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A STUDY OF THE USE OF AUDIO-VISUAL MATERIALS IN THE TRAINING PROGRAMS OF SELECTED BUSINESS AND INDUSTRIAL CONCERNS OF METROPOLITAN DETROIT

by
Thomas Wright Roberts, Jr.

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in the
University of Michigan
1966

Doctoral Committee:

Professor Stanley E. Dimond, Co-Chairman
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Professor Howard Y. McClusky
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Professor Edgar E. Willis

A STUDY OF THE USE OF AUDIO-VISUAL MATERIALS IN THE TRAINING PROGRAMS OF SELECTED BUSINESS AND INDUSTRIAL CONCERNS OF METROPOLITAN DETROIT

By Thomas Wright Roberts, Jr.

The purposes of this study were: (1) to determine the current use, the ownership, and the future plans for the use of audio-visual materials and devices in the training programs of selected business and industrial concerns of metropolitan Detroit, Michigan; (2) to determine the audio-visual needs for training in these business and industrial companies; (3) to determine the support functions which could fulfill such needs; and (4) to determine which of these support functions could be provided through the services of the Audio-Visual Utilization Center of Wayne State University.

The population studied was the list of concerns which make up the membership of the Greater Detroit Board of Commerce. A pilot study and personal interviews were utilized to refine the questionnaire which was used as the measuring instrument.

A second pilot study was undertaken to determine the random sampling variance of the population. Following the determination that the sampling variance of the population indicated a dichotomous population, a suitable random sampling design was structured for use with the dichotomous population.

Utilizing acceptable random sampling procedures, sample units

were selected from the population. The questionnaires were than sent to the companies selected as sample units in the sampling procedure. At the date which had been selected as the cut-off point for the accumulation of data, the number of returns met the adequacy of sample requirements of the study.

The statistical procedure of content analysis was utilized in appraising the significance of the data.

The conclusions which can be drawn from the study were: (1) even though the public is constantly bombarded by their expensive audio-visual advertising and public relations presentations on radio and television, Detroit business and industrial concerns recognize little value for such materials for training purposes; (2) inadequate use is made of audio-visual instructional materials and devices in the training programs of the population; (3) the Detroit business and industrial community is poorly informed about the audio-visual materials available for their use in training; (4) these business concerns own and rent few audio-visual materials and equipment for training; (5) professionally-trained audio-visual specialists are seldom used in the industrial training setting; (6) the business training departments do not know of, and do not use the many sources for audio-visual instructional materials; (7) few audio-visual materials are prepared by business concerns for use in training; (8) training departments are inadequately budgeted for the preparation, ownership, and rental of audio-visual equipment and

materials; (9) because of limited knowledge of the audio-visual field, thinly veiled reasons were given for seldom or never using such materials in training programs; (10) there has been meager study of the audio-visual literature by business and industrial training personnel; (11) there were few constructive and forward-looking plans revealed for the future use of audio-visual materials in training; (12) a broad, comprehensive educational program is needed to apprise the business and industrial trainers of the values, techniques, costs, and availability of audio-visual materials and devices for training; (13) methods will need to be devised for disseminating information about current and ever-changing audio-visual aids and techniques to business and industrial trainers; and (14) the Audio-Visual Utilization Center of Wayne State University can assume many roles to help to fill the many audio-visual educational, informational, and service requirements of training units in the business and industrial concerns of Detroit.

Thus, this study revealed needs and problems in the use of audio-visual materials in the training programs of Detroit business and industrial concerns, and provides directional guidelines for programs of the Audio-Visual Utilization Center of Wayne State University which will help to overcome these needs and problems.

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CHAPTER I

INTRODUCTION AND BACKGROUND OF THE STUDY

Located in the heart of one of the great business and industrial centers of the world, Wayne State University is inescapably caught in the web of operation, activity, and need of this important segment of the community. The University has never cloistered itself in an ivory tower, oblivious to the requirements of the dynamic elements of metropolitan Detroit. Surrounded by these forces, the individuals, departments and colleges of the University have constantly been called upon by business and industrial companies for help, guidance and counsel. It may be said that virtually all segments of the University are engaged in some activity which is directly related to the needs of business and industry in metropolitan Detroit. As a consequence, the University is constantly alert to the training needs and services which should be provided to these community groups.

This alertness and concern for the needs of business and industry was stated as early as 1946 by Dr. David D. Henry, then President of the University:

> The story of cooperation between Wayne State University and the vast business and industrial interests of the Detroit metropolitan area is a story of the unified efforts

> of the whole University. It involves more than a thousand full-time and part-time faculty members, all of whom are experts in one or more phases of community activity. It is marked by the application to the complicated and necessarily practical problems of business and industry of all that goes on in the Colleges of Liberal Arts, Medicine, Nursing, Law, Education, Engineering, and Pharmacy, and the Schools of General Studies, Public Affairs and Social Work, Occupational Health, and Business Administration, as well as the Graduate School. The kinds of cooperation are nearly as various as the needs of an individual business or industry because such needs can be met only as they arise as individual problems. [1]

NEED FOR THE STUDY

The need for this study, therefore, springs directly from this interest and concern of Wayne State University to serve the business and industrial operations of this metropolitan area.

For a number of years, various administrative officers of Wayne State University have been giving some consideration to the need for the establishment of a professional service program under the ministration of the Audio-Visual Center of the University. This service program would be designed to meet the needs of industry and business in the effective utilization of audio-visual materials and devices for training purposes. One of the major obstacles to the establishment of such a service unit, however, has been the lack of concrete and factual information concerning the needs and requirements of such a program. A

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[1] David D. Henry, Wayne University in Cooperation with Business and Industry (Detroit, Michigan: Wayne University, 1946), p. 11.

thorough search of the literature indicates a lack of facts relevant to the use of audio-visual materials, equipment and techniques in the training programs of business and industrial concerns of Detroit. Without such information, it would be impossible to design and implement a program with proper direction at the University.

In assessing the need for this study, counsel was taken with people, who because of their educational and business backgrounds and wide range of experience were able and qualified to know of the need for such a study. The following individuals have been interviewed and have indicated that this research study is sorely needed and that the results of this study will have a direct and positive effect upon the training programs of the business and industrial concerns of metropolitan Detroit: the late Dr. Clarence B. Hilberry, then President of Wayne State University; Dean Walter C. Folley of the Wayne State University School of Business Administration and formerly a Director of Training for the Ford Motor Company; the late Dr. Preston H. Scott of Wayne State University who served for many years as educational consultant to the Ford Motor Company and the Chrysler Corporation, and who for many years had a long and varied experience in the training programs of other business and industrial concerns; Professor Robert S. Jones, Chairman of the Industrial Engineering Department at Wayne State University; Mr. Ray B. Helser, Florez, Incorporated, and a past member of the Board of Directors of the Michigan Training Council; Mr. Stanley Puddiford,

Michigan Bell Telephone Company, Past President of the Industrial Film Producers Association; and Dr. J. J. McPherson now Chief, New Educational Media Branch of the U. S. Office of Education and former Executive Secretary, Department of Audio-Visual Instruction of the National Education Association. These formal interviews, coupled with many informal discussions with colleagues in the audio-visual field and in training activities in industry, have pointed up the need for this study and have helped to reveal the significance of such a study to business and industry and to Wayne State University.

In today's highly competitive business and industrial world some of the keys for economic survival lie in the performance of well trained personnel utilizing to full capacity the technological tools which are at their disposal. Competition is severe and intense, necessitating the most efficient use of manpower, equipment and materials. Further, the businessman is faced with many fixed or rising costs which he is unable to control. The basic wage pattern, for instance, is set and fixed through a union contract. Material costs, too, are basically beyond his control and seem to be in a constantly rising spiral as are the labor costs. The primary sources for meeting competition thus lie in increased productivity as a result of technological improvements in equipment and in more effective training of the manpower working with the equipment. Great strides have been made in recent years in the revolutionary development of equipment and devices, but there is little

evidence of comparable results in the training of men and women to work with the automated technological equipment marvels which now exist. New equipment requires new knowledge, skills, and techniques to enable the realization of the full potential of the equipment. Even the daily newspaper proclaims the need for training and re-training in the business and industrial world of today.

In spite of the amount of training being done and the widespread awareness of the need for training, however, as indicated earlier, there is little evidence of the effective utilization of audio-visual materials in the training process.

This study should be highly significant, therefore, to Detroit business and industrial leaders by first providing an assessment of the current use of audio-visual materials, equipment and techniques by their counterparts in the Detroit area. Second, the study will provide for the first time to Wayne State University some authoritative guidelines to enable the accurate detailing of a specific program geared to the needs of this segment of the University's constituency. Third, the inventorying of current possession, current use, current attitudes and future plans toward audio-visual materials for training purposes will be most useful for future planning to instructional materials producers, audio-visual equipment manufacturers and distributors, and to training specialists. Fourth, it is hoped that the study will help to educate Detroit business and industrial trainers, in a sense, to the existence of certain materials

and devices and, thus, to stimulate the use of the materials and devices in their training programs. Finally, if a proper program is planned, established, and is then utilized by business and industrial concerns, there could be an improvement of instruction which will be more economical and efficient for the business and industrial concerns of Detroit.

STATEMENT OF THE PROBLEM

The purpose of this study is to determine the current use, the ownership, and the future plans for the use of audio-visual materials and devices in the training programs of selected business and industrial concerns of metropolitan Detroit.

Accepted statistical practices and procedures will be followed in the development of a questionnaire, in the definition of the population to be studied and in the determination of an adequate sample from the population.

A questionnaire will be devised in accordance with the recommended methods for structuring such an instrument. The draft of the questionnaire will then be answered by a number of people in business and industry as a pilot study of the questionnaire. The responses to this pilot study coupled with personal interviews with the respondents will lead to the revision of the questionnaire into a form which is functional and practical.

The population to be studied is the list of the business concerns which make up the membership of the Greater Detroit Board of

Commerce.

As a part of the statistical procedure, a pilot study of the group will then be made to determine the random sampling variance of the population.

Then, according to the design evolved, the questionnaires will be sent to the selected samples of the population.

Upon the return of the questionnaires, the responses to each question will be carefully tabulated and organized for study and appraisal.

From these data, conclusions and recommendations will be drawn concerning the present and future uses of audio-visual materials and devices in training within the population. Further, such study should reveal the audio-visual needs of business and industrial training. It is also anticipated that information would then be available to determine and recommend the support functions which could fulfill these needs, and which of these functions could be provided through the services of the Audio-Visual Utilization Center of Wayne State University.

HYPOTHESES

As the result of this study affirmation is expected for the following hypotheses:

1. Even though the public is constantly bombarded by their expensive audio-visual advertising and public relations presentations on radio and televison, business and industry recognizes little value for such materials for training purposes.

2. Inadequate use is made of audio-visual instructional

materials and devices in the training programs of the population.

3. The business and industrial community is poorly informed about the audio-visual materials and devices available for their use in training.

4. The business concerns own and rent few audio-visual materials and equipment for training.

5. Professionally-trained audio-visual specialists are seldom used in the industrial training setting.

6. The business training departments do not know of, and do not use the many sources for audio-visual instructional materials.

7. Few audio-visual materials are prepared by business concerns for use in training.

8. Training departments are inadequately budgeted for the preparation, ownership, and rental of audio-visual equipment and materials.

9. Because of limited knowledge of the audio-visual field, thinly veiled reasons will be posed for not making more use of audio-visual materials.

10. There has been meager study of the audio-visual literature by business and industrial training personnel.

11. There will be few constructive and forward-looking plans revealed for the future use of audio-visual materials in training.

12. A broad, comprehensive educational program is needed to apprise the business and industrial trainers of the values, techniques, costs, and availability of audio-visual materials and devices for training.

13. Methods will need to be devised for disseminating current and ever-changing audio-visual aids and techniques to business and industrial trainers.

14. The Audio-Visual Utilization Center of Wayne State

> University can assume many roles to help to fill the many audio-visual educational, informational, and service requirements of training units in the business and industrial concerns of Detroit.

ASSUMPTIONS UNDERLYING THE STUDY

This study begins with the broad assumption that the business and industrial concerns of Detroit must engage in some kind of training, formalized or otherwise. There are probably many purposes for training, including the following: to introduce new knowledge and new skills, to develop and/or change attitudes, to review knowledge and skills, and to practice or test knowledge and skills. Beyond these broad and generalized objectives, competitive companies have some very realistic motivations for training, as indicated by P. R. Jordan:

> Properly trained employees can not only produce more from the same machine, but also can reduce costs for maintenance and prolong the life of the equipment being used. More and more firms today are turning to programs of employer training for the most effective use of their equipment to increase production and cut operating expenses. [2]

There is apparently concern, too, for the necessity of continued training for the skilled and competently trained worker; in an effort to enable the individual to keep up with the latest trends and developments:

> Company management has been increasingly aware of consequences of technical obsolescence and the need for refresher training for older employees who up to now have been largely neglected.

---

[2] P. R. Jordan, "Employee Training is Good Investment," Foundry, XC (1962), 86-87.

> Massachusetts Institute of Technology and the University of Michigan have the largest number of courses for older employees. Another method that is becoming increasingly popular is to invite university professors to teach a one or two-week course at the company plant . . . .
> . . . . . .
> In short, to assure that all our scientists and engineers are operating at peak efficiency will require a major educational effort. However, if we can achieve cooperation between industrial leaders and the talent available in the universities, we can go a long way toward meeting this challenge.[3]

One may assume, therefore, that business and industry in Detroit is confronted with the task of training.

A second broad assumption is that the effective use of audio-visual materials will assist in the improvement of the efficiency and quality of the training programs conducted by business and industry. The values of the various audio-visual media have been well demonstrated by much research over the years. A portrayal of the specific values of audio-visual media will be made in a later portion of this study, but some generalized attributes need to be arrayed at this time.

Charles F. Hoban, James D. Finn, and Edgar Dale have found that audio-visual materials, when properly used in the teaching situation, can accomplish the following:

1. They supply a concrete basis for conceptual thinking and hence reduce meaningless word responses of students.

2. They have a high degree of interests for students.

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[3]M. R. Knegel, "Attacking Employee Obsolescence—Industry Turns Teacher," Chemical Engineering, L (1963), 134.

3. They make learning more permanent.

4. They offer a reality of experience which stimulates self-activity on the part of pupils.

5. They develop a continuity of thought; this is especially true of motion pictures.

6. They contribute to growth of meaning and hence to vocabulary development.

7. They provide experiences not easily obtained through other materials and contribute to the efficiency, depth, and variety of learning. [4]

From industry itself, we have this general testimonial in regard to the use of audio-visual materials in the training program:

> A-v aids represent the oldest method of imparting ideas. Regardless of the type of training, whether it be a job training, apprentice, sales, orientations, or supervisory training, a-v aids can improve its effectiveness. Their effectiveness was proven in battle action where "know how" means survival. [5]

Even more outspoken, and sounding as enthusiastic as a professional from the audio-visual field, is this statement from the railroad industry:

> Our jobs as mechanical supervisors are to create economical operations by the use of such facilities as may be available and must be directed toward successful utilization of the most creative methods of training personnel. Every individual saddled with the responsibility that goes with supervisory positions daily utilizes various types of visual aids in directing employees engaged in maintenance operations.

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[4]Edgar Dale, Audio-Visual Methods in Teaching (New York: The Dryden Press, 1954), p. 65.

[5]L. W. Lerda, "A-V Aids in Industrial Training," Personnel Journal, XXVIII (1950), 329.

> Looking ahead—utilizing visual aids to convey information enables average personnel to gain and absorb, in a given time, at least 35 per cent more factual details of a complex mechanism of more importance, is the ability of personnel to retain a much greater percentage of such information when compared to a traditional or ordinary method of instruction.[6]

The above references support, then, the basic assumption that the effective use of audio-visual materials in the training process will improve the efficiency and the quality of the training program.

Another basic assumption is that Wayne State University would be able to assist business and industry in the effective use of audio-visual materials and techniques in their training programs. At Wayne State University, as with most or all major universities, there exists a prime resource for the use of business and industry in the professionally trained personnel, experience, equipment, teaching ability, and library and research collections. These are all part of the academic milieu which is usually not present in the business and industrial setting. In speaking of the role of a university in research, technology and the advancement of knowledge, Dr. Ralph A. Sawyer of the University of Michigan has described these attributes of a university in a very clear and concise manner:

> Less dramatic but just as important to the success of a research-based technology is the gradual piecing together of a large body of data, interpretations, and insights in particular areas of study. It is a steady, unspectacular advancement toward greater mastery of both

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[6]"Visual Aids Fit Today's Training Needs," Railway, Locomotive, and Cars, CXXX (1956), 73-74.

> theoretical and practical problems that a university makes perhaps its most significant research contribution. Nowhere else do persons of such varied backgrounds, special talents, and interests unite to face the common challenge of some great problem.
>
> Research at the university is valuable not only for results such as those discussed above, but also for the direct and indirect benefits that accrue to the nearby industrial community. [7]

Wayne State University has comparable benefits, and more specifically, the Audio-Visual Utilization Center of the University has resources which could and should be used by the business and industrial community. It is true that certain activities will need to be added, others strengthened, and different direction given to some aspects, but the basic potential for assistance exists, untapped and largely unused by our business and industrial constituents. One may assume, with a great deal of assurance, that the resources of the University and the Center could be most valuable in the training programs of business and industrial concerns of Detroit.

A further, and concluding assumption is that there are materials, equipment and techniques which are available for use in business and industrial training programs.

Any person working in the audio-visual field knows of the thousands of materials which exist and which are available for use. Any good text-book such as Thomas and Swarthout's, Integrated Teaching

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[7] R. A. Sawyer, "University of Michigan," Industrial Research, V (1963), 52-53.

Materials,[8] will list many sources for such items. In this textbook, for instance, seven single-spaced pages are given over to the listing of sources for materials. This same type of information is available for equipment, the preparation of materials, and techniques for the use of such materials. A perusal of Kinder and McClusky's, The Audio-Visual Reader,[9] points up and illustrates the vast amount of information concerning techniques, media, and research currently available.

An additional indication of the availability of materials for training is the existence of literally thousands of film libraries throughout the nation. The U. S. Office of Education periodically publishes a list of such sources classified by state and community in A Directory of 16mm Film Libraries.[10] The last issue of this publication listed 3660 sources for the procurement of audio-visual materials. Even though these agencies do distribute excellent teaching materials, business and industrial concerns, in the main, are apparently oblivious of their resources.

These, then, are the broad general assumptions which underlie this study. The task will be to discover most explicitly and specifically what Detroit business and industry is utilizing at this point in time, and

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[8]R. M. Thomas and S. G. Swarthout, Integrated Teaching Materials (New York: Longman, Green and Co., Inc., 1960) pp. 512-23.

[9]J. S. Kinder and F. D. McClusky, The Audio-Visual Reader (Dubuque, Iowa: W. C. Brown Company, 1954).

[10]S. Reid, A. Carpenter, and A. R. Daugherty, A Directory of 3660 16mm Film Libraries (Washington: U. S. Government Printing Office, 1959.

the requirements for the future in the area of audio-visual materials and techniques. Then, this information must be related to the program of the Audio-Visual Utilization Center of Wayne State University to meet these needs and requirements.

DEFINITION OF TERMS

In order to insure the understanding of terms and phrases used in this study, the pertinent terminology is defined below.

A good starting point is a definition of audio-visual instruction. The basic definition, perhaps, is one provided by McClusky:

> What is Audio-Visual Instruction? In a technical sense audio-visual instruction is a term used to designate an extensive variety of devices such as motion pictures, slides, transcriptions, the radio, recordings, and slide-films which are used by teachers to transmit ideas and experiences through the eye and ear. However, in school practice, the term audio-visual instruction has taken on a broader meaning. In addition to the teaching materials listed in the previous sentence, audio-visual instruction includes the use of charts, diagrams, field trips, models, exhibits, mock-ups, demonstrations, posters, stereographs, objects, specimens, blackboard sketches, the bulletin board, etc. The chief distinction between audio-visual instruction and other forms of instructional techniques is a matter of emphasis. Audio-visual instruction emphasizes the value of concrete or non-verbal experiences in the learning process, whereas other forms of instruction stress verbal or symbolic experience. [11]

Noel also has a definition of the term, audio-visual instruction, which serves to reinforce McClusky's terminology.

---

[11] F. D. McCluskey, Audio-Visual Teaching Techniques (Dubuque, Iowa: W. C. Brown Company, 1949) p. 1.

> Audio-visual education refers to the carefully planned and integrated use in instruction of motion pictures, slides, filmstrips, steroscopes, study prints, micro projectors, radio, recordings, posters, maps, charts, graphs, exhibits, objects, models, field trips, and synthetic training devices. But audio-visual education must not be considered simply a matter of materials or techniques or a new way of teaching the same thing. The dynamic nature of the aids themselves, their content, organization and manner of presentation—make them potential means of presenting the new patterns of life rooted in scientific discoveries and technological advances as a means of securing the cooperation in thought and behavior so essential to order, progress, and peace.[12]

It is essential to clarify, too, some of the terms used in the above two definitions and still other terms which will be used later in the study:

> Cardboard Charts: A simple term to describe charts made on sheets of stiff material—usually cardboard.[13]

> Closed Circuit TV: A television system which limits distribution of an image to those receivers which are directly connected to the origination point by coaxial cable or microwave link.[14]

> Continuous Loop: Two open ends of a short length of film—five or six feet—spliced and threaded into a projector and presented over and over. A longer loop with running time of several minutes or more requires a special projector or adapter so that the film will be rewound automatically as it comes through the projectors.[15]

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[12]F. W. Noel, "What is Audio-Visual Education," California Schools, XVI (1945), 142.

[13]J. DeJen, Visual Presentation Handbook for Business and Industry (St. Petersburg, Florida: Oravisual Co., Inc. 1959), p. 10.

[14]D. P. Ely, "The Changing Role of the Audiovisual Process in Education: A Definition and a Glossary of Related Terms," Audio Visual Communication Review, Supplement 6, January 1963, p. 40.

[15]Ibid., p. 43.

Flannelboards or Feltboards: A flannelboard is a board made of plywood, masonite, celotex, heavy cardboard, or other boardlike material covered with felt, flannel, suede, or other cloth with a rough or "nappy" surface. Letters, symbols, and pictures cut from paper are then backed with a similar material; they can be placed on the board and will adhere to the surface. [16]

Filmstrip (also called strip film and slide film): A length of 35mm or 16mm film containing a succession of still pictures intended for projection one at a time in the same way as slides are shown. Some filmstrips are equipped with a tape or a recording that contains not only the narration but also a subsonic signal that activates a solenoid to advance the filmstrip to the next picture on cue. [17]

Flip Charts: An integrated easel graphic presentation of separate sheets hinged together so that they may be flipped over the top of the unit into or out of view with progress in the presentation. They are most useful for tabletop presentation rather than for large audiences. [18]

Models: A model is a representation of reality in that it has height, depth, and breadth and usually is constructed to a scale. Thus a model virtually becomes a sort of "scale substitute" for the real object. There are three types of models: Scale model, diorama and cutaway. [19]

Motion Pictures: A motion picture film is a device for creating the optical illusion of motion. Each film is a series of still pictures, each of which shows a person or object in a slightly different position. Each picture in the series appears on the screen for a fraction of a second before it is replaced by the next picture. This process of change from one picture to the next is so rapid that the human eye cannot distinguish between the

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[16] A. J. F. Cross and I. Cypher, Audio-Visual Education (New York: Thomas Y. Crowell Co., 1961), p. 163.

[17] Ely, op. cit., p. 50.

[18] Ely, op. cit., p. 142.

[19] Cross and Cypher, op. cit., p. 194.

separate pictures and as a result views the continuous series of still pictures as if it were a continuing picture in motion. [20]

Overhead Transparencies: Transparencies for use with overhead projectors may be photographic copies of pictures, maps, drawings, and the like, or they may be handmade by drawing or typing on special transparent materials provided for this purpose, or they may be made by a combination of these two processes. [21]

Program: A sequence of carefully constructed items leading the student to mastery of a subject with minimal error. The distinguishing characteristic of programed materials is the testing procedure to which they are subjected. Empirical evidence of the effectiveness of each teaching sequence is obtainable from the performance records of students. [22]

Programed Instruction: The utilization of programed materials to achieve educational objectives. Synonymous with auto-instruction, automated teaching, etc. [23]

Slides: A slide is a picture photographed, drawn, or otherwise reproduced in a transparent material and mounted for us in a slide projector. The size of slides has two types: 2" x 2" and 3-1/4" x 4". [24]

Tape Recordings: An acetate or plastic ribbon coated on one surface with tiny iron oxide particles. The 1/4" width tape is ordinarily employed to record auto magnetically for subsequent reproduction. [25]

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[20] Cross and Cypher, op. cit., p. 46.

[21] Cross and Cypher, op. cit., p. 85.

[22] Ely, op. cit., p. 64

[23] Ely, loc. cit.

[24] Cross and Cypher, op. cit., p. 74.

[25] Ely, op. cit., p. 115.

Tape Recorder: A tape unit, sometimes called a recorder or reproducer, which can record and play back. It contains recording and playback amplifiers and heads. The heads may be full-track, half-track, dual-track, or quarter-track.[26]

OVERVIEW OF THE STUDY

In this chapter an attempt has been made to establish the need and the significance of the study, together with the depiction of essential background information which is necessary for the understanding of the study. In thc next chapter will be reported the information gleaned from a detailed search of the literature. Chapter III will be devoted to a precise description of the design and procedures followed in the study. Following this chapter will be chapters devoted to the presentation and analysis of data. The final chapter will summarize the data and present conclusions, recommendations and implications for future research.

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[26] Ely, op. cit., p. 66.

CHAPTER II

SEARCH OF THE LITERATURE

It was essential in the initial phases of this study to make a complete and detailed examination of the literature to determine the existence of other comparable or applicable studies which might have some influence upon the research. A thorough search of the literature, however, indicates a void of facts relevant to the use of audio-visual materials and equipment in the training programs of business and industrial concerns of Detroit. This search of the literature sought to determine: (1) related studies; (2) how audio-visual materials and equipment are used in business and industrial training programs; (3) the needs of such companies in the area of audio-visual services; (4) existing college or university audio-visual service programs for business and industry; (5) the value of audio-visual materials and devices for training purposes in business and industry; (6) the obstacles which restrict the use of such materials in the industrial setting; and (7) how a university could help most in providing audio-visual services and facilities to business and industrial concerns.

Although many articles, books, and reports have been reviewed, it was necessary to search diligently for materials which had any

pertinency to the above topics. Reader's Guide to Periodical Literature and Education Index were perused. Doctoral Dissertations Accepted by American Universities was studied. Dissertation Abstracts was examined for any applicable studies. The early Phi Delta Kappan lists of dissertations being written in education were carefully searched. The Industrial Arts Index prior to 1958 and the successors to this index, The Business Periodical Index and The Applied Science and Technology Index were consulted. Examined also were the Labor-Personnel Index and Employment Relations Abstracts of Information Service, Inc. The Encyclopedia of Educational Research and the Review of Educational Research were sought out and searched for pertinent information. The first and second issues and the annual supplements of Research Studies in Education: A Subject Index of Doctoral Dissertations, Reports, and Field Studies were also probed. F. Dean McClusky's The A-V Bibliography was consulted for helpful resources. In addition, a special study entitled A Bibliography of Bibliographies Dealing with Audio-Visual Education, 1952-58 was secured from Ohio State University and studied for possible clues and information related to the topic. The fall issues of 1956 and 1958 of Audio-Visual Communication Review which cover all titles of dissertations in the audio-visual field were carefully scrutinized.

Although some information obtained from all of these resources will be quoted in various sections of this study, parallel or related

studies were not found and are apparently non-existent. From this study of the literature, too, the obvious need for this research was verified and was made even more essential.

From the literature was obtained some indication of information, activity, interest, case histories, and other types of reports of the utilization of audio-visual materials, equipment or techniques in the business and industrial setting. From the references previously cited and from readings in other sources, it has been possible to array some indication of the utilization of audio-visual materials in the training programs in various parts of the United States. A report of this information follows.

Reports of General Values

As a point of departure, first, some indications are provided of the use of audio-visual educational or communicational materials and techniques in the world of business and industry. As an initial step, however, it is important to provide this very recent definition of what is meant by audio-visual communication.

> Audiovisual communications is that branch of educational theory and practice concerned primarily with the design and use of messages which control the learning process.
>
> It undertakes: (a) the study of the unique and relative strengths and weaknesses of both pictorial and nonrepresentational messages which may be employed in the learning process for any purpose; and (b) the structuring and systematizing of messages by men and instruments in an educational environment. These under-

> takings include the planning, production, selection, management, and utilization of both components and entire instructional systems.
>
> Its practical goal is the efficient utilization of every method and medium of communication which can contribute to the development of the learner's full potential. [1]

This definition, then provides us with a framework against which we can provide referential information from business and industry. (It is interesting to note, too, that the above definition fuses the words audio and visual together into one word. This has been a trend in the last two or three years.)

First, we know, of course, that training is being done by business and industry of all sizes not only in the Detroit area but throughout the nation. Two references should serve to demonstrate the variety and vastness of the training programs currently being undertaken by business and industry. From the U. S. Department of Health, Education, and Welfare:

> In the United States, sponsorship of adult education is not confined to public agencies or to agencies, institutions, or organizations whose primary objectives are educational. Significant contributions to the education of adults are provided by a variety of nonpublic groups. Business and industrial firms have for many years provided specific training for many of their employees to assure greater production and to upgrade their personnel. More recently, programs of an educational nature have

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[1]Donald P. Ely, "The Changing Role of the Audiovisual Process in Education: A Definition and a Glossary of Related Terms," Audio-visual Communication Review, II (1963), 18-19.

> been developed for executives and other management personnel. Some of the newer approaches in training provided by business and industrial firms are: non-specialized liberal education for future top executives whose former training was technical and specialized; general education for all classes of employees; recreational skills development; and educational programs for families of the employees. [2]

Similarly the size of this task of training is indicated by H. W. Gelman:

> U. S. Industry estimates that in the coming year it will spend roughly one billion dollars to train some 800,000 employees. [3]

A careful search of the literature did not reveal any recognition of the values of audio-visual materials and devices for training purposes by Detroit business and industrial concerns. However, there are many statements of recognized values from businesses throughout other parts of the United States. A few of these statements concerning the value of such materials for training are given below.

> Audio-visual aids represent the oldest method of imparting ideas. In job training, apprentice, sales, orientation, or supervisory training, a-v aids can improve its effectiveness. The recent war demonstrated this .....
> .....
>
> When direct, actual experience cannot be provided,

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[2] U. S. Department of Health, Education, and Welfare, Education in the United States of America (Washington: U. S. Government Printing Office, 1962), pp. 108-9.

[3] H. W. Gelman, "An A-V Aid with a Built-In Response." 1963 Film and Audio-Visual Annual (New York: United Business Publications, 1963), 12.

a-v aids become especially useful. The appeal of a-v aids to learners lies in their ability to:

1. Create a sense of experience.
2. Provide a feeling of newness and freshness of material.
3. Develop emotional appeal.
4. Combine new, past and meaningful experiences.
5. Give learners a feeling of personal achievement. [4]

Henry Nozet has presented the general values of audio-visual aids in this fashion:

1. General Education of Apprentices
   a. They are suitable for awakening interest of the audience.
   b. They may clarify the explanation of certain concepts or of certain evolutionary processes.
   c. They ensure that the knowledge acquired will be better retained.
2. Specialized Training of Adults
   a. A-v aids help to do a better job. [5]

Another summarization by L. C. Smith is:

Carefully selected and properly used visual aids will aid a training program in the following ways:

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[4]Louis W. Lerda, "A-V Aids in Industrial Training, "Personnel Journal, XXVIII (1950), 329-31.

[5]Henry Nozet, "A-V Aids and Vocational Training," International Labor Review, LXVI (1952), 338-53.

1. save time; 2. increase retention; 3. hold interest; 4. provide more accurate learning. [6]

Finally, even more succinctly:

> A-v indoctrination—the most informative and most effective way of indoctrinating workers. [7]

There are many other such statements in the literature which reflect the general values of audio-visual materials as they are recognized by industrial trainers throughout the nation. These few examples however, should be sufficient to illustrate the point that business concerns do value these materials for training use even though the literature shows no such indication by Detroit business concerns.

In reading and appraising the above statements and the reports which are to follow, one needs to realize that these are not testimonials from audio-visual promoters or protagonists, but are instead expressions from business and industrial people who are busily engaged in training activities throughout the country.

Reports of General Uses

Exploring how audio-visual materials are used in business and industrial training, one discovers a tremendous variety of uses made by

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[6] L. C. Smith, "Plan Your Message—Pick Your Medium." National Safety News, LXXV (1957), 24-5.

[7] Walter Von Peckmann, "Indoctrination of Chemical Workers," Industrial and Engineering Chemistry, XLIV (1952), Supplement 97a-100a.

companies of every conceivable description. Here again, however, there is no report of such uses by Detroit-based companies. To illustrate the variety of uses made by the variety of companies, the following examples are offered.

> Communication by way of a-v channels in the general field of industrial and labor relations has been attempted by union, management and other groups. Many of the materials produced and distributed by the union and management groups have represented efforts to describe their particular points of view toward problems with which they were concerned at a given time. Thus there are a-v items in the field of economics and sociology which present the points of view of various union and management groups. [8]

And now this report of uses in the construction industry:

> Visual aids play an important part in any modern training program. Many aspects of works can be explained clearly through visual aids utilization. [9]

A statement from the petroleum industry:

> Visual aids are used as the company believes that inexpensive visual training aids are improving teaching techniques and saving time in training employees. [10]

An indication of audio-visual assistance in executive and supervisory training, also in the petroleum industry:

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[8] J. J. Jehring, "A-V Materials in Industrial and Labor Relations," Industrial and Labor Relations Review, III (1949), 80-98.

[9] N. E. Cornelins and O. C. Hinton, "Construction Training Aids," Public Works, LXXXVIII (1957), 100-40.

[10] H. Taylor, "Inexpensive Demonstrators Dramatize Sales, Practical Knowledge (Sohio's Training Plan)," National Petroleum News, XXXVIII (1946), 32-3.

> Visual aids and the conference method of instruction are key techniques of a greatly expanded employee training program at Standard Oil Company of Jersey.
>
> To put over messages through eye and ear simultaneously, the center uses an arresting display of visual aids equipment .....
> .....
>
> Motion pictures and slidefilms supplement instruction on subjects ranging from how to conduct a conference successfully to atomic composition of synthetic rubber. Charts, posters and other graphic training aids are used to explain more difficult points and to highlight the most important parts of the oral instruction. [11]

An illustration of the employment of instructional materials for the training of tractor operators in the paper and pulp industry:

> ..... it became apparent that these visual aids were the keynote to the success of such training. They also constitute a link between the manufacturers of tractors, their dealers and ourselves, in the role of customers; a link about which I shall have more to say later .....
> .....
> I refer not only to 16mm movie films and slidefilms, but also to charts, sketches, photographs, etc., which illustrate the mechanism of the machine. [12]

The relatively recently established atomic industry also looks to the assistance of audio-visual materials:

> Classroom Instruction——. In all the courses the instructors use moving picture films, film strips, slides, charts, and other visual aids. [13]

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[11] "Visual Aids in Executive Training for Standard Oil Supervisors and Technical Personnel," Factory Management, CV (1947), 75-6.

[12] A. N. Stewart, "The Use of Visual Aids in Training Tractor Operators," Pulp and Paper Magazine of Canada, XLIX (1948), 128-30.

[13] "Training for Craftsmanship at Oak Ridge," Mill and Factory, XLVI (1950), 125-9.

Some companies make audio-visual materials the core of their training programs, as demonstrated by this illustration from Pan-American Airways:

> It was claimed to be one of the largest single integrated sales attitude and training programs undertaken in any industry. A combination of human relations, job attitude development, technique training. The "textbooks" of the program are a series of fifteen motion pictures, ten sound slidefilms, four packaged easel presentations, and numerous case history recordings. Employees organized in groups of ten or twelve according to duties, study these aids together, and discuss them in relation to their own problems. [14]

In a few instances companies have correlated actual increases in production output to the results obtained through the use of audio-visual materials in their training programs. In an article which describes the use of an individual audio-visual system of slides with accompanying sound, the Huges Aircraft Company reports the following results in the training of people in intricate assembly operations.

> Production increases of about 50 per cent are claimed by most users of a-v systems. Defective circuits or defect per unit caused by incorrect wiring are decreased by at least an equal percentage.
>
> Several factors contribute to the increase in quality and quantity. Elimination of written instructions—prints or wiring lists—allows the worker to keep his attention more fully on the work, instead of constantly shifting his attention and eye-focus between instruction and work. [15]

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[14]Fan Shea, Jr., "Pan-American Airways Training Goes Hollywood," Aviation Week, LX (1954), 36.

[15]Thomas J. Griffin, Jr., "A-V System Step-Up Production," Electronics, XXXIV (1961), 78.

There is a report of use by another new kind of business—the aerospace industry. At their Fort Worth, Texas plant, General Dynamics Corporation utilizes audio-visual materials to help train employees in the production, maintenance, and repair of complex aerospace systems. They also report outstanding results through the aid of audio-visual materials in their training program.

> The a-v devices save time and money and result in higher quality work.....
> .....
>
> Another advantage: a psychological one—employees handle a job from start to finish, instead of repetitive steps on an assembly line.
>
> Training—the technique appears to significantly reduce training time for a new job. One study shows that an employee following written instructions for assembling a control panel reached peak efficiency after doing the job forty times. Equally experienced persons used the a-v system to attain the same proficiency after only four hours. [16]

Another reference tells of the gains from a similar audio-visual system used for production training:

> Basically, the videosonic unit tells the worker exactly how to do a job, while the production station makes it as easy as possible for him to do it. Other benefits from the combination range all the way from reduced learning time to consistently better product quality and reliability. [17]

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[16] "A-V System Speeds Up Proficiency," STEEL, CLI (1962), 25.

[17] Phieson L. Ahn, "Videosonic Work Stations Speed Training," Mill and Factory, LXIX (1961), 122.

Some writers foresee even more varied uses in the near future. We have already reported on illustrations of individual study through the use of audio-visual materials, but Martin predicts an expanded role in this direction within the next ten years.

> Audio-visuals must be viewed as devices which may effectively be employed between an instructor and a single student or prospect or even in a situation where the student learns alone as he might with a book.
>
> The next decade promises some exciting things for audio-visuals. Some of the first in sight will help bring technology to both employee training and product sales. As this happens a-v will not abandon its traditional role as mass communication media, but will rather expand its role to include individual communication. [18]

Such recognition of the general values and uses of audio-visual materials for training is not recent. This awareness is discovered in the literature dating from the middle 1940's, as illustrated by this report of an American Petroleum Institute Committee:

> There was also discovered a need for a medium for the dissemination of adequate information regarding audio-visual instructional material .....
> .....
> The interest in audio-visual instructional material is such that some media for disseminating adequate information in regard to available material should be developed and the work of the A. P. I. Training Committee in that field continued. [19]

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[18]Mahlon H. Martin, "Look for New Role for A-V in the 60's," Industrial Photography, II (1962), 19-21.

[19]James R. D. Eddy, "Initial Report on Training Practices in the Refineries of the U. S.," American Petroleum Institute Proceedings, XXVIII (1948), 62-4.

Through the illustrations given above we have ample evidence that many different kinds of business and industrial concerns are employing audio-visual materials for many different purposes in their training programs. Therefore, let us now turn to information concerning reported specific uses of specific audio-visual media for training purposes.

Specific Uses of Media

The section on definition of terms in Chapter I arrays quite clearly the various audio-visual materials which are available to business and industrial concerns for use in any training activity. Again, however, there was no evidence anywhere in the literature about what materials Detroit companies were employing in their training formats. For this reason we need to provide illustrations that companies elsewhere, however, are making specific uses of specific media. A few indications will be given for various media.

Charts and Felt Boards

Describing a training program at the Harrison, New Jersey plant of R. C. A. Tube Division:

> In this program they used charts such as flow process charts, flow diagrams, left and right hand charts, workplace areas, operation charts, and man and machine charts.[20]

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[20]Walter A. Hoffman, "Tailoring Training to Trainee in Work Simplification," Factory Management, CIV (1946), 120.

And this example of how charts are used in new employee induction programs:

> Here is how visual aids are used in a typical program to induct new workers into the company.
>
> After a brief talk welcoming the newcomers, charts come into play as the instructor explains the company's policies.[21]

A final illustration of using charts in training:

> Charts are effective means in training. They can be used over and over again, saving the instructor repeated work at the blackboard.[22]

The felt or flannel board has been used for many years in elementary school educational programs. From personal observations it is known that this medium has also been employed for training in the business and industrial world. In fact they employ the term "slap board" as terminology for the device. There is no indication in the literature, however, of any business uses in the Detroit area. For this reason the following illustration of use in business training is presented.

> This article is intended to present some thoughts concerning the development and use of the slap board based on five years of study and varied application in industrial and business supervisory and executive training programs.....
> .....

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[21]E. S. Howard, "Visual Aids Drive Home Points in Training Programs," Factory Management, CV (1947), 80-1.

[22]W. C. Van Cleaf, "Hints for Plant Men Who Teach," Factory Management, CVI (1948), 106-7.

> The slap board is an effective learning device because it assists people to conceptualize ideas; it is attention-getting and attention-keeping; and it provides an eye-catching interest-provoking summary of ideas.[23]

Models and Mock-Ups

In many visitations to Detroit manufacturing and industrial concerns over the last twenty years models and mock-ups in use in training programs have been seen. However, here again, the literature reflects nothing on the status of use in the training programs. Arrayed below, however, are examples of typical uses by business concerns elsewhere.

> Models — Models are often valuable in training, They may be working models or wooden dummies. They should show things that cannot be shown so well by diagrams or slides.[24]

> Miniature transformers and pole assemblies have simplified instruction of linemen for Gastonia (North Carolina) Water and Light Department. Using the working models, which look and act like their full-scale counterparts permits linemen to assimilate connection methods more rapidly and, thus, perform their work with less confusion fewer delays, and greater safety.[25]

Sylvania Electric Products, Incorporated uses models to demonstrate faulty workmanship to improve quality in the manufacturing of television receivers:

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[23]Otis Lipstren, "The Slap Board is for Adults Too!," Journal of American Society of Training Directors, XII (1958), 21-3.

[24]L. C. Morrow, Industrial Training and Testing (York, Pa.: The Maple Press Co., 1945), p. 81.

[25]Robert Van Sleen, "Card-Size Units Aid Training of Linemen," Electrical World, CXLIIX (1957), 54.

> For example, large scale mock-ups of TV parts and assemblies the workers made were used in demonstrating. TV sets were also used in comparison, let the workers know what happened to the wrongly made TV sets. [26]

A textile mill of 51,000 spindles had about 300 spinning-end breaks each ten minutes of operation. Using a model of a spindle, employees were trained to make quality repairs more quickly:

> A sample spindle called a "mock-up" is used in one large spindle room to train new employees how to repair an end break and to persuade experienced help to be more quality conscious .....
> .....
> By training operators to use the left hand, which is normally idle at the moment the right hand pieces the end, the overseer, using the mock-up; has developed an improved method of repairing end breaks. [27]

There is even reference to a company which manufacturers models and mock-ups for use in business and industrial training:

> John Koch its president has set up an elaborate establishment consisting of an engineering section, a photographic laboratory, woodworking, plastics, machine and paint shops, and offices, all of which are used in conjunction with the manufacture of portable animated photographic plywood models of various engineering designs used in any industry making the simplest device to the most complicated mechanism found in automobile, aircraft, oil refinery, or atom bomb fabrication. [28]

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[26]"Make It Right," Steel, CXXXVI (1955), 26.

[27]C. Mallard Browden, "It Pays to Spin for Quality," Textile World, ICVI (1946), 143-7.

[28]Oklahoma Firm Making Training Tools for Industry," Manufacturers Record, CXXII (1953), 39.

One last example should provide sufficient evidence that models and mock-ups are used in industrial training programs. This illustration describes a 250-employee basic electricity and regulator problem training course conducted by Ohio Edison Company:

> The most interesting aids used in the course are the working models and demonstrators. [29]

Slides

Although slides have been a part of the industrial training setting for many, many years, again there is no reflection in the literature of their use by Detroit businesses. To portray their specific uses in training in business establishments, however, the following references are offered.

In the training of retail salesmen in the electronics industry:

> Two slide projectors, simultaneously throwing images onto twin screens, have helped to emphasize products and sales training points for Magnavox.
>
> This way has been claimed a success by the company's regional and zone managers who took part in the training program. [30]

An illustration of the use of slides in training 6,000 Frisco Railroad employees in new operating rules and a second illustration of a

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[29]Dwight M. Tally, "Kit Aids Regulator Training," Electrical World, CXLIIX (1957), 95.

[30]Russell J. Weber, "Well Informed, Well Enthused," Industrial Photography, VIII (1959), 54.

safety program for another railroad:

> For this purpose without enough time to produce a film, the company selected 35mm colored slides accompanied by companion tape recordings that would explain the rules as they were flashed on the screen. [31]

> A safety program of the New York, Chicago and St. Louis Railroad Company was initiated with a packet of twenty slides by the safety staff of the company. [32]

This reference tells of the use of slides for training in the electrical industry:

> Projection slides of all pertinent text papers served to promote class interest and attention and facilitates verbal explanation. [33]

The tachistoscope is a slide projector which is equipped with a camera-like shutter which reveals the image on the screen for varying intervals of time. Most such units have settings for intervals of time as short as 1/100 of a second and are used for increasing perceptaul speed and accuracy in reading and clerical tasks. The following reference reports on this use of such slides for training:

> This is a statistically significant new way of increasing output without adding costly office space, desks, chairs, or other office equipment, and without hiring additional help. Tachistoscopic training appeals to appeals to employees because it makes their work

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[31] "Color Slides Speed Training Program." Industrial Photography, VII (1958), 30-1.

[32] R. C. Sabens, "Safety Highballs Along on Slides," Industrial Photography, IX (1960), 38.

[33] R. F. Synder, "Brief the Electrical Gang on the Newer Devices." Factory Management, CIV (1946), 162-3.

> easier and more pleasant, and to management because it increases production and improves accuracy.[34]

One final illustration of the fact that slides are being used for industrial training:

> Visual aids — 35mm slides and 16mm films, as well as blackboard diagrams and charts—made the job easy.[35]

Slidefilm

The story is the same for the use of slidefilms in Detroit industrial training programs — no report in the literature. Therefore, a number of references have been compiled to demonstrate the utilization of slidefilms by other industrial trainers.

A report of the use of slidefilms in the training programs of the S. S. Kresge Company in operating 742 chain stores across the country:

> Kresge has been using slidefilms as training aids fourteen years; moreover twenty-one different slidefilms have been produced.[36]

Armstrong Cork Company produced a series of slidefilms for use in supervisory training programs and reports these results from the use of the slidefilms:

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[34]James I. Brown, "Easing the Clerical Shortage with the Tachistoscope." Journal of the American Society of Training Directors, XII (1958), 31-7.

[35]R. W. Decker, "Getting Quick Results from Methods Training," Factory Management, CVII (1949), 78-83.

[36]"Slidefilm Training Program Saves Dollars and Cents for 'Five and Ten,'" Industrial Photography, IX (1960), 35.

> So conspicuously successful that it has attracted nationwide attention and is being used in whole or in part by many concerns other than its originator. [37]

There are many examples in the literature of the use of slidefilms for training retail salesmen and representatives. This example is typical of this training use in industry:

> G. E. puts four mystery programs on records and slidefilms to train retail salesmen. "Detective" teams analyze typical sales situations for clues to a "crime" of lost sales. Between case and results, the audience is prodded for solutions. [38]

An illustration of slidefilms in new employee orientation programs by a major utility company:

> ..... One of the best methods of passing on to the new employee an understanding of some of the policies of the company is by sound filmstrip. [39]

This reference points up a number of specific uses of slidefilms in industrial training programs:

> How should filmstrips be used? They are particularly suitable for vestibule instruction of new employees or apprentices. To train salesmen, service representatives and mechanics when static analyses of machinery or display are required. [40]

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[37] John J. Evans, Jr., "Sound Slidefilms Help Armstrong Cork Train Supervisors," Personnel Journal, XXIX (1950), 126-33.

[38] "Whodunit Tells How to Do It," Sales Management, LXXI (1953), 66.

[39] E. E. Jacobson, "Employee Training and Customer Relations," American Water Works Association Journal, XXXIX (1947), 464-6.

[40] W. R. Gordon, "Education in Industry," The Times Educational Supplement (New York), November 2, 1946, p. 53.

An example from the highway construction industry:

> As early as 1950, this division had settled on color filmstrips, with accompanying disc recordings, as the major series of training aids to supplement manuals, plans, specifications, and other available instructional material. [41]

This final example should provide sufficient evidence from the literature that slidefilms are used for training by industrial concerns:

> Highlights: Slide cartoon film with synchronized sound marks progressive step in improved methods for training operatives—instruction brought home by experiences of imaginary character, Morty McMote. [42]

Overhead Transparencies

Overhead transparencies are one of the more recently developed instructional materials. Such transparencies are inexpensive and easy to make with the same in-plant reproduction facilities used to make working drawings. Personal observations and discussions with salesmen who sell and distribute to industry the materials for working transparencies indicate that transparencies are made and used in training by Detroit concerns. However, again the literature reflects no use whatsoever of transparencies in Detroit business training units. The literature does indicate use in training by other businesses. In reporting on a study of the use of visual aids other than motion pictures

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[41] N. E. Cornelius and O. C. Hinton, "Construction Training Aids," Public Works, XXCIIX (1957), 140-1.

[42] "Training Film Dramatized Reasons for Card Room Waste," Textile World, XCVI (1946), 129.

used in retail training, Harry M. Hague has this report:

> The Overhead Projector. 50% of the participating stores owned overhead projecting transparency materials. [43]

The special attributes and techniques for training which are available through the polarization transparency materials are suitably recognized in this reference:

> Technamation technique of display and projection makes liquids flow, gases explode, gears rotate, electric currents pulse, etc., without any actual mechanical motion.
>
> The visamatic system allows backgrounds to fade in and out, areas of maps or portions of charts to appear gradually from nowhere and build up in intensity, specific areas of scenes to be highlighted as to change color. [44]

Douglas Aircraft Company reports upon their use of overhead transparencies in the training of their own personnel and the personnel of the more than forty airlines who have purchased Douglas aircraft:

> For this purpose of training the company developed a method of audio-visual instruction which can meet the special situation. The method must be highly effective, portable, versatile, and economical. Therefore, the overhead projection technique was used as the main training aid by the company. [45]

To support the extensiveness of this medium, Douglas Aircraft

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[43]Harry M. Hague, The Use of Training Films in Departments and Specialty Stores (Boston: Harvard University Press, 1948) pp. 127-33.

[44]"New Techniques Unveiled for A-V Display," Industrial Photography, VII (1958), 41.

[45]J. L. Allison, "Big Company—Big Training Job—Small Costs," Industrial Photography, IX (1960), 36-7.

Company reports these figures for the numbers of overhead transparency foils produced for training purposes:

33,000 in 1957.
51,000 in 1958.
71,000 in 1959.[46]

We can appreciate, then, that overhead transparencies are indeed being used in the training programs by business and industrial concerns.

Motion Pictures

The literature reflects dozens of illustrations of specific uses of motion pictures for business and industrial training. To demonstrate the many training uses, a sampling of such references will now be given.

First, a report on the results of a study of the use of motion pictures in the training of machine lathe operators:

> The data gathered in this study justify some confidence in the following statements:
>
> a. Insofar as their learning problems are similar to those of lathe trainees, time can be saved in the training periods of other types of machine operators through the use of motion pictures as learning aids.
>
> b. Films are even more effective in saving time in teaching more complicated skills and those in which a greater degree of precision is required, than they are in teaching less complicated and less exacting skills.
>
> c. A technique of film use involving careful timing and integration with other teaching, planned motivation, and evaluation in actual film presentation, and efficient

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[46] Ibid.

> unobtrusive manipulation of mechanical details is an effective method of visual teaching.[47]

Godfrey M. Elliott states a specific characteristic of the motion picture which makes it a valuable asset in industrial training:

> The film further provides a type of instructional material that fits into the adult learning pattern of the industrial worker in its ability to present a topic, technique, or sequence of movements as-a-whole.[48]

The specific uses made of industrial trainers according to Elliott are:

> Training programs for industrial workers vary from simple on-the-job manager-employee instructions, to rather extensive general, vocational, apprentice, job and institutional types of instruction. The film has found a place as an effective medium of instruction in all types of training.[49]

Harry M. Hague, in reporting on a study of the use of motion pictures for training in department and specialty stores, indicates the following specific uses of the motion picture in retail training:

1. To arouse emotions, such as a feeling of loyalty to the store or pride in a job.

2. To influence employee attitude regarding courteous treatment of customers.

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[47]Abraham W. Vander Meer, "The Economy of Time in Industrial Training—An Experimental Study of the Use of Sound Films in the Training of Lathe Operators," Journal of Educational Psychology, XXXVI (1945), 65-90.

[48]**Godfrey** M. Elliott, "The Film Trains Industrial Workers," Film and Education (New York: Philosophical Library, 1948), p. 285.

[49]Ibid., 289.

3. To provide basic background information, such as the characteristics of merchandise, how it should be used, handled, and cared for, its construction features, and other selling points.

4. For job instructions in both selling and non-selling categories.[50]

The Berkshire Life Insurance Company employs a continuous loop film for training salesmen. The film photographs faces of prospects stating objections to the purchase of life insurance. This scene is then followed by a period of silence during which time the sales trainee is to provide an answer. During the silent period the prospect on the screen looks directly at the trainee and a visible time bar indicates how long the trainee has to answer. The films are three to five minutes long, and being in loop form permit repetition for practice, experience, and the development of confidence. The company stressed the following advantages for this use of film in training:

1. The loop film technique calls for active participation by the trainee .....
.....

2. Being trained with loop films that talk back, the trainee gains the confidence he would gain with live prospects, without danger of making mistakes and losing prospects.

3. Since it employs spliced, endless loops this device permits continuous running of a film so that the trainee can work with a particular prospect as long as necessary with no rewinding or stopping and starting of the projector.

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[50]Hague, op. cit., p. 22.

> 4. One unique feature of the loop film technique is that an objection is stated by the particular prospect followed by a period of silence .....
> .....
> Thus the trainee is taught that he must say something, and with practice, he can become skillful in parrying, avoiding or turning objections to advantages. [51]

Another interesting use is that reported by the Illinois Central Railroad Company in training personnel in operating safety rules:

> Ninety-five specific items are covered in the film. All are taken from the current rules and regulations of the transportation department. They consist of two general notices, twenty-two definitions and seventy-one rules and regulations.
>
> A unique feature of the film is a sequence showing train operations through twenty-one miles of C. T. C. territory. [52]

Now, a final and summarizing statement, this report of specific uses of motion pictures for industrial training:

> Survival depends on progress. No organization—large or small—can afford to lag behind in the competitive race for scientific superiority. If your organization is large, films can provide simultaneous training throughout all of your plants—even nationwide or overseas. If your firm is small, you need to develop each engineer and technician to his fullest capacity. Sound films can help you accomplish this task because they are available on a wide range of subjects and in almost any degree of complexity. [53]

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[51] C. E. Ferrell, Jr., "How Talk-Back Film was Adopted for Training," Sales Management, LXXXI (1958), 40.

[52] "I. C. Moves Into Movies for Rules Training," Railway Age, CXLV (1958), 31.

[53] How Industry Profits From the Use of Sound Films (Plainview, Conn.: Victor Animatograph Corporation, 1958), p. 7.

Television

Both broadcast and closed-circuit television techniques have been utilized in industrial training. There is no reference of such uses in the Detroit area, but the following illustrations point up the specific uses by other business trainers.

The RCA-Victor Division of the Radio Corporation of America uses closed-circuit television in training workers to assemble intricate components. A close-up television camera is placed above an expert who does the assembly work. Each worker is equipped with a television receiver to enable him to watch the expert and follow his directions in the assembly work:

> The specialist assembled components under a closed-circuit television camera. It picked up every movement of his hands and tools, transmitted close-up views and local instructions to each of ten receivers. Step by step, workers reproduced the movements pictured on their screens.[54]

Ten companies in Cincinnati participated with Station WCET in utilizing broadcast television for industrial training:

> WCET presents a dramatized program dealing with management, supervisory, or special training situations, and beams it directly from the station's downtown studio to industrial audiences in plants scattered around the Cincinnati area .....
> .....
>
> Uberto T. Neeley, general manager of WCET says, "There is no limit to it. We can teach people to

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[54] "TV Shows Workers How," Factory Management, CXII (1955), 145.

> use a micrometer, run a lathe, read a blueprint—and all with one teacher.[55]

A commercial televison station in southern California in cooperation with the University of California has presented telecasts on engineering subjects:

> Companies in southern California have made it easy for engineers to continue their studies .....
> .....
>
> Lectures are given on TV right in plant classrooms. Students get credit if they pass examinations.....
> .....
>
> The students are 500 engineers in seven southern California companies.[56]

A similar broadcast plan was used in Schenectady, New York to teach secretarial practices to industrial employees in that geographical area.[57]

An advantage of the closed-circuit televison for training is outlined as follows by Edward M. Noll:

> As in the training of industrial employees, a television system can be used to transmit detailed instruction to the learners--in large or small groups—without upsetting normal activities.[58]

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[55]"Ed TV Makes a Pitch to Industry," Business Week, November 19, 1955, 70-2.

[56]R. R. Kay, "Engineers Learn By Viewing," Iron Age, CXXCV (1960), 45.

[57]Marion Wood, "We Taught Better Office Procedures by TV.," Business Education World, XXXX (1960), 18.

[58]Edward M. Noll, Closed-Circuit and Industrial Training (New York: The Macmillan Company, 1959), p. 18.

In evaluating the follow-the-leader televison technique previously described as being used by the R. C. A. Corporation, Mayers and Chipp make this statement:

> This technique was found to be more effective than direct demonstration because it permitted each trainee to look over the shoulder of the instructor, and to learn by doing at the same time as he learned by watching. [59]

This final illustration of a specific use of television in industrial training reports on the use of television in teaching collective bargaining techniques:

> One of the bargaining sessions was televised for about one and a half hours, and the telecast was transmitted to the main ballroom of the hotel where about 2,000 members of the American Management Association viewed the proceedings. Following this session, the bargaining committee and the union representatives appeared in the ballroom where details of the televised negotiations were discussed with the panel by the audience. [60]

Programed Learning

The newest of the audio-visual techniques available for industrial training are the self-instructional or programed learning materials and devices. There is ample evidence in the literature, however, that business and industry is rapidly finding specific values and uses of programed learning in their training programs. Though, again, there

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[59] M. A. Mayers and R. D. Chipp, Closed-Circuit Television Planning (New York: John F. Rider Publisher, Inc., 1957), p. 74.

[60] Ibid., p. 22.

is no indication of training uses in the Detroit area, the literature reflects many current and future uses in business training programs in other parts ot the country. Here are a number of such references.

> One of the most dramatic occurrences in industrial and business training has been the growth in less than six years of programmed instruction as a teaching methodology. In 1958, Holland and Skinner reported on their successful use of a learning program in psychology at the college level. By 1961, industrial trainers were discussing evolving principles and applications; by 1963, this had advanced to critical evaluation! Today there are a large number of companies utilizing programmed instruction in their training activities. Bibliographies of available commercial programs list dozens of sequences that have application to industrial and business needs, and several of the consultant firms have added programming capabilities to their list of services.[61]

The above statement summarizes how quickly industrial trainers have recognized the value of self-instructional materials and how quickly they have tried to apply the technique to their task of training. The following reference indicates a specific value of programed learning by industrial training:

> In industrial and military training it is often inconvenient to schedule students in groups, and individual instruction by machine should be a feasible alternative. Programs can also be constructed in subjects for which teachers are not available—for example, when new kinds of equipment must be explained to operators and repairmen or where a sweeping change in method finds teachers unprepared.[62]

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[61]Jerome P. Lysaught, "Selecting Instructional Programmers," Training Directors Journal, XVIII (1964), 8.

[62]B. F. Skinner, "Teaching Machines," Teaching Machines and Programmed Learning, ed. A. A. Lumsdaine and Robert Glaser (Washington, D. C.: National Education Association, 1960), p. 157.

L. H. O'Donnell makes this report of the use of programed instruction at Du Pont in the training of plant operators, maintenance personnel, and other employees:

> Summarized below are what appear to us to be the key advantages of programed instruction for industrial training:
>
> 1. Competent "instructors" (i. e. , programs) are always available.
> 2. An operating plant need take just one man off the job for training at one time.
> 3. As few as one man at a time can be given training, assuming the program is available.
> 4. "Fast" men can learn more in a given period of time.
> 5. "Slow" men can learn, if given the time to do so.
> 6. Industrial training can be accomplished at a lower cost with high effectiveness.[63]

Even though there is much research still being conducted relative to the basic effectiveness of programed learning materials, some companies are reporting great cost savings when such materials are utilized in training.

> The Sandia Corporation reports some cost figures on teaching by programed instruction. To teach Russian to their employees in conventional classes cost $57. 15 per completion; to teach it by programed instruction cost $20. 19. Algebra taught conventionally cost $20. 50 per

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[63]L. H. O'Donnell, "Training of Plant Operators and Maintenance Personnel," Programed Learning: A Critical Evaluation, ed. John L. Hughes (Chicago: Educational Methods, Inc. 1963), p. 125.

> completion. The cost to teach it by program was approximately the same for either way of teaching, but with programs the instructors could handle more students and got a higher percentage of completions.[64]

The Center for Programed Instruction reports that American industry and government have far outstripped United States schools in putting programed instructional materials to work--not only in total usage, but also in novel and creative uses of the techniques:

> In 1963, government and business contracted for an estimated two million dollars worth of custom programing from the five-year-old programing industry . . .
> . . . . . .
> By comparison with these figures, the total school sales were small. The American Textbook Publishers Institute reported that total sales of programed material in 1962 amounted to eighty-five thousand dollars.[65]

Reporting on a study of business use of programed learning of the Bell Laboratory, the Center indicates this amount of use:

> Their survey questionnaire went to 367 of the 500 largest companies in the country. Thirty-four per cent of the 258 companies which replied stated that they had used programed instruction by early 1963.[66]

Concerning specific uses reported in this study this report stated:

> The pattern of introduction of programed learning into a company varies. Many, perhaps most, companies have begun by trying out an off-the-shelf training program

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[64]Wilbur Schramm, Programed Instruction--Today and Tomorrow (New York: The Fund for the Advancement of Education, 1962), p. 50.

[65]"Instructional Technology in Industrial Training," Programed Instruction, III (1964), 4.

[66]Ibid.

> on a subject that is not compahy-specific, such as using the slide rule or beginning electronics.
>
> Other firms, recognizing a pressing training program, have plunged in with a large-scale tryout by contracting with one of the programing companies. Some companies, according to the Holt-Shoemaker survey, have tried developing their own in-house programing capability. [67]

A study was made in an industrial setting comparing the teaching of clerical skills. The methods compared were conventional instruction, programed text, and teaching machine instruction. Some of the reported results were:

> Both programmed methods saved a significant amount of time over the conventional method when the criterion was the achievement of a set level of learning. [68]

The above illustrations are sufficient to indicate the plunge which industry has already taken in the use of the programed learning techniques in their training programs. This final reference, however, will be given to illustrate the role which some foresee for programed learning in the next ten years in industrial training.

> Although programs will by no means replace all other forms of training now in use, they will be the dominant training mode in a great many technical and non-technical fields, and they will average over 200 per cent greater effectiveness in providing retention than standard class-textbook modes, while requiring less than

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[67] Ibid.

M. H. Goldberg, R. I. Dawson, and R. S. Barret, "Comparison of Programmed and Conventional Methods," Journal of Applied Psychology, XLIIX (1964), 110-4.

half the training time. When the chips are down, a program can be prepared which will teach 100 per cent of its audience.[69]

Summary

In this chapter an attempt has been made to report the literature as related to this study.

This examination of the literature revealed that information is non-existent about the on-going, past and future utilization of audio-visual materials in the training programs of Detroit business and industrial concerns.

An assessment has been given, however, of the recognized values for and reports about the general and specific uses of these materials in industrial training elsewhere.

This study of the literature has demonstrated the need to uncover, appraise and describe such uses in the Detroit area.

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[69]John Ball, Donald Lloyd, and Albert Croft, Training 1974: The Revolution in Learning, A Report to the Twenty-ninth Midyear Meeting of the American Petroleum Institute's Division of Refining, St. Louis, Missouri, May 11, 1964, (East Lansing, Michigan: Resources Development Corporation, 1964), 7.

CHAPTER III

DESIGN OF THE STUDY

This study utilized the questionnaire technique to gather the required data. This questionnaire was sent to a carefully designed stratified sample of the population. The rationale and the methodology in the design of the questionnaire and the sample will be described in this chapter.

The Questionnaire

The questionnaire technique was decided upon after consideration of other possible methods for gathering data. The study of the literature indicated quite clearly that the data did not exist in census volumes, in published or unpublished reports, in records and indices, or in other written documents. This eliminated the written record as a source of data. Depth personal interviews were also considered, but were rejected because of impracticability due to the large geographical area, time factors, and other similar logistical problems. The case study approach was also ruled out because this technique would not provide adequate application to the total population without adequate sample and there would be a real question whether this approach could provide sufficient data for comparative purposes. Observation was also decided to be

unsatisfactory for the purposes of the study. Therefore, after weighing the various alternatives, the questionnaire procedure was selected as the method for this research.

In developing the questionnaire the six guidelines set down by Arthur Korhauser for the construction of questionnaires were followed:

1. Deciding what information the study should seek.

2. Deciding what the questionnaire should cover and what type of questionnaire should be used.

3. First draft of the questionnaire.

4. Re-examination and revision of the questions.

5. Pretesting the questionnaire.

6. Editing the questionnaire and specifying procedures for its use. [1]

In fulfilling the first of the above steps, analytical consideration was given to the nature of the information which would be required to meet the needs of the study. This led to the second step of deciding what the questionnaire should cover. During this phase a list of required data and information was developed and appraisals were made about the types of questions which would be needed to elicit this information.

From this analysis the first draft of the questionnaire was structured. During this development, as each question was constructed,

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[1] Arthur Kornhauser, "Constructing Questionnaire and Interview Schedules," Research Methods in Social Relations, ed. Marie Jahoda, Morton Deutsch, and Stuart W. Cook (New York: Dryden Press, 1952), II, pp. 424-30.

a statement of the reason for the question was written at the side of the question. This was done to insure that the question was needed in the study and that the question did not unnecessarily duplicate other questions. In this first draft stage, the questions were placed on three by five inch cards to permit the easy arrangement and rearrangement of the sequence of the questions. When the questions were deemed to be in the best logical and psychological form, the first draft of the instrument was prepared.

In the re-examination and revision procedure, an effort was made to rethink the questions and to improve the format and appearance of the questionnaire. Other questionnaires prepared for use in similar research were examined for details and advantages which might be incorporated into the questionnaire for the research. Appraisals and suggestions concerning the questionnaire were sought from John R. Bates and Dean Joseph Hill of Wayne State University who have had extensive experience and success with this research method. Numerous changes and revisions suggested by them and other readers were incorporated into a draft questionnaire which was prepared for the pretesting procedure.

The pretest was conducted through personal interviews with a number of individuals in the business community. The purpose of the pretest was to discover how the questionnaire worked and whether changes were necessary before the start of the full-scale study. Such

appraisals and interviews were held with: Mr. Harry Todd, General Manager, John F. Ivory Company; Mr. Frank Fisher, Vice President, Detroit Bank and Trust Company; Mr. Frank Raphael, President, Jay-Are Paper Company; Mr. Charles Bonneau, Manufacturers Representative; Mr. Robert Sisson, Manager, Michigan Bell Telephone Company; Mr. George Toteff, Vice President, A. M. T. Corporation; Mr. Lyle Oviatt, District Manager, Firestone Tire and Rubber Company; Mr. William McRae, General Manager, Belcrest Hotel; and Mr. Charles Perry, Assistant General Manager, Jerry McCarthy Chevrolet Company.

This pretest procedure revealed that only minor revisions were required. The instrument could be satisfactorily administered to the respondents and the required data could be provided through its use.

The questionnaire was finally edited to insure that all of the elements in the instrument including the directions were satisfactory. The completed questionnaire is reproduced in Appendix A.

Before ending this description of methodology, it is important to note that direction and counsel was also taken from Kornhauser in the structuring of the questions used in the questionnaire. During the design, writing, evaluation and revision of the questions, constant referral was made to these questions posed by Dr. Kornhauser:

1. Is this question necessary? Just how will it be useful?
2. Are several questions needed on the subject matter of this question.

3. Do respondents have the information necessary to answer the question?

4. Does the question need to be more concrete, specific, and closely related to the respondent's personal experience?

5. Is the question content sufficiently general and free from spurious concreteness and specificity?

6. Is the question content biased or loaded in one direction—without accompanying questions to balance the emphasis?

7. Will the respondent give the information that is asked for?

8. Can the question be misunderstood? Does it contain difficult or unclear phraseology?

9. Does the question adequately express the alternatives in respect to the point asked about?

10. Is the question misleading by reason of unstated assumptions or unseen implications? Is the frame of reference clear and uniform for all respondents?

11. Is the wording biased?

12. Is the question wording likely to be objectionable to the respondent in any way?

13. Would a more personalized or less personalized wording of the question produce better results?

14. Can the question be better asked in a more direct or more indirect form?

15. Can the question best be asked in a form calling for check answer (or short answer of a word or two, or a number), free answer, or check answer with follow-up free answers?

16. If a check answer is used, which is the best type for this question— dichotomous, multiple choice ("cafeteria" question), or scale?

17. If a check list is used, does it cover adequately all the significant alternatives, without overlapping and in a defensible order, it is of reasonable length, and is the wording of items impartial and balanced?

18. Is the form of response easy, definite, uniform, and adequate for the purpose?

19. Is the answer to the question likely to be influenced by the content of the preceding question?

20. Is the question led up to in a natural way? Is it in correct psychological order?

21. Does the question come too early or too late from the point of view of arousing interest and receiving sufficient attention, avoiding resistance, etc. ?[2]

Thus, the use of the above "question," adherence to the Kornhauser guidelines, and the critical reaction of individuals who are familiar with questionnaire methods led to the instrument which was used in the study. During this development, too, careful consideration was given to the requirements for the techniques to be used in the eventual analysis of the data to ensure that the questionnaire would meet these requirements.

Population and Sample

The population to be sampled in this study was composed of the group of companies which make up the membership of the Greater Detroit Board of Commerce. The activities and work program of the Greater Detroit Board of Commerce indicated that membership in this organization would be sought by alert, far-sighted business organizations who

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[2]Ibid. , pp. 431-62.

were interested in progress and the efficient operation of their businesses. For this reason, this membership list was ideally suited to the purposes of this study. The 1963 Membership Directory of the Greater Detroit Board of Commerce lists 3593 different members located in the Greater Detroit Metropolitan area. These members, of course, are engaged in a great variety of businesses and services. To study the membership as a whole would not have provided the information required to determine the use of audio-visual materials by specific kinds of business organizations. Therefore, a stratification of this population was developed in accordance with the researcher's judgment relative to the probability of the use of audio-visual materials by the respective organizations.

According to the classified listings of the membership, the organizations were placed in the following categories of the Board of Commerce: Broker; District or Branch Sales Office; Manufacturer, Fabricator, Processor with plant in Greater Detroit Area; Manufacturers' Agent; Manufacturers' Warehouse; Retailer; and Wholesaler, Distributor, Jobber.

In view of the fact that some of the classifications, because of the very nature of their services, would not employ audio-visual materials to the extent that certain other members would, the following categories were combined: Broker, District or Branch Sales Office, Manufacturers' Agent, Manufacturers' Warehouse, Wholesaler, and

Jobber. These categories were placed within a classification which was designated "Other."

As a result of the forming of this combination, the population was stratified as follows: Manufacturers, Retailers, Distributors, and Others.

In order to demonstrate the sampling of the population in this study, it is wise to review briefly certain fundamental notions pertaining to sampling theory. Initially it is to be realized that a sample is merely a sub-set of a population. More accurately, the sample is selected from a population at random and is used as a basis for making estimates and inferences about the population.

> The concept is of basic importance because a sample has the significant characteristic that, under certain conditions, estimates and inferences can be made about the population with errors of specified magnitudes. [3]

Paraphrasing Rosander, we know that a sample has a number of important aspects or characteristics. One is the size of the sample, by which we mean the number of elements or groups of elements of the population which are selected at random. Another characteristic of significance is how the sample is drawn from the population, since it makes a great deal of difference whether a sample is selected at random or not. A third problem posed by Rosander is that which deals with the

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[3]A. C. Rosander, Elementary Principles of Statistics (New York: D. Van Nostrand Company, Inc., 1953), p. 22.

population element, or group of population elements, to be used as a basis of selection, since either individual elements or groups of elements may be used as the sampling unit.

There are other aspects of a sample which might be discussed, but because they would add little to the purpose of the discussion here, they will be omitted. Basically, it is sufficient to say that the sample has many advantages over the census or complete enumeration of a finite population. If carefully planned, the use of the sample is not only considerably cheaper, but gives results, for all practical purposes, just as accurate as those of a census.

Of special importance to sampling theory, however, is the notion of randomness.

> If the selection takes place so that every unit has an equal chance of being selected, it is called random, and the sample so drawn is called a random sample. In this procedure, selection is independent of the judgment of the selector, and the units are in no way correlated with the method used to select them. [4]

Again paraphrasing Rosander, in this technique if every selection of a sampling unit involves every unit in the population, then the sample is called a simple random sample. If, however, the selection of a sampling unit is restricted to the units in a stratum, then the sample is called a stratified random sample. In this latter case, the sample is formed by selecting one or more sampling units from each stratum until

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[4] Ibid., p. 23.

all strata are included, rather than from the population as a whole. The number of sampling units drawn at random from each stratum need not be the same.

In order to prevent biased selection, or to put it in another way, in order to guarantee random selection, lists of random numbers have been published. Tippett's[5] list was the first published, but others available which have been carefully tested are Fisher and Yates[6] and Kendall and Babington-Smith.[7]

With population elements that are unique and countable objects, such as the organizations forming the population of this study, the objects must first be serialized in order to use random numbers. The selector then turns to a list of random numbers, determines the number of digits required in the random numbers (three digits for a population composed of 000 to 999 objects, four digits for those composed of 0000 to 9999, etc.), and selects random numbers until the desired sample size is obtained. In this way the chance of bias due to any peculiar arrangement of objects will be greatly reduced, if not totally eliminated.

The design of the sample is another important phase of sampling

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[5]L. H. C., Tippett, "Random Sampling Numbers." Tracts for Computers, XV, (London: Cambridge University Press, 1927).

[6]R. A. Fisher and F. Yates, Statistical Tables for Biological, Agricultural, and Medical Research (Edinburgh: Oliver and Boyd, 1938).

[7]M. G. Kendall and B. Babington-Smith, "Tables of Random Sampling Numbers," Tracts for Computers, XXIV, (London: Cambridge University Press, 1939).

theory.

> By design of a sample is meant a definite statistical plan, formulated beforehand, and based upon a specified sampling error in the estimates and a specified probability of error in the inferences.[8]

According to Rosander, a sampling design needs to include the stratification of the population, the anticipated random sampling variance in the estimates, the total sample size, the allocation of the sample to the several strata, the method of selecting the sample, the method of estimation, and the tests to be employed to keep nonrandom sources of error at a minimum. Such a sampling design is based upon some population characteristic called the design variate, which may be the major variate in which we are interested or, if there are several (which there are when utilizing questionnaires and gathering opinion data), the most variable of the group.

Design of Sample

With this background, the sample **design** of this study will now be described. In order to determine anticipated random sampling variance in the estimates, it was necessary to carry out a pilot study of the population. For this purpose the organizations composing each stratum of the population were numbered. Since there were 3593 organizations involved in the study, the random numbers table found in Rosander was entered, and using four digit numbers, forty-five sampling units were

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[8]Rosander, loc. cit., p. 142.

selected. The number of units, forty-five, was chosen for this pilot study on the basis of acceptable statistical theory concerning the fact that thirty units are usually considered a small sample, and with anticipated possible attrition due to non-participation, time delay, and other such factors, an additional fifteen units were included to offset these disadvantages. It should also be reported that forty-five units were distributed over the four strata on the basis of the proportion of the population included in each of the respective strata.

Thus, following this procedure, the "Manufacturing" stratum represented 26. 4 per cent of the total population and required twelve subjects to be selected in the pilot study sample of forty-five (. 26 x 45 = 12). The "Retail" and Distributor" groups each represented 4. 5 per cent of the total population and, therefore, each required two sample units (i. e. , two subjects each, or a total of four). Since there would be some problem, however, in insuring that the variance would be meaningful with only two subjects in a given stratum, five subjects were arbitrarily selected for each stratum. Finally, the "Other" classification, representing 64. 7 per cent of the total population required twenty-nine sample units.

Utilizing the procedure outlined above, fifty-one sample units were selected from the total population, and a questionnaire was mailed to each company. A covering letter (Appendix B) outlined the importance of the participation of the recipient and urged the return of the question-

naire within a three-week period.

After a period of four weeks had elapsed, a follow-up letter (Appendix C) with a questionnaire attached was sent to the twenty-six companies who had not responded to the first mailing. This letter again stated the urgency of the reply and the need for the answers from the organizations.

A three-week period was then allowed to permit the return of the questionnaires from the follow-up mailing. At the end of the period of time, the thirty-eight responses which had been received were then studied for an indication of the design variate.

In analysing the returned questionnaires of the pilot study, a constructed point score system was used. One point was recorded for each item on the questionnaire which indicated that the company did training or was active in the use of audio-visual materials and techniques in training. A point was given, for instance, if the company reported that it engaged in training. A point was recorded for each piece of material and equipment owned by the company. Similarly, points were awarded for each kind of material used in training; each piece of material made by the company; each use of newer media; each knowledge of audio-visual resources; and each indication of future plans for the use of audio-visual materials in training. Thus, as each questionnaire was analyzed, a point score was accumulated which indicated the company's: (1) activity in training, (2) present use, and (3) future plans for the use of audio-

visual materials and techniques for training purposes.

Utilizing the above procedure, scores were assigned to appropriate categories of the returned questionnaires of the pilot study, and an "accumulated" score was tabulated for each company. The results of these tabulations revealed clearly that the companies composing the population could well be considered to form a dichotomous population of users and non-users. Further, the results were severely skewed toward non-users of audio-visual materials, equipment and techniques. Therefore, as a result of this pilot study it was clear that the approach to solving the problem of the adequacy of sample size could be accomplished on the basis of assuming the existence of a dichotomous population.

In the defined dichotomous population, the "desirable" characteristic (X=1) was considered to be the "utilization" of audio-visual materials, equipment, and techniques; while the "non-utilization" of audio-visual materials, equipment, and techniques, was the "undesirable" characteristic (X=O). Under these conditions, Dixon and Massey provide clear cut directions for determining the sample size required to estimate with desired precision:

> Since larger samples provide estimates of greater precision, we can attain whatever precision we desire by taking samples sufficiently large.
>
> . . . , suppose we are conducting a public-opinion poll and wish from a random sample to estimate the proportion in the population with a certain opinion and wish to be 99 per cent sure of being accurate to the nearest 10 per cent. Using the approximate value . 25 for $\sigma^2 = p(1 - p)$, or . 5 for σ, we state that a sample of size

$$N = \left[\frac{2.58\ (.5)}{0.10}\right]^2 = 166.41$$

would be sufficient. If p is actually not close to .5, σ^2 would be smaller than .25 and a smaller N would be sufficient.[9]

Following the above recommendations of Dixon and Massey, the adequacy of the size of sample employed in the study was determined as follows:

1. Sigma (σ) was assumed to be equal to .5.
2. The maximum desired distance (d), i.e., the allowable sampling error, was established as d=.10.
3. The value of the normal deviate (z) was selected as the one associated with 99 per cent confidence interval, and, therefore, became: z = 2.58.

Therefore, substituting the above values in the formula for adequate sample size required to estimate with desired precision, we have:

$$N = \left[\frac{z\ \sigma}{d}\right]^2 \quad ; \text{ then substituting}$$

$$N = \left[\frac{2.58\ (.5)}{0.10}\right]^2 = 12.9^2 = 167.$$

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[9]W. J. Dixon and F. J. Massey, Jr., Introductions to Statistical Analysis (New York: McGraw-Hill Book Company, Inc., 1957, pp. 84-5.

Thus, in order to have a 99 per cent confidence interval for the estimate of "P" (the proportion of "users" in the population), the study required the return of 167 questionnaires or sampling units from the population. It should be noted that 167 units would be required for an adequate number of units in a simple random sample. Since the sample employed in the study was a stratified random sample, the total of 167 units, distributed over the respective strata on the basis of "proportion to size of stratum," would be much greater than the minimum number actually needed for an adequate sample size under these conditions.

Again, as with the pilot study, a larger number of sampling units than required was selected to allow for attrition due to non-participation, time delay, and other such factors. A sampling size of 600 units was deemed to be sufficient to provide a return of 167 questionnaires from the population and to, thus, insure a confidence interval of 99 per cent.

Therefore, the numbered list of 3593 organizations in the population of the study and the Fisher and Yates[10] Tables of Random Numbers were used in the selection of the 600 sampling units for the study.

Following the same procedure utilized in the pilot study, except for insuring that the numbers used in the pilot study were not duplicated, 600 sampling units were drawn. Accordingly, the "Manufacturing" stratum, representing 26.4 per cent of the population, required 158

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[10]Fisher and Yates, loc. cit.

sampling units. The "Retail" and "Distributor" strata each represented 4.5 per cent of the population and each required twenty-seven units. Finally, the "Other" stratum, representing 64.7 per cent of the population required 388 sampling units.

After the companies to be included in the sample were selected according to the procedures outlined above, the 600 questionnaires were mailed out to them. A letter of transmittal (Appendix D) accompanied the questionnaires which urged participation, stressed the importance of the company's response, and asked for the return of the instrument within a four-week period.

At the end of this four-week period, a follow-up letter (Appendix E) with a questionnaire attached was sent to the non-respondents. This letter also urged the company to participate and stressed the importance of their responses as representative of the company's stratum in the population of the study.

By the end of another four-week period a total of 168 returns had been received and this date was established as the cut-off point for the accumulation of data. Since the return of 167 questionnaires was required to insure the 99 per cent confidence interval designed for the study, this return of 168 sampling units met the "adequacy of sample" requirements for the research.

In order to insure that the return of 168 sampling units met the "adequacy of sample" requirements, and to probe questions concerning

knowledge about the 432 non-respondents, a consultation was arranged with Dean Joseph E. Hill of Wayne State University, an authority in the fields of sampling theory and statistics. He verified that the returned number of sampling units did indeed meet the "adequacy of sample" requirements of the study. Further, this consultation verified, too, that additional follow-up activities with the 432 non-respondents would tend to give biased results to the study, and should, therefore, not be undertaken. A summary of the rationale of this consultation is provided in a memorandum from Dr. Hill:

> The first principle to be observed in connection with a sampling design is that the size of an adequate sample is related to the variability of the population characteristic under study. A characteristic that is highly variable requires a larger sample than a less variable one. In the extreme case of perfect homogeneity, a sample of one would be sufficient to estimate the value of the characteristic under study. For example, if everyone were of the same height in a given room, one person could be selected as a sample of the population of persons in that room, and the measurement of his height would provide complete information about the height of the population.
>
> The second principle of good sampling design is that the more rare the occurrence of a characteristic in a population, the larger the sample required to detect it. Rare characteristics are illustrated by those magnitudes of a variate which are found in the respective ends of single-factor frequency distributions. For example, it is much easier in a sample to obtain persons who are about five-feet six-inches tall than persons who are either five-feet or six-feet tall. Only by continuing sampling until a larger number of elements is drawn, can the sampler be assured that these more rare values will be obtained.

The third principle is that the larger the size of the sample, the more reliable the results. It should be noted, however, a smaller random sample based on an efficient design may be quite superior to a larger sample based on an inferior design.

These three principles are the basic ones of a set of sampling design principles set forth by A. C. Rosander, Statistician, Bureau of Internal Revenue; formerly Lecturer in Statistics, George Washington University.

In applying the principles of good sampling design to a dichotomous population, the condition of highest variability is recommended for use, i. e. the conditions under which the characteristic being studied occurs 50 per cent of the time. If the sample size is adequate to the extent that it can make reliable estimates of the characteristic under study when the most variable situation in a dichotomous population exists (P =. 50) that size sample will be more than adequate to make estimates under conditions of greater homogeneity, i. e. less variability.

The sampling design employed in this dissertation involved making estimates of a characteristic ("use" factor) in a dichotomous population. After stratifying the population according to industrial divisions, it was discovered that under assumed conditions of highest variability (P = . 50), the size of sample considered adequate to make reliable estimates for a 99 per cent confidence interval under conditions of a 10 per cent relative sampling error was found to be: n=167. Recognizing the fact that the second principle, that of "rare elements," might be at work, it was decided that at least six hundred questionnaires should be mailed in order to gain a response that would provide enough returns to meet the demand of n=168, which satisfied the adequacy of sample size problem of the research design.

Although additional follow-ups could have been employed to elicit responses from the four hundred and thirty-two non-respondent recipients of the questionnaire, it was decided that such action would only produce biased results — biased to the extent that much additional motivation had to be employed in order to elicit a response. Since the sampling design was based upon a random sampling resulting from the initial solicitation for participation, assumed to produce unbiased results, consideration of the

four hundred and thirty-two non-respondents might tend to give an unreliable picture of the true situation. It should be noted at this point that increasing the number of biased elements in a sample, such as large elements or non-representative elements, does not eliminate any of the bias in the sample.

Random selection is basic to the rationale of adequacy of sample size as employed in statistical research design. Thus, the key question to be answered in any sampling design is whether an unbiased (relatively unsolicited) sample of an adequate size can be realized from the population under study. If a mail-out form of solicitation is employed, the non-response recipients can be ignored if the operation produces an adequate number of "unbiased" responses. It is this rationale which was employed in devising the sampling design employed in this study. [11]

The data received from these sampling units will now be described in the sections of Chapter IV.

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[11] Memorandum from Joseph E. Hill, Dean, Graduate Studies, Wayne State University, Detroit, Michigan, July 27, 1965.

CHAPTER IV

PRESENTATION OF DATA

The purpose of this chapter is to present the data elicited from the 168 respondents to the questionnaire. A description will first be given of the techniques employed in the analysis of the data. This section will then be followed by the presentation of the data.

Analysis of Data

Consideration was given to the problems of analysis of the data during the construction of the questionnaire. At that time sample tabulations were developed to insure that the questions being written for the questionnaire would provide the required data and would lend themselves to accurate tabulation. As a result the data obtained were adapted easily to the direct transcription into tabulations based on the coding system established.

It is important at this time, however, to give some background and information concerning the technique of coding which was used in the research.

Cartwright indicates this role for analysis of facts obtained from research:

> . . . , as products stimulated by a research project, he (the researcher) will want to classify the content into appropriate categories so that he can describe it in an orderly way. This process of classification into categories is commonly known as "content analysis" or coding. [1]

Thus, coding or content analysis (the terms are used interchangeably by Cartwright) is a technique for the objective, systematic, quantitative description of data.

Cartwright also indicates that data need to be recorded in an orderly fashion; data need to be carefully classified and categorized; data need to be evaluated for quantitative incidence and interrelations. He indicates that if these procedures are carried out properly, objective and general statements may be made about the data.

The objective of the content analysis or coding technique is stated in this fashion by Cartwright:

> The objective of content analysis is to convert "raw" phenomena into data which can be treated in essentially a scientific manner so that a body of knowledge may be built up. More specifically, content analysis must be conducted so as (1) to create reproducible or "objective" data, which (2) are susceptible to measurement and quantitative treatment, (3) have significance for some systematic theory, and (4) may be generalized beyond the specific set of material analyzed. [2]

Berelson points out the various approaches to content analysis which can be employed by scholars:

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[1] Dorwin P. Cartwright, "Analysis of Qualitative Material," Research Methods in the Behavioral Sciences, ed. Leon Festinger and Daniel Katz, (New York: The Dryden Press, 1953), pp. 423-4.

[2] Ibid., p. 435.

> In the first, the researcher is interested primarily in the characteristics of the content itself. In the second, he tries to make valid inferences from the nature of the content to characteristics of the producers of the content or its causes. In the third, he interprets the content so as to reveal something about the nature of its audience or of its effects. Any single study may or may not adopt more than one of these approaches. [3]

Finally, Cartwright has indicated that one should construct an analysis outline for a given project so that it will consist of six steps or clusters of decision. These steps are: (1) specifying needed data; (2) mapping out plans for evaluation; (3) laying out the skeleton of the outline; (4) filling in categories for each variable; (5) establishing procedure for unitizing the material; (6) trying out the analysis outline and unitizing procedure on a sample of the material.

During the planning of this study, during the construction of the questionnaire and in the development of the sampling procedure, full cognizance was taken of the above recommendations. These precautions led to the accumulation of data which were easily tabulated and which lent themselves to satisfactory presentation and projection. We may now proceed to the results of this technique, the presentation of the data and then later to the conclusions and recommendations gleaned from the data through the use of this technique.

The best format for this presentation of data was deemed to be the same as that followed in the accumulation of the data, the sequence

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[3] B. Berelson, Content Analysis in Communication Research (Glencoe: The Free Press, 1952), p. 18.

of the questionnaire. Therefore, the data are presented in the following sections in the same progression employed in the questionnaire.

Identification Data

The 168 respondents made up a well represented group of small, medium and large businesses with a broad diversification of types of businesses. Respondents were promised that the identification information concerning the individual companies will not be revealed. However, there was representation of all types and sizes of businesses. The kinds of industries represented by the respondents are shown in Table 1.

The Bureau of the Census of the U. S. Department of Commerce employs a concise grouping of businesses and industries in the analysis and presentation of statistical information. The groupings utilized by the Bureau are: agriculture; mining; contract construction, manufacturing; wholesale and retail trade; finance, insurance, and real estate; transportation; communication and public utilities; services and miscellaneous; and government and government enterprises.[4] To enable more effective analysis and comparisons of the data in this study, the respondents were classified in accordance with the guidelines used by the Bureau of the Census. Table 2 shows the distribution of the types of businesses represented by the respondents in this study when classified

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[4]U. S. Department of Commerce, Statistical Abstract of the United States (Washington: U. S. Government Printing Office, 1962), pp. 231-33

Table 1

DISTRIBUTION OF TYPES OF BUSINESSES
REPRESENTED BY RESPONDENTS

Type of Business	Number of Respondents
Accounting	2
Advertising	5
Architecture	2
Art, Design, Display	3
Automotive (Manufacture, Parts, Supplier)	14
Banking	4
Brokerage	5
Building (Construction, Supplies, Maintenance)	13
Chemical (Manufacture, Supplier)	5
Electronic (Manufacture, Supplier)	8
Engineering Services	2
Entertainment	1
Equipment (Manufacture, Supplier)	11
Food (Manufacture, Supplier, Wholesaler)	5
Furniture (Manufacture, Distributor)	2
Hotel Operation	1
Insurance	8
Legal	3
Manufacturing Equipment (Manufacturers, Suppliers)	8
Medical and Dental (Manufacturer, Services)	3
Metal (Manufacture, Suppliers)	12
Office Equipment (Manufacture, Supplier)	2
Paint Manufacturer	1
Paper Supplier	2
Petroleum Manufacturer	1
Printing	3
Railroads	4
Real Estate	2
Retailer	9
Rubber (Manufacturer, Supplier)	3
Services (Personal, Repair, Other)	12
Training	1
Trucking and Transportation	6
Warehousing and Terminal Operation	1
Other (Manufacturers, Distributors)	4
Total	168

within the above categories. Since they were not included within the population of this study, the following categories were not required: agriculture, mining, communication and public utilities, and government and government enterprises.

Table 2

DISTRIBUTION OF TYPES OF BUSINESSES REPRESENTED BY RESPONDENTS ARRANGED IN BUREAU OF CENSUS CLASSIFICATION

N = 168

	Respondents	
	No.	%
Manufacturing	44	26.2
Wholesale and Retail Trade	42	25.0
Services and Miscellaneous	38	22.6
Finance, Insurance, and Real Estate	23	13.7
Contract Construction	11	6.5
Transportation	10	6.0
Total	168	100.0

The sizes of the businesses represented by the respondents are best illustrated by the numbers of employees reported in the returns. Table 3 gives the distribution of the numbers of employees. It is interesting to note that the majority of companies reporting had between twenty and 300 employees.

Various analyses of the data were made to determine relationships and correlations between sizes of businesses, training programs, and the use of audio-visual materials for training purposes. There were

Table 3

DISTRIBUTION OF NUMBERS OF EMPLOYEES REPORTED BY RESPONDENTS

Number of Employees	Number of Companies
9 or less	14
10 to 19	13
20 to 49	27
50 to 99	29
100 to 199	23
200 to 299	21
300 to 399	8
400 to 499	10
500 to 999	6
1000 to 1999	5
2000 to 4000	8
6000	1
8000	1
15000	1
18000	1
Total	168

no such relationships. For instance, a company with 15,000 employees and 250 trainees annually employs only one person in a training capacity. Another company with 8,000 employees and 100 trainees annually employs seven people in training activities. Still another company with 1,000 employees with approximately 40 trainees annually utilizes only part-time trainers. The same kind of divergence existed in the studies of the use of audio-visual materials in training. As previously stated, however, various analyses by kinds of businesses do provide some meaningful information and enable fruitful interpretations.

An indication of the types of people who completed the question-

naires is shown by the job titles listed by the individual respondents. The distribution of these job titles in Table 4 indicates that the respondents as a whole held responsible positions in their organizations, and, therefore, the individuals should have had access to the information required for completion of the questionnaire. It is also significant that only one person held the title of director of audio-visual services.

Sixty-one of the respondents, or over 36 per cent, requested a copy of the results of this study. An abstract of the study will eventually be distributed to this group.

Training Program and Audio-Visual Personnel Responsibility for Training

Only twenty-seven (16. 1 per cent) of the respondents indicated that their companies had an organized employee training department. Thirteen "manufacturer" respondents indicated that their companies had training programs. This total represented nearly half (48. 1 per cent) of the organized training programs which were reported. None of the "transportation" respondents had organized training programs. Table 5 shows the number of organized training programs which were reported and the percentage of the respondents within each category who reported an organized training program. It is also significant that 26. 5 per cent of the "manufacturer" respondents and 21. 7 per cent of the "finance" respondents reported such programs. These reports indicate a higher degree of organized activity within these groups, as contrasted with the

reports of the other groups.

Table 4

JOB TITLES OF QUESTIONNAIRE RESPONDENTS

Job Title	Respondents	
	No.	%
President	6	3.5
Owner	7	4.2
Partner	5	2.9
Vice President	18	10.7
Treasurer	2	1.2
Controller	2	1.2
Corporate Secretary	2	1.2
Assistant Secretary	1	.6
Assistant to the President	3	1.8
General Manager	4	2.4
Superintendent	6	3.6
Director, Audio-Visual Services	1	.6
Director, Field Services	1	.6
Director, Industrial Relations	7	4.2
Director (or Manager), Marketing	7	4.2
Director (or Manager), Personnel	10	6.0
Director, Research	3	1.8
Director (or Manager, Supervisor), Training	8	4.8
Manager	18	10.7
Manager, Administration	1	.6
Manager, Branch	4	2.4
Manager, District	6	3.6
Manager, Plant	3	1.8
Manager, Sales	8	4.8
Administrative Assistant	4	2.4
Chief Draftsman	1	.5
Estimator	1	.5
Executive Secretary	5	2.9
General Agent	3	1.8
General Assistant	6	3.6
Publishing Agent	1	.6
No Title Indicated	14	8.3
Total	168	100.0

Table 5

REPORT OF ORGANIZED TRAINING PROGRAMS

	Respondents Number	Number of Organized Training Programs	Per Cent of Type
Manufacturers	44	13	26.5
Wholesale and Retail Trade	42	4	9.5
Services and Miscellaneous	38	4	10.5
Finance, Insurance, and Real Estate . . .	23	5	21.7
Contract Construction . . .	11	1	9.1
Transportation.	10	0	0.0
Totals	168	27	

In response to the follow-up inquiry, "If there is no organized employee training department, who is responsible for employees training activities?" the kinds of written answers which were provided are shown in Table 6. It is interesting to note that in those companies where no organized training program exists, "experienced people" (15), department heads (12), and supervisors (10) are listed most frequently as having the responsibility of training. Even though various training activities are attempted by most companies (as reported in later sections of this study), 38.1 per cent of the respondents reported that no one was responsible for the training activities of their organizations.

Kinds of Training Undertaken

In response to the inquiry concerning the kinds of training undertaken within the companies, the conference method of training, with

Table 6

RESPONSIBILITY FOR TRAINING ACTIVITIES IN BUSINESSES WITHOUT ORGANIZED TRAINING PROGRAMS

(N = 168)

Response	Respondents	
	No.	%
No training needed	5	2.9
No training done	4	2.3
Advertising Section	1	.5
Branch Manager	4	2.3
Chief Chemist	1	.5
Committee, A	1	.5
Committee, Executive	1	.5
Department Head	12	7.1
Department Manager	1	.5
Director of Education	1	.5
Director of Research	1	.5
Director of Safety	1	.5
District Manager	1	.5
Executive Secretary	1	.5
Experienced People	15	8.9
Foremen	9	5.3
General Agent	2	1.1
General Manager	2	1.1
Housekeeper	1	.5
Industrial Relations Department	2	1.1
Manager	3	1.7
Office Manager	3	1.7
Personnel Department	6	3.5
Plant Manager	2	1.1
Principals of Firm	1	.5
Sales Manager	4	2.3
Store Manager	3	1.7
Supervisor	10	5.9
Terminal Manager	1	.5
Union	3	1.7
Vice President	1	.5
Vice President, Sales	1	.5
No person responsible	64	38.1
Total	168	100.0

sixty-six indications of use, was the most frequently checked. The distribution of the other kinds of training is given in Table 7. The total exceeds 168 because some respondents indicated that more than one kind of training was used

Table 7

REPORTS OF KINDS OF TRAINING

Type of Business	Respondents Number	% of 168
Formal Courses	33	19.6
Workshops	32	19.0
Conferences	66	39.2
Others	45	26.7
Total	176	

These data when examined according to types of business points up that manufacturers employed more structured kinds of training and that contract construction and transportation use more informal kinds of training. The analysis of this information is given in Table 8.

In answer to the follow-up question requesting a description of other kinds of training, the replies shown in Table 9 were given. "On-the-job training" with twenty-one indications (43.7 per cent) was by far the most prevalent of the "other types of training" listed by the respondents. There are forty-eight indications of "other types of training" because one respondent listed three other types and another respondent

Table 8

KINDS OF TRAINING
BY TYPES OF BUSINESSES

Type of Business	Kinds of Training			
	Formal Courses	Workshops	Conferences	Other
Manufacturers	14	13	18	18
Wholesale and Retail Trade	8	8	19	8
Services and Miscellaneous	4	4	15	5
Finance, Insurance, and Real Estate	7	3	7	3
Contract Construction . . .	0	3	4	8
Transportation.	0	1	3	3
Total	33	32	66	45

indicated two other types.

Areas of Training Undertaken

Table 10 gives the distribution of the areas of training listed by the respondents. Supervisory training with sixty-one responses was the area most frequently checked. The total exceeds 168 because some respondents indicated that more than one area of training was undertaken in their organizations.

As indicated in Table 11, the different kinds of businesses were concerned with areas of training in varying degrees. The "manufacturer" group, for instance, undertook supervisory training (52. 2 per cent) most frequently, closely followed by production skill training (40. 8 per cent). The "transportation" respondents, however, undertook "other" training

Table 9

REPORTS OF "OTHER" KINDS OF TRAINING

Training Activity	Number of Respondents
Annual School (2-3 Days)	1
Association Meetings	1
Clinics	3
Coaching, Individual	4
Crash Program	1
Group Meeting	5
Home Study	1
Institute	1
Lecture	2
On-the-Job Training	21
Performance Review	1
Product Review	2
Sales Conventions	1
Seminar	2
Tailgate Conferences	1
Visitations	1
Total	48

Table 10

REPORTS OF AREAS OF TRAINING

Area of Training	Respondents Number	% of 168
Supervisory Training	61	36.3
Clerical Training	42	25.0
Foreman Training	34	20.2
Production Skill Training	31	18.4
Other Training	40	23.8
Total	208	

most frequently (50 per cent), with foreman and supervisory training (both 30 per cent) the next most frequently mentioned areas of training. This information is important in the determination of the training functions which are being undertaken by these Detroit concerns.

In reply to the request for a description of other areas of training, the answers shown in Table 12 were written. Sales training was most frequently mentioned (43.3 per cent) as another area of training. The total exceeds forty because some respondents indicated that more than one "other area" of training was of concern to them.

Training Activities

Table 13 lists the distribution of the training activities reported as being attempted by the companies. In spite of the existence of organized training programs in only 16.1 per cent of the companies, the respondents indicated many training activities which are being attempted by their organizations.

The four training activities listed as "other" were: (1) evaluate customer services; (2) use literature and trade publications from technical association; (3) attend seminars when possible; and (4) rules and votes are submitted through the mail.

These training activities are not restricted to any single kind of company. All of the various types of businesses reported interest and activity in the various training endeavors. This is shown clearly by the analysis of the activities as reported by the different kinds of businesses

Table 11

AREAS OF TRAINING
BY KINDS OF BUSINESSES

	Respondents Number	Supervisory Training		Clerical Training		Foreman Training		Production Skill Training		Other Training	
		No.	%	No.	%	No.	%	No.	%	No.	%
Manufacturers	44	23	52.2	10	22.7	17	38.6	18	40.8	9	20.4
Wholesale and Retail Trade	42	13	30.9	16	38.0	8	19.0	3	7.1	13	30.9
Services and Miscellaneous . . .	38	11	28.9	7	18.4	4	10.5	6	15.7	4	10.5
Finance, Insurance and Real Estate . .	23	8	26.9	5	21.7	0	0	1	4.3	5	21.7
Contract Construction	11	3	27.2	2	18.1	2	18.1	1	9.0	4	36.3
Transportation.	10	3	30.0	2	20.0	3	30.0	2	20.0	5	50.0
Total	168	61		42		34		31		40	

Table 12

REPORTS OF OTHER AREAS OF TRAINING

Area of Training	Respondents Number
Account Executive	1
Communication	1
Company Policy	1
Copywriter	1
Dealer Relationships	1
Drafting, Design	2
Engineering Training	3
Equipment Use	1
Housekeeping	1
Management Training	3
Marketing Information	2
Medical Skills	1
New Employee Training	2
Packing and Loading	1
Personal Relationships	1
Personnel Problems	1
Product Knowledge	3
Safety	2
Sales Training	26
Service Training	2
Special Problems	1
Telephone	1
Work Simplification	2
Total	60

as tabulated in Table 14.

Number of Trainees Annually

The number of employees trained each year is given in Table 15. As indicated, the majority of numbers of trainees annually is in the range of the one to fourteen trainees.

Table 13

TRAINING ACTIVITIES ATTEMPTED

	Rank Order	Respondents No.	% of 168
Introduce New Knowledge	1	92	54.7
Introduce New Skills	5	74	44.0
Impart New Knowledge	2	89	52.9
Impart New Skills	7	69	41.0
Modify Existing Knowledge . . .	4	75	44.6
Modify Existing Skills	10	65	38.6
Develop Attitudes	3	76	45.2
Change Attitudes	6	70	41.6
Review Knowledge	8	68	40.4
Review Skills	11	59	35.1
Practice Knowledge	9	66	39.2
Practice Skills	12	55	32.7
Test Knowledge	13	44	26.2
Test Attitudes	15	39	23.2
Test Skills	14	44	26.2
Other Activities	16	4	2.3
Total		989	

The number of trainees when examined according to respondents from the different kinds of businesses illustrates a varying degree of training load among types of businesses. The "manufacturer" group reported training responsibility for numbers of students which ranged from relatively few through all-sized numbers of students up to 1500 trainees each year. The "wholesale and retail trade" group had responsibility for training students in numbers which were primarily in the range of from one trainee through thirty-four trainees. The "service and miscellaneous" respondents reported numbers of trainees which were

Table 14

TRAINING ACTIVITIES ATTEMPTED
BY TYPES OF BUSINESSES

Training Activities Attempted	Manufacturer Respondents		Wholesale and Retail Respondents		Services and Misc. Respondents		Finance, Ins., and Real Estate Respondents		Contract Construction Respondents		Transp. Respondents	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Introduce New Knowledge	28	63.6	26	64.2	21	55.2	8	34.7	5	45.4	4	40.0
Introduce New Skills . . .	24	54.5	21	50.0	18	47.3	5	21.7	4	36.3	2	20.0
Impart New Knowledge. .	25	56.8	26	64.2	21	55.2	7	30.4	6	54.5	4	40.0
Impart New Skills	23	52.2	18	42.8	16	42.1	5	21.7	5	45.4	2	20.0
Modify Existing Knowledge	22	50.0	25	59.5	15	39.4	5	21.7	6	54.5	2	20.0
Modify Existing Skills . .	22	50.0	22	52.3	12	31.5	4	17.3	4	36.3	1	10.0
Develop Attitudes	23	52.2	21	50.0	18	47.3	7	30.4	3	27.2	4	40.0
Change Attitudes	21	47.7	18	42.8	16	42.1	6	26.0	6	54.5	3	30.0
Review Knowledge	19	43.1	22	52.3	14	36.8	6	26.0	5	45.4	2	20.0
Review Skills.	18	40.9	19	45.2	15	39.4	3	13.0	3	27.2	1	10.0
Practice Knowledge . . .	19	43.1	17	40.4	17	44.7	7	30.4	5	45.4	1	10.0
Practice Skills	18	40.9	15	35.7	11	28.9	5	21.7	4	36.3	2	20.0
Test Knowledge	16	36.3	16	38.0	4	10.5	5	21.7	3	27.2	0	0.0
Test Attitudes	12	27.2	14	33.3	5	13.1	4	17.3	3	27.2	1	10.0
Test Skills	16	36.3	16	38.0	5	13.1	4	17.3	2	18.1	1	10.0
Other Activities	1	2.2	1	2.3	1	2.6	1	4.3	0	0.0	0	0.0

Table 15

APPROXIMATE NUMBER OF TRAINEES ANNUALLY

(N = 168)

Number of Trainees	Respondents	
	No.	%
None	26	15.5
1 to 4	25	14.9
5 to 9	22	13.1
10 to 14	17	10.1
15 to 19	6	3.5
20 to 24	9	5.4
25 to 34	13	7.7
35 to 49	6	3.6
50 to 74	3	1.8
75 to 99	1	.6
100 to 199	3	1.8
200 to 299	2	1.1
300	2	1.1
600	1	.6
1500	1	.6
All Employees (No number given)	2	1.1
"Number Varies" or No Number Given	29	17.3

also, in the main, within this range. Over 28.9 per cent of the trainees of this group, however, were within the range of one to fourteen trainees. The "finance, insurance, and real estate" respondents reported numbers of trainees which extended up to 600 trainees each year. The largest number of trainees were reported by this group to be in the 20-34 trainees per year category (21.9 per cent). The "contract construction" group of respondents reported the largest number of trainees in the 10-14 trainees per year category (27.2 per cent). It is also significant that 27.2 per cent of these respondents reported that they had no trainees. The small

numbers of trainees in the "transportation" group is best demonstrated by the reports that 40 per cent of the respondents indicated that they had no trainees. The tabulation of the numbers of trainees by kinds of businesses is shown in Table 16.

People in Training Activities

To train these employees the respondents indicated the numbers of people employed in training as shown in Table 17. The pronounced use of a part-time arrangement for training is indicated by this distribution.

In response to the follow-up inquiry to determine the responsibilities of the individuals engaged in training, the distribution given for administrative activities is shown in Table 18.

Table 19 reports the distribution of the number of individuals engaged in instruction as a part of the training activity. Again the use of the part-time assignment is the most prevalent report.

The number and distribution of people employed in the preparation of materials for training is shown in Table 20. The very small number of people in such activity should be noted.

In addition to those persons reported as in administrative work, instructional work, and preparation of materials, twelve respondents indicated that people were engaged in other training activities, as follows:

1. Field training in prospecting and selling.

Table 16

APPROXIMATE NUMBER OF TRAINEES ANNUALLY BY KINDS OF BUSINESSES

Number of Trainees	Manufac.		Whlse. & Retail Trade		Service & Misc.		Fin., Ins. & Real Estate		Contract Const.		Transp.	
	No.	% of 44	No.	% of 42	No.	% of 38	No.	% of 23	No.	% of 11	No.	% of 10
None	2	4.6	4	9.6	9	23.7	4	17.4	3	27.2	4	40.0
1 to 4	5	11.3	12	28.6	4	10.5	1	4.3	2	18.2	1	10.0
5 to 9	7	15.8	6	14.3	5	13.2	2	8.8	1	9.2	1	10.0
10 to 14	7	15.8	4	9.6	2	5.3	1	4.3	3	27.2	0	0.0
15 to 19	2	4.6	1	2.4	1	2.6	1	4.3	0	0.0	1	10.0
20 to 24	4	9.0	2	4.8	1	2.6	2	8.8	0	0.0	0	0.0
25 to 34	4	9.0	4	9.6	2	5.3	3	13.1	0	0.0	0	0.0
35 to 49	3	6.9	1	2.4	0	0.0	1	4.3	0	0.0	1	10.0
50 to 74	1	2.3	0	0.0	2	5.3	0	0.0	0	0.0	0	0.0
75 to 99	1	2.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
100 to 199	2	4.6	0	0.0	0	0.0	1	4.3	0	0.0	0	0.0
200 to 299	1	2.3	1	2.4	0	0.0	0	0.0	0	0.0	0	0.0
300	2	4.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
600	0	0.0	0	0.0	0	0.0	1	4.3	0	0.0	0	0.0
1,500	1	2.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
All Employees	0	0.0	0	0.0	1	2.6	0	0.0	0	0.0	1	10.0
"Number Varies" or No Number Given.	2	4.6	7	16.3	11	28.9	6	26.1	2	18.2	1	10.0
Total	44	100.0	42	100.0	38	100.0	23	100.0	11	100.0	10	100.0

Table 17

APPROXIMATE NUMBER OF PEOPLE EMPLOYED IN TRAINING

(N = 168)

Number of People	Respondents Number
None	51
1	8
2	14
3	16
4	6
5	8
6	3
7	3
8	3
10	2
12	1
13	1
14	1
24	1
Part-time	43

Table 18

INDIVIDUALS IN ADMINISTRATIVE WORK IN TRAINING PROGRAMS

Number of Individuals	Respondents Number
Less than 1	4
1	19
2	12
3	8
4	3
5	3
7	1
8	1
Total	51

Table 19

INDIVIDUALS IN INSTRUCTIONAL WORK
IN TRAINING PROGRAMS

Number of Individuals	Respondents Number
Less than 1	33
1	12
2	12
3	10
4	5
7	3
8	5
9	1
12	1
13	1
21	1
Total	84

Table 20

INDIVIDUALS ENGAGED IN THE PREPARATION
OF MATERIALS FOR TRAINING

Number of Individuals	Respondents Number
Less than 1	11
1	16
2	6
3	5
4	2
5	1
7	1
8	1
Total	43

2. Door closer repair demonstrations.
3. Field Training.
4. Informal training.
5. Medical technician training.
6. New equipment and procedures demonstrations.
7. All management personnel assist in training activities
8. All help each other.
9. Primarily on-the-job training.
10. Clerking on the floor.
11. All supervisors are responsible for training.
12. Training salesmen to fit shoes properly.

Audio-Visual Specialists Employed

Only seven of the 168 respondents indicated that audio-visual specialists were employed in their training activities. The duties which were described for these specialists were:

1. Showing of movies.
2. Writer, director, producer (motion pictures and overhead transparencies).
3. Locate material, prepare agenda, and conduct session.
4. Create materials for clients.
5. Preparation of audio-visual materials for client meetings.
6. Program, prepare, and execute.
7. Make slides.

Need for Additional Help of Audio-Visual Specialists

Only seventeen (10.1 per cent) of the 168 respondents indicated that there was a need for the additional help of audio-visual specialists in their training activities. Three others indicated that perhaps there was such a need.

When analyzed by kinds of businesses, the "manufacturer" group with seven responses had the largest number of indications of a need for audio-visual specialists in their company training functions. The "service," "contract construction," and "transportation" groups each had but one indication of this need. The complete distribution of these responses is shown in Table 21.

Table 21

NEED FOR ADDITIONAL HELP OF AUDIO-VISUAL SPECIALISTS BY KINDS OF BUSINESSES

Kind of Business	Respondents Number	Per Cent of Total Respondents
Manufacturer	7	15.9
Wholesale and Retail Trade . .	5	11.9
Service and Miscellaneous . . .	1	2.6
Finance, Insurance and Real Estate	2	8.6
Contract Construction	1	9.0
Transportation	1	10.0
Total	17	

Outside Help in the Preparation and Use of Audio-Visual Materials

Thirty-seven (22 per cent) respondents indicated that their companies had called upon outside organizations for assistance in the preparation and use of audio-visual materials. The kinds of services which were requested are shown in Table 22. The total exceeds thirty-seven because some respondents indicated more than one kind of request for assistance.

Table 22

SERVICES REQUESTED FROM OUTSIDE ORGANIZATIONS

Kinds of Materials	Number of Respondents Requesting Preparation of	Number of Respondents Requesting Help in Use of
Films	15	20
Film Loops	5	4
Filmstrips	16	13
35mm Slides	17	12
3-1/4" x 4" Slides .	5	4
Overhead Transparencies . .	9	5
Closed Circuit TV Materials . . .	2	2
Programed Learning Materials . . .	8	11
Recordings	11	13
Other Assistance . .	6	0
Total	94	84

The six requests for assistance reported as "other" were:

1. Special models.

2. Lectures.

3. Original music tracks.

4. Paper charts.

5. Flannel board illustrations.

6. Brochures.

Again, the "manufacturer" group also lead the other kinds of businesses in the requests for services from outside organizations. The distributions by kinds of businesses of the respondents who requested assistance in the preparation and use of audio-visual materials are shown in Tables 23 and 24.

Table 23

OUTSIDE HELP IN PREPARATION OF AUDIO-VISUAL MATERIALS BY KINDS OF COMPANIES

Kind of Materials	Mfrs.	Trade	Service	Finance	Contract Const.	Transp.
Films	10	4	1	0	0	0
Film Loops	5	0	0	0	0	0
Filmstrips	10	3	2	1	0	0
35mm Slides	9	3	2	2	0	0
3 1/4" x 4" Slides . .	2	1	1	1	0	0
Overhead Transparencies . . .	7	0	0	2	0	0
Programed Learning Materials	4	1	2	1	0	0
Closed Circuit TV Materials	2	0	0	0	0	0
Recordings	6	3	1	1	0	0
Other Assistance . . .	3	1	1	1	0	0
Totals	58	16	10	9	1	0

Table 24

OUTSIDE HELP IN USE OF AUDIO-VISUAL MATERIALS BY KINDS OF BUSINESSES

Kind of Materials	Mfrs.	Trade	Service	Finance	Contract Const.	Transp.
Films	8	6	3	2	0	1
Film Loops	2	0	1	1	0	0
Filmstrips	5	2	4	2	0	0
35mm Slides	4	3	4	0	0	1
3 1/4" x 4" Slides . .	1	1	2	0	0	0
Overhead Transparencies . . .	2	1	1	1	0	0
Closed Circuit TV Materials	1	0	1	0	0	0
Programed Learning Materials	3	3	4	1	0	0
Recordings	4	4	2	3	0	0
Other Assistance . . .	0	0	0	0	0	0
Totals	30	20	22	10	0	2

Present Use of Audio-Visual Materials in Training Programs

The companies were asked to provide a good estimate of the present use of audio-visual materials in a typical training program at their organizations. Table 25 shows the distribution of their replies and illustrates the preponderance of non-users in all categories.

The responses when arrayed according to kinds of businesses present an even more striking picture of the non-use of audio-visual materials in training programs of all groups. Even the "manufacturer" group which indicated the most use of such materials had an average

Table 25

ESTIMATE OF PRESENT USE OF AUDIO-VISUAL MATERIALS
IN TYPICAL TRAINING PROGRAM

(N = 168)

Material	Almost Every Session		About 3/4 of the Session		About 1/2 of the Session		About 1/4 of the Session		Seldom or Never	
	No.	%	No.	%	No.	%	No.	%	No.	%
Motion Picture	2	1.2	1	0.6	7	4.2	17	10.1	141	83.9
Sound Slidefilm	5	3.0	0	0.0	6	3.6	13	7.7	144	85.7
Silent Slidefilm	1	0.6	0	0.0	4	2.4	9	5.4	154	91.7
35mm Slides	4	2.4	1	0.6	5	3.0	14	8.3	144	85.7
3 1/4" x 4" Slides	1	0.6	1	0.6	0	0.0	2	1.2	164	97.6
Overhead Transparency	3	1.8	4	2.4	1	0.6	6	3.6	154	91.6
Programed Learning Materials	2	1.2	1	0.6	5	3.0	7	4.2	153	91.0
Flannel Boards	0	0.0	3	1.8	2	1.2	13	7.7	150	89.3
Flip Charts	2	1.2	1	0.6	22	13.1	16	9.5	127	75.6
Board Charts	0	0.0	2	1.2	7	4.2	14	8.3	145	86.3
Models	1	0.6	3	1.8	1	0.6	8	4.7	145	86.3
Recordings	1	0.6	2	1.2	2	1.2	17	10.1	146	86.9

percentage of 81.2 per cent of seldom or never using audio-visual materials. The average percentages of seldom or never using for the other groups were: 92.8 per cent for the service and miscellaneous group; 84.4 per cent for the finance respondents; 94.7 per cent for the contract construction group; and 95.8 per cent for the transportation respondents. The tabulations of the use of audio-visual materials by the various kinds of businesses are shown in Tables 26, 27, 28, 29, 30, and 31.

A follow-up question was used to attempt to determine some of the reasons why audio-visual materials were seldom or never used. The respondents were asked to check an appropriate space for each material. Table 32 gives the distribution of their replies. It should be noted in this distribution that the most frequently mentioned reason was "lack of information about how to get;" second, "lack of information about how to use;" third, "other reasons;" fourth, "too expensive;" and five, "too hard to get."

In "other reasons" given for seldom or never using these materials in training, the rank order of written replies were:

1. Not needed.
2. Not applicable
3. None available.
4. Other methods more effective.
5. Training program too small.

Table 26

ESTIMATE OF PRESENT USE OF AUDIO-VISUAL MATERIALS
IN TYPICAL TRAINING PROGRAMS OF
MANUFACTURER RESPONDENTS

(N = 44)

Material	Almost Every Session		About 3/4 of the Session		About 1/2 of the Session		About 1/4 of the Session		Seldom or Never	
	No.	%	No.	%	No.	%	No.	%	No.	%
Motion Pictures	2	4.5	0	0.0	4	9.0	5	11.2	33	75.3
Sound Slidefilms	3	6.8	0	0.0	3	6.8	4	9.0	34	77.4
Silent Slidefilms	1	2.2	0	0.0	2	4.5	5	11.2	36	82.1
35mm Slides	2	4.5	0	0.0	4	9.0	3	6.8	35	79.7
3 1/4" x 4" Slides	1	2.2	0	0.0	0	0.0	1	2.2	42	95.6
Overhead Transparency	1	2.2	2	4.5	1	2.2	4	9.0	36	82.1
Programed Learning Materials	0	0.0	0	0.0	2	4.5	2	4.5	40	91.0
Flannel Boards	0	0.0	2	4.5	1	2.2	7	13.6	34	79.7
Flip Charts	1	2.2	1	2.2	8	18.1	9	20.4	25	57.1
Board Charts	0	0.0	1	2.2	3	6.8	4	9.0	36	82.0
Models	1	2.2	0	0.0	1	2.2	3	6.8	39	88.8
Recordings	1	2.2	1	2.2	0	0.0	5	11.2	37	84.4
Totals	13		7		29		52		427	

Table 27

ESTIMATE OF PRESENT USE OF AUDIO-VISUAL MATERIALS IN TYPICAL TRAINING PROGRAMS OF WHOLESALE AND RETAIL TRADE RESPONDENTS

(N = 42)

Material	Almost Every Session		About 3/4 of the Session		About 1/2 of the Session		About 1/4 of the Session		Seldom or Never	
	No.	%	No.	%	No.	%	No.	%	No.	%
Motion Pictures	0	0.0	0	0.0	2	4.7	8	19.0	32	76.3
Sound Slidefilms	1	2.3	0	0.0	2	4.7	3	7.1	36	85.9
Silent Slidefilms	0	0.0	0	0.0	0	0.0	1	2.3	41	97.7
35mm Slides	0	0.0	1	2.3	3	2.3	3	7.1	37	88.3
3 1/4" x 4" Slides	0	0.0	0	0.0	0	0.0	0	0.0	42	100.0
Overhead Transparency	1	2.3	0	0.0	0	0.0	0	0.0	41	97.7
Programed Learning Materials	1	2.3	0	0.0	2	4.7	3	7.1	36	85.9
Flannel Boards	0	0.0	0	0.0	0	0.0	4	9.5	38	90.5
Flip Charts	1	2.3	0	0.0	4	9.5	4	9.5	33	78.7
Board Charts	0	0.0	1	2.3	1	2.3	5	11.9	35	83.5
Models	0	0.0	2	4.7	0	0.0	3	7.1	37	88.3
Recordings	0	0.0	0	0.0	1	2.3	7	16.6	34	81.1
Totals	4		4		13		41		442	

Table 28

ESTIMATE OF PRESENT USE OF AUDIO-VISUAL MATERIALS IN TYPICAL TRAINING PROGRAMS OF SERVICE AND MISCELLANEOUS RESPONDENTS

(N = 38)

Material	Almost Every Session		About 3/4 of the Session		About 1/2 of the Session		About 1/4 of the Session		Seldom or Never	
	No.	%	No.	%	No.	%	No.	%	No.	%
Motion Pictures	0	0.0	1	2.6	0	0.0	1	2.6	36	94.8
Sound Slidefilms	1	2.6	0	0.0	1	2.6	2	5.2	34	89.6
Silent Slidefilms	0	0.0	0	0.0	1	2.6	1	2.6	36	94.8
35mm Slides	1	2.6	0	0.0	0	0.0	4	10.5	33	86.9
3 1/4" x 4" Slides	0	0.0	1	2.6	0	0.0	1	2.6	36	94.8
Overhead Transparency	0	0.0	2	5.2	0	0.0	0	0.0	36	94.8
Programed Learning Materials	0	0.0	0	0.0	1	2.6	1	2.6	36	94.8
Flannel Boards	0	0.0	1	2.6	0	0.0	0	0.0	37	97.4
Flip Charts	0	0.0	0	0.0	3	7.8	2	5.2	33	86.9
Board Charts	0	0.0	0	0.0	1	2.6	4	10.5	33	86.9
Models	0	0.0	1	2.6	0	0.0	0	0.0	37	97.4
Recordings	0	0.0	0	0.0	0	0.0	2	5.2	36	94.8
Totals	2		6		7		18		423	

Table 29

ESTIMATE OF PRESENT USE OF AUDIO-VISUAL MATERIALS IN TYPICAL TRAINING PROGRAMS OF FINANCE, INSURANCE, AND REAL ESTATE RESPONDENTS

(N = 23)

Material	Almost Every Session		About 3/4 of the Session		About 1/2 of the Session		About 1/4 of the Session		Seldom or Never	
	No.	%	No.	%	No.	%	No.	%	No.	%
Motion Pictures	0	0.0	0	0.0	1	4.3	2	8.6	20	97.1
Sound Slidefilms	0	0.0	0	0.0	0	0.0	4	17.3	19	82.7
Silent Slidefilms	0	0.0	0	0.0	1	4.3	2	8.6	20	97.1
35mm Slides	1	4.3	0	0.0	0	0.0	2	8.6	20	97.1
3 1/4" x 4" Slides	0	0.0	0	0.0	0	0.0	0	0.0	23	100.0
Overhead Transparency	1	4.3	0	0.0	0	0.0	2	8.6	20	97.1
Programed Learning Materials	1	4.3	1	4.3	0	0.0	1	4.3	20	97.1
Flannel Boards	0	0.0	0	0.0	1	4.3	2	8.6	20	97.1
Flip Charts	0	0.0	0	0.0	2	8.6	0	0.0	21	91.4
Board Charts	0	0.0	0	0.0	2	8.6	0	0.0	21	91.4
Models	0	0.0	0	0.0	0	0.0	1	4.3	22	95.7
Recordings	0	0.0	1	4.3	1	4.3	2	8.6	19	82.7
Totals	3		2		8		18		245	

Table 30

ESTIMATE OF PRESENT USE OF AUDIO-VISUAL MATERIALS IN TYPICAL TRAINING PROGRAMS OF CONTRACT CONSTRUCTION RESPONDENTS

(N = 11)

Material	Almost Every Session		About 3/4 of the Session		About 1/2 of the Session		About 1/4 of the Session		Seldom or Never	
	No.	%	No.	%	No.	%	No.	%	No.	%
Motion Pictures	0	0.0	0	0.0	0	0.0	1	9.0	10	91.0
Sound Slidefilms	0	0.0	0	0.0	0	0.0	0	0.0	11	100.0
Silent Slidefilms	0	0.0	0	0.0	0	0.0	0	0.0	11	100.0
35mm Slides	0	0.0	0	0.0	0	0.0	1	9.0	10	91.0
3 1/4" x 4" Slides	0	0.0	0	0.0	0	0.0	0	0.0	11	100.0
Overhead Transparency	0	0.0	0	0.0	0	0.0	0	0.0	11	100.0
Programed Learning Materials	0	0.0	0	0.0	0	0.0	0	0.0	11	100.0
Flannel Boards	0	0.0	0	0.0	0	0.0	0	0.0	11	100.0
Flip Charts	0	0.0	0	0.0	3	27.2	1	9.0	7	63.8
Board Charts	0	0.0	0	0.0	0	0.0	1	9.0	10	91.0
Models	0	0.0	0	0.0	0	0.0	0	0.0	11	100.0
Recordings	0	0.0	0	0.0	0	0.0	0	0.0	11	100.0
Totals	0		0		3		4		125	

Table 31

ESTIMATE OF PRESENT USE OF AUDIO-VISUAL MATERIALS
IN TYPICAL TRAINING PROGRAMS OF
TRANSPORTATION RESPONDENTS

(N = 10)

Material	Almost Every Session		About 3/4 of the Session		About 1/2 of the Session		About 1/4 of the Session		Seldom or Never	
	No.	%	No.	%	No.	%	No.	%	No.	%
Motion Pictures	0	0.0	0	0.0	0	0.0	0	0.0	10	100.0
Sound Slidefilms	0	0.0	0	0.0	0	0.0	0	0.0	10	100.0
Silent Slidefilms	0	0.0	0	0.0	0	0.0	0	0.0	10	100.0
35mm Slides	0	0.0	0	0.0	0	0.0	1	10.0	9	90.0
3 1/4" x 4" Slides	0	0.0	0	0.0	0	0.0	0	9.0	10	100.0
Overhead Transparency	0	0.0	0	0.0	0	0.0	0	0.0	10	100.0
Programed Learning Materials	0	0.0	0	0.0	0	0.0	0	0.0	10	100.0
Flannel Boards	0	0.0	0	0.0	0	0.0	0	0.0	10	100.0
Flip Charts	0	0.0	0	0.0	2	20.0	0	0.0	8	80.0
Board Charts	0	0.0	0	0.0	0	0.0	0	0.0	10	100.0
Models	0	0.0	0	0.0	0	0.0	1	10.0	9	90.0
Recordings	0	0.0	0	0.0	0	0.0	1	10.0	9	90.0
Totals	0		0		2		3		115	

Table 32

REASONS FOR SELDOM OR NEVER USING AUDIO-VISUAL MATERIALS IN TRAINING PROGRAMS

(N = 168)

Material	Too Expensive		Too Hard to Get		Lack of Information About How to Get		Lack of Information About How to Use		Other Reasons		No Reply	
	Respondents		Respondents		Respondents		Respondents		Respondents		Respondents	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Motion Picture	54	32.1	24	14.2	36	21.4	11	6.5	24	14.2	19	11.3
Sound Slidefilm	47	27.9	26	15.4	35	20.8	22	13.0	22	13.0	16	9.5
Silent Slidefilm	25	14.8	27	16.0	44	26.2	24	14.2	31	18.4	17	10.1
Overhead Transparency	9	5.3	19	11.3	49	29.1	41	24.4	31	18.4	19	11.3
35mm Slides	9	5.3	26	15.4	61	36.3	27	16.0	26	15.4	19	11.3
3 1/4" x 4" Slides	27	16.0	14	8.3	47	27.9	34	20.2	31	18.4	15	8.9
Flannel Boards	9	5.3	18	10.7	45	26.7	52	30.9	24	14.2	20	11.9
Programed Learning Materials	25	14.8	19	11.3	43	25.6	26	15.4	29	17.2	26	15.4
Flip Charts	17	10.1	16	9.5	46	27.3	48	28.5	25	14.8	16	9.5
Board Charts	14	8.3	16	9.5	75	44.6	28	16.6	23	13.6	12	7.1
Models	43	25.6	12	7.1	37	22.0	29	17.2	25	14.8	22	13.0
Recordings	22	13.0	23	13.6	51	30.3	28	16.6	25	14.8	19	11.3

6. Inappropriate material available.
7. Training is informal.
8. No projection equipment available.
9. No value in use.

Use of Audio-Visual Materials to Help in Specific Training Activities

Table 33 gives the tabulation of the responses to the use of audio-visual materials to assist with specific training activities in the companies. Here, too, the minor role of audio-visual materials in current training activities is brought to light.

Ownership of Audio-Visual Materials

The companies were asked to provide an estimate of their collection of the various audio-visual media. Table 34 provides the tabulation of these estimates. The estimates provided show that most of the companies do not own any of the materials and that few have sizeable collections.

Ownership of Audio-Visual Equipment

The questionnaire asked whether the companies owned various kinds of audio-visual equipment and devices. The distribution from the respondents who indicated ownership is shown in Table 35. The items most frequently owned were motion picture projectors and tape recorders. The least frequently owned were programed learning machines.

Table 33

USE OF AUDIO-VISUAL MATERIALS TO ASSIST WITH SPECIFIC TRAINING ACTIVITIES

Training Activity	No. of Respondents Who Use	Per Cent of 168	Rank Order
To introduce new knowledge .	41	24.4	1
To introduce new skills . . .	30	17.8	4
To impart new knowledge . .	40	23.8	2
To impart new skills.	30	17.8	4
To modify existing skills . .	21	12.4	7
To modify existing knowledge	31	18.4	3
To develop attitudes	30	17.8	4
To change attitudes	24	14.2	6
To review knowledge	26	15.4	5
To review skills	20	11.9	8
To practice knowledge	14	8.3	9
To practice skills	12	7.1	10
To test knowledge	8	4.7	12
To test skills.	9	5.3	11
To test attitudes	8	4.7	12

As a part of this same question, the companies were asked to estimate the approximate number of pieces of audio-visual equipment owned by them. Reports of ownership of only one piece of equipment were most frequent. This tabulation is shown in Table 36.

Audio-Visual Materials Made in Company Facilities

The companies were asked to check the materials which were made in their own company facilities. From the tabulation in Table 37 one should note that charts and tape recordings are produced most frequently, and there was no report of the producing of closed circuit

Table 34

COLLECTION OF AUDIO-VISUAL MATERIALS

(N = 168)

Material	None	1-100	100-250	250-500	Over 500
	Number of Respondents	Number of Respondents	Number of Respondents	Number of Respondents	Number of Respondents
Motion Picture	140	25	1	1	1
Film Loop	154	13	0	0	1
Sound Slidefilm	154	12	1	0	1
Silent Slidefilm	153	14	0	0	1
Overhead Transparency	153	10	2	1	2
35mm Slide	145	15	2	3	3
3 1/4" x 4" Slide	157	7	2	0	2
Tape Recording	142	24	1	0	1
Disc Recording	148	17	1	0	2
Chart	135	27	3	0	3
Programed Learning Material	145	17	4	0	2
Models	148	18	0	0	2

Table 35

OWNERSHIP OF AUDIO-VISUAL EQUIPMENT AND DEVICES

Equipment and Device	No. of Respondents Indicating Ownership	Per Cent of 168	Rank Order
Motion Picture Projector . . .	39	23.2	1
Sound Slidefilm Projector . . .	27	16.0	4
Overhead Transparency Projector . . .	17	10.1	5
35mm Slide Projector	29	17.2	2
3-1/4" x 4" Slide Projector	13	7.7	6
Opaque Projector	11	6.5	7
Tape Recorder	28	16.6	3
Record Player	28	16.6	3
Program Learning Machine	6	3.5	8
Total	198		

television programs. This tabulation also highlights the low level of production of these materials within companies. As shown in Table 38, the "manufacturer" group did the bulk of this production, and the other groups did little production.

As a part of this same inquiry, the questionnaire asked for an estimation of the numbers of the materials produced annually. The tabulation for these replies is shown in Table 39. No great numbers of any of the materials were produced in company facilities.

Sources for Procuring Audio-Visual Materials

The companies had been previously asked about what audio-visual

Table 36

NUMBER OF PIECES AUDIO-VISUAL EQUIPMENT AND DEVICES OWNED

Motion Picture Projector	Number Owned	1	2	3	4	5	8	10	14	20	25	No number indicated
	Number of Respondents	10	9	5	2	6	1	2	1	1	1	1
Sound Slidefilm Projector	Number Owned	1	2	3	5	9	12	15	16	30		No number indicated
	Number of Respondents	8	6	3	2	2	1	1	1	1		2
Overhead Transparency Projector	Number Owned	1	2	4	5	12						No number indicated
	Number of Respondents	6	4	2	3	1						1
35mm Slide Projector	Number Owned	1	2	3	4	8	10	18	20	30	40	No number indicated
	Number of Respondents	10	5	4	3	1	1	1	1	1	1	1
3 1/4" x 4" Slide Projector	Number Owned	1	2	3	10							No number indicated
	Number of Respondents	7	2	2	1							1
Opaque Projector	Number Owned	1	2	3	4	5	6					No number indicated
	Number of Respondents	3	2	1	2	1	1					1
Tape Recorder	Number Owned	1	2	4	5	6	9	11	15	18	20	No number indicated
	Number of Respondents	10	6	1	1	1	1	1	3	1	2	1
Record Player	Number Owned	1	2	3	5	15						No number indicated
	Number of Respondents	19	2	4	1	1						1
Programed Learning Devices	Number Owned	1	12									
	Number of Respondents	5	1									

Table 37

AUDIO-VISUAL MATERIALS MADE
USING COMPANY FACILITIES

Materials	No. of Respondents Indicating Making	Per Cent of 168	Rank Order
Motion Pictures	8	4.7	6
Sound Slidefilms	7	4.1	7
Silent Slidefilms	8	4.7	6
35mm Slides	14	8.3	5
3 1/4" x 4" Slides	7	4.1	7
Overhead Transparencies	16	9.5	4
Flannel Board Materials	14	8.3	5
Board Charts	25	14.8	1
Flip Charts	21	12.4	3
Models	14	8.3	5
Closed-Circuit TV Programs	0	0.0	9
Tape Recordings	23	13.6	2
Programed Learning Materials	4	2.3	8
Total	161		

materials they owned or made. This further probe was aimed at discovering what additional sources for such materials were used by the companies. This information is provided in Table 40. The tabulation shows that beyond "other" sources, business associations (107 respondents) were used most to secure audio-visual materials for training purposes. University audio-visual centers were used the least to secure these materials.

The companies were then asked to indicate some of the "other" sources which they used to secure audio-visual materials. These "other" sources mentioned by the respondents fell into the five groupings shown in Table 41.

Table 38

AUDIO-VISUAL MATERIALS MADE USING COMPANY FACILITIES ACCORDING TO KINDS OF BUSINESSES

Materials	Manufac. Respondents Number	Wholesale & Retail Trade Respondents Number	Service & Misc. Respondents Number	Finances Insurance & Real Estate Respondents Number	Contract Const. Respondents Number	Transp. Respondents Number
Motion Pictures . . .	5	1	1	1	0	0
Sound Slidefilms . . .	5	1	1	0	0	0
Silent Slidefilms . . .	4	1	3	0	0	0
35mm Slides	7	1	3	1	1	1
3 1/4" x 4" Slides . .	4	1	2	0	0	0
Overhead Transparencies . .	8	2	4	2	0	0
Flannel Board Materials.	9	2	1	2	0	0
Board Charts	12	4	4	3	1	1
Flip Charts	11	5	3	2	0	0
Models	8	3	2	0	1	0
Closed Circuit TV Programs . . .	0	0	0	0	0	0
Tape Recordings . .	9	4	7	3	0	0
Programed Learning Materials.	2	0	1	1	0	0
Totals	84	25	32	15	3	2

Table 39

APPROXIMATE NUMBERS OF AUDIO-VISUAL MATERIALS PRODUCED ANNUALLY IN COMPANY FACILITIES

Material										
Motion Pictures	Number Produced	1	3	4	6	No Number Indicated				
	Number of Respondents	2	2	1	1	2				
Sound Slidefilm	Number Produced	1	3	4	6	No Number Indicated				
	Number of Respondents	2	1	2	1	1				
Silent Slidefilm	Number Produced	1	2	3	10	No Number Indicated				
	Number of Respondents	3	1	2	1	1				
35mm Slides	Number Produced	20	50	100	200	400	500	No Number Indicated		
	Number of Respondents	3	2	2	2	1	2	2		
3 1/4" x 4" Slides	Number Produced	5	10	20	25	100	No Number Indicated			
	Number of Respondents	2	1	1	1	1	1			
Overhead Transparencies	Number Produced	5	10	20	25	50	100	No Number Indicated		
	Number of Respondents	3	2	1	1	2	2	5		
Flannel Board Materials	Number Produced	1	2	3	5	10	25	No Number Indicated		
	Number of Respondents	3	2	1	1	1	2	4		
Board Charts	Number Produced	1	2	3	4	10	15	25	100	No Number Indicated
	Number of Respondents	4	5	2	2	3	2	1	1	5
Flip Charts	Number Produced	1	2	3	5	10	25	100	No Number Indicated	
	Number of Respondents	6	3	2	2	2	1	2	3	
Models	Number Produced	1	2	5	6	10	20	25	No Number Indicated	
	Number of Respondents	4	2	2	1	1	1	1	2	
Tape Recordings	Number Produced	1	2	3	5	10	12	30	50	No Number Indicated
	Number of Respondents	5	4	2	3	2	1	1	1	4
Programed Learning Materials	Number Produced	1	10	15	No Number Indicated					
	Number of Respondents	1	1	1	1					

Table 40

SOURCES OTHER THAN COMPANY OWNERSHIP OR PRODUCTION FOR PROCURING AUDIO-VISUAL MATERIALS

Material	University Audio-Visual Centers	Commercial Film Libraries	Business Associations	Government Agencies	Other Sources	Can't Secure
	Number of Respondents	Number of Respondents	Number of Respondents	Number of Respondents	Number of Respondents	Number of Respondents
Motion Pictures . .	9	22	46	9	10	7
Sound Slidefilm . . .	3	14	15	5	8	9
Silent Slidefilm . . .	1	10	7	2	5	10
35mm Slides	1	7	9	3	14	10
3 1/4" x 4" Slides .	0	4	1	1	7	12
Overhead Transparency . .	0	1	0	0	12	10
Flannel Board Materials	0	1	3	0	10	10
Board Charts	0	2	5	0	11	11
Flip Charts	0	2	7	0	13	11
Models	0	0	4	0	11	9
Tape Recordings . .	0	7	5	0	12	10
Programed Learning Materials . . .	0	1	5	0	11	11
Totals	14	71	107	20	124	120

Table 41

"OTHER" SOURCES FOR SECURING AUDIO-VISUAL MATERIALS

Source	Number of Respondents
Companies we represent	8
Commercial Media Producers	6
Professional Associations	2
Parent Companies	2
Technical adviser to Company	2
Total	20

Uses of Specific Media in Training

The first in the series of questions used to determine the use of some specific media for training purposes was concerned with repetitive film cartridges. Only nine respondents (5. 4 per cent) indicated that their companies had used them in training. The written comments on how they were used were: (1) to show close-ups of complex mechanical functions; (2) for service training (2 respondents); (3) for sales training (3 respondents); (4) for overall training of retail personnel; (5) to train tellers; and (6) to do time study training.

The written comments for not using repetitive film cartridges were:

1. Not needed (15 respondents).
2. Have not been made available by home office (8 respondents).
3. Too expensive (7 respondents).

4. Do not know about them (5 respondents).

5. Cannot locate (3 respondents).

6. No equipment for use (1 respondent).

The next question was concerned with the utilization of 3-D slides. Here, but one respondent reported that such slides were used, and this single user did not report how the slides were used. The written replies concerning these non-uses were:

1. Not needed (25 respondents).

2. Not available (15 respondents).

3. Too costly (9 respondents).

4. Have not been made available by home office (5 respondents).

5. Bothersome—special glasses needed.

6. Focusing problem too difficult.

7. See no advantage to them

The query concerning the use of film loops in training brought eighteen indications (10. 7 per cent) that they were used in training. The reasons written for how they used them were:

1. Sales training (4 respondents).

2. Workshop on methods (2 respondents).

3. Time study instruction (2 respondents).

4. Product presentation.

5. In metallurgy training.

6. Dealer training.

7. Used on perceptascope.

The reasons given for not using film loops in training fell into these categories of response:

1. Not needed (10 respondents).

2. Too costly (6 respondents).

3. Not available (4 respondents).

4. Do not know about them (4 respondents).

5. Not available from home office (2 respondents).

The written replies to the questions concerning the use of programed learning materials indicated that there was a definite interest in the present and future use of this medium. Twenty respondents (11.9 per cent) indicated that their organizations had used programed learning materials for training. The ways they used these materials were:

1. To train salesmen (3 respondents).

2. To train new people (3 respondents).

3. For individual study training (3 respondents).

4. A. M. A. Cost Control Program for supervisory employees (2 respondents).

5. On a home-office study basis.

6. For teller training.

7. Training in basic product information.

8. Don't know exactly, not familiar with details of how used.

9. A. M. A. Foreman Training Program.
10. To teach fundamentals.
11. In clinics.

The reasons advanced for not using such materials were:

1. Don't know what they are (10 respondents).
2. Don't need (8 respondents).
3. None available for our needs (6 respondents).
4. Too costly (3 respondents).
5. Still experimenting with them.
6. Probably will though when we know more about them.
7. Self-instruction never seems to be helpful.

The question was then asked, "Do you think programed learning materials and other self-instructional materials and devices will help in the training at your organization?" A "yes," "no," or "maybe" answer was requested, together with any comment they would like to make.

Thirty-five respondents (20.8 per cent) thought that such materials and devices would be helpful for these reasons:

1. Reduce training time (6 respondents).
2. Will speed up learning (4 respondents).
3. Will lower the training costs (4 respondents).
4. Will allow individual study (3 respondents).
5. Will permit self-study at home (3 respondents).
6. Will be good for training salesmen (3 respondents).

7. For apprentice training programs (2 respondents).

8. Good for small plants in industrial training.

9. Will aid trainees who have varying levels of knowledge of subject to progress at own speed.

10. Many courses can be adapted to it.

11. Retention of information should be better.

12. Should be good for learning technical aspects.

13. Should help to formalize the training program.

14. Using it should give more predictive results.

15. Will make it easier to train people.

16. Will probably be good for supervisory training programs.

An additional twenty-one respondents (12. 5 per cent) thought that "maybe" such materials would be helpful, with these comments regarding how they might be used:

1. When we know more about it (6 respondents).

2. None have been developed, however, for our industry (3 respondents).

3. But I don't think they are applicable to our kind of training (3 respondents).

4. We have not yet tried (2 respondents).

5. For use with corporate personnel, but perhaps not for sales people in dealerships.

6. However, we would need to investigate.

7. Perhaps, but we lack trained educators in our plant at present.

8. If it fits the specific problem at hand.

9. Because it might be used to let trainees learn and progress at their own speed as time and conditions warrant.

The reasons given for contemplating no use of such materials in training were the same as the main reasons given in the previous question for not using self-instructional materials: (1) lack of knowledge about them; (2) not needed for their kind of training; (3) too costly; and (4) none available for use in their kind of business.

Twenty-five (14. 9 per cent) respondents replied that they were familiar with the new 8mm magnetic sound films and projection equipment. Of this group only seven thought they held some importance for training within their organizations. These comments were:

1. Low cost of prints (2 respondents).

2. Easy to run the projectors (2 respondents).

3. Projectors are light and easy to carry around.

4. Good for sales training.

5. Equipment is cheap.

There were only twenty-four comments on why 8mm magnetic sound films would hold no importance for training. They were:

1. No need in our training (8 respondents).

2. Do not know enough about them (5 respondents).

3. Do not see any great advantage over 16mm films (4 respondents).

4. None available for our business (3 respondents).

5. Have not yet tried, so do not know (3 respondents).

6. 16mm is more applicable

The next question tried to elicit an estimate of whether the use of audio-visual materials in training was increasing, decreasing, or had remained the same when compared with their use two years ago. Twenty respondents (11.9 per cent) thought the use was increasing; three (1.8 per cent) estimated a decrease in use; and the remainder reported no change.

The estimates of increasing use of audio-visual materials in training programs were: manufacturers (8 respondents); wholesale and retail trade (5 respondents); service and miscellaneous (6 respondents); and finance, insurance, and real estate (1 respondent). The three indications of decreasing use were two respondents from the wholesale and retail trade; and one respondent from the service and miscellaneous group. The comments in regard to remaining at the same levels, decreasing, or increasing use were:

Remaining at the same levels:

1. Not needed (9 respondents).

2. No new materials developed (8 respondents).

3. Have always used very few (6 respondents).

4. Few materials available (5 respondents).

5. Limited training program which has remained the same (4 respondents).

6. Cannot afford more (4 respondents).

7. Staff size has remained the same (3 respondents).

8. We feel present materials are sufficient (2 respondents).

9. Always have used aids appropriately.

Reasons for decreasing:

1. Business has been down during the period.

2. Materials we know about are too old.

3. Staff has been cut back.

Reasons for increasing:

1. Greater availability of materials (3 respondents).

2. Greater understanding of benefits (2 respondents).

3. Better quality of materials (2 respondents).

4. We are buying our own audio-visual equipment (2 respondents).

5. Need for materials have now been recognized.

6. Upgrading program for personnel.

7. More available from manufacturer.

8. Importance of covering more material in less time.

9. We find it more effective.

10. Considering time, cost, repetitive use— good for training.

11. We are getting into more training.

12. Saves time, provides accurate information and many times the audience retention is better.

13. As the result of the creation of a corporate industrial relations department.

14. New director of marketing who installed a new training program.

15. There is a certain necessity as well as usefulness about their use.

Instructional Techniques Training Programs

The questionnaire asked whether the organization itself or some outside organization had ever prepared and presented a training program or instructional techniques to their training personnel.

Sixteen respondents (9. 5 per cent) indicated that their own organization had prepared and presented such a program.

Eighteen respondents (10. 7 per cent) replied that an outside organization was engaged for this activity.

Need for Collection of Materials

"Do you think a collection of business and industrially-oriented audio-visual materials is needed in Detroit?" was the next question posed on the questionnaire. Forty-six "yes" replies were received (27. 3 per cent). The reasons given for presuming a need for such a collection were:

1. To help train and instruct people in new skills and techniques (3 respondents).

2. Would be more convenient than other sources (3 respondents).

3. Cost is generally prohibitive for any one firm (3 respondents).

4. Would benefit all concerned (2 respondents).

5. To make Detroit organizations more capable (2 respondents).

6. Obviously, to increase proficiency (2 respondents).

7. For educating industry (2 respondents).

8. Ease of access for those of us who need them (2 respondents).

9. To build up a better labor force in Detroit (2 respondents).

10. To strengthen our training programs (2 respondents).

11. There is a need (2 respondents).

12. For professional training use.

13. For trade training.

14. Would be of great benefit if properly distributed and correctly used.

15. To aid smaller companies who lack personnel, time, and money.

16. So I could have the use of them.

17. Will help to sell Detroit and help ourselves.

18. To help bring in new industry.

19. For growth and improvement.

20. To meet the needs of smaller companies that have no formal training program.

21. Would be a good source training people could draw from.

22. Certain fields of endeavor need good trainees.

23. Lack of qualified people in the labor market.

24. Could procure them easily at lower cost than tailor made materials.

25. Professional help is always welcome.

26. Their use is becoming more common yearly.

27. Just good availability.

28. We are aware of potential in this area.

29. Encourages new methods and new ideas.

30. Most training divisions are not aware of range of materials available.

31. Very valuable in certain industries.

32. Maybe (4 respondents).

These "yes" replies were well distributed among all of the different kinds of businesses. The tabulation of "yes" replies is shown in Table 42. The greatest percentage of interest (30.9 per cent) was indicated by the wholesale and retail group, and the lowest percentage (21.7 per cent) by the finance, insurance, and real estate businesses.

The comments given for thinking that such a collection would not be needed were:

1. No need for it in our field (7 respondents).

2. Most are too general in nature or are owned by competitors.

3. Could not be specific enough for one company—would be too general.

Table 42

INDICATED NEED FOR A COLLECTION OF BUSINESS AND INDUSTRY-ORIENTED AUDIO-VISUAL MATERIALS BY KINDS OF BUSINESSES

Kind of Business	Respondent Number	Indications Number	Per Cent of Respondents
Manufacturers	44	13	29.5
Wholesale and Retail Trade . .	42	13	30.0
Service and Miscellaneous . .	38	9	23.6
Finance, Insurance, and Real Estate.	23	5	21.7
Contract Construction	11	3	27.2
Transportation.	10	3	30.0
Totals	168	46	

4. Industrial training is trending to specifics and the needs of each plant and business could probably not be met.

5. Can't see a practical need in our organization.

6. To help a small company, it would have to be too specific—the large company should help itself.

7. Doubt if our kinds of materials are available.

Forty-seven respondents (27.9 per cent) indicated that their companies would rent such materials. Nine respondents (5.3 per cent) replied that they might possibly rent them. Two answered that they "did not know" if they would rent the materials.

Recommended Good Utilization Techniques

Ten respondents suggested good techniques which their organiza-

tions had discovered and which they would recommend to others. These recommendations were:

1. After record has concluded with a sound slide-film: instructor turns back to frames that illustrate points he wishes to add further comments to. The use of the frames makes his remarks remembered.

2. We use polaroid slides for quick presentation of information. They are inexpensive are are made in about a minute.

3. We like the overhead transparency because we we can make the slides on our office copy machine.

4. By using these materials we hope the training is standardized and everybody gets the same information.

5. We reproduce our paper work on overhead transparencies and teach new procedures to whole groups that way. Saves a lot of time.

6. Overhead transparency copies of our sales slips are made and are used to train our seasonal help in how we want them written up.

7. The feltboard is good for working out organizational charts and layout problems. The pieces can be moved around until you get the structure which is best.

8. We make tape recordings of our important meetings. That way we have a record and nothing is forgotten or missed.

9. Try making a tape recording to go along with some slides sometimes. This, we have found makes sure that the right thing is said with the slide every time.

10. We make pointers from car radio aerials. We stick a wooden handle on the end of them and it gives us a pointer that can be whatever length you want.

Annual Audio-Visual Expenditures

Minimal information was provided by the respondents in regard to annual expenditures for audio-visual activity. The report of expenditures for the rental of audio-visual materials is shown on Table 43. It should be noted that only two respondents (from large corporations) reported expenditures which could provide for widespread rentals of such materials.

Table 43

ANNUAL EXPENDITURES FOR THE RENTAL OF AUDIO-VISUAL MATERIALS

Amount of Money Spent	Number of Companies
$20.00	1
$25.00	1
$50.00	7
$100.00	4
$200.00	5
$250.00	2
$275.00	1
$300.00	3
$500.00	4
$1,500.00	1
$25,000.00	1
Total	30

The annual expenditures for the purchase of audio-visual materials shows even less activity. Table 44 gives the distribution of these reported expenditures.

According to the responses received, very few pieces of audio-

Table 44

ANNUAL EXPENDITURES FOR THE PURCHASE OF AUDIO-VISUAL MATERIALS

Amount of Money Spent	Number of Companies
$10.00	1
$15.00	1
$25.00	6
$50.00	6
$80.00	1
$100.00	3
$200.00	2
$250.00	1
$300.00	1
$500.00	1
$20,000.00	1
Total	24

visual equipment are purchased each year for use in training programs. The expenditures for such purchases are given in Table 45.

Table 45

ANNUAL EXPENDITURES FOR THE PURCHASE OF AUDIO-VISUAL EQUIPMENT

Amount of Money Spent	Number of Companies
$100.00	8
$200.00	3
$300.00	2
$500.00	2
$1,000.00	2
$5,000.00	1
Total	18

Three companies reported on expenditures for salaries of audio-visual personnel. The annual salary expenditures reported were: $10,000, $12,000, and $18,000.

Two companies reported "other" audio-visual expenses: $200 and $5,000. There was no written indication of what was included in these "other" expenses.

Twenty-two respondents (13 per cent) thought that the amount of money which was available for the above purposes was adequate. Thirty (17.8 per cent) indicated that the amount was inadequate. Nineteen (11.3 per cent) indicated "don't know." Ninety-seven (57.7 per cent) provided no answer.

Length of Time in Use of Audio-Visual Materials

The questionnaire asked for an estimate of the length of time the organization had been using audio-visual materials in the training program. The distribution shown on Table 46 reflects the minimal use of such materials. Most companies (77 or 45.8 per cent) have never used these materials in training programs.

Audio-Visual Resources

The questionnaire first asked if the individuals were familiar with any references for locating sources of audio-visual materials and then requested an indication of which ones they found best or most useful.

Only thirty respondents (17.8 per cent) indicated familiarity with

Table 46

APPROXIMATE NUMBER OF YEARS AUDIO-VISUAL MATERIALS HAVE BEEN USED IN TRAINING

(N = 168)

	Companies	
	No.	%
None	77	45.8
Less than one	3	1.8
1	4	2.4
2	4	2.4
3	5	3.0
4	2	1.2
5	8	4.8
6	2	1.2
7	1	0.6
10	9	5.4
15	7	4.1
20	2	1.2
23	1	0.6
25 to 30	3	1.8
100	1	0.6
Many years	4	2.4
No report	35	20.7

any references for locating audio-visual materials. Even these few respondents, however, were not aware of the many references available to them, as attested by their written indications of the references known to them:

1. Public library (4 respondents).
2. Our own knowledge of sources.
3. Pictorial publishers.
4. Materials supplied by manufacturers.
5. Film catalogs.
6. University of Michigan — Michigan State University: Audio-Visual Center.

7. Film catalogs.
8. Yellow pages.
9. Government film libraries.
10. American Banking Association.
11. Modern Talking Picture Service.
12. Wilding Films Catalog.
13. Michigan Bell Telephone Company.
14. A-V magazines.
15. Commercial film library catalogs.
16. Business association reviews.
17. Safety Council.
18. American Hospital Association.
19. American Institute of Architects.
20. General Motors Institute Library.
21. Company maintains card catalog.
22. Film production companies.
23. Michigan Hospital Association.

In response to the question, "Is there a need for more help in locating materials for training purposes?" sixty-two respondents (36.9 per cent) indicated "yes"; four indicated "maybe"; six indicated "don't know."

Of the contract construction respondents (54.5 per cent) indicated this need, closely followed by the manufacturer group in which 52.2 per cent of the respondents recognized the need for more assistance. All of the different kinds of businesses, however, reflected fairly high percentages of "yes" answers. The tabulations by kinds of businesses are shown in Table 47.

The subject matter areas mentioned for which assistance was required to locate materials were:

1. General sales training (10 respondents).
2. Foreman training (8 respondents).
3. Clerical (5 respondents).
4. Office procedures (4 respondents).

Table 47

NEED FOR MORE HELP IN LOCATING MATERIALS FOR TRAINING PURPOSES BY KINDS OF BUSINESSES

Kind of Business	No. of Respondents	No. of "YES"	% of Respondents
Manufacturer	44	23	52.2
Wholesale and Retail Trade . . .	42	12	28.5
Service and Miscellaneous	38	10	26.3
Finance, Insurance, and Real Estate	23	7	30.4
Contract Construction	11	6	54.5
Transportation	10	4	40.0
Totals	168	26	

5. Supervisory training materials (4 respondents).
6. Employee attitude (4 respondents).
7. Industrial relations (3 respondents).
8. Management training (3 respondents).
9. Public relations (3 respondents).
10. Bookkeeping (3 respondents).
11. Customer relations (3 respondents).
12. All (3 respondents).
13. Motion study (2 respondents).
14. Production efficiency (2 respondents).
15. Business correspondence (2 respondents).
16. Improving technical personnel (2 respondents).
17. Human relations materials (2 respondents).
18. General education-upgrading (2 respondents).
19. Teller training (2 respondents).
20. Banking skill training (2 respondents).
21. Product introduction training (2 respondents).
22. Accounting (clerical).
23. Payroll tax (clerical).
24. Mail.
25. Creative thinking.
26. Chemicals and their application.
27. Functional areas of motor truck industry.
28. Material handling.
29. Asphalt paving.

30. Switchboard.
31. Food industry as a whole.

Possible Cooperation with University Audio-Visual Center

The first question on this topic was concerned with the services of a university audio-visual center which would be useful to their organizational training programs.

The most interest was evidenced in the rental and loan of the audio-visual materials for training purposes (38. 1 per cent). There was least interest in formalized courses dealing with audio-visual materials and their use presented at the company (3. 5 per cent). The analysis of the responses also shows that less than 10 per cent of the respondents expressed interest in eight other suggested services of a university audio-visual center. The tabulations of the services which were checked as being definitely useful or perhaps useful are shown in Table 48.

Sixty-six respondents (39. 2 per cent) indicated that a university audio-visual center could help the training program of their organizations.

All of the different kinds of businesses had high percentages of indications that a university audio-visual center could provide help. The highest percentage (56. 8 per cent) was indicated by the manufacturer group. The lowest percentage (28. 9 per cent) was shown by the service and miscellaneous group. The tabulations of responses by different kinds of businesses are shown in Table 49.

The ways in which a center could help were indicated to be:

Table 48

USEFUL SERVICES OF A UNIVERSITY AUDIO-VISUAL CENTER FOR TRAINING PROGRAMS

Service	No. of Companies			
	Yes		Maybe	
	No.	%	No.	%
Consultation in the Selection and Purchase of Audio-Visual Equipment and Materials . . .	33	19.6	22	13.0
Consultation in the Proper Use of Equipment and Materials	23	13.6	20	11.9
Consultation in the Production of Audio-Visual Materials	16	9.5	19	11.3
Rental and Loan of Audio-Visual Materials for Training Purposes	64	38.1	22	13.0
The Actual Production of Audio-Visual Materials for Training Purposes	10	5.9	22	13.0
In-Plant Workshops and Seminars dealing with the Proper Use of Audio-Visual Materials in Training	8	4.7	21	12.4
Workshops and Seminars dealing with the Proper Use of Audio-Visual Materials in Training given at the University	12	7.1	25	14.8
Formalized University Courses at your Organization dealing with Audio-Visual Materials and their Use	6	3.5	14	8.3
Formalized University Courses given at the University dealing with Audio-Visual Materials and their Use.	8	4.7	20	11.9
Facilities and Services for the Inspection, Repair, and Renovation of Materials owned by your Organization	8	4.7	15	8.9

Table 48 — Continued

Service	No. of Companies			
	Yes		Maybe	
	No.	%	No.	%
An Information and Consultation Center dealing with the following:				
1. Sources of Audio-Visual Materials .	47	27.9	24	14.2
2. Cost of Specific Materials	36	21.4	19	11.3
3. Production Cost Information	18	10.7	12	7.1
4. Production Technique Information. .	19	11.3	12	7.1
5. Instructional Techniques.	32	19.0	16	9.5
6. Recording Techniques	17	10.1	10	5.9
7. Graphic Arts Production	10	5.9	17	10.1
8. Audio-Visual Equipment Maintenance Problems	9	5.3	18	10.7
9. Programed Learning Techniques . .	39	23.2	21	12.4

1. As an information source (14 respondents).
2. The rental of films (12 respondents).
3. By supplying basic education in the use of audio-visual aids (8 respondents).
4. By serving in advisory and consulting capacity (7 respondents).
5. The rental of equipment (6 respondents).
6. Provide training in programed learning (4 respondents).

Table 49

INDICATIONS THAT A UNIVERSITY AUDIO-VISUAL CENTER COULD HELP TRAINING PROGRAMS BY KINDS OF BUSINESSES

Kind of Business	Total Respondent No.	No. "YES" Responses	% Total Respondents
Manufacturer	44	25	56.8
Wholesale and Retail Trade .	42	13	30.9
Service and Miscellaneous . .	38	11	28.9
Finance, Insurance, and Real Estate	23	7	30.4
Contract Construction	11	6	54.5
Transportation	10	4	40.0
Totals	168	66	

7. By providing specialized lists of materials (3 respondents).

8. To help us get started (2 respondents).

Fifty-four of the above respondents (32.1 per cent) indicated that they would be willing to pay a fee for such services and two respondents replied that "perhaps" they would be willing to pay a service charge.

Future Plans for the Use of Audio-Visual Materials

The questionnaire asked for an indication of topical areas for which audio-visual materials were most needed in their organization. The topical area of supervisory training was listed most frequently by the respondents (22.6 per cent). Clerical training received the least number of indications (8.9 per cent). The distribution of these estimates is shown in Table 50.

Table 50

TOPICAL AREAS FOR WHICH AUDIO-VISUAL MATERIALS ARE MOST NEEDED FOR TRAINING

(N = 168)

	Companies	
	No.	%
Supervisory Training	38	22.6
Production Skill Training	22	13.0
Quality Control	17	10.1
Labor-Management Problems	17	10.1
Clerical Training	15	8.9
Others	24	14.2
No Report	35	20.8

Of the twenty-four indications of "other areas" where audio-visual materials were needed, thirteen respondents listed sales training. This number represented over half (54.1 per cent) of the total of the "other" topical areas. Also, all of the different kinds of businesses except contract construction and transportation indicated sales training audio-visual materials as being needed. The complete list of "other areas" which were given were:

1. Sales training (13 respondents).
2. Management development (2 respondents).
3. Communication (2 respondents).
4. Human relations (2 respondents).
5. Client presentations (2 respondents).
6. Cost control.
7. Product Information.
8. Creative thinking.

The topical areas responses when examined according to kinds of businesses also shows a high interest by all types of respondents in

supervisory training materials. The other topical areas where material is needed, however, varies according to the kind of business. The tabulation of these needs is shown in Table 51.

Only fourteen companies (8. 3 per cent) indicated that they would be interested in an industrial film project which would have labor and management representatives review audio-visual materials and then issue published evaluations and comments on the materials.

The questionnaire then asked the companies to check the limitations to the use of audio-visual materials for training purposes within their organizations. The tabulation of the responses to this question is shown in Table 52. It should be noted that the lack of an adequate audio-visual budget was checked most frequently; lack of knowledge about audio-visual materials was second in frequency; and limited quality of currently available materials was third. The total exceeds 168 because some respondents checked more than one limitation.

"Not applicable to our kind of business" was the most frequent "other limitation" given by the respondents. The other limitations which were cited are:

1. Not applicable to our kind of training (4 respondents).
2. Lack of qualified training personnel. (3 respondents).
3. Lack of knowledge (3 respondents).
4. Lack of time (2 respondents).
5. Our training is too specific (2 respondents).

Table 51

TOPICAL AREAS FOR WHICH AUDIO-VISUAL MATERIALS ARE MOST NEEDED FOR TRAINING ACCORDING TO KINDS OF BUSINESSES

Topical Areas	Manufac.		Whlse. & Retail Trade		Service & Misc.		Finance		Contract Const.		Transp.	
	No.	% of 44	No.	% of 42	No.	% of 38	No.	% of 23	No.	% of 11	No.	% of 10
Supervisory Training . .	13	29.5	7	16.6	7	18.4	4	17.3	4	36.3	3	30.0
Production Skill Training	9	20.4	0	0.0	5	13.1	2	8.6	4	36.3	2	20.0
Quality Control	8	18.1	1	2.2	4	10.5	0	0.0	3	27.2	1	10.0
Labor-Management Problems	9	20.4	1	2.2	5	13.1	0	0.0	2	18.1	0	0.0
Clerical Training	6	13.6	2	4.6	3	7.8	1	4.3	2	18.1	1	10.0
Others	8	18.1	9	21.4	3	7.8	2	8.6	1	9.0	1	10.0
Totals	53		20		27		9		16		8	

Table 52

LIMITATIONS TO THE USE OF AUDIO-VISUAL MATERIALS FOR TRAINING PURPOSES

	No. of Companies	Per Cent of 168
Lack of Adequate Audio-Visual Budgets	41	24.4
Audio-Visual Materials Currently Available are of Limited Quality	34	20.2
Lack of Audio-Visual Specialists	19	11.3
Lack of Knowledge About Audio-Visual Materials Available for Training	38	22.6
Lack of Knowledge About How to Use Audio-Visual Materials in Our Training Program . .	30	17.8
Lack of Suitable Place for Using Audio-Visual Materials	16	9.5
Other Limitations	18	10.7
Total	196	

6. Small number of employees and scope of operation (2 respondents).

7. Too few people in each location to warrant cost.

8. Decisions about use are made by the home office.

The respondents were next asked to check the materials which their organizations were planning to use extensively in training programs in the next five years. This tabulation is shown in Table 53. The use of programed learning materials, even though relatively recent in development, ranks fourth in this indication. Motion pictures with fifty-three

indications (26. 1 per cent) ranked first. The total exceeds 168 because some respondents checked more than one type of material.

Table 53

MATERIALS COMPANIES PLAN TO USE EXTENSIVELY IN THE NEXT FIVE YEARS

Material	No. of Companies	Rank Order
Motion Pictures	53	1
Film Loops	7	8
Silent Slidefilms	6	9
Sound Slidefilms	15	6
Overhead Transparencies	12	7
35mm Slides	19	5
3-1/4" x 4" Slides	5	10
3-D Slides	1	11
Charts	26	2
Flannel Board Materials	15	6
Tape Recordings	23	3
Closed Circuit TV Programs	1	11
Programed Learning Materials	20	4
Total	203	

A follow-up question then asked for an estimate of preferences of use. Table 54 gives the tabulation of these estimates. Motion pictures ranked first in preference of use, with the most companies indicating that motion pictures were judged to be "of extreme value" and "of considerable value." The use of charts ranked second in preference. Closed circuit television programs ranked last. Programed learning materials had the most respondents who did not know about their use in training.

Table 54

PREFERENCES OF USE OF MEDIA IN TRAINING PROGRAMS

(N = 168)

Media	Of Extreme Value		Of Considerable Value		Of Some Value		Of Little Value		Don't Know About		Don't Use	
	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	%
Motion Pictures	12	1	30	1	8	1	2	3	4	5	112	66.7
Film Loops	2	7	4	8	3	5	3	2	7	2	149	88.7
Sound Slidefilms	4	5	13	4	8	1	2	3	6	3	135	80.4
Silent Slidefilms	2	7	3	9	4	4	4	1	4	5	151	89.9
Overhead Transparencies	5	4	11	5	8	1	2	3	4	5	138	82.1
35mm Slides	3	6	16	3	5	3	2	3	3	6	142	84.5
3 1/4" x 4" Slides	3	6	2	10	2	6	4	1	4	5	153	91.1
3-D Slides	2	7	1	11	3	5	2	3	5	4	155	92.3
Charts	7	3	18	2	7	2	2	3	2	7	132	78.6
Flannel Board Materials	4	5	8	7	7	2	3	2	5	4	141	83.9
Tape Recordings	8	2	10	6	4	4	3	2	3	6	140	83.3
Closed Circuit TV Programs	2	7	0	12	2	6	3	2	6	3	155	92.3
Programed Learning Materials	8	2	13	4	3	5	2	3	9	1	143	85.1

In addition, these comments were received:

1. All have great value depending on situation involved, budgets available, and other such factors.

2. Value is the result, not of the media itself, but the way they are used.

3. Particular aids used and their values depend on factors of need, objective, time, cost, etc. Motion pictures can do one job, slides another, etc.

4. They are all valuable, depending on the application.

5. Very impressed with programed learning materials. Would like to see programs developed for sales training and customer relations.

The final question asked for any suggestion or comment the respondent would like to make. These comments were:

1. Our firm is too small to benefit from these materials unless this was done on a service for all.

2. The food industry is young and vigorous and needs qualified people. These materials would help to train them.

3. I certainly would like to know more about these techniques so we can benefit from them.

4. We are deficient in training programs and we need to do something about it.

5. Service training is becoming more important to us each year, and in this training visual aids are a must.

6. I think part of your project should be to make management audio-visual minded, and you should show them what it can do.

7. Your inquiry was interesting. It started me to think about what we should be doing in our training.

8. As a personnel man responsible for training, I see I have much to learn.

9. We certainly will be interested in your results and your plans.

10. A project like this is badly needed, and I would be happy to help in any way I can.

11. I would appreciate the results of the study and the University's plans based on its results.

12. Our home office needs to know about some of these things.

13. Even though our training is limited, I would like to try some of these materials.

14. Keep us informed.

15. Because of the limited education of our trainees, we should use more audio-visuals.

16. We are working on a new type of training for our chain, and I hope to make use of the above materials in it.

17. Tailor-made materials are too expensive, therefore, would be interested in your collection.

18. I think we are too small and too specialized, but I will be interested in your results and perhaps how we could use them.

19. Have not used audio-visual materials—probably should.

20. Do not feel this applies to our training at present, but have open mind on the subject.

21. We do not have adequate space or staff for an adequate program.

22. I'm sure necessity will make us use these.

23. This could be most helpful for a large firm.

In addition, one respondent suggested that the questionnaire was too long and three others indicated that the questionnaire did not apply to their kinds of businesses.

This, then, concludes the presentation of the data gathered by the questionnaire. The conclusions and implications derived from this information will be described in the next chapter.

CHAPTER V

SUMMARY AND CONCLUSIONS

The Purposes

The purposes of this study were: (1) to determine the current use, the ownership, and the future plans for the use of audio-visual materials and devices in the training programs of selected business and industrial concerns of metropolitan Detroit; (2) to determine the audio-visual needs for training in these business and industrial companies; (3) to determine the support functions which could fulfill such needs; and (4) to determine which of these support functions could be provided through the services of the Audio-Visual Utilization Center of Wayne State University.

The Procedure

Accepted statistical practices and procedures were followed in the definition of the population to be studied, in the development of the questionnaire, and in the determination of the adequate sample from the population.

The population which was studied was the list of the business concerns which make up the membership of the Greater Detroit Board of Commerce.

A questionnaire was constructed in accordance with the methods

recommended for structuring such an instrument. The draft of this questionnaire was answered by a number of people in business and industry as a pilot study of the questionnaire. The responses to this pilot study coupled with personal interviews with the respondents led to the revision of the questionnaire into a functional and practical instrument.

As a part of the statistical procedure, a pilot study of the population was then made to determine the random sampling variance of the population.

Following the determination of the sampling variance of the population, a suitable stratified random sampling design was designed for use with the dichotomous population. (Statistical procedures indicated that the return of 167 units would provide for adequacy of sample in this population.)

Utilizing acceptable random sampling procedures, 600 sample units were selected. The sampling size of 600 units was deemed to be sufficient to provide the return of the required 167 units.

Questionnaires with an accompanying letter of transmittal were mailed to each of the 600 companies selected as sample units in the sampling procedure. At the end of a four-week period, a follow-up letter with a questionnaire attached was sent to the non-respondents.

By the end of another four-week period, which was selected as the cut-off point for the accumulation of data, a total of 168 returns had been received. This number of returns met the "adequacy of sample"

requirements of the study.

The statistical procedure of content analysis was utilized in appraising the significance of the data.

The Conclusions

The conclusions below are organized around the hypotheses which were stated in Chapter I.

1. Even though the public is constantly bombarded by their expensive audio-visual advertising and public relations presentations on radio and television, business and industry recognizes little value for such materials for training purposes.

Verification of this hypothesis may be found in the estimates which were provided by the respondents in regard to their preferences of use of media in training programs. This information shown in Table 54 highlights the present regard for such materials in training. The use of motion pictures, for instance, ranked first in the preference of use by business trainers. Even with motion pictures, however, only 23.8 per cent of the respondents indicated that motion pictures were "of extreme value," "of considerable value," or "of some value." The remaining 76.2 per cent indicated that motion pictures were "not used," were "of little value," or that they "didn't know about" their use.

A further proof is provided by the estimates of the respondents concerning the audio-visual materials which they contemplated using extensively in the next five years. However, only 26.1 per cent of the

respondents foresaw extensive use of this medium in the immediate future. The anticipated future uses of all of the other audio-visual materials were, of course, even lower.

Then, in all but one of the probes concerning the non-uses of specific media, the comment of "not needed" was given as the main reason for not using such materials (and in one media this comment ranked second behind the comment, "don't know what they are.").

Finally, the estimates provided by the respondents relative to the future use of all audio-visual materials are meaningful. Only 11.9 per cent thought that the use of such materials was increasing; 1.8 per cent estimated a decrease in use; and the remaining 86.3 thought there would be no change in the amount of use. The estimates indicate that the present extremely low rates of utilization would be continued.

Thus, indeed, business and industry in metropolitan Detroit recognize little value for such materials for training purposes.

2. Inadequate use is made of audio-visual instructional materials and devices in the training programs of the population.

Tables 25, 26, 27, 28, 29, 30, and 31 provide data which confirm this hypothesis. The population as a whole reported a 83.9 percentage of "seldom or never" using the motion picture (which ranked first) in training programs. The percentages of reports of "seldom or never" using the other kinds of audio-visual materials were even higher, ranging up to 97.6 per cent in the report upon the use of 3 1/4" x 4" slides.

The audio-visual materials, too, are not used by any of the different kinds of businesses. When the responses were analyzed according to the various kinds of businesses, all types of businesses reported high levels of non-use. The manufacturer group which recorded the highest percentage of overall utilization, reported an average percentage of 81.2 per cent of "seldom or never using" audio-visual materials. The transportation group reported the least use with a 95.8 per cent indications of "seldom or never using" such materials in typical training programs.

Also, in all of the questions delving into the uses of specific kinds of audio-visual materials in training there were the same indications of inadequate utilization. For instance, only 5.4 per cent of the respondents indicated any use of film cartridges; only 10.7 per cent had ever used film loops; and just 14.3 per cent had used the inexpensive medium of 35mm slides.

The data presented in Chapter IV clearly demonstrate the inadequate use made of audio-visual materials in the training programs of the population.

3. The business and industrial community is poorly informed about the audio-visual materials and devices available for their use in training.

To support this hypothesis, various data may be presented. First, to determine why audio-visual materials were seldom or never used in training, the population was asked to check the main reason for

seldom or never using such materials. The most frequently checked reason was "lack of information about how to get," and "lack of information about how to use" was the second most frequently checked reason. As shown in Table 32, the companies as a whole registered an average response percentage of 28.2 per cent in regard to "lack of information about how to get" the twelve types of audio-visual materials and devices listed. Another 18.3 average percentage response was indicated for "lack of information about how to use" the material and devices.

In response to all of the questions about why specific media were not being used for training, the comments "not available," "do not know about them," and "cannot locate" were mentioned as major reasons for non-use. These are all responses which indicate that the companies were ill-informed about audio-visual materials.

Only 17.8 per cent of the respondents indicated familiarity with references for locating sources of audio-visual materials. Judging from the sources listed as being known to them, however, even these few respondents were not aware of the many indices, references, and specialized listings of materials which are readily available for locating such materials.

There were also indications that the respondents recognized a need for assistance in this area. The different kinds of businesses, however, recognized the need for more assistance in locating materials for training in varying degrees: 52.2 per cent of the manufacturer

group indicated such a need; 28. 5 per cent of the wholesale and retail trade respondents; 26. 3 per cent of the service and miscellaneous respondents; 30. 4 per cent of the finance, insurance, and real estate group; 54. 5 per cent of the contract construction respondents; and 40 per cent of the transportation group.

Finally in support of this hypothesis, the "lack of knowledge about audio-visual materials available for training" (22. 6 per cent of respondents) and "lack of knowledge about how to use audio-visual materials" (17. 8 per cent of respondents) were given as major limitations to the use of such materials for training. These data cross check closely with the previously given reasons for seldom or never using the materials.

4. The business concerns own and rent few audio-visual materials and equipment for training.

Tables 34, 35, and 36 demonstrate clearly that the business concerns own meager amounts of materials and equipment. The range of percentages of ownership of the various audio-visual materials was from 6. 5 per cent for 3 1/4" x 4" slides to 19. 7 per cent for charts which enjoyed the most reports of ownership. Also, numbers of these various materials which were reported to be owned were confined largely to the 1-100 category.

The ownership reports of equipment present the same picture. Only 3. 5 per cent of the respondents reported ownership of programed

learning machines, and the most ownership was that of motion picture projectors (23. 2 per cent). Again, however, a study of the number of pieces owned shows that most of those who reported ownershp actually own but one or two pieces of equipment (Table 36).

Table 43 further shows that only 17. 9 per cent of the respondents reported annual expenditures for the rental of audio-visual materials. Only two of these respondents, however, reported expenditures which would provide for widespread rentals of such materials.

Table 44 and 45 are concerned with annual expenditures for the purchase of materials and equipment. As the data in these tables show, there is even less activity in the current purchase of materials and equipment.

Thus, the above tabulated information provides direct evidence that business concerns own and rent few audio-visual materials and equipment for training.

5. Professionally-trained audio-visual specialists are seldom used in the industrial training setting.

Only seven respondents (4. 2 per cent) of the respondents indicated that audio-visual specialists were employed in their training activities. This confirms the hypothesis.

6. The business training departments do not know of, and do not use the many sources for audio-visual instructional materials.

In the confirmation of the third hypothesis, evidence was cited

which also confirms that these departments do not know of the many sources of audio-visual instructional material.

Table 40 provides data to confirm that the respondents do not use the many sources for such materials. Only 14 respondents (8. 3 per cent), for instance, indicated that university audio-visual centers were used as sources for materials. Such centers are, of course, one of the primary sources for these instructional materials. Table 41 points up also that the "other sources" which were indicated by the respondents do not include any of the major sources of materials which could and should be used by the companies.

Also, finally, "none available in our field" is reiterated as a major reason for not using each of the media, when in actuality consultation of the proper source information would reveal many materials which are available. This, too, indicates lack of knowledge about and use of the many sources of materials.

7. Few audio-visual materials are prepared by business concerns for use in training.

Tables 22 and 23 present the data about the preparation of materials by organizations outside the company. The minor amount of this outside preparation is shown in the range of percentages of such preparation: from 1. 2 per cent who reported closed-circuit television materials preparation to 10. 1 per cent who reported 35mm slide preparation.

Materials reported as being made within company facilities are equally insignificant. The complete data are given in Tables 37, 38, and 39. The percentage range extended from zero per cent for the preparation of closed circuit television programs to a high of 14.8 per cent for the production of charts. This low level of production is reported, too, by all kinds of businesses, as shown in Table 38. Again, examination of the numbers of audio-visual materials produced annually, as in Table 39, reveals that most companies make few numbers of such materials each year.

Therefore, indeed, few audio-visual materials are prepared by business concerns for use in training.

8. Training departments are inadequately budgeted for the preparation, ownership, and rental of audio-visual equipment and materials.

The data in Tables 43, 44, and 45 confirm this hypothesis. Only one company reported expenditures ($25,000) which would provide for widespread rentals of materials. The median of the reports of expenditures for purchases was $50 per year. This amount of money would not even be enough to purchase one print of a 16mm motion picture film each year.

Equally inadequate were the annual expenditures for the purchase of audio-visual equipment. The median of the reports of such expenditures was only $200 — not sufficient to purchase one 16mm sound motion picture projector.

The insignificant numbers of materials reported as being prepared annually may perhaps also be partially attributed to inadequate budgetary allocations. If sufficient funds are not available for the purchase and rental of materials and equipment, then funds would probably not be available for the more costly preparation of materials.

Thus, there is sufficient evidence to support this hypothesis.

9. Because of limited knowledge of the audio-visual field, thinly veiled reasons will be posed for not making use of audio-visual materials. The reasons for seldom or never using such materials in training programs were: "not needed," "none available," "other methods more effective," "training program too small," "inappropriate material available," "training is informal," and "no value in use."

Evidence has previously been cited (Hypothesis 3) which confirms that the business and industry community is poorly informed about the audio-visual materials and devices which are available for their use in training, and that such companies also lack the information about how to use such materials.

In Chapter II many examples were given from the literature of reports which attested to the values and beneficial uses of such materials by all kinds of businesses elsewhere in the United States. If the companies in the population had known about these reports, the above kinds of reasons would not have been given for seldom or never using such materials. None of the above reasons are valid, but are prompted instead by a limited knowledge of the audio-visual field.

10. There has been meager study of the audio-visual literature by business and industrial training personnel.

Only 17.8 per cent of the respondents indicated familiarity with any references for locating sources of audio-visual materials. However, when the references listed by these few respondents are studied, even this small group did not know of the many resources available to them. The references listed by the respondents do not include any of the standard indices which should be known as a result of a study of almost any basic textbook in the audio-visual field.

Further, the reports in Chapter IV of the uses of specific media point up the lack of knowledge about the media. Adequate study of the audio-visual literature would have resulted in more understanding about the media and their use, and very few "don't know about" indications. The media under question were all well known and have been in use for numbers of years. Meager study of the literature, however, resulted in the many responses which indicated a lack of information concerning their availability and uses.

11. There will be few constructive and forward-looking plans revealed for the future use of audio-visual materials in training.

Table 33 provides data concerning the present use of audio-visual materials to assist with specific training activities. The introduction of new knowledge was ranked first as the training activity for which audio-visual materials were used most frequently. However, only 24.4 per

cent of the respondents indicated such use. The population was also asked to estimate whether the use of audio-visual materials in training was increasing, decreasing, or had remained the same when compared with use two years ago. Of the respondents, 86. 3 per cent reported no change. Thus, this same low level of use had been maintained by most of the respondents.

Plans for future use are also indicated by the data in Table 51. This tabulation indicates, for instance, that 26. 1 per cent of the respondents planned to use motion pictures (ranked first) extensively in the next five years. Table 25 indicates that 6 per cent reported that at present motion pictures are used in training in one-half or more of the sessions. There is an indication, therefore, that there might be a 20. 1 per cent increase in the use of motion pictures. This is a significant increase in the amount of use of the motion picture, but would by no means be a high level of use. The data for the anticipated future use of the other media portrays even less change in levels of use, indicating no forward-looking plans for the next five years.

A final support of this hypothesis may be found in the fact that but 5. 9 per cent of the respondents recommended good audio-visual utilization techniques. When studied, however, none of these recommendations could be termed "new" or "forward-looking," but were instead techniques which had been employed for many years.

12. A broad, comprehensive educational program is needed to

apprise the business and industrial trainers of the values, techniques, costs, and availability of audio-visual materials and devices for training.

The data in support of the previous hypotheses have shown that there is a lack of knowledge concerning the above aspects of audio-visual materials and devices for training. There is much that has been published on all of these topics. However, this information has not been studied and assimilated by the business and industrial trainers. Therefore, some kind of educational program should be undertaken in order to upgrade the existing knowledge of the population.

13. Methods will need to be devised for disseminating current and ever-changing audio-visual aids and techniques to business and industrial trainers.

This effort would need to be in tandem with an educational program. A continuing dissemination activity should be aimed at keeping trainers abreast of any changes and developments in the field. Further, methods should be devised for informing the business and industrial training community of all aspects of audio-visual utilization in comparable training situations throughout the country. The responses show that at the present time no such service is available, and that businesses look unsuccessfully for such information from groups such as "parent" companies, trade associations, and wholesalers.

14. The Audio-Visual Utilization Center of Wayne State University can assume many roles to help to fill the many audio-visual educational,

informational, and service requirements of training units in the business and industrial concerns of Detroit.

Of the total number of responses, 39.2 per cent showed that a university audio-visual center could help the training program of their organizations. Table 49 shows this tabulation, and further points out that high percentages of indications were registered for all of the different kinds of businesses.

The data tabulated in Table 48 provide clues concerning the kinds of assistance which might be provided by the University.

Implications

This study has revealed a low level of use of audio-visual materials in the training programs of business and industrial concerns in metropolitan Detroit. There also exists within these companies a lack of knowledge concerning the values of such materials. The companies, too, lack knowledge about how to use and how to secure such materials. The employment of audio-visual specialists in training programs is almost non-existent. The prognosis by these business concerns, too, is that the present insignificant level of use will be maintained over the next five years.

A need exists, therefore, to provide the industrial trainers with the required background information to enable them to learn of the uses and values of audio-visual materials for business training purposes. The study of the literature has shown that businesses in other sections

of the United States have enjoyed success in the use of such materials for many kinds of training programs. Detroit business people need to be informed of such uses in training by others in comparable types of business endeavors.

Many such informational and educational needs of Detroit industry may be satisfied through programs of the Audio-Visual Utilization Center of Wayne State University. Direction for the structure of such programs may be found in the data of Chapter IV. Twenty-five per cent or more of the respondents indicated these functions the Center could and should undertake:

1. To provide consultation in the selection and purchase of audio-visual equipment and materials.
2. To give assistance in locating appropriate instructional materials for training.
3. To offer help in the determination of costs of audio-visual materials and equipment.
4. To establish a collection of business and industry-oriented instructional materials.
5. To make these instructional materials available to companies for use in training.
6. To provide consultation in basic instructional techniques.
7. To consult with industrial trainers in regard to programed learning techniques and the development of self-instructional materials.
8. To provide consultation about the proper use of audio-visual equipment and materials.

In addition, the Center should give consideration to the establish-

ment of an information dissemination function. This activity should be concerned with providing business and industrial trainers with current information about audio-visual media in the business training setting. This could take the form of a publication, a newsletter, or a periodical issued throughout the year with articles about materials, successful utilization techniques, research reports, new media developments and similar information. Perhaps, too, carefully selected lists of materials could be compiled and these lists could be distributed to the business trainers. The data provide good guidelines for the topical materials which are needed by the trainers. All of the information dissemination functions which would be undertaken should be aimed at providing a basic background in this area to the trainers and then should attempt to keep the trainers abreast of new developments and uses.

Further, from the data it is apparent that many companies rely upon trade and business associations for audio-visual materials, for knowledge about media, and information about how such media should be used. The search of the literature did not provide any information concerning such activities by these kinds of associations. Personal experience, too, confirms that such associations have not undertaken these kinds of activities. The business companies are, therefore, looking for assistance from these associations when in all probability this information is not available from the associations. The Center could seek out these kinds of associations and then attempt to work out

educational activities in cooperation with them. The activities could be tailored to meet the needs of the membership of the various associations. Then, many practical support functions could result from the joint efforts of the Center and the business associations.

Thus, this study has provided some clear-cut directions for many support functions which can be established by the Audio-Visual Utilization Center of Wayne State University. These activities would result, hopefully, in the direct upgrading of the use of audio-visual materials in the training programs of business concerns in metropolitan Detroit.

Suggestions for Further Investigation

This research has been a study of the uses of audio-visual materials in the training programs of Detroit companies. The search of the literature revealed no similar study of these activities on a nation-wide scale. Comparable needs and problems might exist throughout the country. A valuable contribution would result from research which probed this problem in all parts of the nation. Such research could possibly be undertaken utilizing the membership of the American Society for Training and Development as the population for the study. The membership of this organization is composed of training directors in companies throughout the United States. The information from such research could provide guidelines for attacking problems and providing support functions on a nation-wide scale. Other universities or business associations perhaps could assist with the resultant support functions on

a regional basis.

The data indicated that companies are dependent upon trade and business associations for information, materials, and assistance in the application of audio-visual materials in their training programs. A study which would investigate the status of knowledge, services, and potential programs of these associations would be valuable. This research could ascertain the needs of the constituency of the various associations. Such research should uncover what has been done, what is being done, and what is contemplated by the association to expedite the use of audio-visual materials in the training programs of the members of the associations. From the needs which are established, jointly sponsored programs of a university and the associations could be evolved. Again, such programs might have national implications and would perhaps require cooperation with universities and other agencies on a regional basis.

Finally, after the proposed functions of the Center have been operant for a suitable period of time, a follow-up study should be initiated. This research should attempt to determine the effectiveness of the activities which have been provided, and should evaluate the practicability of the various services in meeting the needs of the business trainers. From these data the various support functions can be adjusted to insure that the program is molded to the needs of the business and industrial trainers of metropolitan Detroit.

Appendix A

Your help is needed to determine how Wayne State University can help most in providing audio-visual resources to the business and industrial community of Metropolitan Detroit. This questionnaire is designed to aid in this process.

The questions are easy to answer and will not require that you "look up" information.

Your answers are needed, however, in order to assist the Audio-Visual Utilization Center in planning for the future. In trial runs it has taken 20-30 minutes to supply the answers.

Thank you for your time and help. When you have completed the questionnaire, please return it to:

T. W. Roberts, Director
Audio-Visual Utilization Center
Wayne State University
Detroit 2, Michigan

I. Identification Data: (Will be kept confidential)

A. Company Name_____

B. Business or Product_____

C. Number of Employees_____

D. Person Reporting_____

Job Title_____

E. Would you like a copy of the results of this study?

Yes..... ☐ No..... ☐

F. If yes, please give mailing address:_____

_____

II. Training Program and Audio-Visual Personnel:

A. Does your company have an organized Employee Training Department?

Yes..... ☐ No..... ☐

If no, who is responsible for employee training activities?

_____

_____

B. Please check the kinds of training at your organization:

Formal Courses..... ☐ Conferences..... ☐

Workshops..... ☐ Others..... ☐

Describe Other Kinds briefly_____

_____

C. Please check the areas of training in your organization:

Supervisory Training..... ☐ Foreman Training..... ☐

Clerical Training..... ☐ Production Skill Training..... ☐

Others..... ☐

Describe Other Areas Briefly_____

_____

D. Do you attempt to do any of these training activities in your organization?

(Please check an appropriate box for each item)	Yes	No
Introduce New Knowledge	☐	☐
Introduce New Skills	☐	☐
Impart New Knowledge	☐	☐
Impart New Skills	☐	☐
Modify Existing Knowledge	☐	☐
Modify Existing Skills	☐	☐
Develop Attitudes	☐	☐
Change Attitudes	☐	☐
Review Knowledge	☐	☐
Review Skills	☐	☐
Practice Knowledge	☐	☐
Practice Skills	☐	☐
Test Knowledge	☐	☐
Test Attitudes	☐	☐
Test Skills	☐	☐
Other Activities	☐	☐

Please describe Other Activities briefly_____

_____

E. Please give the approximate number of trainees annually.

_____

F. Approximately how many people are employed in training activities?

_____

G. Of the above number, approximately how many work in the following training activities?

	Number
Administration.....	_____
Instruction.....	_____
Preparation of Materials.....	_____
Other Activities.....	_____

Describe Other Activities briefly_____

_____

_____

H. Are any Audio-Visual Specialists employed in your training activities?

Yes..... ☐ No..... ☐

If yes, how many? _____

And please describe their duties briefly:

1._____

2._____

3._____

I. Is there a need for additional help of Audio-Visual Specialists in your training activities?

Yes..... ☐ No..... ☐

J. Do you call upon outside organizations or individuals for help in the preparation and use of audio-visual materials?

Yes..... ☐ No..... ☐

If yes, please check the kinds of services you have requested:

	Preparation of	Use of
Films	☐	☐
Film Loops	☐	☐
Filmstrips	☐	☐
35mm Slides	☐	☐
3¼" x 4" Slides	☐	☐
Overhead Transparencies	☐	☐
Closed Circuit Television Materials	☐	☐
Programmed Learning Materials	☐	☐
Recordings	☐	☐
Others	☐	☐

Describe Other Services briefly._____

_____

III. Present Use of Audio-Visual Materials in the Training Program:

A. What would be your best estimate of the use of the following audio-visual materials in a typical training course at your organization?
(Please check an appropriate space for each material.)

	Almost every session	About 3/4 of the sessions	About 1/2 of the sessions	About 1/4 of the sessions	Seldom or never
Motion Pictures	☐	☐	☐	☐	☐
Sound Slidefilms	☐	☐	☐	☐	☐
Silent Slidefilms	☐	☐	☐	☐	☐
35mm Slides	☐	☐	☐	☐	☐
3¼" x 4" Slides	☐	☐	☐	☐	☐
Overhead Transparencies	☐	☐	☐	☐	☐
Programmed Learning Materials	☐	☐	☐	☐	☐
Flannel Boards	☐	☐	☐	☐	☐
Flip Charts	☐	☐	☐	☐	☐
Board Charts	☐	☐	☐	☐	☐
Models	☐	☐	☐	☐	☐
Recordings	☐	☐	☐	☐	☐

B. Of the materials which you checked as being seldom or never used, what is the main reason for not making more use of them?

(Please check an appropriate space for each material which is seldom or never used.)

	Too expensive.	Too hard to get.	Lack of information about how to get.	Lack of information about how to use.	Other Reasons
Motion Pictures	☐	☐	☐	☐	☐
Sound Slidefilms	☐	☐	☐	☐	☐
Silent Slidefilms	☐	☐	☐	☐	☐
Overhead Transparencies	☐	☐	☐	☐	☐
35mm Slides	☐	☐	☐	☐	☐
3¼" x 4" Slides	☐	☐	☐	☐	☐
Flannel Boards	☐	☐	☐	☐	☐
Programmed Learning Materials	☐	☐	☐	☐	☐
Flip Charts	☐	☐	☐	☐	☐
Board Charts	☐	☐	☐	☐	☐
Models	☐	☐	☐	☐	☐
Recordings	☐	☐	☐	☐	☐

If you have other reasons for not using, please indicate some of them:

_____

_____

_____

C. Do you use audio-visual materials to help in these training activities of your organization?

(Please check an appropriate box for each item.)

	Yes	No
To Introduce New Knowledge	☐	☐
To Introduce New Skills	☐	☐
To Impart New Knowledge	☐	☐
To Impart New Skills	☐	☐
To Modify Existing Skills	☐	☐
To Modify Existing Knowledge	☐	☐
To Develop Attitudes	☐	☐
To Change Attitudes	☐	☐
To Review Knowledge	☐	☐
To Review Skills	☐	☐
To Practice Knowledge	☐	☐
To Practice Skills	☐	☐
To Test Knowledge	☐	☐
To Test Skills	☐	☐
To Test Attitudes	☐	☐

Please give examples of other uses._____

_____

_____

_____

D. To what extent do you have your own collection of any of the following materials? (Please check an appropriate space for each material.)

	None	1-100	100-250	250-500	Over 500
Motion Pictures	☐	☐	☐	☐	☐
Film Loops	☐	☐	☐	☐	☐
Sound Slidefilms	☐	☐	☐	☐	☐
Silent Slidefilms	☐	☐	☐	☐	☐
Overhead Transparencies	☐	☐	☐	☐	☐
35mm Slides	☐	☐	☐	☐	☐
3¼" x 4" Slides	☐	☐	☐	☐	☐
Tape Recordings	☐	☐	☐	☐	☐
Disc Recordings	☐	☐	☐	☐	☐
Charts	☐	☐	☐	☐	☐
Programmed Learning Materials	☐	☐	☐	☐	☐
Models	☐	☐	☐	☐	☐

E. Do you own any of this projection or audio-visual equipment?

	Yes	Approximate Number	No
Motion Pictures	☐	_____	☐
Sound Slidefilms	☐	_____	☐
Overhead Transparencies	☐	_____	☐
35mm Slides	☐	_____	☐
3¼" x 4" Slides	☐	_____	☐
Opaque	☐	_____	☐
Tape Recorders	☐	_____	☐
Record Players	☐	_____	☐
Programmed Learning Machines	☐	_____	☐

F. Do you make any of the following audio-visual materials in your own company facilities?

(Please check an appropriate box for each material.)

	Yes	Approximate number made annually	No
Motion Pictures	☐	_____	☐
Sound Slidefilms	☐	_____	☐
Silent Slidefilms	☐	_____	☐
35mm Slides	☐	_____	☐
3¼" x 4" Slides	☐	_____	☐
Overhead Transparencies	☐	_____	☐
Flannel Board Materials	☐	_____	☐
Board Charts	☐	_____	☐
Flip Charts	☐	_____	☐
Models	☐	_____	☐
Closed Circuit TV Programs	☐	_____	☐
Tape Recordings	☐	_____	☐
Programmed Learning Materials	☐	_____	☐

C. Other than the materials owned or made by your organization, where else do you secure the following for training purposes when you need them? (More than one may be checked.)

	University Audio-Visual Centers	Commercial Film Libraries	Business Associations	Government Agencies	Other Sources	Can't Secure
Motion Pictures	☐	☐	☐	☐	☐	☐
Sound Slidefilms	☐	☐	☐	☐	☐	☐
Silent Slidefilms	☐	☐	☐	☐	☐	☐
35mm Slides	☐	☐	☐	☐	☐	☐
3¼" x 4" Slides	☐	☐	☐	☐	☐	☐
Overhead Transparencies	☐	☐	☐	☐	☐	☐
Flannel Board Materials	☐	☐	☐	☐	☐	☐
Board Charts	☐	☐	☐	☐	☐	☐
Flip Charts	☐	☐	☐	☐	☐	☐
Models	☐	☐	☐	☐	☐	☐
Tape Recordings	☐	☐	☐	☐	☐	☐
Programmed Learning Materials	☐	☐	☐	☐	☐	☐

Please indicate some of your other sources: _____

_____

_____

H. Has your organization used Repetitive Film Cartridges for training?

Yes..... ☐ How?_____

_____

No..... ☐ Any comment on reasons for not using?_____

_____

I. Has your organization used 3-D Slides for training?

Yes..... ☐ How?_____

_____

No..... ☐ Any comment on reasons for not using?_____

_____

J. Has your organization used Film Loops for training?

Yes..... ☐ How?_____

_____

No..... ☐ Any comment on reasons for not using?_____

_____

K. Has your organization used Programmed Learning Materials for training?

Yes..... ☐ How?_____

_____

No..... ☐ Any comment on reasons for not using?_____

_____

L. Do you think Programmed Learning Materials and other self-instructional materials and devices will help in the training at your organization.

Yes..... ☐ How?_____

_____

No..... ☐ Any comment on answer?_____

_____

Maybe..... ☐ Please comment._____

_____

M. Are you familiar with the new 8mm Magnetic Sound Films and Projection Equipment?

Yes..... ☐ No..... ☐

If yes, do you think they hold any importance for training in your organization?

Yes..... ☐ No..... ☐

Any comment?_____

_____

N. Is there an increasing, decreasing, or about the same use being made of audio-visual materials in your training programs now as compared with two years ago?

Increasing..... ☐

Decreasing..... ☐

About the same..... ☐

And please comment on possible reasons for increasing, decreasing, or about the same use:

1. _____

2. _____

3. _____

O. Has your organization ever prepared and presented a training program on instructional techniques for your training personnel?

Yes..... ☐ No..... ☐

P. Has any <u>outside</u> organization ever prepared and presented a training program on instructional techniques for your training personnel?

Yes..... ☐ No..... ☐

Q. Do you think a collection of business and industrially oriented audio-visual materials is needed in Detroit?

Yes..... ☐ Why?_____

_____

No..... ☐ Why?_____

_____

Would your organization rent such materials?

Yes..... ☐ No..... ☐

R. Are there any good techniques for the use of audio-visual materials which your organization has discovered which you would recommend to others?

Yes..... ☐ No..... ☐

What are they?

1. _____

2. _____

3. _____

S. Approximately how much money is spent annually for?

Rental of Audio-Visual Materials _____

Purchase of Audio-Visual Materials _____

Preparation of Audio-Visual Equipment _____

Purchase of Audio-Visual Equipment _____

Salaries of Audio-Visual Personnel _____

Other Audio-Visual Expenses _____

T. Is the amount of money available for the above purposes adequate?

Yes..... ☐ No..... ☐

Comment _____

_____

U. Approximately how long has your organization been using audio-visual materials?

Less than one year..... ☐

One year..... ☐

Two years..... ☐

Three years..... ☐

Four years..... ☐

Five years..... ☐

_____ years..... ☐

IV. Audio-Visual Resources:

A. Are you familiar with any references for locating sources of audio-visual materials?

Yes..... ☐ No..... ☐

If yes, which references do you find best or most useful?

1. _____

2. _____

3. _____

B. Is there a need for more help in locating materials for training purposes?

Yes..... ☐ No..... ☐

In what general subject-matter areas?

1. _____

2. _____

3. _____

4. _____

V. Possible Cooperation with University Audio-Visual Centers:

A. Would the following services of a University Audio-Visual Center be useful to your organization in your training programs?

	Yes	No	Maybe
Consultation in the Selection and Purchase of Audio-Visual Equipment and Materials	☐	☐	☐
Consultation in the Proper Use of Equipment and Materials	☐	☐	☐
Consultation in the Production of Audio-Visual Materials	☐	☐	☐
Rental and Loan of Audio-Visual Materials for Training Purposes	☐	☐	☐
The Actual Production of Audio-Visual Materials for Training Purposes	☐	☐	☐
In-Plant Workshops and Seminars dealing with the Proper Use of Audio-Visual Materials in Training	☐	☐	☐
Workshops and Seminars dealing with the Proper Use of Audio-Visual Materials in Training given at the University	☐	☐	☐
Formalized University Courses at your Organization dealing with Audio-Visual Materials and their Use	☐	☐	☐
Formalized University Courses given at the University dealing with Audio-Visual Materials and the Use	☐	☐	☐
Facilities and Services for the Inspection, Repair, and Renovation of Materials owned by your Organization	☐	☐	☐
An Information and Consultation Center dealing with the following:			
1. Sources of Audio-Visual Materials	☐	☐	☐
2. Cost of Specific Materials	☐	☐	☐
3. Production Cost Information	☐	☐	☐
4. Production Technique Information	☐	☐	☐
5. Instructional Techniques	☐	☐	☐
6. Recording Techniques	☐	☐	☐
7. Graphic Arts Production	☐	☐	☐
8. Audio-Visual Equipment Maintenance Problems	☐	☐	☐
9. Programmed Learning Techniques	☐	☐	☐

B. Could a University Audio-Visual Center help the training program of your organization?

Yes..... ☐ No..... ☐

If yes, tell how please: _____

_____

_____

(If more space is needed, write on the reverse side of this paper.)

C. Would your organization be willing to pay a service charge for such services?

Yes..... ☐ No..... ☐

If you have any opinion on this point, please comment: _____

_____

_____

VI. Future Plans for Using Audio-Visual Materials for Training:

A. Indicate topical areas for which audio-visual materials are most needed by your organization:

Labor-Management Problems..... ☐

Supervisory Training..... ☐

Clerical Training..... ☐

Production Skill Training..... ☐

Quality Control..... ☐

Others..... ☐

Describe other areas for use, please: _____

_____

_____

(If more space is needed, write on the reverse side of this paper.)

B. Would your company be interested in an industrial film project which would have labor and management representatives review Audio-Visual materials and then issue published evaluations and comments on these materials?

Yes..... ☐ No..... ☐

Suggestions or comments: _____

_____

C. Please check the limitations to the use of audio-visual materials for training purposes in your own organization:

Lack of Adequate Audio-Visual Budgets..... ☐

Audio-Visual Materials Currently Available are of Limited Quality..... ☐

Lack of Audio-Visual Specialists..... ☐

Lack of Knowledge About Audio-Visual Materials Available for Training..... ☐

Lack of Knowledge About How to Use Audio-Visual Materials in Our Training Program..... ☐

Lack of Suitable Place for Using Audio-Visual Materials..... ☐

Other Limitations..... ☐
(Indicate Please)

1. _____

2. _____

3. _____

D. Please check the materials which your organization is planning to use extensively in training programs in the next five years.

Motion Pictures..... ☐

Film Loops..... ☐

Silent Slidefilms..... ☐

Sound Slidefilms..... ☐

Overhead Transparencies..... ☐

35mm Slides..... ☐

3¼" x 4" Slides..... ☐

3-D Slides..... ☐

Charts..... ☐

Flannel Board Materials..... ☐

Tape Recordings..... ☐

Closed Circuit TV Programs..... ☐

Programmed Learning Materials..... ☐

E. Of the above audio-visual materials which you plan to use extensively in the training program, which are your preferences of use?

	Of Extreme Value	Of Considerable Value	Of Some Value	Of Little Value	Don't Know About
Motion Pictures	☐	☐	☐	☐	☐
Film Loops	☐	☐	☐	☐	☐
Sound Slidefilms	☐	☐	☐	☐	☐
Silent Slidefilms	☐	☐	☐	☐	☐
Overhead Transparencies	☐	☐	☐	☐	☐
35mm Slides	☐	☐	☐	☐	☐
3¼" x 4" Slides	☐	☐	☐	☐	☐
3-D Slides	☐	☐	☐	☐	☐
Charts	☐	☐	☐	☐	☐
Flannel Board Materials	☐	☐	☐	☐	☐
Tape Recordings	☐	☐	☐	☐	☐
Closed Circuit TV Programs	☐	☐	☐	☐	☐
Programmed Learning Materials	☐	☐	☐	☐	☐

Any Comment: _____

_____

_____

VII. Is there any suggestion or comment you would like to make?

_____

_____

_____

_____

Again, thank you for your very important help.

T. W. Roberts, Director
Audio-Visual Utilization Center
Wayne State University
Detroit 2, Michigan

Appendix B

WAYNE STATE UNIVERSITY
DETROIT, MICHIGAN 48202

AUDIO-VISUAL UTILIZATION CENTER

Dear Sir:

Wayne State University hopes to establish a valuable program for the business and industrial concerns of Metropolitan Detroit. We need your help in planning this activity to insure that the service will be practical and will meet your needs.

Your company was selected as a statistical sample to represent the information from similar concerns of Detroit. It is most important, therefore, that the attached questionnaire be completed by the appropriate person in your organization. We need your answers.

I would be very grateful if you could return the completed questionnaire to me by March 22, 1963.

Thank you very much for your help.

Sincerely,

T. W. Roberts, Director

TWR:pl
Enc.

Appendix C

WAYNE STATE UNIVERSITY
DETROIT, MICHIGAN 48202

AUDIO-VISUAL UTILIZATION CENTER

Dear Sir:

As part of a statistical sample, a questionnaire was sent to your organization on March 7. Your answers to this questionnaire are important to us in guiding the establishment of an important program for the business and industrial concerns of Metropolitan Detroit.

I would be extremely grateful if you could take the time from your busy day to complete the questionnaire for us. I have enclosed another copy in case the previous one was mislaid or misrouted.

Thank you for your help.

Sincerely,

T. W. Roberts, Director

TWR:pl
Enc.

Appendix D

WAYNE STATE UNIVERSITY
DETROIT, MICHIGAN 48202

AUDIO-VISUAL UTILIZATION CENTER

Dear Sir:

Wayne State University hopes to establish a valuable program for the business and industrial concerns of Metropolitan Detroit. We need your help in planning this activity to insure that the service will be practical and will meet your needs.

Your company was selected as a statistical sample to represent the information from similar concerns of Detroit. It is most important, therefore, that the attached questionnaire be completed by the appropriate person in your organization. We need your answers.

I would be very grateful if you could return the completed questionnaire to me by August 30, 1963.

Thank you very much for your help.

Sincerely,

T. W. Roberts, Director

TWR:pl
Enc.

Appendix E

WAYNE STATE UNIVERSITY
DETROIT, MICHIGAN 48202

AUDIO-VISUAL UTILIZATION CENTER

Dear Sir:

As part of a statistical sample, a questionnaire was sent to your organization early in August. Your answers to this questionnaire, whatever they are, are important to us in guiding the establishment of an important program for the business and industrial concerns of Metropolitan Detroit.

I would be extremely grateful if you could take the time from your busy day to complete the questionnaire for us.

Thank you for your help.

Sincerely,

T. W. Roberts, Director

TWR:pl

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