

BARRIERS TO THE EFFECTIVE UTILIZATION OF  
MEDIA BY TEACHERS IN A LARGE METROPOLITAN  
SCHOOL DISTRICT

Dissertation for the Degree of Ph. D.

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CHRYSTAL GARRELL POWELL TIBBS

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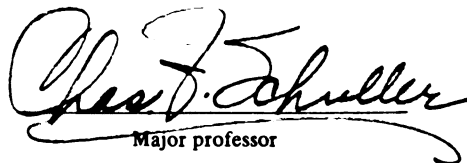
This is to certify that the  
thesis entitled  
**Barriers to the Effective Utilization of  
Media by Teachers in a Large Metropolitan  
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presented by

**Chrystal Garrell Powell Tibbs**

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ABSTRACT

BARRIERS TO THE EFFECTIVE UTILIZATION  
OF MEDIA BY TEACHERS IN A LARGE  
METROPOLITAN SCHOOL DISTRICT

By

Chrystal Garrell Powell Tibbs

Purpose of the Study

The purpose of the study was to obtain descriptive information about media-related activities and attitudes of classroom teachers, as well as information related to selected variables which may affect these activities and attitudes. A particular focus was made on one type of media service facility: the Detroit Public Schools Curriculum Laboratories.

Population and Sample

The population used in this study were classroom teachers in Detroit, Michigan. This sample consisted of 137 subjects drawn from the population.

Instrumentation

The instrument used in this study was a questionnaire package designed to gather information in ten areas: (1) demographic characteristics of teachers, (2) sources of

information about media materials and equipment, (3) appropriateness of media information, (4) types of assistance needed to use media effectively, (5) problems experienced in using media, (6) proficiency in using media equipment, (7) teachers' use of various media during the school year, (8) teachers' use of school district resources, (9) teachers' use of community resources, and (10) proposed placement of media materials and equipment for more effective utilization.

#### Data Analysis

A program providing for percentages and analysis of contingency tables, furnished by the Computer Institute for Social Science Research (CISSR) was used for the computation and tests for significance of results. The one-way analysis of variance with unequal number of replications permitted (ANNOVA-UNEQ1) routine was also used to calculate a one-way analysis of variance table in which unequal frequencies (number of replications) may occur in each category.

#### Results

Teachers showed a very positive attitude toward the effectiveness of the curriculum laboratories. They used the services of these laboratories more than any other single school facility when they needed assistance in preparing media.

Most teachers prepared media materials at home or school. Teachers indicated their need for assistance in



using media materials and equipment effectively. They did not use as much media equipment and materials as they may have wanted to use in their teaching due to scheduling problems with equipment and media and the general operating condition of the equipment.

Teachers showed definite ideas as to the placement of certain media equipment at the local school level as opposed to placement of media equipment at the regional level.

The region in which a teacher worked and the number of years that a teacher had taught affected the utilization of major media equipment and materials.

Media utilization was not affected by sex, age of school building, or the school level at which a teacher worked.

BARRIERS TO THE EFFECTIVE UTILIZATION  
OF MEDIA BY TEACHERS IN A LARGE  
METROPOLITAN SCHOOL DISTRICT

By

Chrystal Garrell Powell Tibbs

A DISSERTATION

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## ACKNOWLEDGMENTS

To all who have given so generously of their time and have provided continuous encouragement and leadership, "thank-you." Your efforts and consideration over the past years have made this advanced degree possible.

To Dr. Elwood E. Miller, chairman of my doctoral program, I wish to express my sincere appreciation. To other members of my doctoral committee, Dr. Charles Schuller, Dr. Donald Burke, Dr. Troy Stearns, Dr. George Grimes, Dr. Lawrence Lezotte, and Dr. John Sweitzer, I wish to express my deep gratitude for your time and patience. Your guidance, support and friendship throughout the program made the effort much easier.

I owe much to the classroom teachers in the Detroit Public Schools whose assistance made this study possible.



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education as dispensed in our schools."<sup>2</sup>

In their Report to the President, the Commission on  
Instructional Technology listed a number of specific

reasons for instructional technology's limited progress to  
date: (1) indifference or antipathy on the part of

educators. Throughout the past decade the potential of instructional technology for education has been discussed by many educators. The strengths of instructional technology have been described in many ways as they pertain to all aspects of learning, teaching, and administration. In its report to the President and Congress of the United States, the Commission on Instructional Technology stated that "The further one looks ahead, the more benefits technology seems to hold for education."<sup>1</sup>

not least, Anthony G. Oetinger's book, Run, Computer, Run, offers an excellent analysis of the difficulties facing educators in implementing instructional technology. Oetinger convincingly illustrates that up to now ". . .

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<sup>1</sup>Commission on Instructional Technology, To Improve Learning--A Report to the President and the Congress of the United States, a Committee Print by the Committee on Education and Labor, House of Representatives, March, 1970, Washington, D.C., USGPO 40-7150, p. 27.

<sup>2</sup>A. G. Oetinger and E. M. Oetinger, Run, Computer, Run: The Mythology of Educational Technology, Harvard University Press, 1964.

<sup>3</sup>Commission on Instructional Technology, Report to the President and Congress of the United States, pp. 79-84.

technology has not reformed--much less revolutionized-- education as dispensed in our schools."<sup>2</sup>

In their Report to the President, the Commission on Instructional Technology listed a number of specific reasons for instructional technology's limited progress to date: (1) indifference or antipathy on the part of educators toward using technology in education, (2) poor programs, (3) inadequate equipment, (4) inaccessibility, (5) teachers not trained in instructional technology, and (6) media specialists excluded from central planning.<sup>3</sup>

Initially, it appears that if these problems were solved, instructional technology would be able to contribute toward improving the quality of education. However, a closer examination reveals that these reasons emphasize administrative problems with instructional technology, not teaching and learning problems. These reasons appear to ignore the learners and give only brief mention to teachers.

This study, while not denying the truth of these statements, will focus on teachers in relation to educational technology.

The importance of the teacher in the successful use of educational technology is illustrated by an attempt to

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<sup>2</sup>A. G. Oetinger and S. Macks, Run, Computer, Run: The Mythology of Educational Innovation (Cambridge: Harvard University Press, 1969), p. 25.

<sup>3</sup>Commission on Instructional Technology, op. cit., pp. 79-84.



implement the Physical Sciences Study Committee curriculum. Mayer (1961) comments that despite the brilliant work in developing the curriculum, the course is less successful than many commentators seem to believe, "largely because its directors have thought more deeply about the text, the lab, and the films than about the training of teachers to handle the course."<sup>4</sup>

One of the boundaries of the state-of-the-art of educational technology is the attitude of teachers toward innovations, their skills in dealing with them, and the persistence of established habits of thought and action. In any approach to the instructional materials within an overall systems concept, the teacher is a critical component who can literally make or break the best laid plans.<sup>5</sup>

It can be noted that the entire purpose of educational technology is to benefit the learners. However, as education exists today it is a fact that teachers are the key element in the application and successful utilization of educational media in the classroom. In order for teachers to apply and use educational media effectively, several things are necessary:

1. Teachers must be aware of a variety of successful ways to use educational media in the learning process.

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<sup>4</sup>Martin Mayer, The Schools (New York: Harper and Brothers, 1961), p. 264.

<sup>5</sup>Charles F. Hoban, The State of the Arts Instructional Films (Stanford, Calif.: ERIC Clearinghouse on Media and Technology, 1971), p. 10.



2. Teachers must be convinced that educational media has some value in the learning process.
3. Teachers must be excited about using educational media.
4. Teachers must plan very carefully in order to implement educational media effectively into their learning programs,

The problem confronting educational administrators is how to provide for these items listed above so that teachers will think in terms of media and the students that will benefit from educational technology.<sup>6</sup>

David Engler writes that the utilization of educational technology in the schools presents yet another set of problems, perhaps the most difficult of all.<sup>7</sup> Some of these problems are philosophical and psychological; some are even emotional.

There is, for example, the widespread feeling among teachers and parents that technology--by which they usually mean machines--will dehumanize education. Proponents of this argument maintain that the most important components of the educational process are the human relationship between teacher and learner and the development of higher level intellectual activities such as thinking and problem solving. Not only are machines incapable of providing

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<sup>6</sup> Ronald R. Kelly, "Is Instructional Technology an Intruder in the Classroom?", Education and Training of the Mentally Retarded, VIII, No. 4 (1972), pp. 97-98.

<sup>7</sup> David Engles, "Development, Sharing and Utilization of Technology--Based Instructional Materials: Some Guidelines," in Designing Education for the Future, No. 6, edited by Edgar L. Morplet and David L. Jesser (New York: Citation Press, 1969), pp. 300-301.

these two components, but they may, according to the proponents of this viewpoint, tend to eliminate these vital human, emotional and intellectual factors from education.

There is, among some schoolmen, a deep-seated fear that technology represents a threat to their economic security. They are suspicious that behind the educational technology movement is the counterpart of the industrial "efficiency expert" whose principal objective it is to turn over to machines as much of the teacher's function as possible, thereby reducing the number of teachers needed, as well as the cost of education.

A third source of hostility toward technology, one that will very likely turn out to be the most difficult to contend with, stems from the fact that educational technology tends to make instruction highly visible and to stress measurable results. Traditionally the teacher has not been visible beyond the closed door of the self-contained classroom. Opening that door, tearing down the walls and laying bare for colleagues and supervisors the program and process that takes place in that classroom is a threatening prospect to many teachers.

These fears and anxieties must be reckoned with. Teachers need to be convinced that technology will not and cannot replace them but it will change their role. The introduction of technologically-based instructional materials into any school must be preceded and accompanied

by the kind of participation of the faculty that will help to resolve the affective problems which inevitably arise.

John W. Loughary<sup>8</sup> notes that, traditionally, a teacher has had to build his own teaching methods and materials (for example, charts, pictures, audio-visual presentations, and so on). The economics of time provides strong support for the concept of staying with a few tested teaching procedures, with tested instructional materials, and perhaps to an extent greater than commonly recognized, with the same subject matter.

Robert Heinich observes that even when we intellectually acknowledge a changed frame of reference, our habits and commitments tend to keep us rooted in our former perspective. As audiovisual materials were successively introduced into schools, they were dealt with on the basis of "aids" to teachers. They were not conceived as self-contained instruction, and utilization procedures assumed the necessity of a classroom teacher to complete the instructional task. All audiovisual "aids" were subsumed under the classroom teacher and there rested the final decision in regard to use. Although certain research studies and some programs, notably in the armed forces, indicated that audiovisual materials could be far more than "aids," the tradition definitely prevailed.<sup>9</sup>

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<sup>8</sup>John W. Loughary, "The Changing Capabilities in Education," Designing Education for the Future, op. cit., p. 71.

<sup>9</sup>Robert Heinich, "Technology of Instruction and Impasse," Designing Education for the Future, op. cit., p. 75.



James Finn noted that the technological capital of the American school system has increased markedly due to the infusion of federal funds, changed attitudes on the part of educators, and the pressures of problems such as those generated in the inner city. It should be emphasized that the educational system is still highly underdeveloped technologically, but that the present technological build-up, which is more than marginal in its effect, has provided a sufficient base for take-off.<sup>10</sup>

#### Need for the Study

A pressing need exists in urban school systems, and elsewhere in America's educational environs for the creation of relevant, effective, curriculum procedures and supporting materials. John Fisher states that:

Most critics and reformers want neither to abolish schools nor to remove large numbers of learners from them. What they want is better schools. They argue for more humane treatment of children and for curriculums that reflect the nature of children and of the world they inhabit. They advocate more effective control by parents and an end of bureaucracies that are benevolently benighted at best and dictatorially arrogant at worst. They insist upon teachers who are able to accept children when they find them, to help them widen their awareness, and to make the most of their capabilities and encounters.<sup>11</sup>

With emergence of the civil rights movement in the early sixties, the spotlight of educational concern began

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<sup>10</sup>James D. Finn, "What is the Business of Instructional Technology?", Designing Education for the Future, op. cit., p. 47.

<sup>11</sup>John H. Fischer, "Public Education Reconsidered," Today's Education, LXI, No. 5 (1972), pp. 23-31.

to focus again on people. In the South, efforts centered upon desegregation, at first with less success in schools than on buses, in terminals, and at lunch counters. As successive suits worked their slow way through the courts, dual school systems began to yield, reluctantly and grudgingly in the beginning, but with inescapable and growing momentum. In the North, where school segregation lacked legal sanction, it nevertheless persisted as a result to residential patterns.

The existence of de facto segregation, especially in the large cities, has focused attention on the conditions minority children face. With Black, Puerto Rican, and Chicano children concentrated in particular schools, the extent of their educational deprivation is undeniable. Conditions in slum schools became a matter of growing concern to the residents of those neighborhoods themselves and to others troubled by the deterioration of the core cities.

Out of this complex of old trouble and new awareness came another flood of school criticism with a very different orientation. The earlier criticism had reflected the conservatives' view of the consequences of progressive education and dealt mainly with the alleged failure of the schools to stress fundamental skills and the traditional academic disciplines. The new attacks charged the schools with prejudiced and inhumane treatment of poor and minority children, disrespect for the culture of these children, and systematic rejection of their special needs.



Despite the efforts of writers and activists, the tone within them changed, however. Collegiate fashions, hairstyles and communications by television to the schools. Teachers tired of being taken for granted, and themselves more strongly. five year olds, sorting them into equal boxes called classrooms, where, as they grow in size and strength, they leap each June into a higher box until, after twelve leaps, they receive a high school diploma.<sup>12</sup>

James Farmer notes that no issue confronting the nation today is more critical than the problem of improving the quality of education in our inner cities, particularly the quality of education we offer our ghetto youngsters, the poor, and the deprived.<sup>13</sup>

Charles Silberman suggests that public schools can be organized to facilitate the joy in learning and esthetic expression as well as develop character. What makes change possible, moreover, is that what is mostly wrong with the public schools is due to not venality or indifference or stupidity; but to mindlessness--the failure or refusal to think seriously about educational purpose, the reluctance to question established practice.<sup>14</sup>

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<sup>12</sup>Shelly Ulmans, The Management of Education: A Systematic Design for Educational Revolution (New York: Doubleday, 1970), p. 13.

<sup>13</sup>James Farmer, "Education is the Answer," Today's Education, LVIII, No. 4 (April, 1969), pp. 25-26.

<sup>14</sup>Charles E. Silberman, Crisis in the Classroom: The Remaking of American Education (New York: Random House, 1970), pp. 10-11.

The atmosphere surrounding the schools and sometimes the tone within them changed, however. Collegiate fashions, hairstyles, and language were effectively communicated by television to the high schools. Teachers tired of being taken for granted, organized themselves more strongly; spoke out more freely; and, in general, together with the students and community groups made life less agreeable for administrators. Federal funds began to arrive in those areas of the city where the poorer families lived. Nevertheless, at the beginning of the 1970's, the essential character of most schools--in purpose, in form, and in function--appeared to be very much as it had been in the early sixties.

The pyramidal model of an educational system in which the total population is admissible at the base but only the ablest survivors are permitted to reach the apex has ceased to correspond to the conditions of our society. Now we must guarantee every individual a setting designed to respect his potentialities and the assistance needed to make the most of them.

When a large number of people are involved in a task that has important implications for students, teachers, and the community, it is necessary that the work be carried on in an orderly, professionally responsible manner. The Joint Committee of the National Education Association and the Association of American Publishers has addressed fourteen recommendations (a revised set) on the selection of

materials to school board members and administrators, to teachers, and to curriculum specialists, librarians, media specialists, and other experts whose counsel will be sought during the deliberations and at decision points in the selection process.

The following relevant and significant recommendations made by the Joint Committee are new and deserve special attention.<sup>15</sup>

1. Educators, publishers, and interested citizens should make concerted efforts to eliminate state laws and other state and local procedures that unduly hamper the freedom of local professional selection committees in their choice of instructional materials.
2. Policy governing selection of instructional materials is an acceptable topic for negotiation. The give-and-take of negotiations can help clarify details of the selection process and mobilize the interest and energies of teachers for the task of providing instructional materials.
3. A majority of the selection committee should be classroom teachers.
4. In assessing instructional materials, selection committees must consider a variety of criteria, including how well the materials reflect the multi-ethnic nature of our society.
5. Public school districts should allocate for instructional materials and related services at least five percent of annual per-pupil operating cost.

E. B. Palmer, Cochairman, Joint Committee of the NEA and the AAP, elaborated on the fifth recommendation by noting that "related services" refers primarily to

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<sup>15</sup>E. B. Palmer, "Selecting Instructional Materials," Today's Education, LXI, No. 2 (1972), p. 53.



in-service training for teachers in the use of new materials and systems of instruction. The Joint Committee believes that such training is so vital that it should be included in the budget for instructional materials. He continues:

Although the 5 percent rate of investment in instructional materials (including textbooks but not equipment or library books) is about double the current rate of expenditure, it represents a modest investment in terms of need and opportunities involved in a modern instructional program. The 5 percent guideline would have provided in 1970-71 an average expenditure of about \$42 per pupil for all types of instructional materials.<sup>16</sup>

With factual data in an ever-increasing supply, teachers must place more dependence upon instructional media to convey facts and other learnings while they concentrate on more sophisticated professional roles. The investigator hopes in this study to reveal some very positive indicators to the barriers that classroom teachers consider as crucial in preventing them from using the media approach in classroom instruction.

#### Purpose of the Study

The purpose of the study was to obtain descriptive information about media-related activities and attitudes of classroom teachers of the Detroit Public Schools as well as information related to selected variables which may affect these activities and attitudes. A particular focus was made on one type of media service facility: the Detroit Public Schools Curriculum Laboratories. The

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<sup>16</sup>Ibid., p. 53.



potentials and effects of the process of decentralization which Detroit is undergoing, for improved media service was of major concern. It was also intended that the exploratory survey would lead to the identification of specific areas in which additional research might be conducted in order to improve the quality of in-service education and assistance for classroom teachers.

#### Definition of Terms

A definition of terms used throughout this study is presented for understanding the background and research data presented.

Media--Print, audiovisual, and other sensory materials which provide information for instructional purposes. Examples include: television, films, film loops, audio tapes, and community resources.

The following terms are defined as used within the Detroit Public School System.<sup>17</sup>

Audiovisual Teaching Aids Library--The circulation and maintenance of instructional films, film strips, tapes, slides, overhead transparencies, telephone kits, art portfolios and book kits. It also determines the need for additional copies of items owned, and initiates new purposes of materials. This is a warehouse operation with daily delivery and pick-up by truck. Requisition is by form,

<sup>17</sup>George Grimes and High A. Murray, "At Both Ends of the Bridge," Film News, Vol. XXVIII, No. 2 (1970), pp. 6-9.

with a 15-day interval between requisition and delivery. Bookings can be made up to three months in advance.

Technical Services--Inspects, delivers, installs, modifies, demonstrates, and maintains all AV equipment. It also provides special equipment or technical advice as needed or required. The on-site technicians are an additional responsibility of this department and its personnel.

Audiovisual Engineering--The function of this Department is to prepare plans and specifications for all AV equipment and its installation. This includes such items as local school public address systems, and both local school and broadcast television installations.

Educational Broadcasting--Radio and television programs are produced in the studios, at local commercial stations and in schools. Schools are kept informed regarding program highlights, changes, new development and department activities through radio bulletins and various means. Television guides, including courses of study, are distributed to teachers at the beginning of each semester. Student materials are distributed periodically.

Curriculum Laboratories--These are service facilities where curriculum planning, study and development are carried on by individuals or groups under competent professional guidance, and where curriculum materials may be developed, displayed, and distributed. More specifically, the laboratories provide:

(3) programs and materials for the study of curriculum development.

(1) Information Services--professional reference

materials, ideas, booklets, instructional and learning materials, catalogs.

(2) Materials Production Facilities--the necessary equipment and materials to allow teachers to produce custom-tailored overhead transparencies

and slides; also to mount, laminate, or prepare for duplication. Production activities are of a do-it-yourself nature.

(3) Circulating Audiovisual Media (i.e. commercially produced)--this is in addition to circulation by the Audiovisual Teaching Aids Library and is a kind of 'first aid' collection of films, filmstrips, slides, recordings, multimedia kits and single concept films available on a first-come, first-served basis.

The Professional Library--Repository of professional books, journals and other materials available to all teachers, administrators and supervisors. Most of the collection may be circulated.

The Children's Museum--Operated by the Detroit Board of Education primarily for the instruction, both formal and informal, of children who attend the city's public schools. It provides three basic services:

- (1) lessons for school classes that come to the Museum.
- (2) lending collection for use by teachers.
- (3) programs and activities after regular school hours.



### Statement of Questions to be Studied

There is no question that a variety of teaching and learning resources are needed to carry on effective and efficient programs of instruction. However, if these tools are to be used, they must be readily available and the teacher must have ready reference in order to locate appropriate materials.<sup>18</sup>

Today, no school can expect to carry out its task of education without providing the teachers with these needed resources. Not only should they be accessible but the supporting production hardware should be provided to allow the teacher an opportunity to create materials to fit local learning needs.<sup>19</sup>

This study will attempt to answer the following questions:

1. What is the attitude of Detroit instructional personnel regarding the effectiveness of the Detroit Public Schools Curriculum Laboratories in offering media services and materials to improve classroom instruction?
2. What has been the effect of system-wide media supervisors and other Curriculum Laboratory personnel in providing leadership, consultive help and other services to classroom teachers?
3. What media resources, available on a centralized basis, are utilized by teachers?
4. What media equipment and materials should be available at the local school level?

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<sup>18</sup>Amo de Bernardis, "Locating Selectings and Producing Teaching and Learning Resources," Instructional Process and Media Innovations, Edited by Robert A. Weisguher (Chicago, Rand McNally, 1968), p. 517.

<sup>19</sup>Ibid, p. 525.



5. What media resources should be available at the regional level as the process of decentralization proceeds?

6. What reasons are expressed by classroom teachers for not utilizing media equipment and materials?

7. What are the major variables that affect utilization of major media equipment and materials?

#### Basic Assumptions

A perusal of the literature concerning media indicates that the use of media makes possible the reaching of a much wider range of objectives than has previously been possible. In fact, the developments in the newer media really make feasible for the first time the widespread application of inductive reasoning to learning. The newer media are able equally to demonstrate and to clarify for learners the abstract statements which are a part of the deductive approach.<sup>20</sup>

Throughout this study it was assumed that:

1. Media provide the teacher with means of extending the horizon of experience.
2. Media help the teacher provide meaningful sources of information.

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<sup>20</sup>W. C. Meierheney, "Relationship of Media and Curriculum," op. cit., p. 17.

3. Media provide the teacher with the means of guiding and controlling the desirable responses of the learner in relation to the stimulus materials of the learning situations.

4. Media provide the teacher with interest-compelling springboards into a wide variety of learning activities.

5. Media provide the teacher with rich sources of pupil purpose when communicative materials are produced jointly by pupils and teachers.

6. Media provide the teacher with a kit of tools to carry out diagnostic research and remedial work demanded by up-to-date instructional purposes.<sup>21</sup>

#### Procedures and Evaluation Plan

The School District of the City of Detroit employs approximately 11,000 classroom teachers to serve students in 330 school buildings. The School District, by state law, was recently decentralized to offer greater community control of the schools. One hundred thirty seven classroom teachers representing each administrative region were surveyed. The instrument used in the study was a questionnaire. Schools selected represented the elementary, middle, junior high and senior high grade levels. These teachers taught in buildings that were built as early as 1896 and

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<sup>21</sup>Carlton W. H. Erickson, Administering Instructional Media Programs (New York: The MacMillan Co., 1968), pp. 108-112.

as late as 1970. It is possible that some teachers were housed in temporary transportable units that have been placed in a neighborhood to relieve the overcrowding of the permanent building. All teachers were selected by the building principal or his designated appointee. The investigator is unable to name the specific schools used in the study due to the regulations of the school district. This study was conducted with the approval and cooperation of the Research and Development Division of the district, the Regional School Boards and the Regional Superintendents. These schools represent the various socio-economic levels of the community, racial compositions of schools, and geographic location.

#### Overview of the Study

This study consists of five chapters. Chapter I includes a statement of the problem and the need for the study.

Chapter II contains a review of the literature related to the investigation of the study.

Chapter III describes the methodology and procedures of the study.

Chapter IV presents the research data and results of the analysis of the data. An attempt was made to appraise and interpret the data in order to derive some measures which could be used in developing a more effective media program in the Detroit Public Schools.

Chapter V concludes the study. The research finding and implications for further study are presented.

## CHAPTER II

### REVIEW OF LITERATURE

Brown and Nortons' (1976) study of the role of the

important competencies of the teacher in the utilization of educational media. The study

1. Understanding of the role of the teacher in communication and learning.
2. Knowledge of media and its use in the classroom.
3. Ability to select and use media in the classroom.
4. Facility in using media in the classroom.
5. Interest in using media in the classroom.

these five competencies

1976, pp. 101-102.



## Understanding of the Behavioral Processes in Communication and Learning

Hilgard<sup>2</sup> states that with learning research we may divide the stages of learning into the following six steps:

### CHAPTER II

#### REVIEW OF LITERATURE

Step 1. Assessing the situation with regard to its educational relevance

Brown and Norberg<sup>1</sup> state that there are five important competencies required for effective utilization of educational media. They are:

1. Understanding of the behavioral processes in communication and learning.
2. Knowledge of media characteristics and capacities.
3. Ability to evaluate and conduct or participate in experimental studies of teaching and learning.
4. Familiarity with appropriate materials and sources.
5. Command of necessary mechanical skills.

The review of the literature will be based upon these five competencies.

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<sup>1</sup>James W. Brown and Kenneth D. Norberg, Administering Educational Media (New York: McGraw Hill, 1965), pp. 162-195.

Step 2. Understanding the situation and adapting the situation to the needs of the learner then an attempt is made to select the methods or procedures which are most likely to be most effective for the party to the situation.

<sup>2</sup>Ernest H. Hilgard, Relationships Between Learning and Teaching (New York: McGraw Hill, 1965), pp. 1-10.

Understanding of the Behavioral Processes  
in Communication and Learning

Hilgard<sup>2</sup> states that with learning research we may divide the stages of relevance to learning into the following six steps:

Step 1. Research on learning with no regard for its educational relevance.

Step 2. Research on learning which is not concerned with educational practices but which is more relevant than that of Step 1 because it deals with human subjects and with content that is nearer to that taught in school.

Step 3. Research on learning that which is relevant because the subjects are school-age and the material learned is school subject-matter or skills, though no attention is paid to the problem of adapting the learning to school practices.

These steps, having no immediate application to practical situations would be considered pure-science research. The steps having to do with applied research follow:

Step 4. Research conducted in special laboratory classrooms with selected teachers.

Step 5. A tryout of the results of prior research in a 'normal' classroom with a typical teacher. Whatever is found feasible in Step 4 has to be tried out in the more typical classroom, which has limited time for the new method, and may lack special motivation on the part of either teacher or pupil.

Step 6. Developmental steps related to the advocacy and adoption. Anything found to work in Steps 4 or 5 has to be 'packaged' for wider use, and then go through the processes by which new methods or procedures are adopted by those not party to the experimentation.

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<sup>2</sup>Ernest R. Hilgard, "A Perspective on the Relationships Between Learning Theory and Educational Practices," in *Teachers and the Learning Process*, edited by Robert D. Strom (Englewood Cliffs, N. J.: Prentice-Hall, 1971).

then go through the processes by which new methods or procedures are adopted by those not party to the experimentation.

Too much of the research has rested at Steps 1 and 2 to be educationally relevant; educational psychologists too have tended to work at this end of the spectrum and then jump, by inference to Step 6.

Hilgard<sup>3</sup> suggests that another level of research strategy is needed for a school system--the strategy of innovation. Abstractly, the steps of innovation are to provide: (a) a sound research-based program, validated in tryout, (b) the program packaged in such a way as to be available for the teacher, (c) testing materials by which it can be ascertained if the objectives have been realized, with appropriate normative data on these evaluative instruments, (d) in-service training to overcome the teacher's resistance to something new and to gain his enthusiastic acceptance of the program as something valuable as well as to train him in its use, and (e) support for the program from the community, school boards, parents, and other concerned with the schools.

Gagne<sup>4</sup> comments that one must examine the way in which things, events and ideas about them are presented to the human learner; in fact, the ways in which relevant

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<sup>3</sup> Ibid.

<sup>4</sup> Robert M. Gagne, "Learning Theory, Educational Media, and Individualized Instruction," in To Improve Learning: An Evaluation of Instructional Technology, II, op. cit., pp. 62-63.



stimulation impinges upon the learner from his environment. Further, one is led to a consideration of what happens to this stimulation when it reaches the nervous system of the learner--in other words, what kinds of transformations it undergoes.

The first of these problems of stimulating the human learner, represents the area of media of communication. Generally we tend to describe media in terms of the material things that provide the vehicles for the "messages." However, for the purposes of considering their effects on learning, there are advantages to attending instead to the kinds of channels they offer. There are different ways in which the learner is affected by media. He may be stimulated by actual objects and events, and a reasonable portion of his learning results from such stimulation. Once he has learned how in his early years, the learner may be stimulated with apparently equal effects by pictures, whether he sees them in a textbook, on a movie, or television screen. Again, following some early learning, he responds to diagrammatic pictures, which are of several varieties. As schooling proceeds, learning comes to depend increasingly on the stimulation provided by the printed language. Auditory language has always been another major source of information for use in learning.

The second part of the problem to be considered concerns what happens to this stimulation when it reaches the learner. How is it transformed in such a way as to



change his capabilities from one state to another? What kinds of processing does it undergo in leading his teachers to conclude that he has learned?

Psychologists have studied, experimented upon, speculated about, and generally tried to understand the learning process for many years. The learning theory as it exists today, is a highly inelegant and unfinished entity. There do appear to be some fairly fundamental and stable principles which serve to tell use what learning is not like and to suggest the outlines of what it is like.

The design of effective instruction, then, has these two areas of knowledge to call upon. Instruction needs to be arranged so that it will bring about the kind of change in a student which is called learning, and this requires a consideration of learning theory. In attempting to bring about such a change, the act of instruction is a matter of stimulating the student in certain ways--and here one has the choice of media to work with. Putting ideas together from these two domains of knowledge can yield some techniques and procedures of instruction which should make the process of learning an optimally effective one.

Miller's<sup>5</sup> views regarding the implications of learning theory for instruction are presented in a volume

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<sup>5</sup>N. E. Miller, et al., Graphic Communication and the Crisis in Education (Washington D. C.: Department of Audiovisual Instruction, National Education Association, 1957). (Audiovisual Communication Review, Vol. 5, No. 3.)

of Audio-Visual Communication Review, entitled "Graphic Communication and the Crisis in Education" (1957).

The four principles he describes are suggested by the words: motivation, cue, respond, reward. It is Miller's contention that an effective sequence of instruction, in any medium, must include provision for these four conditions.

First, motivation: the student must want something.

Second, there must be a cue: the student must notice something.

Third, response: the student must do something.

Fourth, reward: the student must get something he wants.

Miller's principles are surely important to instruction, but it is questionable whether they are often violated even in the most traditional instruction.

The ideas of Gagne<sup>6</sup> regarding the learning process are contained in a book entitled The Conditions of Learning (1965). The suggestions to be derived from this view of learning are more specific for instruction than those previously described. He found that eight kinds of learning organized sequentially and cutting across all theories, could be described:

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<sup>6</sup>Robert M. Gagne, The Conditions of Learning (New York: Holt, Rinehart and Winston, 1965), pp. 33-57.

1. Signal learning: Learning to respond to a signal.
2. Stimulus-Response Learning: Voluntary learning that involves making a specific response to a specified stimulus.
3. Chaining: Learning to connect together, in a sequence, two or more previously learned S-R situations.
4. Verbal association: Learning on a verbal level, related to chaining.
5. Multiple discrimination: Learning an extensive series of simple chains.
6. Concept learning: Learning to make a common response to a number of stimuli that may differ from each other in appearance.
7. Principle learning: Learning a chain consisting of two or more previously and separately learned concepts.
8. Problem solving: Learning, based on two or more previously acquired principles, that requires internal thinking toward the result of a new, higher level principle.

Gagne points out that in his pattern, even higher-numbered conditions depend on the former ones as prerequisites. Gagne also recognized that his treatment of the conditions of learning is restricted to knowledge (cognitive tasks--and skill types, motor or psychomotor tasks) of educational objectives and does not treat objectives of motivation and the establishment of attitudes and values (the affective domain of learning).

Applications of Gagne's conditions for the design of instruction have been made in a research project and



are described as part of a publication.<sup>7</sup> In this report, after statements of behavioral objectives are made, types of learning involved (from Gagne's list) are identified, the media and experiences are selected to serve the indicated conditions of learning. The report provides further details of how Gagne's learning principles are related to media selection.

Gagne summarized what to him are the most important events of instruction.<sup>8</sup>

Gaining and maintaining attention.

Insuring recall of previously acquired knowledge.

Guiding learning by verbal and pictorial materials that provide 'cues' or hints to new principles.

Establishing conditions for recall or transfer of learning through the use of carefully designed problems and situations to which application of the newly learned principle is made assessing outcomes through test and other evaluations.

The views of Skinner<sup>9</sup> on instruction are contained in a variety of articles, particularly those on teaching

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<sup>7</sup>Leslie J. Briggs and others, Instructional Media: A Procedure for the Design of Multiple Media Instruction, A Critical Review of Research and Suggestions for Future Research (Pittsburg: American Institute of Research, 1967), Chapter 2.

<sup>8</sup>Robert M. Gagne, "Learning Theory, Educational Media, and Individualized Instruction," op. cit., pp. 70-71.

<sup>9</sup>B. F. Skinner, "Teaching Machines," Science (1958), pp. 969-977; "Why We Need Teaching Machines," Harvard Educational Review, 31, pp. 377-398; Science and Behavior (New York: Macmillan, 1953), pp. 122, 152-153; "The Science of Learning and the Art of Teaching," Harvard Educational Review, Vol. 24 (1954), pp. 86-89.



machines. Valuable analyses are also contained in books and articles by his students (Gilbert, 1962; Green, 1962). Skinner's analysis of instruction assumes that motivation must be present, that the student must make a response and that this response needs to be rewarded, or "reinforced."

Several relatively specific ways of controlling the learning process by suitable sequencing of stimuli and reinforcement are suggested by Skinner's theory. One is the principle of shaping, applicable to the learning of motor acts. A second principle, is that of successive approximation of stimulus control, in which a response which is originally "prompted" comes to be given properly even when the prompt has been progressively "faded." A third Skinnerian principle is chaining, which describes the conditions of reinforcement by means of which a lengthy procedure is learned.

For certain kinds of learning tasks, these procedures are indeed specific; for others, they are highly general.

The views of Ausubel<sup>10</sup> may be sampled in The Psychology of Meaningful Verbal Learning (1963), and also in an informative chapter in the book, Instruction: Some Contemporary Viewpoints (Siegel, 1967).

Ausubel insists, first of all, that school learning is meaningful learning and that this process is distinctly

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<sup>10</sup>D. P. Ausubel, "A Cognitive Structure Theory of School Learning," in Instruction: Some Contemporary Viewpoints, edited by L. Siegel (San Francisco: Chandler, 1967), pp. 207-257.

different from what is usually called rote learning. Thus he comes to grips directly and specifically with the learning of facts and principles, as is not particularly concerned with other forms of learning such as motor and verbal chains. In this theory, the most important principle is called subsumption. Meaningful learning takes place when a new idea is subsumed into a related structure of already existing knowledge. The results of this process is the acquisition of a set of new meanings.

A second principle is that any subject should be presented by progressive differentiation of content, the most general and inclusive ideas first, and then the more detailed and specific ones.

Still a third principle of importance is called consolidation. This means the insistence on mastery of on-going lessons before new material is introduced. This proposition is at least highly similar to Gagne's principle of cumulative learning.

Another principle would seem to be integrative reconciliation. By this, he means that new ideas, once introduced, need to be deliberately related to old ideas, significant similarities and differences pointed out, real or apparent inconsistencies reconciled.

One thing that all communications have in common is learning. Learning is the modification of behavior as a result of some prior experience. Since modification of behavior is so central to the process of communication, we

can approach communication as a problem in learning. Learning is not confined to the acquisition of facts. It also includes the formation of attitudes, beliefs, and other implicit responses that mediate overt behavior. Education activities imply a commitment to bringing about behavioral changes in learners.

### Knowledge of Media Characteristics and Capacities

Briggs<sup>11</sup> comments that there are several indications that need to be overhauled in the procedures by which instructional materials are prepared and made available for presentations via the various instructional media.

First, teachers are often bewildered by the proliferation of media in which the same subject matter is made available for use in instruction. No guidelines exist to help the teacher choose from among all the available media.

Second, a review of prior research indicated that while much research has done much to improve the effectiveness with which materials are presented in the various media, there is almost no research which would help one decide when to use a given medium and when not to use it.

Third, no theoretical framework appears to exist within which original decisions were made as to which media would be best for presenting specific materials.

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<sup>11</sup>Leslie L. Briggs, "A Procedure for the Design of Multimedia Instruction," in Frederick G. Knirk and John W. Childs, Instructional Technology: A Book of Readings (New York: Holt, 1968), pp. 61-64.



In sum, better techniques are needed for matching media with objectives before the materials are prepared in various media.

Public school systems have not been willing to make significant financial commitment to in-service training and staff development activities. Colleges and universities have found offering courses for school teachers lucrative, but have not allocated major financial or academic resources to the activity.<sup>12</sup>

Even when in-service training is available, it is more frequently viewed by the teacher as a way of satisfying state education requirements (and of making more money) than as an opportunity to become a better teacher.

Teachers typically have seen in-service training as "something somebody else does for us." The policies and ground rules have been set by certification officials, school boards, school and college administrators. Typically, teachers have docilely accepted both policies and offerings and have seldom questioned the system.<sup>13</sup>

The October, 1967 NEA Research Bulletin stated that a large percentage of the teachers who responded to the

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<sup>12</sup>Don Davies, "Teacher Education," U. S. Congress, Senate Committee on Labor and Public Welfare, Subcommittee on Education. Notes and Working Papers Concerning the Administration of Programs Authorized Under Title III of Public Law 89-10, the Elementary and Secondary Education Act of 1967 as Amended by Public Law 89-750 (Washington: Government Printing Office, April, 1967), p. 295.

<sup>13</sup>Ibid., p. 298.



Research Division's questionnaire have access to and use photographs, filmstrip projectors, audio-tapes, charts and maps, 16 milimeter motion picture projectors, overhead projectors, and the like<sup>14</sup> . . . but it is still not difficult to find situations in which recently acquired equipment and materials are relatively unused. Perhaps more serious is the fact that in numerous instances in which audio-visual equipment and materials are being used, they are used to perpetuate an unimaginative program of instruction. Ready and easy access to audiovisual materials and equipment is essential; but a high degree of accessibility does not guarantee that materials will be used--or used appropriately or effectively.

Torkelson<sup>15</sup> compared the effectiveness of a formal course in instructional materials with two approaches which integrated what was presumed to be the same objectives and content into practicum and methods in teaching. In general, his findings slightly favored the didactic approach; however, the functional approach was plagued with logistical problems and those who employed it had had the majority of their experience in more didactic approaches,

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<sup>14</sup>National Education Association Research Bulletin, Instructional Resources in the Classroom (October, 1967), pp. 75-77.

<sup>15</sup>Gerald M. Torkelson, An Experimental Study of Patterns for Improving Preparation of Pre-Service Teachers in the Use of Audiovisual Materials and of Effects of Pupils, Title VII, Project #079, NDEA 1958. Grant #7-48-0720-034, College of Education, the Pennsylvania State University, University Park, Pa., March, 1965.

so it would be wise to follow Torkelson's advice to avoid the temptation to generalize too far from his data.

The use of technology in in-service education to instruct not only in teaching content but in the applicability of technology itself is reported by Riedesel.<sup>16</sup> Elementary school teachers in Williamsport, Pennsylvania, some 64 miles from Pennsylvania State University were provided with access to CAI terminals in their home location. The response stations were connected with the computers at the University on a schedule which permitted the teacher to study a professionalized course in modern mathematics at her convenience. Not only did the teacher learn modern mathematics, but she had an experience in the application of technology to teaching.

One experiment in which teachers were gathered together for new learning using films to give them a further understanding of the process, was carried out by Gertrude Hendrix at the University of Illinois Mathematical Program in which teachers were taught themselves, saw children taught, and also were given films of the way in which young dogs learned in a few short weeks from experienced trainers. Experiments in the special classes in the Illinois project suggested, however, that it was

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<sup>16</sup>Samuel M. Long and C. Alan Riedesel, Use of Computer-Assisted Instruction for Mathematics In-Service Education of Elementary Teachers, Center for Cooperative Research with Schools, College of Education, Pennsylvania State University, University Park, October, 1967.

easier to teach teachers who had taught but had never taught mathematics, how to teach the new mathematics than it was to teach mathematics teachers who had learned previous methods. This suggests that unlearning specific skills may be a more serious barrier to learning new skills than earlier more generalized learning. Experience with trying to present new experiences in which there is no trace of old habits, also suggests that in planning the re-education of teachers, less reliance can be placed on any situation where unlearning is required.<sup>17</sup>

Mayer (1961) comments that despite the brilliant work on the Physical Science Study Committee, the course was not entirely successful, "largely because its directors had thought more deeply about the text, the lab, and the film, then about the training of teachers to handle the course."<sup>18</sup>

A study of "New Media Research in Teacher Education"<sup>19</sup> stated that:

Studying media in combination will improve our knowledge but will contribute only a step toward the most central and complex issue in the use of new media in teacher education: what can each device and combination of devices do best for

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<sup>17</sup>Lawrence F. Frank, The School As Agent for Cultural Renewal (Cambridge: Harvard University Press, 1959), p. 40.

<sup>18</sup>Martin Mayer, The Schools (New York: Harper, 1961), p. 264.

<sup>19</sup>Gerald Lessee, "New Media Research in Teacher Education," AV Communications Review (Fall, 1966), p. 352.

different kinds of students, under different educational conditions, with respect to different educational objectives, and when used by different teachers? Obviously no single medium or combination of media will accomplish the full job of training the teacher. No single criterion or set of criteria for successful teaching is likely to emerge, and no single best pattern for the training of all teachers is likely to be identified. No single best pattern in the use of new media is likely to emerge as most effective under all instructional conditions.

Teachers have always played and are likely to continue to play a crucial role in shaping the curriculum. The teacher's role in developing educational technology is central and strategic. Supported by a modicum of evidence, educators have been convinced that one of the major barriers to the development of audiovisual instruction has been that a large number of teachers have been disinterested in, or uninformed about this mode of instruction.

Teachers must also be taught to select and use audiovisual materials if such instruction is to become a common and productive practice in the classroom.

Additional evidence supporting this conclusion is to be found in the fact that despite tremendous increases in the amount of audiovisual equipment and materials in American schools in the past decade, teachers have not always been converted into regular and effective users of these resources.<sup>20</sup>

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<sup>20</sup>Paul W. F. Witt, ed., Technology and the Curriculum (New York: Teachers College Press, 1968), pp. 56-57.



Ability to Evaluate and Conduct or  
Participate in Experimental  
Studies of Teaching and Learning

The Research Division of the National Education Association conducted a survey of activities accepted as fulfilling professional growth requirements in 1965. The 307 school systems with 6,000 or more enrolled pupils generally accepted just three types of professional growth activities; college courses for credit, school system programs, and travel. It should be noted that two of the three activities are teacher initiated, albeit found acceptable and probably encouraged by school system through inducements of salary advancements on the salary schedule.

The apparent assumption of school systems that teachers will become more effective teachers because of increments of higher education is unfounded.<sup>21</sup> Research data has not found a significant relationship between teacher effectiveness and the teacher's grades in university courses.<sup>22</sup> These findings hold true even in the teacher's major subject.

The National Commission on Teacher Education and Professional Standards recently sponsored the year of the non-conference to study the teacher and his staff. A

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<sup>21</sup> National Education Association, Research Division, Research Bulletin, National Education Association Vol. 45 (1) (March, 1967), p. 26.

<sup>22</sup> Donald D. Jones, "The Prediction of Teaching Efficiency from Objective Measures," Journal of Experimental Education, XV (1946), pp. 85-89.

number of papers, demonstration centers, and films were outgrowths of the year. "To add to the dialogue about school organization by suggesting some ways that teachers and technology can be brought together to create personalized educational programs" was the purpose for a booklet sponsored jointly by TEPS and the Center for Study of Instruction.<sup>23</sup>

The July 1968 statement of its Research and Policy Committee, the Committee for Economic Development outlined certain problems of instruction in elementary and secondary schools.<sup>24</sup> Noting that research and technical invention are opening up new possibilities in instructional processes and methods, the report stresses "that there must be a basic change in the attitudes and approaches of large numbers in the teaching profession toward instructional organization, methods, and research." It mentions four imperatives for the schools, including better organization for innovation and change, increasing emphasis on the dissemination and practical application of research, use of cost-benefit and cost-effectiveness analysis as a guide to resources allocation, and the establishment of a

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<sup>23</sup> Bruce R. Joyce, The Teacher and His Staff: Man, Media and Machine (Washington, D. C.: National Commission on Teacher Education and Professional Standards and Center for the Study of Instruction, 1967), pp. 1-11.

<sup>24</sup> Committee for Economic Development, Innovation in Education: New Directions for the American School (July, 1968), p. 75.

national commission to encourage research, innovation, and evaluation.

Productivity, morale and quality are likely to depend on the amount of freedom granted, whether one is dealing with citizens in the community, workers in the factory, or teachers in school. Teachers who are constrained in rigidly defined situations or who work in a system with inflexible, hierarchical controls will not have an opportunity for development. The school that encourages experimentation with education contexts, new approaches, new facilities, new classroom situations is likely to create an excitement for education that guarantees learning--even by the teacher.<sup>25</sup>

Goodlad<sup>26</sup> suggests that the monolithic structure of American schools restricts teachers seeking to provide for individual differences among learners. This structure and the assumption upon which it appears to be based neither condone nor provide an adequate range of alternatives from which to choose in filling prescriptions suggested by teacher diagnosis. The larger environment for schooling must be manipulated if teachers are to engage productively. Three aspects of that environment are:

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<sup>25</sup>Bruce J. Biddle and William J. Ellena, eds., Contemporary Research on Teacher Effectiveness (New York: Holt, 1964), p. 39.

<sup>26</sup>John I. Goodlad, "Diagnosis and Prescription in Educational Practice," in Instructional Technology: A Book of Readings, op. cit., pp. 65-74.

(1) expectations for schooling, (2) curriculum, and (3) school organization.

The notion that "a school is to cover" has spread a drab cloak of conformity over virtually every act of schooling. Teachers are not only caught up in a system of relatively uniform values but actually are part of this system. Many researchers, imbued with the desire to be value-free, have merely uncritically or unwittingly accepted the built-in values of the status quo.

At least three experts of the current curriculum reform movement offer wider degrees of freedom to teachers seeking to prescribe the following diagnosis: (1) the identification of a new fundamental concepts around which the specifics of instruction are to be organized, (2) emphasis on inductive process of teaching and learning, and (3) a diversified instructional package comprising textbook, supplementary books, workbooks, laboratory experiments, films, records, and programmed materials. Present patterns of school organization support common expectations for all learners, both in what is to be learned and in the rate of pregression through it. The graded school implies graded content, materials, limited individual differences, and non-promotion.



Persellin,<sup>27</sup> in Educational Technology contends that certain conditions must be present before an innovation has a chance to succeed:

1. The education community must perceive and emphatically express a specific need for change.
2. The need must be recognized by the community at large.
3. A state of the art in both methodology and media must exist for meeting the need in a cost-effective manner.
4. Sufficient funds must be available for paying the cost.

Van Wyck adds a fifth condition:

5. The necessity of preparing teachers for change.

In a recent article, Eichholz and Rogers,<sup>28</sup> after analyzing teacher opinions about innovative failure, formulated a list of rejection responses:

1. Rejection through ignorance--the innovation was unknown or its complexity led to a lack of understanding.
2. Rejection through default--admitting a knowledge of the innovation without any interest in its use.
3. Rejection by maintaining the status-quo innovation not accepted because it had not been used in the past.

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<sup>27</sup>Leo E. Persellin, "Conditions for Innovation in Educational Technology," Educational Technology (December 30, 1968), pp. 5-9.

<sup>28</sup>Gerhard Eichholz and Everett M. Rogers, "Resistance to the Adoption of Audiovisual Aids by Elementary School Teachers: Contrasts and Similarities to Agricultural Innovation," in Innovation in Education, edited by Matthew B. Miles (New York: Teachers College Press, 1964), pp. 299-316.

4. Rejection through societal mores--teachers feel society finds the innovation unacceptable and will not use it.
5. Rejection through interpersonal relationships--colleagues do not use it, therefore neither will I.
6. Rejection through erroneous logic--the use of rational but unfounded reasons for the rejection of worthy innovations.
7. Rejection through substitution--using one practice over another practice requiring the use of an innovation.
8. Rejection through fulfillment--teacher is confident of the success of using his own methods, making innovation unnecessary.
9. Rejection through experience--discussing with others the failure of some innovations.

An innovation in the use of media faces less chance of resistance if it supports or slightly modifies current educational practice, rather than changing or replacing the practice. It is necessary for teachers and administrators to work cooperatively to initiate desired changes in an instructional program. Influential groups and individuals within a school system have significant roles in implementing and fostering the growth of an innovation.

#### Familiarity with Appropriate Materials and their Sources

Richard A. Meisler<sup>29</sup> states that, "If technology can help to improve the quality or efficiency of our educational programs, then American education, pressed by

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<sup>29</sup> Richard A. Meisler, "Technologies for Learning," in To Improve Learning: An Evaluation of Instructional Technology, op. cit., pp. 223-232.

a large number of students involved in its great experiment of mass education, can sorely use that help."

He presents an inventory of promising and yet unassimilated educational technologies including some techniques that are not "instructional" in a narrow sense.

#### An Inventory of Technologies for Learning:

##### A. Audiovisual Media

1. Audiotape
2. Overhead transparencies
3. Slides
4. Motion Pictures
5. Intermedia configurations
6. Multimedia configurations

##### B. Programmed Instruction

1. Book format
2. Teaching machine format
3. Computer-assisted instruction

##### C. Closed Circuit Television and Videotape Recording

##### D. Games and Simulations

##### E. Mass Media

1. Broadcasting
  - a. Television
  - b. Radio
2. Long-playing records
3. Magazines and newspapers

##### F. Sensitivity Training

##### G. Electronic Communications

##### H. Zerography

##### I. Independent Study Materials

##### J. Speed Reading and Effective Study Training

##### K. Photography

The public schools are making far less use of the new products of instructional technology than private

industry or the military. The increased use of technology in education is seen by some educators as a move towards the "takeover" of education by "outsiders," the developers and suppliers of educational goods who are supposed to serve the educational system.

The school today, of course, is profoundly influenced by those "outsiders" whom the educators fear. That they appear unaware of this influence is traceable to two factors: they don't see the textbook salesmen as "outsiders" and they are not as conscious as they might be of the influence of existing teaching materials on the school's program and on the children's capacity to learn. The "education business" has, in sum, a major influence on school practices today. To say that the new technologically-based industries are the first to threaten educators' autonomy is to avoid the obvious but usually overlooked facts of the situation.<sup>30</sup>

The annual Statistical Survey of the American Publishers Institute reported in 1967, sales of 92,525,000 textbooks both hard and paperbound, and 131,900,000 units of workbooks and objective tests for elementary grades. In high schools, total sales were 44,290,000 copies of both

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<sup>30</sup>Theodore R.Sizer and David L. Kirp, "Technology and Education: Who Controls?" in To Improve Learning, II, op. cit., pp. 931-933.



hard bound and paperbound textbooks, and 21,170,000 units of workbooks and objective tests.<sup>31</sup>

The educational publishing industry has reacted in several ways to the changing needs of the schools. Since 1958, twenty educational publishers offered their stock for public sales. In the areas of mergers and acquisitions, over fifty transactions have taken place in the past ten years and others are in process. Such concerns as Xerox, IBM, Raytheon, CBS, Litton Industries, ITT, Bell & Howell, and RCA have acquired publishing firms. Others, such as General Electric and Westinghouse developed their own educational divisions. Other educational publishers maintained their original structure and diversified from within. Publishers acquired instructional aids, to complement textbooks which could be offered to schools as a unit. Contract agreements were drawn up whereby publishers would work with film companies to produce instructional kits.<sup>32</sup>

Television was the first introduction to educators of the potential of media as complete instruction. Televised instruction required determination of instructional goals, selection of TV instructors, the arrangement of an orderly sequence of instructional components, including efforts of the classroom teacher if there was one,

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<sup>32</sup>Ibid., p. 533.

development of a climate of acceptance by faculty and students, measurement of attainment of objectives, etc.<sup>33</sup>

Filmed courses, by-products of instructional television, served to introduce many educators to the concept of direct instruction with media.<sup>34</sup>

The language laboratory movement threw content and media specialists together in an intimate working relationship that produced very strange and startling experiences. For the first time, language teachers discovered that the mode and materials of instruction interact with instructional behavioral methods.<sup>35</sup>

Programmed instruction has reawakened interest of public school educators in focusing on behavioral objectives.<sup>36</sup>

If the current face of film, filmstrips, and other media are to be used, they should be so incorporated into instructional programs that student interaction with the media is part of the process. Unless this is done, these media should be used sparingly.

The new technology which allows for students interaction is quite expensive. Moreover, "software" for this

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<sup>33</sup>Robert Heinich, "The Teacher in an Instructional System," in Instructional Technology: A Book of Readings, op. cit., p. 49.

<sup>34</sup>Ibid., p. 50.

<sup>35</sup>Ibid., p. 50.

<sup>36</sup>Ibid., p. 51.

equipment is scarce. Twenty "talking typewriters" with the limited programs available, lease on a five-year contract basis for about \$280,000 per year. The Craig readers with audio-active attachments, if and when they become available, will cost much less. All other computer-assisted instruction devices are also quite expensive. The installation of calculators, adding machines, or electric typewriters would require a significant outlay of money. At present cost figures, the technology which seems to have the greatest potential for reaching children will increase per pupil expenditures about \$500 per year. Furthermore, if the technology is to be effective, its installation must be accompanied by a thorough re-education of the teachers and will probably require significant changes in existing structures. Adequate electrical outlets, lighting, heating, ventilating, air-conditioning, and humidity controls are not available in most schools.<sup>37</sup>

#### Command of Necessary Mechanical Skills

Robert Heinich<sup>38</sup> observes that even when we intellectually acknowledge a changed frame of reference, our habits and commitments tend to keep us rooted in our

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<sup>37</sup>Willard J. Congurene, "Possible Uses of Technology for Educating Underprivileged Children," To Improve Learning, II, op. cit., pp. 550-551.

<sup>38</sup>Robert Heinich, "Technology of Instruction: Impetus and Impasse," in Designing Education for the Future, No. 6, edited by Edgar L. Morplet and David L. Jessee (New York: Citation Press, 1969), pp. 76-77.

former perspective. Audio-visual materials were not conceived as self-contained instruction, and utilization procedures assumed the necessity of a classroom teacher to complete the instructional task. Mediated instruction does not "extend" the classroom teacher; it represents alternate ways of achieving instructional goals.

If mediated instruction can be considered as providing alternatives to classroom instruction, then it follows that decisions involving its use must be made at a level where they are carried out--the curriculum planning level.

There would not be two broad classifications of instructional activity whose assignments are made at the curriculum planning level--mediated teaching and classroom teaching.

A teacher whose instructional efforts are presented to students in a mediated form would be a media (or mediated) teacher. A teacher who is physically in the classroom, would be a classroom teacher.

The media teacher is not to be confused with a teacher with media. The latter may be either a media teacher or a classroom teacher. A television teacher will no doubt use other media in his presentation, but the fact that his whole instructional effort is presented to students in a mediated form defines him as a media teacher. A teacher whose instruction--with or without the support of

media--takes place with face-to-face contact with students is a classroom teacher.

From a systems point of view, mediated teaching and classroom teaching are simply different tactics used in the strategy of instruction. No problem arises if the entire course is assigned to a mediated teacher, or if it is assigned to a classroom teacher. The sticky situation occurs when a mediated teacher and a classroom teacher are engaged in a joint enterprise.<sup>39</sup>

Schools of education must recognize that men on both sides of the machine are in the domain of professional education. Therefore, programs of teacher education must provide training in three major areas.

The first area, according to Heinich, concerns handling of media normally under the control of the classroom teacher. This corresponds to the utilization and production that are now taught in standard media classes.

The second area deals with management of instructional problems where mediated teachers and classroom teachers work together. Every student in a pre-service program should be required to learn how to work with mediated teaching, particularly when student teaching. He should work with whatever is most typical of his subject matter field. Pre-service teacher training should make

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<sup>39</sup>Robert Heinich, "The Mediated Teacher and the Classroom Teacher," in Instructional Technology: A Book of Readings, op. cit., p. 54.



sure that the student has an opportunity to develop skills on both strategic and tactical levels.

The last area is considered by Heinich to be the most important as he calls for the training of mediated teachers. "Every student in pre-service training," he says, "should be required to teach a substantial piece of content in his major field in mediated form."<sup>40</sup>

The March, 1971 issue of Audiovisual Instruction had as its theme, "Teacher Education." The Task Force on Instructional Technology<sup>41</sup> stresses that applications of film, television, computers, and similar devices and materials to teacher education must be utilized in a perspective which delineates the uniqueness of each device, material and instructional arrangement. Teachers and traditional media must be regarded together as agents of communication. Teacher education requires a setting, the opportunity, and a determination to search for combinations of mediated experiences which work best for given circumstances. A teacher education program which incorporates instructional technology to its fullest capabilities will reflect the following characteristics:

1. Experience in the interplay of all factors affecting the nature of given learning experiences, including emphasis upon helping learners to be unique as well as allowing each teacher trainee to be himself.

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<sup>40</sup>Ibid., pp. 57-58.

<sup>41</sup>G. M. Torkelson, "Education/Industry Cooperation: Instructional Technology in Teacher Education," Audiovisual Instruction, XVI (March, 1971), 48-49.

2. Experiences with all forms and arrangements for instruction, with recognition of balance between freedom to experiment and need for controls dictated by demands for organized learning and mass education.
3. Freedom of the training situations from unreasoned regimentation, and freedom of trainees and learners to explore new ways to achievement goals.
4. Professionalism among teacher trainees in the applications of instructional technology to learning problems through emphasis upon:
  - a. the use of instructional media as inquiring discovery, reporting modes, in addition to usual expository uses;
  - b. the collection of data about learner reactions to media and to the effectiveness of technological applications to learning problems;
  - c. the differentiation of roles for teachers, including diagnostician, programmer, evaluator, and manager.
5. Teacher education programs will become the combined product of agencies, public and private, encouraging the use and study of instructional technology in settings outside the school, expanding current uses of instructional personnel from local businesses and industries, and in using instructional facilities in industry settings.
6. Teacher trainees will examine the benefits of mediating agents to motivate interest among learners, in addition to ways for transmitting knowledge. Both teacher trainee and student will use electronic and mechanical devices for documenting and reporting phenomena and processes.

The extent to which teachers should get the kinds of in-service help they ask for is a crucial determination in an era of bristling teacher militancy.<sup>42</sup>

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<sup>42</sup>Paul D. English, "A Foundation for In-Service Success," Audiovisual Instruction, XVI (March, 1971), pp. 76-77.

During April and May of 1969, 475 teachers working at 26 Denver public schools responded to questionnaires to determine their needs and desires as to the kinds of in-service help they needed in using media. Data reported in "A Study of the Content for an In-Service Program in Instructional Media" form the basis for possible inferences.

Items were sub-divided into four categories-- processes, production, utilization, and information. The teachers were asked to indicate their most urgent needs in planning for instruction. The writing of instructional objectives in behavioral terms led the list of items appearing on the form. Following were those which suggested work in identifying types of learning and practice in matching media with objectives. Substantial numbers of teachers chose all three items. Specific results appear in Table 1.

TABLE 1.--Replies to Items Concerning Processes.

| Category                                          | Percent of Teachers |
|---------------------------------------------------|---------------------|
| How to match media with your objectives           | 58                  |
| Some work on identifying types of learning        | 46                  |
| Some work on structuring instructional objectives | 44                  |

Ten items were categorized within an area labeled production. The kinds of action necessary before the teacher has at his disposal a usable, finished audiovisual product are reflected in such action words as prepare, mount, photograph, preserve, lamine, letter, and make. Results which appear in Table 2 reveal not only teachers' preferences but also their willingness to do the dirty work sometimes necessary to exercise these.

TABLE 2.--Replies to Items Concerning Production.

| Category                                | Percent of Teachers |
|-----------------------------------------|---------------------|
| How to prepare transparencies           | 62                  |
| How to produce various types of visuals | 58                  |
| Mounting and preserving visuals         | 48                  |
| Making slide-tape combinations          | 42                  |
| Some photography                        | 39                  |
| Laminating                              | 36                  |
| Color lifts                             | 34                  |
| Wet mounting                            | 31                  |
| Posters and Displays                    | 28                  |
| Lettering techniques                    | 26                  |

The third category probed feelings teachers had about utilizing the familiar devices which have either become or remained the furniture of classrooms throughout

America. The choice of items to include in the category was based on three suppositions--that there would be many teachers needing simply to learn how to operate a piece of equipment or use a device; that there would be those teachers already capable of operating equipment who would wish to do so with an increased measure of efficiency; and that there would be those eager to discover with minimum effort uses and possibilities other teachers had discovered through trial and error. Table 3 lists and records the results of 18 items.

The final category elicited teachers' needs for information--where and how to go about getting it. The fact that the greatest percentage of teachers checked the item for free and inexpensive materials may or may not indicate an occupational frugality. Table 4 lists responses to the last five items of the questionnaire.

More effective in-service training for teachers can be developed when these training sessions are planned to fit the specific needs of the teachers rather than planned to fit administrative expediency.



TABLE 3.--Replies to Items Concerning Operation and Utilization.

| Category                                             | Percent of Teachers |
|------------------------------------------------------|---------------------|
| An introduction to television teachers               | 50                  |
| Better bulletin board utilization                    | 47                  |
| How to operate copy machines                         | 44                  |
| How to use overhead projectors                       | 42                  |
| How to use opaque projectors                         | 40                  |
| Spend some time on multi-media utilization           | 36                  |
| Flannel board and magnetic board utilization         | 35                  |
| Utilization of mobil unit in-service technology      | 34                  |
| How to operate movie projectors                      | 34                  |
| Chalkboard utilization                               | 33                  |
| How to use hook and loop materials                   | 29                  |
| How to operate record players                        | 29                  |
| How to operate filmstrip projectors                  | 28                  |
| How to use tape recorders                            | 26                  |
| How to operate the language masters                  | 23                  |
| How to operate slide projectors                      | 22                  |
| Utilization of maps, charts, globes, models          | 21                  |
| Utilization of microprojectors and science equipment | 19                  |

TABLE 4.--Replies to Items Concerning Information about Resources.

| Category                            | Percent of Teachers |
|-------------------------------------|---------------------|
| Free and inexpensive materials      | 67                  |
| Field trips and community resources | 55                  |
| Programmed materials                | 35                  |
| Manuals and texts                   | 28                  |
| The printing page                   | 15                  |

### Summary

A review of the literature reveals numerous reasons for teacher resistance and potential rejection of media.

1. Any sudden or substantial change in the traditional role of the teacher, and any change affecting the teacher-communication role is likely to elicit some type of resistance.

2. Another source of resistance stems from the feeling of some teachers that media innovations tend to mechanize the instructional process, resulting in a loss of feedback between student and teacher.

3. Prohibitive expenditures and high per-pupil costs tend to facilitate rejection.

4. The complexity of an innovation, particularly involving technology, has a strong influence on acceptance, resistance, or rejection.

5. Resistance is inevitable if equipment is not technically reliable, easily obtainable, and relatively simple to operate.

## CHAPTER III

### DESIGN AND METHODOLOGY OF THE STUDY

#### Restatement of Purpose

The study was designed to determine the barriers that Detroit Public Schools classroom teachers consider as crucial in preventing them from using the media approach in classroom instruction. In particular, this study seeks to answer the following questions:

1. What is the attitude of Detroit Instructional personnel regarding the effectiveness of Detroit Public Schools Curriculum Laboratories in offering media services and materials to improve classroom instruction?
2. What has been the effect of system-wide media supervisors and other Curriculum Laboratory personnel in providing leadership, consultant help and other services to classroom teachers?
3. What media resources, available on a centralized basis, are utilized by teachers?
4. What media equipment and materials should be available at the local school level?
5. What media equipment and materials should be available at the regional level as the process of decentralization proceeds?

6. What reasons are expressed by classroom teachers for not utilizing media equipment and materials?

7. What are the major variables that effect utilization of major media equipment and materials?

The basic procedural design of the study included the selection of the sample population, the collection of data by use of a questionnaire, the analysis of the data in terms of the purpose of the study, and the formulation of conclusions and recommendations which could be appropriately drawn from the research results.

### Setting of the Study

#### The School District

The School District of the City of Detroit is located in the southeastern section of Michigan and is the largest school district in the state. The Detroit Public Schools in 1971 regularly employed more than 17,000 persons of whom more than 12,000 are professional educators. More than 1,000 teachers and administrators are appointed each year. Detroit has more than 300 public schools offering educational services of every type. The systems caters to a wide variety of teaching interests, qualifications, and abilities.

The City of Detroit, the fifth largest city in the nation, presents cultural opportunities including the Institute of Arts, Historical Museum, Main Public Library,

International Institute, Detroit Symphony Orchestra, grand opera, stage productions, and unique movie theaters. Detroit offers historical lore through Greenfield Village, Edison Institute, Cranbrook Institute, Fort Wayne, and J. T. Wing Mariners' Museum. Detroit offers year-round sports enjoyment with professional baseball, football, basketball, and hockey. Citizens can participate in a variety of seasonal activities including boating, hunting, fishing, golfing, and skiing. Opportunities for professional growth are offered at Wayne Community College, Wayne State University, Merrill-Palmer Institute, Marygrove College, Mercy College, University of Detroit, Oakland University, University of Michigan Extension Center, Detroit Institute of Technology, and Detroit College of Law.<sup>1</sup>

The May 23, 1971 issue of the Detroit Free Press<sup>2</sup> reported that in 1960, about 60 percent of the city's black population lived in neighborhoods that were 75 percent or more black. In 1970, about 75 percent of the black population lived in such areas, signaling a substantial growth in residential separation.

Parallel to the hardening of the city's racial barriers has been a sprinkling of black population into virtually every part of the city, breaking down traditional

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<sup>1</sup>Detroit Public Schools, Teach in Detroit, Pub. 6-403 INF (5-70).

<sup>2</sup>Michael Maidenbergl, "City's Racial Map Realigned," The Detroit Free Press, May 23, 1971, Sec. A, pp. 3, 6.



barriers that kept many sections of Detroit uniformly white in past decades. The city as a whole, lost some 23,000 housing units over the decade. Some 5,000 units were removed for freeways and 9,700 for various urban renewal programs.

Despite the common translation of "inner city" to mean "black," the census maps reveal that the true inner city, the areas closest to downtown, have heavy concentrations of whites. This population is made up of Appalachians, retired people, Poles living in the old care of Polish settlements in Detroit, and affluent whites living in what is known in the black community as the former "black bottom."

As in the '40s and '50s, the movement of blacks in the '60s tended to follow the movement of Jewish families through the city. The rising black middle class moved into neighborhoods where schools like Hampton, Beaubien, and Mumford and educated many Jewish children.

Despite strong attempts in the early '60s to "stabilize" parts of the northwest section of the city, by 1970 many of those areas were predominantly black. City and school officials and academic experts expressed little surprise at the census findings whose general outlines had been apparent for some years.

Dr. Norman Drachler, former Superintendent of Schools in Detroit, and presently head of the Institute for Educational Leadership in Washington, D.C., testifying before

the House Sub-Committee on Education, June 30, 1970, stated that:<sup>3</sup>

Detroit has about 290,000 students of whom about 62 percent are black. In 1968-69, the Michigan Racial Count indicated that 13 percent of the State Public School Enrollment was Negro. About 63 percent of all Negro students in Michigan attend the Detroit Public Schools. . . .

The black population of Detroit is concentrated primarily between the Detroit River and McNichols on the north, Greenfield Road on the West, and the city boundaries on the east. The School Districts of Highland Park and Hamtramck are surrounded by the School District of Detroit. Both of these districts have a majority of black students also. There are several areas within the city where the communities are integrated but the schools in predominantly black areas and in areas where the infant mortality rate is thirty per hundred or higher; nearly 20 or 30 percent of the children who survived have neurological defects which require special help in order for children to learn and progress in school. These are often not visible to the average teacher or principal.

The Drachler years will probably become part of any future history of education in the United States as his tenure as acting superintendent and as superintendent parallel such events which received national news coverage as the 1966 Northern High School Student Boycott; the July 1967 Civil Disorder; the September, 1967 teachers strike, the NAACP de-facto segregation suit; decentralization of the school system by the State Legislature, and the 1970 recall election of four Detroit Board of Education members.

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<sup>3</sup>Norman Drachler, Testimony by Norman Drachler, Superintendent, Detroit Public Schools on H.R. 17846 before the House Sub-Committee on Education, Washington, D.C.: June 30, 1970.

During these same five years, the percentage of black administrators in the system more than tripled from 11 percent in 1966 to 40 percent in 1971. More than 40 percent of the teachers are black. Dr. Drachler also hired a black labor lawyer and the former head of the Detroit NAACP as deputy superintendents.

It was also during the Drachler administration that the school system became a leader among the nation's urban school systems in pressing for textbooks which accurately reflected black achievement. He was also the first Detroit superintendent that had graduated from the Detroit Public Schools. He spent 30 years in the school system and lived in the same northwest neighborhood of Detroit for more than 20 years.<sup>4</sup>

These same years also produced several study reports of the schools by members of the community. Two of the important ones were The Report of the High School Study Commission, June 1968,<sup>5</sup> and Priorities for the Seventies, 1970,<sup>6</sup> a study of the elementary school program.

Federal funds have influenced instruction the Detroit Schools. Funds began to arrive soon after the

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<sup>4</sup>William Grant, "Drachler to Resign as Superintendent of Schools," The Detroit Free Press, January 21, 1971, Sec. A, pp. 1, 5.

<sup>5</sup>The Board of Education, City of Detroit, Report of the High School Study Commission (Detroit: Board of Education, 1968).

<sup>6</sup>The Board of Education, City of Detroit, Priorities for the Seventies (Detroit: Board of Education, 1971).

Smith-Hughes Act was passed by Congress in 1917 for support of certain types of vocational classes.<sup>7</sup>

The Annual Financial Report for 1968-69 stated that the school district received \$25,989,635.80 from the Federal Government for that fiscal year.<sup>8</sup>

Approximately 21,641 eligible (educationally disadvantaged) public and non-public elementary and secondary school children participated in Detroit's Title I programs during the 1969-70 school year. During the 1970-71 school year, Title I programs served 33,820 children in 126 public and non-public schools. Detroit received more than \$13 million through Title I funding in the 1970-71 school year.<sup>9</sup>

Funds were also received from the Federal Government to initiate, expand and improve programs and projects for the education of handicapped children at the pre-school, elementary and secondary levels.<sup>10</sup> The Civil Rights Act of 1964, Title IV granted funds for in-service training of school personnel to deal with problems incident to

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<sup>7</sup>Paul T. Rankin, ed., Improving Learning in the Detroit Public Schools: A History of the Division for Improvement of Instruction, 1920-1966, Vol. 1 (Detroit: The Board of Education, 1969), p. 41.

<sup>8</sup>The Board of Education, City of Detroit, Commentary to the Annual Financial Report of the Board of Education of the City of Detroit, 1968-69 (Detroit: The Board of Education, 1969), p. 1.

<sup>9</sup>The Board of Education, City of Detroit, Office of Federal, State, and Special Programs: Operated by Detroit Public Schools (Detroit: The Board of Education, Summer, 1971), p. 9.

<sup>10</sup>Ibid., p. 31.

desegregation and to employ specialists to advise the school board applicant, or school personnel, on solving problems related to desegregation in the system.<sup>11</sup>

The school system was also recipient of funds through the Economic Opportunity Act of 1964<sup>12</sup> and the Education Professions Development Act.<sup>13</sup> Both of the acts were used to enhance the educational opportunities in poverty areas.

Detroit was also allocated \$8,766,281 under Section 3 of the State Aid Act. The state of Michigan appropriates these funds for use in compensatory education programs.<sup>14</sup>

#### Audiovisual Development Within the School District

Peter Golej,<sup>15</sup> Director of Audiovisual Education, in an historical article on the development of audiovisual education in the Detroit Schools states that it began with the opening of the Aquarium and Horticultural Building at Belle Isle on August 18, 1904. The first audiovisual equipment was purchased in November of that same year when the Board on the recommendation of the Committee on Text

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<sup>11</sup>Ibid., p. 41.

<sup>12</sup>Ibid., p. 45.

<sup>13</sup>Ibid., p. 57.

<sup>14</sup>Ibid., p. 63.

<sup>15</sup>Peter Golej, "Audiovisual Education" in Improving Learning in the Detroit Public Schools: A History of the Division for Improvement of Instruction, 1920-1966, op. cit., pp. 115-123.

Books and Course of Study, approved the purpose of a stereopticon for Central High School at the cost of \$212.00. Lantern slides were borrowed from citizens.

Development was slow until 1911 when the Nernst lamps were acquired for use in the stereopticon. Also, it was approved that streetcar tickets be applied to schools for messengers who were sent to pick up slides. The first audiovisual technician was also hired during that year, and the following year, Gregory, Mayer and Thom were commissioned to rule and bind a 150 page record keeping book for the circulation of "Stereoptical Lessons" as the set of slides were called. The first motion picture projector called "Pathescope" was purchased in 1916. Problems in room darkening resulted in the selection of one room, usually the kindergarten or auditorium for use as a projection room. This led to an unfortunate circumstance that remains to this day in some schools; namely the designation of one room as a visual aids room.

During this same era, the Children's Museum was in its first developmental stage with offices at the Institute of Arts and a speakers bureau was organized to lecture on visual education. The first film selection policy was stated in the Board's Annual Report of 1925 and that report also mentioned a class in film evaluation at Detroit Teachers College, (now Wayne State University) and the beginning of the photographic department. In-service programs began in 1926.



By the late twenties, opaque projectors, films and slides were being delivered by attendance officers and 16 millimeter projectors made their appearance. They were known as "classroom projectors." The thirties introduced the "Stillfilm" to the classroom which was a forerunner to the present filmstrip. Radios and phono records also were introduced into the schools. The 16 millimeter sound film and the 35 millimeter filmstrips made their appearance in 1940.

Most of the changes during the '40s, '50s, and '60s were organizational, until the late '60s. Recent growth in the audiovisual area has been phenomenal. Some inventories have more than doubled in the last five years. Audiovisual materials currently available to teachers from the Central Audiovisual Teaching Aids Library include approximately 15,000 sound motion picture films (3,600 titles); 16,000 filmstrips (3,800 titles); 400 sets of slides (250 titles); almost 10,000 records; 500 taped recordings (300 titles); and a growing collection of overhead transparencies.

Current circulation figures reflect the importance attributed by teachers to audiovisual materials as instructional media. Utilization has increased approximately 10 percent each year. Each year, over 1,000 new instructional items are evaluated by previous committees made up of instructional area specialists, teachers, and others, as the occasion requires. Approximately 250 new titles

are added each year to the growing collection of instructional materials available to teachers from the Audiovisual Teaching Aids Library.

In addition, many schools have acquired sizeable collections of filmstrips and records for instructional use. Many of these items have been permanently deposited in schools under various programs such as NDEA, Head Start, Foreign Language Instruction, Project I, the Vocational Education Act, and others. Individual schools often use their own funds or gifts to add to their own collections of audiovisual materials. Most of the overhead projectors now in schools have been acquired under the Vocational Education Act or under NDEA. Inventories of commonly used audiovisual equipment have increased significantly.

#### Development of the Questionnaire

The major objective of the study was to identify the barriers that teachers see as preventing them from utilizing media effectively in the classroom. At the time of the Study, Detroit had three curriculum laboratories. Only one of these laboratories was available to all teachers. The other laboratories were restricted by federal guidelines; one to Title I schools and the other to the Section III Neighborhood Education Center Project. Consultants at the regional level included a mathematics demonstration teacher and a reading demonstration teacher. Consultants at the local school level included one or more

of the following: Principal, Assistant Principal, Curriculum Leader, Staff Coordinator, and Department Head. There were supervisors employed at the central district level.

In an effort to answer the basic question, a questionnaire package (Appendix A) was designed to gather the following information:

1. Demographic characteristics of teachers.
2. Sources of information about media materials and equipment.
3. Appropriateness of media information.
4. Types of assistance needed to use media effectively.
5. Problems experienced in using media.
6. Proficiency in using media equipment.
7. Teachers' use of various media during the school year.
8. Teachers' use of school district resources.
9. Teachers' use of community resources.
10. Proposed placement of media materials and equipment for more effective utilization.

A basic reference used in formulating the questionnaire was Eleanor P. Godfrey's<sup>16</sup> report for DAVI in 1967. Her study examined what a sample of school districts had made of audiovisual technology over a crucial six-year period (1961-1966) of ferment in instructional methodology.

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<sup>16</sup>Eleanor Godfrey, The State of Audiovisual Technology: 1961-1966, Washington, Department of Audiovisual Instruction, NEA, 1961.

The Teacher Questionnaire used in that study was adopted as a first draft for this study.

On July 8, 1971, Dr. Mike Syropoulos shared the results of his dissertation with those responsible for the administration and operation of the Curriculum Laboratories of the Detroit Public Schools. This writer was doing an internship at two of the laboratories during that time and was invited to the session. Dr. Syropoulos' study involved users of curriculum laboratories and included all levels of school personnel including teacher aides, student teachers and clerical workers.<sup>17</sup>

With the process of decentralization going at full speed in the local school system, it seemed necessary to obtain information from non-users as well as users of media in order that some documented information would be available for Regional Boards of Education and Central Board of Education members to refer to, in developing instructional media centers.

The first draft of the Questionnaire was presented to Dr. George Grimes, Supervisor of Schools Center Building Curriculum Laboratory and Mr. Oliver Agee, Administrator of Stevenson Building Curriculum Laboratory. These gentlemen went over each draft of the questionnaire and offered constructive suggestions and criticism. When a basic

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<sup>17</sup>Mike Syropoulos, "Analysis of the Detroit Public Schools Curriculum Laboratories Including the Possible Need for Expansion and Changes in Their Structures" (unpublished Ph.D. dissertation, Wayne State University, 1971).

format had been agreed upon; six teachers with various levels of sophistication in media were asked to fill out the pilot questionnaire and make suggestions concerning its format, the amount of time necessary to complete the questionnaire, and the appropriateness of the questions. Revisions were made and the questionnaire was then submitted to the Office of Research and Development. This department examined the questionnaire and offered suggestions for items to be included in the questionnaire and deleted a few items. It was then necessary to send copies to various curriculum departments for their approval.

The questionnaire consisted of 28 questions. The first nine questions requested information about regional affiliation, type of school, teaching assignment, years of teaching at their present school, years of Detroit teaching experience, highest professional degree, sex, age group, and approximate age of their school building.

Three questions inquiring about the source of media were followed by two questions related to the amount of training in media. Two questions inquiring about purchasing procedures and ordering of media materials by teachers, were followed by three questions related to the amount of materials used by the teacher that were self-made or ready-made.

Five questions pertaining to the objectives of the questionnaire followed these questions. One question asked teachers to list important problems that they

perceived in using media from a list of thirteen perceived difficulties. One question asked teachers to suggest placement of certain media equipment at the local school or regional level. The last question asked teachers to identify their proficiency in using media equipment and the last item provided space for respondents' comments (Appendix B).

### Selection of Sample

One objective of the sampling method was to obtain responses from all geographical sections of the school district and from teachers at all school levels. Another objective was to obtain responses from schools that were receiving a great deal of federal funds and schools which were not receiving such funds.

In consultation with the Department of Research and Development, it was determined that the sample for this study would consist of an elementary school, a junior high school or middle school, and a high school from each of the eight regions, and a school for mentally handicapped students and a school for gifted students from the City Wide Region.

Each Region Superintendent was asked to approve the study. They received the questionnaire package and a list of schools to be used in the study from their region. They approved the study.

Letters of request to cooperate in the study were then sent to the building administrators of the selected



schools. Several administrators did not wish to have their staffs participate in the study due to their workload or because they were involved in other studies. Alternates were sought. A total of 188 teachers were asked to participate in the study. Alternates could not be found for junior high school junior high schools in Regions One and Four; and senior high schools in Region Seven and Eight.

The building administrator was asked to select teachers to complete the questionnaires by using the current payroll list for random selection of teachers, since teachers are listed by system seniority on this list which would make it possible to have teachers at all age levels and experience.

Questionnaires were sent to participating schools on the following basis: high schools 10; junior high schools, middle schools, and elementary schools, 8; the high school for gifted students, 11; and the school for mentally handicapped students, 5.

#### Analysis of Data

A program providing for percentages and analyses of contingency tables, furnished by the Computer Institute for Social Science Research (CISSR) was used for computation and tests for significance of results. The one way analysis of variance with unequal number of replications permitted routine (ANOVA-UNEQ1) was also used to calculate a one-way

analysis of variance table in which unequal frequencies (number of replications) may occur in each category.

All statements in this study concerning the relative proportion of response of one group in comparison to other groups are based on a chi-square statistics significant at the .05 or .01 level of confidence. A significant chi-square which applied to a whole table is designated by an asterisk (\*) for the .05 level and two asterisks (\*\*) for the .01 level.

Question 22 was subjected to content analysis and subsequently tabulated according to categorical groupings which emerged. The same procedure was used for other comments made by respondents throughout the questionnaire.

The raw data were coded and punched on IBM cards. Data analyses were performed using the CDC 6500 computer at the Michigan State University Computer Center.

#### Limitations of the Study

This study is limited by the population under investigation, the intended generalization, and statistical treatment.

This study deals only with classroom teachers in the Detroit Public Schools. Therefore the findings of this research are generalizable to other school systems and their teachers only to the extent that the Detroit Public Schools are similar to other urban school systems and the classroom

teacher may be representative of other educators in similar positions in their schools.

This study is further limited by restrictions placed upon the researcher by the Department of Research and Development in the selection of schools to be used in this study.

### Summary

The purpose of this study was to identify the barriers that classroom teachers see as preventing them from using media effectively in their teaching.

A questionnaire was developed and distributed to 188 classroom teachers at all school levels throughout the school district.

The results from the questionnaires were analyzed utilizing the CISSR and ANOVA-UNEQ1 routines. Analyses were performed using the CDC 6500 computer at the Michigan State University Computer Center.

## CHAPTER IV

### PRESENTATION AND ANALYSIS OF DATA

#### Introduction

This chapter presents the findings and analysis of the investigation which was conducted to examine the existing uses of media materials, equipment, and facilities in the Detroit Public School System and to ascertain the barriers to the effective utilization of media by teachers in the system.

In virtually every aspect of work with media materials and equipment--whether dissemination information about them to potential users, adapting materials for special purposes, or developing new materials--it is important to be aware of the interests of the users--namely the teachers.

This survey represents a detailed look at the complex area of media materials and equipment for a large metropolitan school district. The survey was designed to examine the differences and similarities in the use and need of media among teachers in the nine administrative regions of the school district. Teachers at all grade levels were surveyed to provide answers to such questions

as: Do teachers tend to share the same view about the supply and quality of materials they use? What barriers do these teachers perceive in using media in their classrooms? Are teachers adequately trained to use media materials and equipment? Where do teachers propose that future media facilities be established for greater utilization by more teachers?

It was believed that the answers benefit not only the administrative staff of the Detroit Public Schools, but teachers and producers of instructional materials as well.

To facilitate the reporting of the voluminous data collected for this study and to make it more meaningful to the reader or potential user, the responses and opinions are expressed in tabular form. Responses to Question 22 were subjected to content analysis and subsequently tabulated according to categorical groupings which emerged. The same procedure was used for other comments made by respondents throughout the questionnaire.

The data obtained for this study was secured from 137 of the 156 questionnaires returned. Nineteen of the returned questionnaires were not used in the study for the following reasons: (a) 11 were incomplete, (b) 3 were completed by persons who identified themselves as counselors, (c) 4 were completed by persons who identified themselves as department heads, and (d) 1 was completed by a principal. There was no response from 32 individuals.

## Results

The results of the study will be divided into three parts. The first part will show the personal characteristics of teachers; the second part will show the experience, training, and knowledge that teachers have about media and the difficulties that they perceive as barriers to utilization of media equipment and materials. The third part will show the results of the most significant variables which dealt with the use of specific media.

### Personal Characteristics of Teachers

The personal characteristics of Detroit teachers were examined with respect to specific factors of regional affiliation, type of school in which they work, major teaching assignment, the number of years of teaching in their present assignment, the number of years of teaching in the Detroit system, highest academic degree, sex, and age group.

### Regional Affiliation

The data in Table 5 show that 20 percent of the teachers responding, worked in Region One while 4 percent respectively worked in Regions Two and Seven.

### Type of School

The data in Table 6 show that 34 percent of the 137 respondents were teaching in elementary schools and 29



TABLE 5.--Regional Affiliation.

| Region       | Freq. | %   | Teachers<br>in Region |
|--------------|-------|-----|-----------------------|
| City Wide    | (17)  | 12  | 540                   |
| Region One   | (27)  | 20  | 1,230                 |
| Region Two   | ( 6)  | 4   | 1,564                 |
| Region Three | (13)  | 10  | 1,262                 |
| Region Four  | (15)  | 11  | 1,561                 |
| Region Five  | (23)  | 17  | 864                   |
| Region Six   | (13)  | 10  | 918                   |
| Region Seven | ( 6)  | 4   | 913                   |
| Region Eight | (17)  | 12  | 1,722                 |
| Total        | (137) | 100 | 10,574                |

TABLE 6.--Distribution of Teachers by School Level.

|                   | Freq. | %   |
|-------------------|-------|-----|
| Elementary        | (47)  | 34  |
| Middle            | (17)  | 12  |
| Junior High       | (26)  | 19  |
| Senior High       | (39)  | 29  |
| Special Education | ( 8)  | 6   |
| Total             | (137) | 100 |

percent in senior high schools. The respondents represent .013 percent of the teachers in the Detroit Public School system.

The distribution of respondents in each teaching assignment category is given in Table 7 with the percentage and frequency of teachers for each category.

Teachers responded from twenty different teaching area assignments. A Self-Contained teachers has one class of students under her direction during the entire school day. Students have contact with other teachers only during the teacher's coordinating time. A Homeroom Platoon teachers has two groups of students under her direction during the school day. In the morning the teacher gives one group instruction in the language arts and social studies content areas. In the afternoon, this group attends three or four "special" classes including mathematics, art, library, physical education, science, music, auditorium, home economics and industrial arts. An Auditorium teacher is an elementary school teacher responsible for instructing students in the performing arts. In schools where there are Auditorium teachers, one of their main responsibilities has been that of audiovisual coordinator. Elementary school librarians have regularly scheduled classes except for a few experimental situations. A Special Education teacher is responsible for instructing students who meet state requirements for the handicapped. Their handicap may be physical or mental or both.

TABLE 7.--Major Area of Teaching Assignment.

| Teaching Assignment             | Freq. | %   |
|---------------------------------|-------|-----|
| Self Contained (Elementary)     | (18)  | 13  |
| Homeroom (Platoon) (Elementary) | (14)  | 10  |
| Art                             | ( 2)  | 1   |
| Business                        | ( 4)  | 3   |
| Home Economics                  | ( 4)  | 3   |
| Health and Physical Education   | ( 3)  | 2   |
| Industrial Arts                 | ( 1)  | 1   |
| Kindergarten                    | ( 2)  | 1   |
| Library                         | ( 4)  | 3   |
| Mathematics                     | (16)  | 12  |
| Music                           | ( 3)  | 2   |
| Science                         | (10)  | 8   |
| Social Studies                  | (14)  | 10  |
| Special Education               | (10)  | 7   |
| Vocational Education            | ( 2)  | 1   |
| English                         | (16)  | 12  |
| Foreign Language                | ( 6)  | 5   |
| Language Arts                   | ( 5)  | 4   |
| Pre School                      | ( 1)  | 1   |
| Auditorium (Elementary)         | ( 2)  | 1   |
| Total                           | (137) | 100 |

### Years of Teaching in Present School

Nearly half of the respondents had been teaching in their present school three years or less; 25 percent from four to six years; 11 percent from seven to twenty years; and 5 percent for twenty-one years or more. Table 8 shows the complete profile regarding years of teaching in the respondents' present schools.

TABLE 8.--Years of Teaching in Present School.

| Years       | Number<br>of<br>Respondents | %   |
|-------------|-----------------------------|-----|
| 1-3         | (64)                        | 47  |
| 4-6         | (35)                        | 25  |
| 7-10        | (15)                        | 11  |
| 11-20       | (15)                        | 11  |
| 21-or over  | ( 7)                        | 5   |
| No Response | ( 1)                        | 1   |
| Total       | (137)                       | 100 |

### Years of Teaching in Detroit Schools

Table 9 shows a somewhat different picture as to the respondents teaching experience. Twenty percent had taught for three years or less and 11 percent had taught for twenty-one years or more.

TABLE 9.--Years of Teaching in Detroit Schools.

| Years       | Number<br>of<br>Respondents | %   |
|-------------|-----------------------------|-----|
| 1-3         | (27)                        | 20  |
| 4-6         | (33)                        | 24  |
| 7-10        | (27)                        | 20  |
| 11-21       | (34)                        | 25  |
| 21 or over  | (15)                        | 10  |
| No Response | ( 1)                        | 1   |
| Total       | (137)                       | 100 |

Highest Professional Degree

The data in Table 10 indicate that 55 percent of the teachers held advanced degrees. Only two respondents indicated having less than a bachelor's degree. Both teach vocational education classes.

Sex

The percentage of women responding to the questionnaire was considerably greater than that of men. Of the respondents to this item, 97 or 79 percent, were women, while 37 or 27 percent were men. Three individuals did not respond to this question. A tabulation of these data is presented in Table 11.

TABLE 10.--Highest Professional Degree.

| Degree                 | Number<br>of<br>Respondents | %   |
|------------------------|-----------------------------|-----|
| Less than a Bachelor's | ( 2 )                       | 2   |
| Bachelor's             | (57)                        | 42  |
| Master's               | (67)                        | 48  |
| Specialist             | (10)                        | 7   |
| Other                  | ( 1 )                       | 1   |
| Total                  | (137)                       | 100 |

TABLE 11.--Distribution of Teachers by Sex.

|             | Number<br>of<br>Respondents | %   |
|-------------|-----------------------------|-----|
| Female      | (97)                        | 71  |
| Male        | (37)                        | 27  |
| No Response | ( 3 )                       | 2   |
| Total       | (137)                       | 100 |



Age Group

Table 12 shows that 26 percent of the respondents were in the 26-30 age range which was the largest percentage of any age group. One respondent was over 65 years of age.

TABLE 12.--Distribution of Teachers by Age.

| Age        | Freq. | %   |
|------------|-------|-----|
| 21-25      | (16)  | 12  |
| 26-30      | (35)  | 26  |
| 31-35      | (25)  | 18  |
| 36-40      | (10)  | 7   |
| 41-45      | (18)  | 13  |
| 46-50      | (11)  | 8   |
| 51-55      | (11)  | 8   |
| 56-60      | (10)  | 7   |
| 65 or over | ( 1)  | 1   |
| Total      | (137) | 100 |

Approximate Age of School Building

Table 13 shows that 25 percent of the teachers are housed in buildings less than ten years of age and 30 percent are housed in buildings over fifty years of age. Six percent of the teachers did not respond to this question.

TABLE 13.--Approximate Age of School Building.

| Age<br>of<br>Building | Number<br>of<br>Respondents | %   |
|-----------------------|-----------------------------|-----|
| 1-3                   | ( 5)                        | 4   |
| 4-6                   | ( 1)                        | 1   |
| 7-10                  | (12)                        | 8   |
| 11-20                 | (16)                        | 12  |
| 21-30                 | (11)                        | 8   |
| 31-40                 | (19)                        | 13  |
| 41-50                 | (30)                        | 21  |
| 51-60                 | (10)                        | 8   |
| 61-70                 | (10)                        | 8   |
| 71 or over            | (15)                        | 11  |
| No Response           | ( 8)                        | 6   |
| Total                 | (137)                       | 100 |

### Media Utilization

#### Definition of Media

The questionnaire used the following definition of media: Media means print, audiovisual, and other sensory materials which provide information for instructional purposes. Examples include: television, sixteen millimeter film, film loops, audio tapes, and community resources.

The next ten questions asked the teachers to indicate their primary source of information about media, their satisfaction with these resources, the amount of educational

background that they had in the use of media; their participation in selecting media for use in their building; their individual media projects for their classes and the facility at which they prepared media materials.

#### Primary Source of Information at the Local School Level

Table 14 indicates that the primary source of information about media at the local school level came from four sources. Departments and libraries are major sources, with audiovisual coordinators and school offices being secondary sources.

#### Actual Sources Used by Teachers for Media Information

Catalogs and bulletins issued by the school district and information supplied by distributors and manufacturers of media materials and equipment are shown to be the greatest source of information to teachers. Table 15 shows other sources used by teachers for this information.

#### Helpfulness of Information Sources

Table 16 indicates that respondents felt that the information sources indicated in Question 11 of the questionnaire were sufficient for their needs.

#### Special Training or Course Work in the Use of Media or Audiovisual Materials

Table 17 shows that 56 percent of the respondents indicated that they had special training or course work

TABLE 14.--Primary Source of Information at the Local School Level.

|                                                                         | Yes   |    | No    |    | No Response |   | Total |     |
|-------------------------------------------------------------------------|-------|----|-------|----|-------------|---|-------|-----|
|                                                                         | Freq. | %  | Freq. | %  | Freq.       | % | Freq. | %   |
| Each teacher has his own lists or catalogs                              | (12)  | 8  | (123) | 90 | ( 2)        | 2 | (137) | 100 |
| Each department receives information                                    | (42)  | 30 | ( 93) | 68 | ( 2)        | 2 | (137) | 100 |
| Information is available in the school office                           | (29)  | 21 | (106) | 77 | ( 2)        | 2 | (137) | 100 |
| Information is available in school library                              | (40)  | 29 | ( 95) | 69 | ( 2)        | 2 | (137) | 100 |
| Information is available from the audiovisual coordinator in the school | (30)  | 22 | (105) | 76 | ( 2)        | 2 | (137) | 100 |

TABLE 15.--Actual Sources Used by Teachers for Media Information.

|                                                                          | Yes   |    | No    |    | No Response |   | Total |     |
|--------------------------------------------------------------------------|-------|----|-------|----|-------------|---|-------|-----|
|                                                                          | Freq. | %  | Freq. | %  | Freq.       | % | Freq. | %   |
| Catalogs or bulletins issued by school district                          | (78)  | 57 | ( 57) | 41 | ( 2)        | 2 | (137) | 100 |
| Information supplied by distributors or manufacturers of media materials | (77)  | 56 | ( 58) | 42 | ( 2)        | 2 | (137) | 100 |
| Training sessions or workshop given by school district                   | (37)  | 27 | ( 98) | 71 | ( 2)        | 2 | (137) | 100 |
| A media course or workshop at a university or college                    | (43)  | 31 | ( 92) | 67 | ( 2)        | 2 | (137) | 100 |
| Professional journals                                                    | (70)  | 51 | ( 65) | 47 | ( 2)        | 2 | (137) | 100 |
| Other teachers                                                           | (70)  | 51 | ( 65) | 47 | ( 2)        | 2 | (137) | 100 |
| Other                                                                    | (15)  | 11 | (120) | 87 | ( 2)        | 2 | (137) | 100 |
| Other                                                                    | ( 4)  | 3  | (131) | 95 | ( 2)        | 2 | (137) | 100 |
| None                                                                     | ( 3)  | 2  | (132) | 96 | ( 2)        | 2 | (137) | 100 |

TABLE 16.--Helpfulness of Information Sources.

|               | Freq. | %   |
|---------------|-------|-----|
| Yes           | (79)  | 57  |
| No            | (53)  | 39  |
| Not Available | ( 1)  | 1   |
| No Response   | ( 4)  | 3   |
| Total         | (137) | 100 |

TABLE 17.--Special Training or Course Work in the Area of Media.

|       | Freq. | %   |
|-------|-------|-----|
| Yes   | (77)  | 56  |
| No    | (60)  | 44  |
| Total | (137) | 100 |

in the use of media or audiovisual materials and 44 percent had no training.

#### College or University Courses in Media

The data in Table 18 show that 54 percent of the respondents indicated that they had special training in media at the college or university level. Twenty-six percent indicated that they had three or four courses.

TABLE 18.--College or University Courses.

|             | Freq. | %   |
|-------------|-------|-----|
| 1-2         | (22)  | 16  |
| 3-4         | (35)  | 26  |
| 5-6         | ( 7)  | 5   |
| 7-8         | ( 5)  | 4   |
| 9-10        | ( 3)  | 2   |
| 10 or more  | ( 2)  | 1   |
| No Response | (63)  | 46  |
| Total       | (137) | 100 |

#### The Purchasing of Materials

These items were designed to reveal a possible source of lack of knowledge or indifference due to a respondent's having little part in the purchase or selection of materials to be used in the classroom. Teachers who do



not have the option to purchase materials of supplementary and/or regular materials would be expected to have less interest in materials and in contacts with persons who can inform them about the materials.

Table 19 indicates that 63 percent of the respondents indicated that they had the opportunity to suggest for purchase or rental; media equipment and materials but Table 20 shows that only 6 percent were able to have their suggestions always approved and 17 percent frequently had their suggestions approved. Thirty four percent gave no response to the question which probably means that they are not involved in recommending materials.

#### Use of Personal Materials in Classroom

This question sought to describe the amount of materials teachers used that they had in their own personal collection. Table 21 shows that 72 percent of teachers do use materials from this source.

#### Use in Classroom of Materials Made by Teachers

Table 22 shows that 64 percent of the respondents make materials for their classroom use.

#### Location Where Media Materials are Prepared

Table 23 shows that 31 percent of the teachers did not respond to this question. However, of those that did respond, media materials are prepared at home, school and curriculum laboratories in that order.

TABLE 19.--Opportunity of Respondents to Suggest for Purchase or Rental, Media Equipment and/or Materials.

|                                | Freq. | %   |
|--------------------------------|-------|-----|
| Yes                            | (87)  | 63  |
| No                             | (40)  | 29  |
| Yes, but haven't suggested any | ( 8)  | 6   |
| No Response                    | ( 2)  | 2   |
| Total                          | (137) | 100 |

TABLE 20.--Amount of Materials which were Purchased or Rented upon the Recommendation of Respondents.

|               | Freq. | %   |
|---------------|-------|-----|
| Almost always | ( 9)  | 6   |
| Frequently    | (23)  | 17  |
| Occasionally  | (31)  | 23  |
| Rarely        | (17)  | 12  |
| Never         | ( 5)  | 4   |
| Don't Know    | ( 6)  | 4   |
| No Response   | (46)  | 34  |
| Total         | (137) | 100 |

TABLE 21.--Percentage of Materials Used in the Classroom  
Which were Personal Items of the Respondents.

|             | Freq. | %   |
|-------------|-------|-----|
| Yes         | (99)  | 72  |
| No          | (35)  | 26  |
| No Response | ( 3)  | 2   |
| Total       | (137) | 100 |

TABLE 22.--Percentage of Materials Used in the Classroom  
Which were Self-Made by the Respondents.

|             | Freq. | %   |
|-------------|-------|-----|
| Yes         | (88)  | 64  |
| No          | (45)  | 33  |
| No Response | ( 4)  | 3   |
| Total       | (137) | 100 |

TABLE 23.--Specific Location Where Media Materials are Prepared by Teachers  
for Use in the Classroom.

|                 | Yes   |    | No    |    | No Response |    | Total |     |
|-----------------|-------|----|-------|----|-------------|----|-------|-----|
|                 | Freq. | %  | Freq. | %  | Freq.       | %  | Freq. | %   |
| Home            | (65)  | 48 | (29)  | 21 | (43)        | 31 | (137) | 100 |
| School          | (55)  | 40 | (39)  | 29 | (43)        | 31 | (137) | 100 |
| Curriculum Lab. | (44)  | 32 | (50)  | 37 | (43)        | 31 | (137) | 100 |

### Location Where Media Materials are Prepared

Table 24 will show that when the location where a teacher prepares media materials is compared by regional affiliation, there is a significant relationship in the use of curriculum laboratories and regional affiliation. Teachers in Region Eight are the greatest users. There is a curriculum laboratory located in one of the schools in that region. Region One is also a great user of curriculum laboratories. The Schools Center Building Curriculum Laboratory is located in this region and the majority of the schools in this region are eligible to use the Stevenson Curriculum Laboratory.

### Use of Various Media During the School Year

The respondents were asked to indicate specific media that they had used during the 1970-71 school year. The items were described in instructional media format terms.

Table 25 will show that of the thirty-four different media listed, computer assisted instruction, instructional television, and video-tape recording were the least used. Bulletin boards, books, chalkboards, and filmstrips were used most frequently. Immediate oral presentation was reported as being used by 53 percent of the respondents. Many of the respondents showed this unfamiliarity by placing question marks (?) after several media terms.

TABLE 24.—Comparison of Specific Location Where Media Materials are Prepared by Teachers for Use in the Classroom by Administrative Region.

|                        | City Wide |    | One   |    | Two   |    | Three |    | Four       |    | Five               |    |
|------------------------|-----------|----|-------|----|-------|----|-------|----|------------|----|--------------------|----|
|                        | Freq.     | %  | Freq. | %  | Freq. | %  | Freq. | %  | Freq.      | %  | Freq.              | %  |
| Home                   | (10)      | 59 | (15)  | 56 | (0)   | 0  | (5)   | 38 | (3)        | 20 | (10)               | 43 |
| School                 | ( 3)      | 18 | (12)  | 44 | (2)   | 33 | (6)   | 46 | (5)        | 33 | ( 9)               | 39 |
| Curriculum Laboratory* | ( 6)      | 35 | (12)  | 44 | (1)   | 17 | (3)   | 23 | (1)        | 6  | ( 1)               | 26 |
|                        |           |    |       |    |       |    |       |    |            |    |                    |    |
|                        | Six       |    | Seven |    | Eight |    | Total |    | Chi Square |    | Degrees of Freedom |    |
|                        | Freq.     | %  | Freq. | %  | Freq. | %  | Freq. | %  | Freq.      | %  | Freq.              | %  |
| Home                   | ( 7)      | 54 | ( 5)  | 83 | (10)  | 59 | (65)  | 48 | 22.387     |    | 16                 |    |
| School                 | ( 5)      | 38 | ( 4)  | 67 | ( 9)  | 53 | (55)  | 40 | 17.286     |    | 16                 |    |
| Curriculum Laboratory* | ( 3)      | 24 | ( 1)  | 17 | (11)  | 65 | (44)  | 32 | 26.321     |    | 16                 |    |

TABLE 25.--Respondents' Use of Selected Media.

|                                  | Yes   |    | No    |    | No Response |   |
|----------------------------------|-------|----|-------|----|-------------|---|
|                                  | Freq. | %  | Freq. | %  | Freq.       | % |
| Art Prints                       | ( 37) | 27 | ( 93) | 68 | (7)         | 5 |
| Study Prints                     | ( 23) | 17 | (107) | 78 | (7)         | 5 |
| Slides                           | ( 50) | 37 | ( 80) | 58 | (7)         | 5 |
| Filmstrips                       | ( 98) | 72 | ( 32) | 23 | (7)         | 5 |
| Overhead Projector               | ( 71) | 52 | ( 59) | 43 | (7)         | 5 |
| Opaque Projector                 | ( 52) | 38 | ( 78) | 57 | (7)         | 5 |
| Chalkboards                      | (100) | 73 | ( 30) | 22 | (7)         | 5 |
| Fabric Boards                    | ( 23) | 17 | (107) | 78 | (7)         | 5 |
| Bulletin Boards                  | (109) | 80 | ( 21) | 15 | (7)         | 5 |
| Graphic Displays                 | ( 37) | 27 | ( 93) | 68 | (7)         | 5 |
| Realia                           | ( 13) | 10 | (117) | 85 | (7)         | 5 |
| Model                            | ( 45) | 33 | ( 85) | 62 | (7)         | 5 |
| Exhibits                         | ( 55) | 40 | ( 75) | 55 | (7)         | 5 |
| Globes                           | ( 56) | 40 | ( 74) | 55 | (7)         | 5 |
| Programmed<br>Instruction        | ( 41) | 30 | ( 89) | 65 | (7)         | 5 |
| Computer Assisted<br>Instruction | ( 5)  | 4  | (125) | 91 | (7)         | 5 |
| Books                            | (106) | 77 | ( 24) | 18 | (7)         | 5 |
| Documents                        | ( 20) | 15 | (110) | 80 | (7)         | 5 |



TABLE 25.--Continued.

|                                | Yes   |    | No    |    | No Response |   |
|--------------------------------|-------|----|-------|----|-------------|---|
|                                | Freq. | %  | Freq. | %  | Freq.       | % |
| Periodicals                    | ( 66) | 48 | ( 64) | 47 | (7)         | 5 |
| Microforms                     | ( 4)  | 3  | (126) | 92 | (7)         | 5 |
| People                         | ( 62) | 45 | ( 68) | 50 | (7)         | 5 |
| Agencies                       | ( 30) | 22 | (100) | 73 | (7)         | 5 |
| 16 MM Films                    | ( 76) | 56 | ( 54) | 39 | (7)         | 5 |
| 8 MM Films                     | ( 15) | 11 | (115) | 84 | (7)         | 5 |
| Educational<br>Television      | ( 34) | 25 | ( 96) | 70 | (7)         | 5 |
| Instructional<br>Television    | ( 6)  | 4  | (124) | 91 | (7)         | 5 |
| Video Tape/EVR                 | ( 6)  | 4  | (124) | 91 | (7)         | 5 |
| Disc Recordings                | ( 43) | 31 | ( 87) | 64 | (7)         | 5 |
| Tape Recordings                | ( 63) | 46 | ( 67) | 49 | (7)         | 5 |
| Immediate Oral<br>Presentation | ( 73) | 53 | ( 57) | 42 | (7)         | 5 |
| Mediated Oral<br>Instruction   | ( 9)  | 7  | (121) | 88 | (7)         | 5 |
| Role Playing                   | ( 75) | 55 | ( 55) | 40 | (7)         | 5 |
| Games                          | ( 83) | 61 | ( 47) | 34 | (7)         | 5 |
| Simulation                     | ( 21) | 15 | (109) | 80 | (7)         | 5 |

Types of Assistance Needed to Use Media  
Materials and Equipment Effectively

The respondents were asked to indicate where the greatest need existed in using media materials effectively. Table 26 presents the response of the teachers. In general, the greatest need was for help in keeping up-to-date in new media materials (74%). Suggestions of appropriate media materials for teaching (62%), help in ordering materials and procuring equipment (60%), repair and maintenance of equipment (58%), preparation of specialized materials (54%), and classifying and storing materials (47%) followed. Six percent of the respondents indicated that they needed no assistance and 9 percent indicated that other types of assistance were needed. These included: a person to operate equipment, money to purchase equipment, security for equipment, providing an environment for use of media, and easier access to media materials.

There is a significant relationship between assistance needed in the area of "suggestion of appropriate media materials for teaching" when this variable is considered with regional affiliation. Table 27 shows that over 70 percent of the respondents in Regions Four, Five, Six and City Wide Region, indicate this variable as being important.

Place or Person in School District that  
Usually Gives the Type of Assistance  
Needed in Using or Preparing Media

Teachers were asked to write in the name or title of the person who gives them the type of assistance that

TABLE 26.--Type of Assistance Needed by Respondents in Order to Use Media Materials and Equipment Effectively.

|                                                              | Yes   |    | No    |    | No Response |   |
|--------------------------------------------------------------|-------|----|-------|----|-------------|---|
|                                                              | Freq. | %  | Freq. | %  | Freq.       | % |
| Suggestions of appropriate media materials for your teaching | ( 85) | 62 | ( 47) | 34 | (5)         | 4 |
| Instruction or help in operating equipment                   | ( 74) | 54 | ( 58) | 42 | (5)         | 4 |
| Help in keeping up-to-date on new media materials            | (102) | 74 | ( 30) | 22 | (5)         | 4 |
| Help in ordering materials and procuring equipment           | ( 82) | 60 | ( 50) | 36 | (5)         | 4 |
| Repair and maintenance of equipment                          | ( 79) | 58 | ( 53) | 38 | (5)         | 4 |
| Classifying and storing materials                            | ( 64) | 47 | ( 68) | 49 | (5)         | 4 |
| Preparation of specialized media materials                   | ( 75) | 55 | ( 57) | 41 | (5)         | 4 |
| Other                                                        | ( 13) | 6  | (119) | 90 | (5)         | 4 |
| None                                                         | ( 9)  | 6  | (123) | 90 | (5)         | 4 |

TABLE 27.--Type of Assistance Needed by Respondents in Order to Use Media Materials and Equipment Effectively (by Regions).

|                                                              | City Wide |    | One   |    | Two   |    | Three |    | Four  |    | Five  |    |
|--------------------------------------------------------------|-----------|----|-------|----|-------|----|-------|----|-------|----|-------|----|
|                                                              | Freq.     | %  | Freq. | %  | Freq. | %  | Freq. | %  | Freq. | %  | Freq. | %  |
| Suggestions of appropriate media materials for your teaching | (10)      | 70 | (15)  | 56 | (4)   | 66 | ( 4)  | 31 | (11)  | 73 | (18)  | 78 |
| Instruction or help in operating equipment                   | ( 6)      | 35 | (18)  | 67 | (4)   | 67 | ( 5)  | 38 | (11)  | 73 | (15)  | 65 |
| Help in ordering up-to-date on new media materials           | (14)      | 82 | (19)  | 70 | (4)   | 67 | (12)  | 92 | (12)  | 80 | (18)  | 78 |
| Help in ordering materials and procuring equipment           | (11)      | 65 | (14)  | 52 | (3)   | 50 | ( 8)  | 62 | (10)  | 67 | (17)  | 74 |
| Repair and maintenance of equipment                          | ( 7)      | 41 | (15)  | 56 | (2)   | 33 | ( 6)  | 46 | (11)  | 73 | (15)  | 65 |
| Classifying and storing materials                            | ( 6)      | 35 | ( 9)  | 33 | (1)   | 17 | ( 5)  | 38 | (10)  | 67 | (13)  | 57 |
| Preparation of specialized materials                         | ( 8)      | 41 | (14)  | 52 | (3)   | 50 | ( 7)  | 54 | ( 8)  | 53 | (15)  | 65 |
| Other*                                                       | ( 0)      | 0  | ( 0)  | 0  | (0)   | 0  | ( 1)  | 8  | ( 3)  | 20 | ( 4)  | 17 |

TABLE 27.--Continued.

|                                                              | Six   |    | Seven |    | Eight |    | Chi<br>Square | Degrees<br>of<br>Freedom |
|--------------------------------------------------------------|-------|----|-------|----|-------|----|---------------|--------------------------|
|                                                              | Freq. | %  | Freq. | %  | Freq. | %  |               |                          |
| Suggestions of appropriate media materials for your teaching | (11)  | 85 | (1)   | 17 | (9)   | 53 | 27.306        | 16                       |
| Instruction or help in operating equipment                   | (7)   | 54 | (0)   | 0  | (8)   | 43 | 24.188        | 16                       |
| Help in ordering up-to-date on new media materials           | (10)  | 77 | (1)   | 17 | (12)  | 71 | 24.713        | 16                       |
| Help in ordering materials and procuring equipment           | (8)   | 62 | (1)   | 17 | (10)  | 59 | 15.913        | 16                       |
| Repair and maintenance of equipment                          | (8)   | 62 | (3)   | 50 | (12)  | 71 | 14.481        | 16                       |
| Classifying and storing materials                            | (9)   | 69 | (1)   | 17 | (9)   | 53 | 24.660        | 16                       |
| Preparation of specialized materials                         | (6)   | 46 | (5)   | 83 | (4)   | 23 | 14.638        | 16                       |
| Other*                                                       | (5)   | 38 | (0)   | 0  | (0)   | 0  | 30.430        | 16                       |

they need to use or prepare media materials. In Table 28 it is noted that 13 persons stated that they received assistance from a person but did not identify that individual.

Respondents were asked to identify the school district resources that they used during the school year. Ninety-seven percent of the respondents indicated that they had used one or more resources during the school year. The responses as shown in Table 29 indicate the use of these resources.

Contact with School District Resources  
by School Level

Table 30 shows that there is a significant relationship between the school level in which a respondent taught and each variable of this question. Respondents from elementary schools were the greatest users of the Audiovisual Technical Service and of the Mathematics and Reading Demonstration teachers. Respondents from elementary and middle schools were the greatest users of the Curriculum Laboratory (Stevenson Building), the Professional Library, Educational Broadcasting and the Children's Museum. Middle school respondents used the Curriculum Laboratory (NEC) and supervisors to a greater degree. Junior high school respondents used the Audiovisual Teaching Aids Library to the greatest extent. The Audiovisual Education Department was used extensively by elementary and senior high school teachers.

TABLE 28.--Sources for Assistance in Using or Preparing Media Materials.

| Name                           | Frequency |
|--------------------------------|-----------|
| Audiovisual Coordinator        | 6         |
| Audiovisual Department         | 3         |
| Audiovisual Technician         | 9         |
| Curriculum Laboratory (S.C.)   | 26        |
| Curriculum Laboratory (S.B.)   | 4         |
| Curriculum Laboratory (N.E.C.) | 4         |
| Department Chairman            | 5         |
| Librarian                      | 10        |
| Manufacturer                   | 1         |
| Other Teachers                 | 5         |
| Another Person (unidentified)  | 13        |
| Region Office                  | 1         |
| School Administrator           | 5         |
| School Secretary               | 1         |
| Students                       | 1         |
| Self                           | 2         |
| None                           | 35        |
| No Response                    | 9         |

TABLE 29.--School District Resources Used by Respondents  
Since September 1970.

|                                           | Yes   |    | No    |    | No Response |   |
|-------------------------------------------|-------|----|-------|----|-------------|---|
|                                           | Freq. | %  | Freq. | %  | Freq.       | % |
| Curriculum Laboratory<br>(Schools Center) | (66)  | 48 | ( 67) | 49 | (4)         | 3 |
| Curriculum Laboratory<br>(Stevenson)      | (55)  | 40 | ( 78) | 51 | (4)         | 3 |
| Curriculum Laboratory<br>(N.E.C.)         | (15)  | 11 | (118) | 86 | (4)         | 3 |
| Professional Library<br>(Schools Center)  | (33)  | 24 | (100) | 73 | (4)         | 3 |
| A/V Teaching Library                      | (44)  | 32 | ( 89) | 65 | (4)         | 3 |
| Educational<br>Broadcasting               | (16)  | 12 | (117) | 85 | (4)         | 3 |
| Children's Museum                         | (41)  | 30 | ( 92) | 67 | (4)         | 3 |
| A/V Education<br>Department               | (38)  | 28 | ( 95) | 69 | (4)         | 3 |
| A/V Technical Service                     | (21)  | 15 | (112) | 82 | (4)         | 3 |
| Demonstration Teacher<br>(Math)           | (15)  | 11 | (118) | 86 | (4)         | 3 |
| Demonstration Teacher<br>(Reading)        | ( 7)  | 5  | (126) | 92 | (4)         | 3 |
| Supervisors                               | (21)  | 15 | (112) | 82 | (4)         | 3 |
| None                                      | (11)  | 8  | (123) | 90 | (3)         | 2 |



TABLE 30.—Contact with School District Resources by School Level.

|                                            | Elementary |    | Middle |    | Junior High |    | Senior High |    | Special |    | Chi Square | Degrees of Freedom |
|--------------------------------------------|------------|----|--------|----|-------------|----|-------------|----|---------|----|------------|--------------------|
|                                            | Freq.      | %  | Freq.  | %  | Freq.       | %  | Freq.       | %  | Freq.   | %  |            |                    |
| Curriculum Laboratory**<br>(S.C.)          | (23)       | 49 | (12)   | 71 | ( 9)        | 35 | (19)        | 49 | ( 3)    | 38 | 20.561     | 8                  |
| Curriculum Laboratory**<br>(Stevenson)     | (24)       | 51 | ( 7)   | 41 | (13)        | 50 | ( 8)        | 21 | ( 3)    | 38 | 26.361     | 8                  |
| Curriculum Laboratory**<br>(N.E.C.)        | ( 6)       | 13 | ( 5)   | 29 | ( 2)        | 8  | ( 1)        | 3  | ( 1)    | 13 | 24.975     | 8                  |
| Professional Library**<br>(Schools Center) | (14)       | 30 | ( 6)   | 35 | ( 3)        | 12 | ( 7)        | 18 | ( 3)    | 38 | 22.214     | 8                  |
| A/V Teaching Aids*<br>Library              | (14)       | 30 | ( 5)   | 29 | (12)        | 46 | (10)        | 26 | ( 3)    | 38 | 19.974     | 8                  |
| Educational Broadcasting**                 | (10)       | 21 | ( 3)   | 18 | ( 1)        | 4  | ( 1)        | 3  | ( 1)    | 13 | 25.285     | 8                  |
| Children's Museum**                        | (21)       | 45 | (10)   | 59 | ( 5)        | 19 | ( 3)        | 8  | ( 2)    | 25 | 32.302     | 8                  |
| A/V Education Department*                  | (16)       | 34 | ( 4)   | 24 | ( 4)        | 15 | (12)        | 31 | ( 2)    | 25 | 18.789     | 8                  |
| A/V Technical Service**                    | (12)       | 26 | ( 1)   | 6  | ( 3)        | 11 | ( 4)        | 10 | ( 1)    | 13 | 21.813     | 8                  |
| Demonstration Teacher**<br>(Math)          | ( 9)       | 19 | ( 2)   | 12 | ( 2)        | 8  | ( 2)        | 5  | ( 0)    | 0  | 21.188     | 8                  |
| Demonstration Teacher**<br>(Reading)       | ( 6)       | 13 | ( 1)   | 6  | ( 0)        | 0  | ( 0)        | 0  | ( 0)    | 0  | 25.136     | 8                  |
| Supervisors*                               | ( 8)       | 17 | ( 4)   | 24 | ( 3)        | 11 | ( 6)        | 15 | ( 0)    | 0  | 17.647     | 8                  |
| None*                                      | ( 2)       | 4  | ( 1)   | 6  | ( 2)        | 8  | ( 6)        | 15 | ( 0)    | 0  | 26.332     | 8                  |

### Use of Community Resources

Ninety-seven percent of the respondents indicated that they had used one or more community resource during the school year. The range of resources used by teachers in addition to those shown in Table 31 include the following:

#### Cultural

Artrain  
Theaters  
Book Fairs  
Record Shops  
Restaurants  
Movies  
Recording Company

#### Science

Farms  
Parks  
Nature Centers  
Cider Mills

#### Careers

Printer  
Mortician  
Real Estate Broker  
Newspaper Reporter  
Newspaper Plant

#### Unique

Indian Priests  
Roller Derby

#### Medical

Hospitals  
Doctors  
Mental Health Centers  
Drug Counselors

#### Public

Courts  
Cobo Hall  
Police Department  
Fire Department  
New Detroit Inc.  
Suburban Schools

#### Trips

Canada  
Lansing, Michigan  
Ann Arbor, Michigan  
Cedar Point, Ohio  
West Virginia University  
Various Michigan Colleges  
and Universities

### Use of Community Resources by School Level

There is a significant relationship in the use of all community resources when analyzed with school levels as shown in Table 32. Middle school teachers used the most community resources. The largest group of non-users were junior high and senior high school teachers.

TABLE 31.--Respondents Use of Community Resources Since September 1970.

|                                          | Yes   |    | No    |    | No Response |   |
|------------------------------------------|-------|----|-------|----|-------------|---|
|                                          | Freq. | %  | Freq. | %  | Freq.       | % |
| Public Library                           | (110) | 80 | ( 23) | 17 | (4)         | 3 |
| Institute of Arts                        | ( 53) | 39 | ( 80) | 58 | (4)         | 3 |
| Historical Museum                        | ( 38) | 28 | ( 95) | 69 | (4)         | 3 |
| Dossin Museum                            | ( 18) | 13 | (115) | 84 | (4)         | 3 |
| Afro-American Museum                     | ( 26) | 19 | (107) | 78 | (4)         | 3 |
| Your Heritage House                      | ( 8)  | 6  | (125) | 91 | (4)         | 3 |
| City-County Building                     | ( 26) | 19 | (107) | 78 | (4)         | 3 |
| Utility Company                          | ( 13) | 9  | (120) | 88 | (4)         | 3 |
| Automotive<br>Manufacturer               | ( 10) | 7  | (123) | 90 | (4)         | 3 |
| Stores                                   | ( 18) | 13 | (115) | 84 | (4)         | 3 |
| Offices                                  | ( 4)  | 3  | (129) | 94 | (4)         | 3 |
| Other Businesses                         | ( 10) | 7  | (123) | 90 | (4)         | 3 |
| Individuals                              | ( 17) | 12 | (116) | 85 | (4)         | 3 |
| Groups                                   | ( 4)  | 3  | (129) | 94 | (4)         | 3 |
| Greenfield Village                       | ( 28) | 20 | (105) | 77 | (4)         | 3 |
| Cranbrook                                | ( 14) | 10 | (119) | 87 | (4)         | 3 |
| Children's Zoo                           | ( 25) | 18 | (108) | 79 | (4)         | 3 |
| Detroit Zoo                              | ( 23) | 17 | (110) | 80 | (4)         | 3 |
| Aquarium/Conservatory                    | ( 27) | 20 | (106) | 77 | (4)         | 3 |
| Trips More Than 30<br>Miles from Detroit | ( 22) | 16 | (111) | 81 | (4)         | 3 |
| Other                                    | ( 32) | 23 | (101) | 74 | (4)         | 3 |
| None                                     | ( 11) | 8  | (122) | 89 | (4)         | 3 |

TABLE 32.--Use of Community Resources by School Level.

|                          | Elementary |    | Middle |    | Junior High |    | Senior High |    | Special Education |    | Chi Square | Degrees of Freedom |
|--------------------------|------------|----|--------|----|-------------|----|-------------|----|-------------------|----|------------|--------------------|
|                          | Freq.      | %  | Freq.  | %  | Freq.       | %  | Freq.       | %  | Freq.             | %  |            |                    |
| Public Library**         | (41)       | 87 | (15)   | 87 | (22)        | 85 | (26)        | 67 | (6)               | 75 | 23.367     | 8                  |
| Institute of Arts**      | (20)       | 43 | (9)    | 53 | (9)         | 35 | (11)        | 28 | (4)               | 50 | 20.270     | 8                  |
| Historical Museum**      | (14)       | 30 | (13)   | 76 | (6)         | 23 | (3)         | 8  | (2)               | 25 | 43.378     | 8                  |
| Dossin Museum**          | (8)        | 17 | (3)    | 17 | (6)         | 23 | (1)         | 3  | (0)               | 0  | 22.701     | 8                  |
| Afro-American Museum**   | (7)        | 15 | (4)    | 24 | (10)        | 38 | (3)         | 8  | (2)               | 25 | 25.849     | 8                  |
| Your Heritage House**    | (6)        | 13 | (0)    | 0  | (1)         | 4  | (0)         | 0  | (1)               | 12 | 23.942     | 8                  |
| City-County Building**   | (9)        | 19 | (3)    | 18 | (8)         | 31 | (3)         | 8  | (3)               | 38 | 23.386     | 8                  |
| Utility Company**        | (5)        | 11 | (5)    | 29 | (0)         | 0  | (2)         | 5  | (1)               | 12 | 26.926     | 8                  |
| Automotive Manufacturer* | (3)        | 7  | (3)    | 18 | (2)         | 8  | (2)         | 5  | (0)               | 0  | 18.482     | 8                  |
| Stores*                  | (8)        | 17 | (2)    | 12 | (5)         | 19 | (2)         | 5  | (1)               | 13 | 18.823     | 8                  |
| Offices**                | (1)        | 2  | (2)    | 12 | (1)         | 4  | (0)         | 0  | (0)               | 0  | 21.280     | 8                  |
| Other Businesses**       | (0)        | 0  | (5)    | 29 | (2)         | 8  | (2)         | 5  | (1)               | 12 | 31.854     | 8                  |
| Individuals*             | (7)        | 15 | (4)    | 24 | (2)         | 8  | (3)         | 8  | (1)               | 12 | 18.734     | 8                  |

TABLE 32.—Continued.

|                             | Elementary |    | Middle |    | Junior High |    | Senior High |    | Special Education |    | Degrees of Freedom |   |
|-----------------------------|------------|----|--------|----|-------------|----|-------------|----|-------------------|----|--------------------|---|
|                             | Freq.      | %  | Freq.  | %  | Freq.       | %  | Freq.       | %  | Freq.             | %  | Chi Square         |   |
| Groups**                    | ( 1)       | 2  | ( 3)   | 18 | ( 0)        | 0  | ( 0)        | 0  | (0)               | 0  | 30.308             | 8 |
| Greenfield Village**        | ( 8)       | 17 | ( 4)   | 24 | ( 8)        | 31 | ( 5)        | 13 | (3)               | 18 | 20.902             | 8 |
| Cranbrook**                 | ( 4)       | 9  | ( 4)   | 23 | ( 4)        | 15 | ( 0)        | 0  | (2)               | 25 | 26.202             | 8 |
| Children's Zoo**            | (14)       | 30 | ( 5)   | 29 | ( 3)        | 12 | ( 2)        | 5  | (1)               | 12 | 26.098             | 8 |
| Detroit Zoo**               | ( 8)       | 17 | ( 5)   | 29 | ( 6)        | 23 | ( 2)        | 5  | (2)               | 25 | 22.293             | 8 |
| Aquarium/Conservatory**     | (15)       | 32 | ( 6)   | 35 | ( 6)        | 23 | ( 0)        | 0  | (0)               | 0  | 32.973             | 8 |
| Trip 30 Miles from Detroit* | ( 8)       | 17 | ( 2)   | 12 | ( 6)        | 23 | ( 5)        | 13 | (1)               | 12 | 16.634             | 8 |
| Other**                     | ( 7)       | 15 | ( 2)   | 12 | ( 5)        | 19 | (15)        | 38 | (3)               | 38 | 25.617             | 8 |
| None**                      | ( 0)       | 0  | ( 0)   | 0  | ( 4)        | 15 | ( 7)        | 18 | (0)               | 0  | 28.319             | 8 |

### Difficulties in Using Media

Each respondent was asked to indicate the major difficulties he had experienced in using media materials. Table 33 shows that respondents indicated that "red-tape" involved in the ordering process and the unavailability of materials when needed were the greatest difficulties. No problem was seen as a major one by more than 44 percent of the teachers.

### Difficulties in Using Media by the Approximate Age of the School Building

There were several significant relationships found between the age of a school building and the difficulties in using media materials and equipment; but these difficulties were found in old and new buildings. Most of the physical difficulties were found in older buildings but newer buildings were reported to have no shades or drapes, and electrical outlets were located in the wrong places. Table 34 details these problems and may be supplemented by the list below.

- Electrical outlet in wrong place
- No shades
- No screen
- Building service poor
- Frequent breaking and entering--loss of equipment by theft
- No TV outlet
- Teachers regard "Board of Education" property as personal property
- Board "lead time" on materials too long (three weeks)
- Media hardware unavailable

TABLE 33.--Major Problems of Respondents in Using Media Materials.

| Difficulty                                                                           | Yes   |    | No    |    | No Response |   |
|--------------------------------------------------------------------------------------|-------|----|-------|----|-------------|---|
|                                                                                      | Freq. | %  | Freq. | %  | Freq.       | % |
| It is difficult to integrate media materials into my lesson plans                    | (12)  | 9  | (124) | 90 | (1)         | 1 |
| I do not have enough time to use media materials                                     | (27)  | 20 | (109) | 79 | (1)         | 1 |
| Much of the equipment is too difficult to operate                                    | ( 4)  | 3  | (132) | 96 | (1)         | 1 |
| Much of the equipment is in poor repair or obsolete                                  | (46)  | 33 | ( 90) | 66 | (1)         | 1 |
| There is too much "red tape" involved in ordering materials and scheduling equipment | (56)  | 41 | ( 80) | 58 | (1)         | 1 |
| There are few good media materials in my subject area                                | (22)  | 16 | (114) | 88 | (1)         | 1 |
| Students look on media lessons as entertainment and do not study                     | (13)  | 9  | (124) | 90 | (1)         | 1 |
| Students look on media as entertainment and do not study materials presented         | ( 9)  | 6  | (127) | 93 | (1)         | 1 |
| Media materials are too expensive for results achieved                               | (18)  | 13 | (118) | 86 | (1)         | 1 |

TABLE 33.--Continued.

| Difficulty                                                                         | Yes   |    | No    |    | No Response |   |
|------------------------------------------------------------------------------------|-------|----|-------|----|-------------|---|
|                                                                                    | Freq. | %  | Freq. | %  | Freq.       | % |
| Media materials take too much time to prepare for the results achieved             | (10)  | 7  | (126) | 92 | (1)         | 1 |
| Materials or equipment are not available when I need them                          | (61)  | 44 | ( 75) | 55 | (1)         | 1 |
| I do not have a permanent teaching station or adequate storage space for materials | (21)  | 15 | (115) | 84 | (1)         | 1 |
| My classroom is not properly equipped to use media materials                       | (33)  | 24 | (103) | 75 | (1)         | 1 |
| I have no difficulties in using media materials                                    | (29)  | 21 | (107) | 78 | (1)         | 1 |
| Others                                                                             | (14)  | 10 | (122) | 89 | (1)         | 1 |



TABLE 34.--Comparison of Major Problems of Respondents in Using Media by Administrative Region.

|                                                                                        | City Wide                                                                   |               |               |               |               |               |               |               | Chi Square d.f. |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------------|
|                                                                                        | One                                                                         | Two           | Three         | Four          | Five          | Six           | Seven         | Eight         |                 |
|                                                                                        | Freq. & Freq.                                                               | Freq. & Freq. | Freq. & Freq. | Freq. & Freq. | Freq. & Freq. | Freq. & Freq. | Freq. & Freq. | Freq. & Freq. |                 |
| It is difficult to integrate media materials into my lesson plans**                    | (1) 6 ( 2) 7 (0) 0 (2) 15 (3) 13 ( 2) 15 (0) 0 (0) 0 39.556 20              |               |               |               |               |               |               |               |                 |
| I do not have enough time to use media materials                                       | (2) 12 ( 5) 18 (1) 17 (3) 23 (3) 20 ( 8) 35 ( 3) 23 (1) 17 (1) 6 18.825 20  |               |               |               |               |               |               |               |                 |
| Much of the equipment is too difficult to operate                                      | (0) 0 ( 2) 7 (0) 0 (0) 0 (0) 0 (1) 7 ( 1) 4 ( 0) 0 (0) 0 16.753 20          |               |               |               |               |               |               |               |                 |
| Much of the equipment is in poor repair or obsolete                                    | (6) 35 ( 8) 29 (1) 17 (4) 31 (5) 33 ( 5) 22 ( 9) 69 (1) 17 (7) 41 25.161 20 |               |               |               |               |               |               |               |                 |
| There is too much "red tape" involved in ordering materials and scheduling equipment   | (8) 47 ( 6) 22 (4) 67 (3) 23 (7) 47 (10) 43 (18) 85 (2) 33 (5) 29 25.979 20 |               |               |               |               |               |               |               |                 |
| There are too few good media materials in my subject area                              | (3) 18 ( 5) 18 (2) 33 (1) 8 (2) 13 ( 5) 22 ( 1) 8 (0) 0 (3) 18 18.729 20    |               |               |               |               |               |               |               |                 |
| Students look on media lessons as entertainment and do not study**                     | (0) 0 ( 2) 7 (1) 17 (3) 23 (2) 13 ( 3) 13 ( 0) 0 (0) 0 (1) 6 47.551 20      |               |               |               |               |               |               |               |                 |
| Students look on media lessons as entertainment and do not study materials presented** | (0) 0 ( 1) 4 (1) 17 (3) 23 (0) 0 ( 2) 9 ( 0) 0 (0) 0 (2) 12 58.224 20       |               |               |               |               |               |               |               |                 |

TABLE 34.--Continued.

|                                                                            | City Wide      |               |                |                |         |         |         |         | Chi Square | d.f.    |
|----------------------------------------------------------------------------|----------------|---------------|----------------|----------------|---------|---------|---------|---------|------------|---------|
|                                                                            | One            | Two           | Three          | Four           | Five    | Six     | Seven   | Eight   |            |         |
|                                                                            | Freq. %        | Freq. %       | Freq. %        | Freq. %        | Freq. % | Freq. % | Freq. % | Freq. % | Freq. %    | Freq. % |
| Media materials are too expensive for results achieved                     | (1) 6 ( 1) 4   | (1) 17 (1) 8  | (2) 13 ( 4) 17 | ( 3) 23 (0) 0  | (5) 29  | 18.442  | 20      |         |            |         |
| Media materials take too much time to prepare for results achieved         | (1) 6 ( 1) 6   | (2) 33 (0) 0  | (1) 7 ( 1) 4   | ( 3) 23 (0) 0  | (1) 6   | 17.282  | 20      |         |            |         |
| Materials or equipment are not available when I need them                  | (8) 47 (12) 44 | (4) 67 (4) 31 | (5) 33 ( 9) 39 | (10) 77 (2) 33 | (9) 41  | 22.590  | 20      |         |            |         |
| I do not have a permanent teaching station or adequate space for materials | (4) 24 ( 4) 15 | (1) 17 (2) 15 | (3) 20 ( 3) 13 | ( 2) 15 (0) 0  | (2) 12  | 15.341  | 20      |         |            |         |
| My classroom is not properly equipped for use of media materials           | (4) 24 ( 4) 14 | (1) 17 (1) 8  | (7) 47 ( 6) 26 | ( 3) 23 (2) 33 | (5) 29  | 16.141  | 20      |         |            |         |
| I have no difficulties in using media materials                            | (3) 18 ( 6) 22 | (2) 33 (2) 15 | (4) 27 ( 4) 17 | ( 1) 8 (2) 33  | (5) 29  | 23.273  | 20      |         |            |         |
| None                                                                       | (2) 12 ( 3) 11 | (0) 0 (2) 15  | (1) 7 ( 1) 4   | ( 1) 8 (1) 17  | (3) 18  | 16.481  | 20      |         |            |         |

Preference as to Placement of Media  
Equipment and Materials: Local  
School or Regional Placement

Teachers were asked to give their opinions in a hypothetical question regarding the placement of materials and equipment for more effective utilization. They were told that there was a limited budget and that they were to decide where to place media materials and equipment-- regional or school placement. In order to assist them with this question; a copy of the "Project Material Record" used at the curriculum laboratories, was included in the questionnaire package. This "Record" shows the cost of various media materials but does not give the cost of equipment (Appendix B).

Eleven percent of the respondents did not answer this question and many teachers did not respond to each variable of the question. Several teachers indicated by a question mark (?) that they were unfamiliar with some of the equipment. The complete data for this question is shown in Table 35 but a digest of that table is shown below.

Local School Placement

Instructional Guides  
Bulletin Board Idea Books  
Camera, Polaroid  
Copier, Dry  
Copier, Thermofax  
Camera, Instamatic  
Professional Books  
Graphic Materials  
Camera, Movie  
Copier, Wet Process  
Camera, 35 millimeter

Regional Placement

Embossograph  
Diazo Equipment  
Waxer  
Headliner  
Mounting & Laminating Machine  
Unimark  
Dymo Tape Writer  
Electric Stencilmaker  
Xerox Photocopier  
Electric Typewriter

TABLE 35.--Percentage of Respondents Who Indicated Placement of Selected Media Materials and Equipment at the Local School Level as Opposed to Placement at the Regional Level.

|                                | Region |    | Local School |    | No Response to Variable |    | No Response to Entire Question |    |
|--------------------------------|--------|----|--------------|----|-------------------------|----|--------------------------------|----|
|                                | Freq.  | %  | Freq.        | %  | Freq.                   | %  | Freq.                          | %  |
| Graphic Materials              | (37)   | 27 | ( 71)        | 52 | (14)                    | 10 | (15)                           | 11 |
| Mounting & Laminating Press    | (64)   | 47 | ( 53)        | 39 | ( 5)                    | 3  | (15)                           | 11 |
| Embossograph & Signmaker       | (79)   | 57 | ( 27)        | 20 | (16)                    | 12 | (15)                           | 11 |
| Dymotape Writer                | (57)   | 42 | ( 50)        | 36 | (15)                    | 11 | (15)                           | 11 |
| Waxer                          | (69)   | 50 | ( 31)        | 23 | (22)                    | 16 | (15)                           | 11 |
| Copier, Dry                    | (26)   | 19 | ( 85)        | 62 | ( 1)                    | 8  | (15)                           | 11 |
| Copier, Thermofax              | (17)   | 12 | (101)        | 74 | ( 4)                    | 13 | (15)                           | 11 |
| Copier, A. B. Dick Wet Process | (44)   | 32 | ( 62)        | 45 | (16)                    | 12 | (15)                           | 11 |
| Gestefax Electric Stencilmaker | (57)   | 42 | ( 51)        | 37 | (14)                    | 10 | (15)                           | 11 |
| Diazo Equipment                | (70)   | 51 | ( 29)        | 21 | (23)                    | 17 | (15)                           | 11 |
| Headliner 820                  | (69)   | 50 | ( 20)        | 15 | (33)                    | 24 | (15)                           | 11 |
| Xerox Photo Duplicator         | (58)   | 42 | ( 51)        | 37 | (13)                    | 10 | (15)                           | 11 |
| Unimark Tapewriter             | (64)   | 47 | (31)         | 22 | (27)                    | 20 | (15)                           | 11 |
| Instamatic Camera              | (28)   | 21 | ( 84)        | 61 | (10)                    | 7  | (15)                           | 11 |

TABLE 35.--Continued.

|                          | Region |    | Local School |    | No Response to Variable |   | No Response to Entire Question |    |
|--------------------------|--------|----|--------------|----|-------------------------|---|--------------------------------|----|
|                          | Freq.  | %  | Freq.        | %  | Freq.                   | % | Freq.                          | %  |
| 35mm Camera              | (53)   | 39 | ( 57)        | 41 | (12)                    | 9 | (15)                           | 11 |
| Movie Camera             | (47)   | 33 | ( 64)        | 47 | (12)                    | 9 | (15)                           | 11 |
| Polaroid Camera          | (26)   | 19 | ( 86)        | 63 | (10)                    | 7 | (15)                           | 11 |
| Video Tape Recorder      | (48)   | 35 | ( 62)        | 45 | (12)                    | 9 | (15)                           | 11 |
| Bulletin Board Idea Book | (17)   | 12 | (103)        | 75 | ( 2)                    | 2 | (15)                           | 11 |
| Instructional Guides     | (13)   | 9  | (105)        | 77 | ( 4)                    | 3 | (15)                           | 11 |
| Professional Books       | (37)   | 27 | ( 78)        | 57 | ( 7)                    | 5 | (15)                           | 11 |

### Competence in Operating Media Equipment

The respondents' competence in operating media equipment is shown in Table 36. Four possible levels of competency were presented to the respondents. The diazo equipment appeared as the least operated equipment. No equipment was found easy to operate by more than 42 percent of the teachers. Less than 5 percent found any of the equipment had to operate and 30 percent indicated that they could teach someone else to operate a particular type of equipment. This question was not answered by 22 to 28 percent of the respondents.

### Significant Variables

The most significant variables in the questionnaire were considered to be those variables which dealt directly with the use of specific media, and difficulties in using media materials and equipment. It is assumed that in order to use media effectively, one must be familiar with the terminology used in media literature which would include textbooks, magazine articles, and advertisements.

Questions 20-26 were analyzed in relationship with the variables of regional affiliation, school level at which the teacher worked; years of teaching at their present school; years of teaching in the Detroit school system; highest academic degree held; sex, and the age of the school building.

TABLE 36.--Level of Competence of Respondents in the Use of Selected Media Equipment.

|                             | Never Have Operated |    | Find Easy to Operate |    | Find Hard to Operate |   | Can Teach Someone Else to Operate |    | No Response |    |
|-----------------------------|---------------------|----|----------------------|----|----------------------|---|-----------------------------------|----|-------------|----|
|                             | Freq.               | %  | Freq.                | %  | Freq.                | % | Freq.                             | %  | Freq.       | %  |
| Film Projector, 8mm & 16mm  | (12)                | 9  | (52)                 | 38 | (7)                  | 5 | (36)                              | 26 | (30)        | 22 |
| Opaque Projector            | (13)                | 10 | (54)                 | 39 | (2)                  | 2 | (36)                              | 26 | (32)        | 23 |
| Overhead Projector          | ( 7)                | 5  | (57)                 | 42 | (2)                  | 1 | (41)                              | 30 | (30)        | 22 |
| Slide/Filmstrip Projector   | ( 7)                | 5  | (48)                 | 35 | (3)                  | 2 | (46)                              | 34 | (33)        | 24 |
| Slide Projector (Carousel)  | (31)                | 22 | (42)                 | 31 | (4)                  | 3 | (27)                              | 20 | (33)        | 24 |
| Tachistoscope               | (77)                | 56 | (13)                 | 9  | (1)                  | 1 | ( 8)                              | 6  | (38)        | 28 |
| Controlled Reader           | (71)                | 52 | (19)                 | 14 | (2)                  | 1 | ( 8)                              | 6  | (37)        | 27 |
| Tape Recorder (reel)        | (13)                | 9  | (42)                 | 51 | (6)                  | 4 | (30)                              | 22 | (31)        | 23 |
| Tape Recorder (cassette)    | ( 9)                | 7  | (54)                 | 39 | (2)                  | 1 | (48)                              | 30 | (31)        | 23 |
| Camera, 35mm                | (53)                | 39 | (28)                 | 21 | (3)                  | 2 | (17)                              | 12 | (36)        | 26 |
| Camera, Instamatic          | (16)                | 12 | (55)                 | 40 | (2)                  | 2 | (32)                              | 23 | (32)        | 23 |
| Camera, Polaroid            | (23)                | 17 | (47)                 | 34 | (6)                  | 4 | (27)                              | 20 | (34)        | 25 |
| Spirit Duplicator           | (11)                | 8  | (50)                 | 26 | (4)                  | 3 | (41)                              | 30 | (31)        | 23 |
| Ink Duplicator (mimeograph) | (28)                | 20 | (38)                 | 28 | (7)                  | 5 | (27)                              | 20 | (37)        | 27 |
| Xerox Photo Duplicator      | (41)                | 30 | (35)                 | 25 | (3)                  | 2 | (20)                              | 15 | (38)        | 28 |
| Photo Copier (dry process)  | (37)                | 27 | (45)                 | 33 | (5)                  | 4 | (14)                              | 10 | (36)        | 26 |

TABLE 36.--Continued.

|                            | Never Have<br>Operated |    | Find Easy<br>to Operate |    | Find Hard<br>to Operate |   | Can Teach<br>Someone Else<br>to Operate |    | No Response |    |
|----------------------------|------------------------|----|-------------------------|----|-------------------------|---|-----------------------------------------|----|-------------|----|
|                            | Freq.                  | %  | Freq.                   | %  | Freq.                   | % | Freq.                                   | %  | Freq.       | %  |
| Thermo Copier (secretary)  | (42)                   | 31 | (39)                    | 28 | (5)                     | 4 | (16)                                    | 12 | (35)        | 25 |
| Diazo (color transparency) | (83)                   | 60 | (5)                     | 4  | (4)                     | 3 | (7)                                     | 5  | (38)        | 28 |
| Stencilmaker (gestefax)    | (63)                   | 46 | (27)                    | 20 | (5)                     | 4 | (6)                                     | 4  | (36)        | 26 |
| Movie Camera, 8mm          | (49)                   | 36 | (35)                    | 25 | (5)                     | 4 | (140)                                   | 10 | (30)        | 25 |
| Video Tape Recorder        | (71)                   | 51 | (14)                    | 10 | (6)                     | 5 | (6)                                     | 5  | (40)        | 29 |
| Dymo Tape Writer           | (66)                   | 48 | (15)                    | 11 | (4)                     | 3 | (13)                                    | 10 | (39)        | 28 |
| Headliner                  | (81)                   | 59 | (7)                     | 5  | (5)                     | 4 | (6)                                     | 4  | (38)        | 28 |
| Signmaker                  | (59)                   | 43 | (26)                    | 19 | (7)                     | 5 | (8)                                     | 6  | (37)        | 27 |
| Seal Press                 | (54)                   | 40 | (29)                    | 21 | (4)                     | 3 | (14)                                    | 10 | (36)        | 26 |



### Regional Affiliation

Data obtained in this study revealed that there was a significant relationship between regional affiliation and the use of various media at the .030 level. There was also a significant relationship between regional affiliation and the amount of assistance needed by teachers to use media effectively at the .043 level. A significant relationship also existed between regional affiliation and the use of community resources at the .001 level. Table 37 presents these data.

### School Level

According to the figures in Table 38, there is a significant relationship between school level and the use of media at the .001 level. There was also a significant relationship between school level and the use of school district resources at the .005 level. The .005 level also existed between school level and the use of community resources.

### Years of Teaching in Present School

There is no significant relationship with any of the variables when compared with the number of years that respondents had taught at their present school. These data are illustrated in Table 39.

TABLE 37.--Category Variable: Region.

| Category Variable:<br>Region                            | Maximum | City<br>Wide | Region<br>One | Region<br>Two | Region<br>Three | Region<br>Four |
|---------------------------------------------------------|---------|--------------|---------------|---------------|-----------------|----------------|
| Amount of Usage of<br>Various Media*                    | (34)    | 12           | 11            | 11            | 12              | 11             |
| Amount of Assistance<br>Needed*                         | (11)    | 4            | 4             | 4             | 4               | 5              |
| School District<br>Resources Used                       | (13)    | 2            | 3             | 3             | 3               | 2              |
| Community Resources<br>Used                             | (22)    | 4            | 4             | 6             | 4               | 2              |
| Difficulties in Using<br>Media                          | (14)    | 3            | 2             | 4             | 2               | 3              |
| Regional Placement of<br>Materials and<br>Equipment     | (21)    | 10           | 7             | 10            | 8               | 8              |
| Local School Placement<br>of Materials and<br>Equipment | (21)    | 10           | 10            | 10            | 12              | 12             |
| Competency in Use of<br>Media Equipment                 | (25)    | 48           | 40            | 44            | 50              | 48             |

TABLE 37.--Continued.

| Category Variable:<br>Region                            | Region<br>Five | Region<br>Six | Region<br>Seven | Region<br>Eight | f Ratio | Probability |
|---------------------------------------------------------|----------------|---------------|-----------------|-----------------|---------|-------------|
| Amount of Usage of<br>Various Media*                    | 11             | 17            | 15              | 14              | 2.23    | 0.030       |
| Amount of Assistance<br>Needed*                         | 5              | 5             | 2               | 5               | 2.07    | 0.043       |
| School District<br>Resources Used                       | 3              | 4             | 3               | 4               | 1.92    | 0.063       |
| Community Resources<br>Used*                            | 3              | 5             | 3               | 6               | 3.43    | 0.001       |
| Difficulties in Using<br>Media                          | 3              | 4             | 2               | 3               | 1.30    | 0.253       |
| Regional Placement of<br>Materials and<br>Equipment     | 7              | 9             | 7               | 7               | 0.59    | 0.785       |
| Local School Placement<br>of Materials and<br>Equipment | 10             | 11            | 10              | 12              | 0.45    | 0.890       |
| Competency in Use of<br>Media Equipment                 | 49             | 47            | 39              | 57              | 1.01    | 0.434       |

TABLE 38.—Category Variable: School Level.

| Category Variable:<br>School Level                      | Maximum | Elementary | Middle | Junior<br>High | Senior<br>High | Special<br>Ed. | f<br>Ratio | Probability |
|---------------------------------------------------------|---------|------------|--------|----------------|----------------|----------------|------------|-------------|
| Amount of Usage of<br>Various Media*                    | (34)    | 14         | 16     | 11             | 10             | 12             | 4.80       | 0.001       |
| Amount of Assistance<br>Needed                          | (11)    | 4          | 5      | 4              | 5              | 5              | 1.54       | 0.195       |
| School District<br>Resources Used*                      | (13)    | 4          | 4      | 2              | 2              | 3              | 6.76       | < 0.005     |
| Community Resources<br>Used*                            | (22)    | 4          | 6      | 4              | 2              | 6              | 5.84       | < 0.005     |
| Difficulties in Using<br>Media                          | (14)    | 2          | 3      | 3              | 3              | 2              | 1.13       | 0.346       |
| Regional Placement of<br>Materials and<br>Equipment     | (21)    | 8          | 8      | 7              | 9              | 10             | 0.73       | 0.574       |
| Local School Placement<br>of Materials and<br>Equipment | (21)    | 9          | 10     | 13             | 11             | 11             | 2.32       | 0.061       |
| Competency in Use of<br>Media Equipment                 | (25)    | 46         | 55     | 44             | 49             | 46             | 0.83       | 0.506       |

TABLE 39.—Category Variable: Years of Teaching in Present School.

| Category Variable:<br>Years of Teaching<br>in Present School | Maximum | 1-3 | 4-6 | 7-10 | 11-20 | 21 or<br>Over | No<br>Response | f<br>Ratio | Probability |
|--------------------------------------------------------------|---------|-----|-----|------|-------|---------------|----------------|------------|-------------|
| Amount of Usage of<br>Various Media                          | (34)    | 12  | 13  | 13   | 12    | 11            | 12             | 0.23       | 0.951       |
| Amount of Assistance<br>Needed                               | (11)    | 4   | 4   | 5    | 5     | 3             | 8              | 1.20       | 0.315       |
| School District<br>Resources Used                            | (13)    | 3   | 2   | 2    | 2     | 4             | 3              | 1.33       | 0.255       |
| Community Resources<br>Used                                  | (22)    | 5   | 4   | 3    | 3     | 3             | 3              | 1.17       | 0.330       |
| Difficulties in Using<br>Media                               | (14)    | 3   | 3   | 2    | 3     | 2             | 6              | 1.32       | 0.260       |
| Regional Placement of<br>Materials and<br>Equipment          | (21)    | 8   | 9   | 6    | 8     | 4             | 15             | 1.99       | 0.086       |
| Local School Placement<br>of Materials and<br>Equipment      | (21)    | 11  | 11  | 13   | 10    | 9             | 6              | 1.03       | 0.406       |
| Competency in Use of<br>Media Equipment                      | (25)    | 50  | 48  | 47   | 45    | 34            | 50             | 0.76       | 0.579       |

### Years of Teaching in Detroit Schools

There is no significant relationship between the years that a respondent had taught in the Detroit Schools when compared to the various variables. These data are presented in Table 40.

### Highest Academic Degree

There is a significant relationship between academic achievement as measured by degrees and the difficulties teachers have experienced in using media materials at the .015 level. Teachers holding less than a bachelor's degree and those who are teaching trade courses that require no academic degree cause this variable to be significant. These data are dealt with in Table 41.

### Sex

There is no significant relationship between any of the selected variables and the sex of the respondents. Table 42 deals with the data on these questions.

### Age of School Building

There is no significant relationship between any of the selected variables and the age of the school building in which the respondents taught. These data are reported in Table 43.

TABLE 40.—Category Variable: Years of Teaching in Detroit Schools.

| Category Variable:<br>Years of Teaching<br>in Detroit Schools | Maximum | 1-3 | 4-6 | 7-10 | 11-21 | 21 or<br>Over | No<br>Response | f<br>Ratio | Probability |
|---------------------------------------------------------------|---------|-----|-----|------|-------|---------------|----------------|------------|-------------|
| Amount of Usage of<br>Various Media                           | (34)    | 14  | 12  | 13   | 12    | 11            | 11             | 0.61       | 0.692       |
| Amount of Assistance<br>Needed*                               | (11)    | 5   | 4   | 3    | 5     | 3             | 3              | 2.78       | 0.020       |
| School District<br>Resources Used                             | (13)    | 3   | 3   | 3    | 3     | 3             | 4              | 0.26       | 0.935       |
| Community Resources<br>Used                                   | (22)    | 4   | 4   | 4    | 4     | 4             | 9              | 0.83       | 0.533       |
| Difficulties in Using<br>Media                                | (14)    | 3   | 3   | 3    | 3     | 3             | 2              | 0.44       | 0.820       |
| Regional Placement of<br>Materials and<br>Equipment           | (21)    | 8   | 9   | 8    | 8     | 5             | 8              | 1.19       | 0.317       |
| Local School Placement<br>of Materials and<br>Equipment       | (21)    | 11  | 10  | 11   | 10    | 10            | 13             | 0.33       | 0.891       |
| Competency in Use of<br>Media Equipment                       | (25)    | 52  | 47  | 45   | 50    | 36            | 47             | 1.61       | 0.164       |

TABLE 41.—Category Variable: Highest Academic Degree.

| Category Variable:<br>Highest Academic<br>Degree        | Maximum | Less Than<br>Bachelor's | Bachelor's | Master's | Specialist | Other | f<br>Ratio | Probability |
|---------------------------------------------------------|---------|-------------------------|------------|----------|------------|-------|------------|-------------|
| Amount of Usage of<br>Various Media                     | (34)    | 12                      | 14         | 13       | 13         | 11    | 1.17       | 0.328       |
| Amount of Assistance<br>Needed                          | (11)    | 4                       | 4          | 4        | 5          | 5     | 0.08       | 0.987       |
| School District<br>Resources Used                       | (13)    | 3                       | 3          | 3        | 4          | 2     | 0.89       | 0.472       |
| Community Resources<br>Used                             | (22)    | 5                       | 4          | 4        | 4          | 7     | 0.70       | 0.595       |
| Difficulties in Using<br>Media*                         | (14)    | 1                       | 3          | 3        | 3          | 8     | 3.23       | 0.015       |
| Regional Placement of<br>Materials and<br>Equipment     | (21)    | 6                       | 8          | 9        | 7          | 0     | 0.70       | 0.556       |
| Local School Placement<br>of Materials and<br>Equipment | (21)    | 7                       | 11         | 10       | 12         | 0     | 0.74       | 0.529       |
| Competency in Use of<br>Media Equipment                 | (25)    | 41                      | 48         | 47       | 48         | 0     | 0.16       | 0.925       |



TABLE 42.--Category Variable: Sex.

| Category Variable: Sex                            | Maximum | Male | Female | No Response | f Ratio | Probability |
|---------------------------------------------------|---------|------|--------|-------------|---------|-------------|
| Amount of Usage of Various Media                  | (34)    | 13   | 11     | 14          | 1.27    | 0.283       |
| Amount of Assistance Needed                       | (11)    | 4    | 5      | 5           | 1.85    | 0.162       |
| School District Resources Used                    | (13)    | 3    | 2      | 3           | 0.79    | 0.455       |
| Community Resources Used                          | (22)    | 4    | 4      | 2           | 0.68    | 0.508       |
| Difficulties in Using Media                       | (14)    | 3    | 3      | 3           | 0.30    | 0.738       |
| Regional Placement of Materials and Equipment     | (21)    | 8    | 8      | 7           | 0.35    | 0.708       |
| Local School Placement of Materials and Equipment | (21)    | 11   | 11     | 13          | 0.36    | 0.700       |
| Competency in Use of Media Equipment              | (25)    | 49   | 44     | 57          | 1.26    | 0.286       |

TABLE 43.--Category Variable: Age of School Building.

| Category Variable:<br>Age of School Building            | Maximum | 1-3 | 4-6 | 7-10 | 11-20 | 21-30 | 31-40 | 41-50 | 56-60 | 61-70 | 71 or<br>Over | No<br>Response | f<br>Ratio | Proba-<br>bility |
|---------------------------------------------------------|---------|-----|-----|------|-------|-------|-------|-------|-------|-------|---------------|----------------|------------|------------------|
| Amount of Usage of<br>Various Media                     | (34)    | 10  | 17  | 12   | 12    | 16    | 14    | 11    | 10    | 14    | 14            | 9              | 1.61       | 0.111            |
| Amount of Assistance<br>Needed                          | (11)    | 4   | 3   | 5    | 5     | 4     | 4     | 4     | 4     | 4     | 5             | 3              | 0.90       | 0.537            |
| School District<br>Resources Used                       | (13)    | 2   | 1   | 3    | 3     | 4     | 3     | 3     | 2     | 3     | 3             | 2              | 0.88       | 0.552            |
| Community Resources<br>Used                             | (22)    | 4   | 5   | 4    | 3     | 3     | 5     | 4     | 4     | 3     | 5             | 5              | 0.60       | 0.811            |
| Difficulties in Using<br>Media                          | (14)    | 4   | 2   | 3    | 3     | 3     | 3     | 3     | 2     | 2     | 2             | 3              | 0.91       | 0.525            |
| Regional Placement of<br>Materials and<br>Equipment     | (21)    | 8   | 0   | 8    | 8     | 7     | 8     | 7     | 8     | 10    | 10            | 8              | 0.72       | 0.691            |
| Local School Placement<br>of Materials and<br>Equipment | (21)    | 13  | 0   | 10   | 12    | 11    | 12    | 11    | 10    | 9     | 10            | 9              | 0.40       | 0.934            |
| Competency in Use of<br>Media Equipment                 | (25)    | 57  | 34  | 52   | 48    | 42    | 45    | 48    | 41    | 46    | 59            | 40             | 1.10       | 0.373            |

### Summary

The average respondent was an elementary teacher, working in Region 1 who taught in a self-contained classroom. This teacher was a female and held a masters degree. The school building in which she taught was over forty years old (Tables 5-13).

Teachers get their primary source of information at the local school level from their school library and from the department chairman (Table 14). Information about media materials and equipment that they actually use comes from school bulletins, manufacturers' information, professional journals and other teachers (Table 15). They felt that this information was sufficient (Table 16).

Fifty-six percent of the teachers had some special training or course work in the area of media (Tables 17-18). Sixty-three percent indicated that they had opportunities to suggest media equipment and materials for purchase but less than fifty percent indicated that their recommendations were purchased (Tables 19-20).

Seventy-two percent of the teachers used personal items in the classroom and 64 percent made materials for classroom use (Tables 21-22). Thirty-one percent of the respondents did not respond as to where they prepared their media material but of those that did respond, 48 percent prepared their materials at home, 40 percent at school and 32 percent at the curriculum laboratory. Teachers from

Region 8 were the greatest users of a curriculum laboratory (Tables 23-24).

Filmstrips, chalkboards, bulletin boards, and books are the most used media (Table 25). Teachers need assistance in keeping up-to-date on new media material and help in ordering and procuring materials (Table 26-27).

The Curriculum Laboratories located at Schools Center Building and the Stevenson Building were utilized by nearly 50 percent of the teachers. There is a significant relationship in the use of all school district resources when examined by school level (Table 29-30). The Public Library is the most utilized community resource with the Institute of Arts being a distant second. The use of all community resources is significant when examined by school level (Table 31).

Teachers identified as their major problems in using media materials, the unavailability of materials and equipment when needed and the amount of "red tape" involved in ordering materials and scheduling equipment (Tables 32-34). Other difficulties that they encountered included lack of adequate physical facilities and lack of cooperation between teachers in sharing school equipment and materials. If teachers were given a choice in the decision of placing media materials and had to decide between local school and regional placement, they would want instructional guides,

idea books, professional books, cameras, and most copy machines to be placed at the local school level (Table 35).

The Xerox photocopier, embossograph machine, laminating machine, electric stencil maker and other production materials would be placed at the regional level (Table 35).

Nearly a quarter of the teachers did not indicate their competence in using media equipment and of those teachers that did respond, only 42 percent indicated competence in using equipment (Table 36).

There is a significant relationship between regional affiliation and the use of media at the .003 level and in the use of community resources at the .001 level (Table 37).

There is a significant relationship between school level and the use of media at the .001 level, and the use of school district resources and community resources at the .005 level (Table 38).

There is no significant relationship between the years of teaching at their present school or the years of teaching in the Detroit School system and any of the selected variables (Tables 39-40).

A significant relationship is seen between the highest degree held by a teacher and the difficulties that they have experienced in using media equipment at the .015 level (Table 41).

## CHAPTER V

### SUMMARY, RECOMMENDATIONS, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER RESEARCH

#### Summary

##### Purpose

The purpose of the study was to obtain descriptive information about media related activities and attitudes of classroom teachers of the Detroit Public Schools, as well as information related to selected variables which may affect these activities and attitudes. A particular focus was on one type of media facility: the Curriculum Laboratories. The potentials and effects of the process of decentralization which Detroit is undergoing for improved media service was of major concern. It was also intended that the exploratory survey would lead to the identification of specific areas in which additional research might be conducted in order to improve the quality of in-service education and assistance for classroom teachers.

This study attempted to answer the following questions:

1. What is the attitude of Detroit instructional personnel regarding the effectiveness of the Curriculum

Laboratories in offering media services and materials to improve classroom instruction.

2. What has been the effect of system-wide media supervisors and curriculum laboratory personnel in providing leadership, consultive help and other media services to classroom teachers?

3. What media resources, available on a centralized basis, are utilized by teachers?

4. What media equipment and materials should be available at the local school level?

5. What media equipment and materials should be available at the regional level as the process of decentralization proceeds?

6. What reasons are expressed by classroom teachers for not utilizing media equipment and materials?

7. What are the major variables that affect utilization of major media equipment and materials?

### Sample

Data for drawing conclusions relative to the purpose of the study was obtained from 137 usable questionnaire responses from elementary, middle, junior high and senior high school classroom teachers representing the nine administrative regions of the school district.

### Data Collection

The instrument consisted of twenty-eight questions. The first nine questions requested general information

about the respondents. The remaining questions were designed to gain information regarding media usage in the classroom.

### Analysis of Data

All data obtained from the survey was analyzed, utilizing the CISSR and ANOVA-UNEQ1 routines. Analysis were performed using the CDC 6500 computer at the Michigan State University Computer Center.

### Related Literature

A review of the literature revealed numerous reasons for teacher resistance and potential rejection to media and discussed the competencies required for effective utilization of educational media.

### Summary of Results and Recommendations

#### Question 1:

What is the attitude of Detroit instructional personnel regarding the effectiveness of the Detroit Public Schools Curriculum Laboratories in offering media services and materials to improve classroom instruction?

### Summary of Results

Teachers showed a very positive attitude toward the effectiveness of the curriculum laboratories. They used the services of these laboratories more than any other single school facility when they needed assistance in preparing media materials.



Among the various categories of teachers using the Schools Center Curriculum Laboratory, middle school teachers had the most contact with this facility. Elementary teachers were almost evenly divided in their use of the Schools Center Curriculum Laboratory and the Stevenson Curriculum Laboratory.

### Recommendations

I. The existing curriculum laboratories need additional staff to serve teachers effectively.

II. The hours of the existing curriculum laboratories should be extended.

### Question 2:

What has been the effect on system-wide media supervisors and curriculum laboratory personnel in providing leadership, consultive help and other services to classroom teachers?

### Summary of Results

The majority of teachers prepared media materials at home or school. Nearly one-third of the respondents used the curriculum laboratories but usage did vary by regional affiliation. The laboratories were used by teachers who were in the regions near the curriculum laboratory locations.

Teachers indicated their need for assistance in using media materials and equipment effectively in the following rank order:

Help in keeping up-to-date regarding new materials  
Suggestions of appropriate materials  
Assistance in ordering and procuring equipment

Repair and maintenance of present equipment  
Preparation of specialized materials  
Instruction or help in operating equipment  
Classifying and storing materials

### Recommendations

I. Media professionals should be relieved of duties which can be adequately handled by trained paraprofessionals.

II. Media professionals should be available for in-service sessions at the district, regional and school level.

III. Media professionals should be available for consultation with teachers.

IV. Media centers should be established in all regions with a fully trained professional appointed on a twelve month basis as director of the center. An adequately trained office and technical staff should be available at each center. The Mathematics and Reading Demonstration teachers should be a part of the staff, working as consultants to assist the Director.

### Question 3:

What media resources, available on a centralized basis are utilized by teachers?

### Summary of Results

The curriculum laboratories were used by more teachers than any other school system media resource; even though two of the laboratories can only be used by certain schools receiving federal funds. The use of other

school district media resources are listed in descending order with the most used resources being listed first.

Audio Visual Teaching Aids Library  
Children's Museum  
Audiovisual Education Department  
Professional Library  
Audiovisual Technical Service  
Departmental Supervisors  
Educational Broadcasting  
Mathematics Demonstration Teachers  
Reading Demonstration Teachers

### Recommendations

I. The delivery system of the various media resources should be improved. Guideline 2d, Section C of the Guidelines for Regional and Central Boards of Education (Detroit Board of Education, adopted October 26, 1970) states that:

The Central Board shall offer a variety of instructional services, including research and development, to assist regional and city-wide personnel in curriculum development. These shall be publicized and made available to all regions. Instructional services may include the use of established programs such as the Children's Museum, Educational Broadcasting, and audio-visual services, curriculum laboratories, and library services.

Throughout the study, respondents indicated that their greatest need in an effort to use media equipment and materials effectively was help in keeping up-to-date with new media materials and suggestions of appropriate media materials for teaching. If teachers are to become sophisticated media managers, an effective delivery system demands an effective operational base. Herein is suggested a structure for a Department of Learning Resources to be established within the Division of Curriculum and Educational Research.

The Department of Learning Resources would incorporate the present Audiovisual Education Department, Children's Museum, Schools Center Curriculum Laboratory, Audio-Visual Teaching Aids Library, Department of Educational Broadcasting, Professional Library, and the Department of Schools Libraries. It would replace and expand the Department of Instructional Services, and remove the Audio-Visual Teaching Aids Library from the Division of Business Affairs.

The components of the suggested department are:

Learning Resource Centers including the School Library Department, Professional Library, and Schools Center Curriculum Laboratory; the unit would deal with local school media centers, include a centralized Professional Resource Center; provide support for the department of regional learning resource centers; and incorporate centralized processing of media materials for local school and regional media centers. The Professional Resource Center would be a combination of the present Professional Library and Schools Center Curriculum Laboratory with certain modifications of their present functions.

Resource Selection and Utilization replacing the present Audiovisual Education Department, this unit would be responsible for the selection of audiovisual equipment and other media materials for district wide use. The Audio-Visual Teaching Aids Library would be a part of this unit.

Children's Museum should expand its services to include programs for high school students who are planning to work in the fields that involve children, (e.g. medicine, teaching, and human ecology).

Telecommunications will broaden the present Educational Broadcasting Department to deal with all aspects of telecommunications (e.g. radio, television, and cable television).

The above structure would provide cohesiveness, continuity, and coordinated structure for the delivery of

the various facets of learning resources. It would also simplify the administrative structure of the division; provide for coordination of activities at the local, regional, and central levels; include special units for specialized services such as professional resources and telecommunications; and is consistent with the best thinking in the area of library media and audiovisual technology.

Question 4:

What media equipment and materials should be available at the local school level?

Summary of Results

Teachers indicated that the following media materials and equipment should be available at the local school level in the following rank order.

- Instructional guides
- Bulletin board idea books
- Copier, thermofax
- Camera, polaroid
- Copier, dry photo
- Camera, instamatic
- Professional books
- Graphic materials
- Camera, movie
- Videotape recorder
- Copier, wet process
- Camera 35 millimeter

Recommendations

I. All of the suggested equipment and materials should be placed in local schools as soon as possible. The following materials and equipment are recommended for immediate purchase.

Instructional guides  
 Copier, thermofax  
 Copier, dry photo  
 Graphic materials  
 Two-door steel cabinet (with lock)  
 Work tables

II. At least one paraprofessional in each building should be trained to use the equipment indicated above and be responsible for the daily maintenance of the equipment and related materials.

III. Each school building should have an area designated for the placement of these materials and equipment. The equipment and materials should not be placed in the school office. Teachers should have first priority on their usage.

IV. When any new equipment is purchased, all staff members should be provided some form of in-service training in order to minimize equipment damage.

#### Question 5:

What media equipment and materials should be available at the regional level as the process of decentralization proceeds?

#### Summary of Results

Teachers indicated that the following media materials and equipment should be available at the regional level in the following rank order:

Embossograph  
 Diazo equipment  
 Waxer  
 Headliner  
 Mounting & Laminating Machine  
 Unimark  
 Dymo tapewriter  
 Electric stencilmaker  
 Xerox photocopier

## Recommendations

Regional instructional services are specifically authorized by guideline 2d, Section C of the Guidelines for Regional and Central Boards of Education, (Detroit Board of Education, adopted October 26, 1970) which states that:

. . . Regional Boards may establish regional instructional services with the resources at their command. Two or more Regions may cooperate in the establishment of such services.

I. All regions should begin to develop centralized media centers in a three step phase as follows:

### Phase I--Mini-Media Center

- A. Scope: Basic materials production and information service.
- B. Staff: Teacher and materials aide
- C. Equipment: Copier, dry photo; Copier, thermofax; Headliner; typewriter, primary; Mounting & laminating press; Visual maker; Opaque projector; Overhead projector; Electric stencil maker; Tapewriters; Embosograph; Tables, cabinets, shelves and other items for housing and using equipment and materials.
- D. Materials: Greater variety of ideas and resource booklets.

### Phase II--Regional Learning Resources Center

- A. Scope: Full materials development and production services, information services, and media circulation.
- B. Staff: (additional) Technician who will also be available to schools within the region and an additional clerk-typist.
- C. Equipment: The same as Phase I with additional equipment.

- D. Materials: Filmstrips, tape and disk recordings, eight millimeter film loops, multi-media kits, overhead transparencies, study and art prints.

II. The regional center staff should be available to assist local schools in facilitating the development of school media centers and should serve as advisors on any regional or central board media committee.

III. There should be reciprocal utilization of all regional media centers to accommodate teachers who may not live in the region in which they teach.

IV. Certain specialized functions which are very valuable, but cannot be justified in terms of expense or specialized nature as inclusions in all regional centers should be shared by all regions. Three such specific examples are: more sophisticated photographic and dark-room facilities, a sound recording booth, and an experimental classroom. These services could be justified if built into different regional centers with general availability across the school system on a shared-cost basis.

#### Question 6:

What reasons are expressed by classroom teachers for not utilizing media equipment and materials?

#### Summary of Results

Teachers did not use available media equipment because they did not know how to operate the equipment.

If they did know how to operate the equipment, they indicated the following barriers that limited usage:



Materials and equipment were not available when needed.

The ordering and scheduling of equipment involved too much red tape.

Equipment was in poor working condition.

Materials necessary to use the equipment was not available.

### Recommendations

I. A facility should be established within the school system where staff members may go at their own leisure or through in-service meetings, to learn how to use media equipment and materials.

II. Repair service should be facilitated at a greater pace.

III. Local schools should not be permitted to purchase equipment for which they are not willing to commit sufficient funds to purchase materials to be used with the equipment item.

IV. The "lead time" on materials from the Audio Visual Teaching Aids Library, the Children's Museum and other lending facilities should be cut down to at least three days. These departments should investigate the possibility of developing a computer materials booking system that could be compatible with the touch-tone telephone. Materials could be ordered similar to the manner in which substitute calls are made. These facilities should also provide for twenty-four hour pick-up and return services for individual teachers.

V. Schools which are in proximity to each other should be permitted to pool their resources to purchase expensive equipment. The "sattelite plan" now in existence might be the logical starting point for such development.

Question 7:

What are the major variables that affect utilization of major equipment and materials?

Summary of Results

The region in which a teacher worked and the number of years that a teacher had taught were the only significant variables that affected utilization of major media equipment and materials.

The regional differences appeared in the area of assistance needed to use media effectively and the use of community resources.

Teachers who had taught one to three years and those that had taught from eleven to twenty years indicated a need for assistance in using media equipment and materials.

The utilization of media when related to academic training is significant only when non-certified teachers are included in the analysis.

Media utilization was not affected by sex, age of school building, or the school level at which a teacher worked.

Recommendations

I. Each region should begin to develop regional media centers with the greatest possible speed.

II. Until these centers can be established, Region Board chairmen who are also members of the Central Board of Education, should be made aware of the reduction in services that have occurred in the existing centralized laboratories, the cut in delivery and repair services by various media departments, and vote to allocate funds to bring these centers up to at least their past level of operation.

III. Programs should be developed for educational broadcasting and on video tape that will help teachers use media facilities effectively.

IV. Publications regarding potential community resources, should be up-dated. In addition to the obvious community resources, each region and each local school should make an intensive study of its community for possible community resources. These resources should be published and up-dated, giving as much background information as possible in order to avoid needless phone calls or planning inappropriate visits.

V. Regions should investigate the possibility of arranging university extension courses in media to be held at a facility within the region.

### Conclusions

The teacher is the most important element in the spectrum of instructional resources. Teachers use media equipment and materials that they are familiar with, that are in good repair, and that have worked successfully for them in the past. They use equipment and materials that they have been well trained to use. They are reluctant to try "new and innovative" materials which are thrust upon them with little or no background information and training. Curriculum laboratories and media centers are important support facilities to local school curriculum activities. They should be physically located as conveniently as possible to the individual teacher.

If a teacher is to act as a learning coordinator successfully in today's schools, he must possess the basic knowledge and concepts of a subject matter field, and must know what he wants to teach. The selection of content is ultimately the responsibility of the individual teacher. The teacher looks to state and local syllabi, new curricula in the disciplines, advice from colleagues, departmental chairmen and supervisors, and personal experience in the field, for guidance in the selection of content. Armed with content and objectives, the teacher must assume the directorship of learning and develop a plan, or system, for reaching defined goals.

Media plays a key role in the design and use of systematic instruction. It is important that teachers be

exposed to the orderly analysis of the media spectrum that includes a description of: (1) the characteristics of each medium, (2) the ways in which each medium can be presented, and (3) the ways in which each medium can be used effectively.

It is obvious that: (1) if appropriate instructional materials exist to help learners achieve learning objectives; (2) if people who work with the learners can use optimum techniques for the use of prescriptions of these materials; (3) if those workers are fully informed about the existence of the materials which are specifically designed for the achievement of the learning objectives; and (4) if the workers can obtain the materials at the time that those materials are most needed, the learner will have the possibility of receiving an optimal instructional experience. At the present time, the decision to use or not to use instructional materials will be based on some managerial contingency rather than best professional judgment of those persons working with the learner. The ultimate mission of the Division for Curriculum and Educational Research as well as regional curriculum professionals must be to design and develop systems and to operate certain of those systems to insure that the above four conditions pertain, and that the potentials of the practice of instructional technology be realized.

### Recommendations for Further Research

Further research is needed in particular matters which are related to the effectiveness of media use.

1. The question of why junior high school and senior high school teachers are not making greater use of curriculum laboratories should be investigated.

2. Studies of the attitudes, abilities, and techniques of teachers who effectively employ media in the learning process.

3. Study of the utilization of media in relation to the special problems of education: the handicapped student, the superior student, and the underachieving student.

4. Study to ascertain the necessary ingredients needed to assist teachers in integrating new curriculum approaches with new instructional approaches.

5. Study of programming techniques which are effective for each medium as they affect instructional modes for implementation of a curriculum plan.

6. Study to determine the effect of students participating in the developing of innovative media approaches with respect to interest and achievement levels.

7. Study the capabilities of media as a means of developing curriculum sequences that involve self-selection of activities by learners in individualized instruction.

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## APPENDICES

APPENDIX A

SELECTED COMMENTS BY RESPONDENTS

REGARDING UTILIZATION OF MEDIA

SELECTED COMMENTS BY RESPONDENTS REGARDING  
UTILIZATION OF MEDIA

There is a need for more media centers and adequate supplies.

The ordering system is too involved.

Materials and equipment at the school level should be centralized.

Title III schools need an individual media coordinator.

Science films need updating.

More up-to-date materials are needed in Math.

All high schools need their own curriculum laboratory.

Order after order has been rejected. I give up!!!

There should be a check-out system (library style) instead of present system for ordering materials.

Availability system is in the "stone age."

There should be an audiovisual newsletter telling about new equipment and materials. It should be published monthly.

There should be released time to use the centers.

I have too much material to cover to use media equipment.

I need training in using equipment.

I can only use the Schools Center Laboratory and parking is too expensive and the hours are inconvenient.

Teachers should have first priority in using curriculum laboratory equipment.



## APPENDIX B

### QUESTIONNAIRE

April, 1972

Dear Teacher,

As part of my Doctoral program at Michigan State University, I am attempting to compile information about the use of media materials and equipment by classroom teachers. Your answers are very important in determining media needs from which future programs may be developed in Detroit Public Schools.

Your name was selected from the Class Membership Report from your school but does not appear on the questionnaire. Your answers will render a real service by providing the information sought.

Please enter your response to each question by recording it directly on the questionnaire sheet. Return of all materials in the enclosed envelope within the next ten days will be greatly appreciated.

If you prefer not to complete the questionnaire, please ask another teacher on your staff to answer the questionnaire or return in the enclosed envelope immediately.

Thank you very much for your cooperation.

Very truly yours,

Crystal P. Tibbs

## PROJECT MATERIALS RECORD

## GENERAL INFORMATION

Name \_\_\_\_\_ Position \_\_\_\_\_

School or Department \_\_\_\_\_ Date \_\_\_\_\_

Time of day . . 8-10 \_\_\_\_\_ 10-12 \_\_\_\_\_ 12-2 \_\_\_\_\_ 2-4 \_\_\_\_\_ 4-6 \_\_\_\_\_

6-8 \_\_\_\_\_ 8-10 \_\_\_\_\_

Brief Description of the Project: \_\_\_\_\_

May this project be completed in one session? Yes \_\_\_ No \_\_\_

SPECIFIC MATERIALS

The costs shown below are for internal accounting only.  
Limits specifically indicated do not imply lack of reasonable restrictions on other materials.

GRAPHIC MATERIALS

| <u>Materials</u>                | <u>Limit</u> | <u>Unit Cost</u> | <u>Units</u> | <u>Total</u> |
|---------------------------------|--------------|------------------|--------------|--------------|
| Chart Pad (white)               | (5)          | 6¢ per sheet     | x _____      | = _____      |
| Construction Paper              | (5)          | 2¢ per sheet     | X _____      | = _____      |
| Felt                            | (3)          | 28¢ per foot     | x _____      | = _____      |
| Lecturer's Pads                 |              |                  |              |              |
| (Newsprint)                     | (5)          | 3¢ per sheet     | x _____      | = _____      |
| Paper (Bulletin Board)          | (3)          | 10¢ per yard     | x _____      | = _____      |
| Paper (Newsprint)               | (3)          | 1¢ per yard      | x _____      | = _____      |
| Paper (Butcher-brown/<br>white) |              | 3¢ per yard      | x _____      | = _____      |
| Railroad Board (Colored)        | (5)          | 10¢ per sheet    | x _____      | = _____      |
| Railroad Board (White)          |              | 15¢ per sheet    | x _____      | = _____      |
| Oak Tag Board                   | (5)          | 2¢ per sheet     | x _____      | = _____      |
| Tagboard Strips                 | (10)         | 1¢ per sheet     | x _____      | = _____      |
| Illustration Board              | (1)          | 70¢ per sheet    | x _____      | = _____      |

Other Graphic Materials Used \_\_\_\_\_

PRODUCTION EQUIPMENTMounting & Laminating Press

|                        | <u>Limit</u> | <u>Unit Cost</u> | <u>Units</u> | <u>Total</u> |
|------------------------|--------------|------------------|--------------|--------------|
| Dry Mount (8½x11)      | (5)          | 5¢ per sheet     | x _____      | = _____      |
| Dry Mount (16x20)      | (3)          | 10¢ per sheet    | x _____      | = _____      |
| Laminating (11" width) | (24 ft)      | 5¢ per foot      | x _____      | = _____      |
| Laminating (22" width) | (12 ft)      | 12¢ per foot     | x _____      | = _____      |

Embossograp, Sign Maker

|                   |     |               |         |         |
|-------------------|-----|---------------|---------|---------|
| Cardboard (14x22) | (3) | 20¢ per sheet | x _____ | = _____ |
| Top Paper (8½x11) | (3) | 10¢ per sheet | x _____ | = _____ |

Dymo Tape Writer

|           |     |              |         |         |
|-----------|-----|--------------|---------|---------|
| Tape 3/8" | (5) | 10¢ per foot | x _____ | = _____ |
| Tape 1/2" | (5) | 15¢ per foot | x _____ | = _____ |
| Tape 3/4" | (5) | 25¢ per foot | x _____ | = _____ |

Waxer

2¢ per item x \_\_\_\_\_ = \_\_\_\_\_

Vacuum Former

|                   |     |               |         |         |
|-------------------|-----|---------------|---------|---------|
| Plastic (White)   | (2) | 35¢ per sheet | x _____ | = _____ |
| Plastic (Colored) | (1) | 70¢ per sheet | x _____ | = _____ |
| Plastic (Clear)   | (1) | 35¢ per sheet | x _____ | = _____ |

Other Production Equipment Used \_\_\_\_\_

DUPLICATING MATERIALSCopier, Dry

|                    |      |               |         |         |
|--------------------|------|---------------|---------|---------|
| Copies 8½x11       | (15) | 7¢ per copy   | x _____ | = _____ |
| Copies 8½x14       | (15) | 10¢ per copy  | x _____ | = _____ |
| 628 Transparencies | (10) | 25¢ per sheet | x _____ | = _____ |

Copier, Thermofax

|                 |      |                |         |         |
|-----------------|------|----------------|---------|---------|
| Copies          | (15) | 5¢ per copy    | x _____ | = _____ |
| Laminating Film | (15) | 8¢ per sheet   | x _____ | = _____ |
| Print Lifting   | (15) | 8¢ per sheet   | x _____ | = _____ |
| Masters, Spirit | (15) | 10¢ per master | x _____ | = _____ |
| Transparencies* |      |                |         |         |
| Type 133        | (15) | 10¢ per sheet  | x _____ | = _____ |
| Type 127        | (10) | 30¢ per sheet  | x _____ | = _____ |
| Type 129        | (10) | 30¢ per sheet  | x _____ | = _____ |
| Type 888        | ( 5) | 35¢ per sheet  | x _____ | = _____ |

|                                            | <u>Limit</u> | <u>Unit Cost</u> | <u>Units</u> | <u>Total</u> |
|--------------------------------------------|--------------|------------------|--------------|--------------|
| <u>Gestefax (Electronic, Stencilmaker)</u> |              |                  |              |              |
| Vinyl Stencil                              | (5)          | 30¢ per sten.    | x _____      | = _____      |
| Paper Stencil                              | (5)          | 20¢ per sten.    | x _____      | = _____      |
| POP Paper (copy)                           | (5)          | 10¢ per copy     | x _____      | = _____      |

Diazo Equipment (Blu-Ray)

|                                 |                          |               |         |         |
|---------------------------------|--------------------------|---------------|---------|---------|
| Transparency Foils<br>(Colored) | (10)                     | 20¢ per sheet | x _____ | = _____ |
| Acetate Sheeting (Clear)        | (10)                     | 10¢ per sheet | x _____ | = _____ |
| Hinges                          |                          | 1¢ each       | x _____ | = _____ |
| Mounts (Single)                 | (1 per<br>five<br>tran.) | 10¢ each      | x _____ | = _____ |
| Mounts (Sandwich)               | (1 per<br>five<br>tran.) | 15¢ each      | x _____ | = _____ |

Headliner 820

|       |      |              |         |         |
|-------|------|--------------|---------|---------|
| Paper | (10) | 8¢ per foot  | x _____ | = _____ |
| Film  | (5)  | 10¢ per foot | x _____ | = _____ |

Other Duplicating Materials Used \_\_\_\_\_

\*A Combined Total of 15 Transparencies May be Made.

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 APPROVED \_\_\_\_\_ TOTAL COST \_\_\_\_\_
 

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