Lecture #10:

<table>
<thead>
<tr>
<th>Title</th>
<th>Visual</th>
<th>Approximate Tape Footage</th>
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</thead>
<tbody>
<tr>
<td>Dictionary of Modern English Usage</td>
<td></td>
<td>000</td>
</tr>
<tr>
<td>Dictionary of Contemporary American Usage</td>
<td>Slide #32</td>
<td>041</td>
</tr>
<tr>
<td>Dictionary of Slang and Unconventional English</td>
<td>Slide #33</td>
<td>054</td>
</tr>
<tr>
<td>Roget's Thesaurus</td>
<td>Transparency #17</td>
<td>104</td>
</tr>
<tr>
<td>Dictionary of Americanisms on Historical Principles</td>
<td></td>
<td>192</td>
</tr>
<tr>
<td>Dictionary of American English</td>
<td>Slide #34</td>
<td>227</td>
</tr>
<tr>
<td>Webster's Dictionary of Synonyms</td>
<td></td>
<td>267</td>
</tr>
<tr>
<td>Wentworth's Dictionary of American Slang</td>
<td>Slide #35</td>
<td>278</td>
</tr>
<tr>
<td>Dictionary of Acronyms</td>
<td>Transparency #17</td>
<td>319</td>
</tr>
<tr>
<td>Introductory material on sources of quotations</td>
<td></td>
<td>324 - 590</td>
</tr>
<tr>
<td>Bartlett's Familiar Quotations</td>
<td>Transparency #18</td>
<td>610</td>
</tr>
<tr>
<td>Stevenson's Home Book of Quotations</td>
<td></td>
<td>644</td>
</tr>
<tr>
<td>Hoyt's</td>
<td></td>
<td>675</td>
</tr>
<tr>
<td>Introductory material on rhyming dictionaries</td>
<td>Slide #36</td>
<td>715</td>
</tr>
<tr>
<td>New Rhyming Dictionary</td>
<td></td>
<td>784</td>
</tr>
<tr>
<td>(end of tape)</td>
<td></td>
<td>824</td>
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</tbody>
</table>
November 15, 1966

Dear Librarian:

The Department of Librarianship, Western Michigan University, has been requested to provide basic courses in librarianship in the southwestern area of Michigan. Such courses would be offered in four subjects: Organization of Library Materials, Selection of Books and Related Materials, Reference Service and Introduction to Classification and Cataloging. Applicants for admission to the classes would have to meet University requirements for all undergraduate students and pay tuition of $22.50 per semester hour. The enrollee would receive from two to four hours of University credit for each course taken at the undergraduate level. (If the individual is qualified, he could receive graduate credit.) The credit would count toward a degree or the state library certificate.

In order to implement such a program during the next year, the Department of Librarianship proposes to teach the extension courses by tele-lecture. By this means a qualified professor in the Department would use the telephone to teach a class. He would remain in his office or classroom at the University and his lectures would be relayed to a center which had been selected because of its accessibility and book collection. In addition, there would be a limited number of visits to the center, and a teaching assistant would be present in the classroom to supplement the tele-lecture with audio-visual aids and serve as liaison between instructor and class. At the end of each lecture, a direct-line question and answer period with the teacher will be provided. Such a technique has been used successfully in dozens of colleges and schools around the country. It is both educationally and economically effective.

Before the Department of Librarianship can proceed with plans for this program, certain questions must be answered by the individual who might enroll in such a class. Therefore, we have directed a questionnaire to all practicing librarians in a selected area which focuses on two geographical centers, i.e., Niles and Benton Harbor. If we receive a positive response to our proposal, at least one course will be offered in the coming year.

Please return this questionnaire by November 28th. Address it to:

Dr. Laurel Grotzinger
Department of Librarianship
Western Michigan University
Kalamazoo, Michigan 49001
TELE-LECTURE QUESTIONNAIRE

A. Assuming that (1) a geographical center which is accessible to you is established; (2) a convenient time is arranged; and (3) a needed course is offered, would you be willing to enroll and pay tuition?

YES  NO  (circle one)

IF, UNDER ANY CIRCUMSTANCES, YOU WOULD NOT BE INTERESTED IN SUCH A COURSE, DO NOT COMPLETE THE REMAINDER OF THE QUESTIONNAIRE. PLEASE RETURN IT TO:

Dr. Laurel Grotzinger  
Department of Librarianship  
Western Michigan University  
Kalamazoo, Michigan 49001

B. On the basis of available space, book collection and teaching assistants, two geographical centers have been selected as trial locations.

1. Circle your preference:  
   Benton Harbor  
   Niles

2. If a course were offered at the center which you did not circle would you enroll at the other location?

   YES  NO  (circle one)

3. Please indicate any location which might serve as a future site for a tele-lecture. ________________________________________________________________

C. Assuming that interested individuals are working full or part-time, the course could be offered during the evening and weekend hours. In order to fulfill University requirements, the class must meet twice a week during a regular fifteen week term. The first possible term would be the Winter Semester, January 3rd through April 18th, 1967. The second possible term would be the Fall Semester, August, 1967, through December, 1967.

1. Circle the term or terms which you could attend.

   Winter Semester, 1967  
   Fall Semester, 1967

2. Indicate which time is most convenient. Circle one only.

   4:30 to 6:00 p.m.  
   5:00 to 6:30 p.m.  
   7:00 to 8:30 p.m.  
   8:00 to 9:30 p.m.

3. Indicate which days of the week you prefer. Circle two only.

   M  T  W  Th  F  Saturday: 9:00 to 10:30

   (Circle two weekdays or one weekday and Saturday)
D. Which course, of the following, would you wish to have offered first?

Circle one:  
- 230 Organization of Library Materials  2 credit hours
- 510 Selection of Books and Related Materials  3 credit hours
- 512 Reference Service  3 credit hours
- 530 Introduction to Classification and Cataloging  4 credit hours

E. If you wish, you may use the remaining space to comment on this project.

Please return to:  
Dr. Laurel Grotzinger  
Department of Librarianship  
Western Michigan University  
Kalamazoo, Michigan  49001
<table>
<thead>
<tr>
<th>Term</th>
<th>Course Title</th>
<th>Enrollment</th>
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<tr>
<td>Fall 1962</td>
<td>512 Reference Service</td>
<td>26</td>
</tr>
<tr>
<td>Winter 1963</td>
<td>510 Selection of Books and Related Materials</td>
<td>30</td>
</tr>
<tr>
<td>Fall 1963</td>
<td>516 Elementary School Library Materials</td>
<td>48</td>
</tr>
<tr>
<td>Winter 1964</td>
<td>542 Reading Interests of Young Adults</td>
<td>32</td>
</tr>
<tr>
<td>Fall 1964</td>
<td>620 Public Library Administration</td>
<td>18</td>
</tr>
<tr>
<td>Winter 1965</td>
<td>625 School Library Administration</td>
<td>39</td>
</tr>
<tr>
<td>Fall 1965</td>
<td>616 Curriculum Enrichment Materials</td>
<td>42</td>
</tr>
<tr>
<td>Winter 1966</td>
<td>644 Adult Reading Interests</td>
<td>24</td>
</tr>
<tr>
<td>Fall 1966</td>
<td>510 Selection of Books and Related Materials</td>
<td>42</td>
</tr>
<tr>
<td>Winter 1967</td>
<td>512 Reference Service</td>
<td>33</td>
</tr>
<tr>
<td>Fall 1967</td>
<td>542 Reading Interests of Young Adults</td>
<td>24</td>
</tr>
<tr>
<td>Winter 1968</td>
<td>516 Elementary School Library Materials</td>
<td>19</td>
</tr>
<tr>
<td>Fall 1968</td>
<td>625 School Library Administration (To be offered)</td>
<td></td>
</tr>
</tbody>
</table>

**Muskegon**

<table>
<thead>
<tr>
<th>Year</th>
<th>Course Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>512 Reference Services</td>
<td>19</td>
</tr>
</tbody>
</table>
APPENDIX B: Evaluation Instruments
1. What were your expectations at the time you enrolled in this experimental course?

2. Has your attitude toward learning by taped-telephone communication changed? Yes____ No____. If yes, in what way(s)?

3. Did you find the one hour taped lecture plus two way telephone communication satisfactory? Yes____ No____.

Would you prefer direct telephone communication for the full hour and a half? Yes____ No____.

4. Did you at any time feel hampered by this method of instruction? Yes____ In what way(s)?
No____ Comment, if you wish to do so.

5. Did you find the personal visit of the instructor helpful? Yes____ No____.

How many visits are desirable in your opinion?

one____
two____
three____
more than three____
none____

6. Was the remoteness of the instructor a barrier? Yes____ No____.

7. Did you experience any reluctance to discuss or pose questions via telephone? Yes____ No____.

8. What was your reaction to the tapes? (voice quality, pace, length)

9. ________

1Benton Harbor Class.
10. What was your reaction to the visuals? (slides, transparencies accompanying lecture)

11. What qualities would you consider essential in an instructor of tele-lecture courses?

12. What qualities would you consider essential in the teaching aide?

13. Would you enroll for another tele-lecture course? Yes____ No____

14. Would you recommend this kind of course offering to others? Yes____ No____.

Any reservations?
1. What elements would you consider essential to this kind of instruction?

2. Did you find the taped lecture, followed by questions or discussion a satisfactory procedure?

3. Did you at any time feel hampered by this method of instruction?
   Yes___ In what way(s)?
   No___ Comment, if you wish to do so.

4. What was your reaction to the visuals? (slides, transparencies accompanying lecture)

5. Did you experience any reluctance to discuss or pose questions because of the taping?

6. If you were to enroll in an off campus course, would you consider one presented by tele-teaching?
   Yes____    No____    Comments: (use other side)

---

1Western Michigan University Class.
PERSONAL DATA QUESTIONNAIRE

1. Are you a full-time_____part-time_____ student?
2. Are you working toward a degree_____toward certification?_____.
3. If toward a degree, how many hours have you completed?_____.
4. State your Grade Point Average, if known_____.
5. What was your undergraduate major?___________________________.
6. What other degrees do you hold?_______________________________.
   From what institution?___________________________What year awarded?_____.
   Field of specialization?___________________________________________.
7. Have you taken Library Science courses from any other school?_____.
   If Yes, Where?___________________________Number of credits?___________________.
   Degree_____ Non-degree_____ Resident_____ Extension_____.
8. Are you taking any courses now in addition to your library science
   courses? Yes____No____. If Yes, what course?___________________________.
9. The factor motivating you most to attend library school was: (Check
   all that apply to your case)
   A. Continuing education_____.
   B. Needed the M.L.S. _____.
   C. Financial rewards of the higher degree_____.
   D. Prestige_____.
   E. To maintain present employment_____.
   F. To prepare for future employment_____.
   G. To do a better job in present position_____.
   H. "Always wanted to be a librarian"_____.
   I. Other: (specify)___________________________________________.
10. For those you checked above, please indicate the degree to which you
    were influenced.

<table>
<thead>
<tr>
<th>Most influenced</th>
<th>Least influenced</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Continuing education</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>B. Needed the M.L.S.</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>
Most influenced | Least influenced
---|---
C. Financial rewards of the higher degree | 1 2 3 4 5
D. Prestige | 1 2 3 4 5
E. To maintain present employment | 1 2 3 4 5
F. To prepare for future employment | 1 2 3 4 5
G. To do a better job in present position | 1 2 3 4 5
H. "Always wanted to be a librarian" | 1 2 3 4 5

11. Check the type of library where you would like to work:
- Public
- College or university
- Special
- School: Elementary
- Junior or Community college
- Junior High
- Senior High

12. Please indicate the activity or activities or areas of service in which you would like to work upon completion of your program?
- A. Cataloging
- B. Technical Processes
- C. Serials
- D. Documentation
- E. Reference
- F. Administration
- G. Research
- H. Young adult
- I. Children's
- J. Adults
- K. Circulation
- L. Public Relations
- M. Community Programs
- N. Other (Specify):

13. Please check your status immediately prior to starting in library school. Check all items applicable:
- A. Housewife
- B. Student
- C. In business or industry
- D. In the military
- E. Teaching
- F. Working in library
- G. Other
- H. Other

14. Are you employed now? Yes No Full-time Part-time
- Name
- Age: 20-30 31-40
- Address
- 41-50 51-65
- Marital status: Single Married
APPENDIX C: Budget
COST* OF TELE-LECTURE COMPARED WITH CONVENTIONAL EXTENSION TEACHING

<table>
<thead>
<tr>
<th></th>
<th>Tele-Lecture</th>
<th>Conventional Extension Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional remuneration</td>
<td>$600.00</td>
<td>$770.00</td>
</tr>
<tr>
<td>Travel and meal allowance</td>
<td>35.00</td>
<td>135.00</td>
</tr>
<tr>
<td>Teaching aide</td>
<td>315.00</td>
<td>------</td>
</tr>
<tr>
<td>Classroom rental</td>
<td>72.00</td>
<td>72.00</td>
</tr>
<tr>
<td>Telephone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation and service</td>
<td>76.02</td>
<td>------</td>
</tr>
<tr>
<td>Toll charges</td>
<td>39.85</td>
<td>------</td>
</tr>
<tr>
<td>Total</td>
<td>$1137.87</td>
<td>$977.00</td>
</tr>
</tbody>
</table>

Anticipated revenue** from tuition to match the above costs

<table>
<thead>
<tr>
<th></th>
<th>Eighteen students</th>
<th>Fifteen students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$1215.00</td>
<td>$1012.50</td>
</tr>
</tbody>
</table>

*C*Costs calculated at rates in force at the time of this project: Fall, 1967.

**Calculated at the rate of $67.50 per three semester hours.
November 17, 1967

Dear Librarian:

Last November, 1966, the Department of Librarianship, Western Michigan University, sent to a select number of librarians in Southwestern Michigan a letter and questionnaire concerning the feasibility of starting a Tele-Lecture course for area librarians.

We hoped to find out if the librarians in this area were interested in a course in librarianship to be offered either in Benton Harbor or Niles. The questionnaire also asked for their course preference, day and time preference and semester preference.

The responses we received showed that a number of librarians were interested in such a project, and if it were possible, they would enroll. Therefore, a Tele-Lecture course was offered beginning in September, 1967 at the Lake Michigan College in Benton Harbor. The course being taught is Reference Service.

However, the number of persons actually enrolling is far smaller than the response indicated. Therefore, we are interested in finding out the causes for the low enrollment. We feel that if we can find out the causes, we would be better able to serve the librarians of Southwestern Michigan the next time such a course is offered.

Please fill out the following questionnaire and return it to us in the stamped self-addressed envelope that is enclosed by December 1. We appreciate your cooperation.

Dr. Laurel Grotzinger
Department of Librarianship
Western Michigan University
Kalamazoo, Michigan 49001
TELE-LECTURE
FOLLOW UP QUESTIONNAIRE

1. Was the reason you did not enroll because the course offered did not meet your needs or desires?
   Yes____ No____

2. Was it because of the semester the course was offered?
   Yes____ No____

3. Was it because of the location of the class meetings?
   Yes____ No____

4. Was it because of the days offered that you did not enroll?
   Yes____ No____

5. Was it because of the number of meetings per week?
   Yes____ No____

6. Was it because of the time the class met?
   Yes____ No____

7. Was it because the publicity about the course did not reach you in time to enroll?
   Yes____ No____

8. Were you too busy with other commitments at the time the course was offered?
   Yes____ No____

9. Were you financially unable to enroll at this time?
   Yes____ No____

10. Was the reason because of the teacher's strike at Lake Michigan College?
    Yes____ No____

11. Was there any other reason not specified above? If so, please specify.

If you are still interested in taking an extension course from the Department of Librarianship, Western Michigan University, please complete the following questionnaire on the next page.
1. Indicate the course you would consider enrolling in.
   A. 530-Introduction to Cataloging & Classification
   B. 510-Selection of Books & Related Materials
   C. 512-Reference Service
   D. 230-Organization of Books & Materials

2. Indicate the semester for which you would enroll.
   A. Winter
   B. Fall

3. Indicate the location best suited to your needs.
   A. Benton Harbor
   B. Niles
   C. Other (specify)

4. Indicate the days you would enroll for. (Indicate two days for two meetings per week.)
   A. Monday
   B. Tuesday
   C. Wednesday
   D. Thursday
   E. Friday
   F. Saturday

5. Indicate your time preference for class meetings.
   A. 4:00 - 6:30 (one meeting per week)
   B. 4:00 - 5:15 (two meetings per week)
   C. 5:00 - 7:30 (one meeting per week)
   D. 5:00 - 6:15 (two meetings per week)
   E. 6:00 - 8:30 (one meeting per week)
   F. 6:00 - 7:15 (two meetings per week)
   G. 7:00 - 9:30 (one meeting per week)
   H. 7:00 - 8:15 (two meetings per week)
   I. 9:00 - 11:30 (Saturdays)
   J. Other (specify)

6. Comments:
SELECTED BIBLIOGRAPHY


Madden, Charles F. "Person-to-Person Teaching." *Saturday Review*, July 18, 1964, pp. 50-51+.


Wendt, Paul R., et al. *A Study to Determine the Extent to Which Instruction to University Freshmen in the Use of the University Library Can Be Turned Over to Teaching Machines*. Carbondale, Ill.: Southern Illinois University, 1963.

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