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AUTHOR Valvoda, Mary Alice
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ABSTRACT

This program, developed as a substitute for the library technology program at Lakeland Community College (Ohio), provides basic skills in the areas of communigraphics, reprographics, communications, telecommunications, audiovisual equipment repair and maintenance, and library technology. Taking into account the current swell in the field of media, this broad-based program is designed to prepare students to play a paraprofessional role not only in libraries, but also for a variety of other employment situations, thereby rendering them more "marketable" in the rapidly changing career ladder. In addition, it establishes feasible routes for lateral or vertical personnel movement. The bulk of this document is devoted to a review of the literature, in support of both instructional technology programs, and broad-based vocational education frameworks. A core curriculum is provided, along with four supplementary curriculum options: reprographics, telecommunications, maintenance and repair, and a general comprehensive option. Selected course descriptions are appended, along with lists of institutions having similar programs. (NHM)

A COMMUNICATIONS/MEDIA TECHNOLOGY PROGRAM AT THE COMMUNITY COLLEGE LEVEL

BY

Mary Alice Valvoda

Lakeland Community College

Submitted To
Mr. John Rowell

Graduate School of Library Science
Case Western Reserve University

In Fulfillment Of the Requirements For
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COMMUNICATION/MEDIA TECHNOLOGY PROGRAM

Introduction

The purpose of this project was to develop a Communications/Media Technology program for potential implementation at the community college level--specifically Lakeland Community College, Mentor, Ohio.

Lakeland Community College is Lake county's first public community college and opened its doors in Fall, 1967. In Fall, 1973 Lakeland had 5,100 students. Fifty-five percent of these students were enrolled in technology programs for degrees, certificates or for selected courses to upgrade their employment skills. It is obvious that the technology programs at Lakeland are being sought after by students ranging from 17 to over 50.

Lakeland is accredited by the North Central Association of Colleges and Secondary Schools and is a member of the Ohio College Association.

Lakeland was offering a Library Technology program until 1972 when a moratorium was placed on the program due to lack of interest and lack of suitable, employemnt for its graduates.

After some discussion with the Dean of Instruction it was thought that perhaps a "new" program could be substituted for the Library Technology program taking into account the current swell in the field of media,--hardware, software; educational technology, library technology, and in the field of educational media in general. In other words, could Lakeland, using a majority of its existing disciplines, develop a two-year program organized to provide basic skills in the areas of communigraphics, reprographics, communications, telecommunications, audiovisual equipment

repair and maintenance and last but not least, the basic skills in library technology. A program this broad-based would be designed to prepare students to play a paraprofessional role, not only in libraries, but also in educational institutions, public institutions, business and industry. In such broad-based programs, many students with varied interests and skills could apply them to a variety of employment situtations thereby making themselves more "marketable" in the rapid changing career ladder.

In the world of business and industry there also exists a constant need for information and communication. The business library or special library, or information center and management information center or personnel research office (or a host of other names) is most useful to those who know how to utilize vast resources of business information. Frequently an interface [technician, information specialist, etc.] is in a better position to interpret the business need in terms of specialized knowledge of resources. In fact, proper assimilation, interpretation and application of appropriate internal or external resources could well spell the difference between success, mediocrity or failure, in any size business or industry. Information resources in business, as well as education and libraries has been constantly expanding with many forms in addition to the book or technical report including: audio or video recordings, motion pictures, slides, transparancies, computer printouts, microforms, etc. A facility with the manipulation of these forms can enable one to tap information of immediate value to him in business and/or research that would have otherwise gone untapped because of lack or fear of use of these forms.

A broad-based program could establish feasible routes for "laddering" (entering at one position level and moving forward in an organization, from non-professional or supporting level to professional

levels), or for "latticing" (moving across the job structure to assume different but similar responsibility levels).

Communication

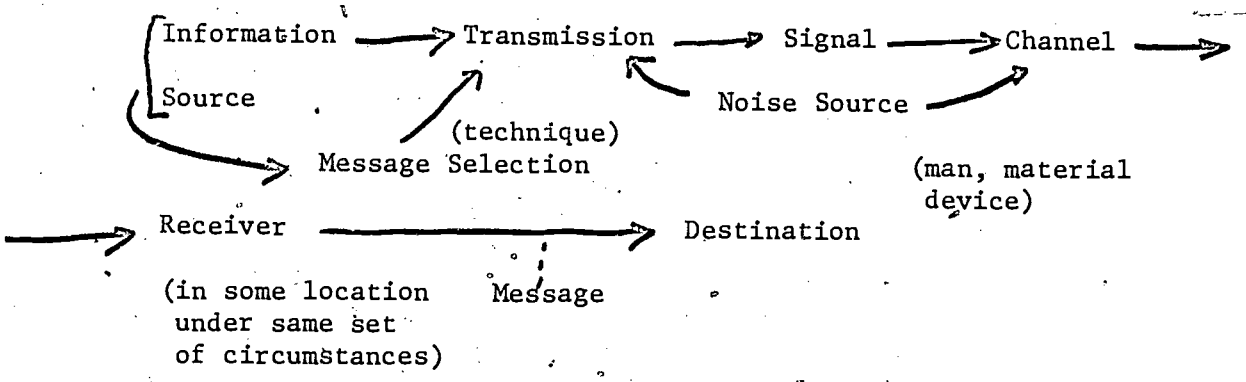
The basic component inherent in a Communications/Media "system" is "communication." What is communication? Communication can be defined simply as an exchange of information with mutual understanding, between people. Therefore, if someone does not understand what is "said", there is no communication.

This concept emobdies the idea that after the inception of a thought or idea, there is the selection of media (oral, written, audio-visual, etc.), process of transmission, the act of reception, decoding the message and finally action/feedback.

Idea → Media → Transmit → Receiving →

→ Decode → Act

Based on Weaver's theory [1] on the mathematics of communication we have:



Saracevic's (2) model of knowldege communication systems could be applied to a Communications/Media program in a dual role - (1) the process of educating the student in the theory of communication (theoretical) and (2) the process of application with the student applying his knowledge in the field of communications and media (applied).

Model of Knowledge Communication System

Education

Source	⇄	Channels	⇄	Destination
Faculty Rules Facilities Curriculum		Mode of Instruction Transmission = Instruction		Students Rules Facilities

In the "applied" role the model remains the same, but the same, but the application differs.

Source	⇄	Channels	⇄	Destination
Production Research Supply		media mode Transmission= technique of delivery		Learner Trainee Patron Utilization

In either the education or career role, the effectiveness of contact is based upon "how well" the destination has assimilated the content from the source--was it relevant? Thereby, there is a constant and mutual evaluative process going on between source and destination.

Communications in management, too, has been in the last fifty years, the core of concentration of scholars as well as practitioners in all institutions--business, the military, public administration, hospital administration, university administration, and research administration.[3] Psychologists, human relations experts, managers, management students, managers, and information scientists have dwelled on the problem of improved communications in major institutions in our society.

Yet, Drucker says that:

> . . .communications has proven as elusive as the unicorn. . . The noise level has gone up so fast that no one can really listen any more to all that babble about communications. But there is clearly

> less and less communicating. The communications gap within institutions and between groups in society has been widening steadily--to the point where it threatens to become an unbridgeable gulf of total misunderstanding. [3]

Manpower Implications

What should be the result of a communications/media program? A library technical assistant? an instructional media specialist? an audiovisual technician? an information specialist? a joint library/media technician?

Searching the literature seems to indicate that each field (i.e. library science and instructional technology) prides itself in its semantic definition of manpower roles. But as we look at basic theory to be learned, descriptions of the fields, functions of work to be performed and skills to be learned, I believe there are sufficient basic characteristics to justify a broad-based curriculum for a community college such as Lakeland, to provide potential students with the greatest career "ladder" and "lattice."

For example, a well-skilled library technical assistant could apply or re/orient his/her skills in the educational media/technology field with some additional continuing education. And a well-skilled educational media technician could, with some reorientation, function well in a library environment and both skills could be applied to the vast world of business and industry.

A rapid proliferation of information and knowledge in an even more complex technological society, coupled with increasing population has created many problems for educators, libraries, and business. Concurrently, scientific developments in all disciplinary areas affect information storage and dissemination methods that have created significant changes in the concept of the library, instructional technology, and information science.

> The evidence so far indicates widespread unpreparedness to absorb more than a fraction of the accumulated data, or to make truly effective use of new communications and information techniques. It indicates greater preoccupation with quantity than with quality--more concern with amassing new facts than with developing the structure and relationship that will convert them to meaningful information.
>
> Until there is more general awareness of these shortcomings, until plans and policies are better organized to harness the new technology, we shall face the possibility of a breakdown rather than a breakthrough in our management of public and private enterprises. [4]

It is anticipated that within this decade and the next, it will be necessary for library and information services to undergo rapid transformations making increased personnel essential to optimum operations. [5]

The traditional concept of the library as a storage place for books, etc. is rapidly vanishing. Standard materials are now in the form of films, phonodices, tapes, microforms, etc. Technology is providing sophisticated equipment for information storage and retrival. Developing information networks will attempt to link together vast resources by computers that can almost instantly transmit data. Random, on-line, and dial access-computer - linked systems can transmit visual and audio images.

On one hand, libraries are being transformed by new technology and media, and on another, separate, but closely related front, there is a pregnant interest in the educational media field--whether under the name of instructional technology, educational communications, educational technology, or learning resources.

Indications of this concern are as follows: [6]

- A USOE/AECT effort to define the instructional technology field

- AECT's formation of special commissions to study certification of media personnel at all levels and accreditation of related training institutions
- Manpower studies based on analyses of jobs and tasks performed under the rubric of educational media

As Wallington and Bruce [6] point out, "instructional technology - by any name - is growing both in concept and in practice. . . The very fact of its existence may serve as its raison d'etre." In an expanding field, more personnel are needed and as the technological base expands, there grows a demand for specialized personnel.

There have been at least six major studies in educational media/technology. Brown [7] has surveyed these studies and reported on them at the Annual Meeting of the Association for Educational Communication and Technology, March, 1971.

1. The Godfrey Study of Audiovisual Technology (1961-1966) pointed out that there were very few school districts outside of metropolitan or suburban systems that had full-time audiovisual directors. Usually, in an elementary school, the principal had the audiovisual coordination responsibility and in secondary schools, teachers had this function in addition to regular teaching loads.

2. The Martin and Stone Study (1965) concluded that as technological advances occur in schools and colleges in instructional services, cross-media job relationships are more essential. They felt specialists are needed to identify educational needs, to select or design specifications as they relate to those needs, and to program materials required for the process.

They recommended that media tasks be grouped around

job clusters for:

- Educational managers (supervisors, administrators)
- Educational specialists (for research and development; production, distribution, and utilization of media)
- Educational technicians (operations, maintenance, and repair of materials adn equipment, including clerical staff)

They also identified 14 functional job areas cutting across job clusters.

3. EMIE-DAVI Evaluation of Educational Media Specialist Institutes (1967).

Their studies of 74 "educational media specialist" institutes upon 3,149 participants revealed that attendance changed and improved participants "abilities and insights with respect to educational media.

The duties of institute "graduates classified as "most time-consuming" were: (1) distribution (33%+), (2) production of media (25%+), and (3) utilization (about 25%) institute "graduates" considered "advanced" found the most time consuming duties were: (1) planning or designing "educational messages," (2) advising teachers, (3) administering collections of non-book media, (4) orgaizing media selection programs and (5) producing graphic instructional materials.

4. The JIMS (Jobs in Media Study) (1970).

The JIMS Study was supported by a U.S. Office of Education grant and was directed by James Wallington and Anna Hyer of AECT. They recognized that increased use of media and automation of learning require "more trained non-professional support personnel to perform tasks, which, although important, do not dictate advanced academic credentials."

The JIMS study depicts position "laddering" and identifies types of skills and training necessary in various functional fields at four levels: (a) minimum entry levels, (b) aide level, (c) technician level, and (d) specialist level.

The JIMS study, as summarized by Brown, indicates that JIMS endeavored to promote "the establishment in local community colleges of more and better training for media technicians and aides." The results showed that curricula of courses and "hands on" experiences were in diverse fields including: graphics design and production, still photography, motion picture photography, technical television techniques, media administration, radio broadcasting, printing, projection techniques, cataloging, maintenance of equipment, maintenance of materials, principles of program instruction, language and electronic learning laboratories operation and management, multi-media projection, technical illustration, data processing, duplicating processes (including offset printing), library technical services, facilities design, and others.

5. The Hamreus-Edling Media Guildelines Project (1970)

The media guidelines project was also funded by the U.S. Office of Education and was conducted by Dale G. Hamreus and Jack V. Edling. They isolated and described compentencies currently being performed in managing, developing, and utilizing media in instruction by employing intensive job analysis and clustering technique methods. The purpose of the project was to "produce guidelines and other information for planning media training programs and evaluating media related training proposals and training program outputs."

A "conceptual model" of the "media domain" was proposed as a three dimensional map plotting media functions in relation to:

- Institutional settings in which they are performed: these would include all levels of educational instututions, business and industry, military organizations, and various government agencies.
- Responsibility groupings include: (a) directive-administrative, (b) professional, (c) artistic-production, (d) technical, (e) clerical, and (f) manual.
- Functions of media related jobs: These are identified in two main groupings, the first or operations grouping includes: (a) research and development, (b) evaluation, (c) design, (d) production, (e) logistics, and (f) utilization. The second or management grouping includes: (a) organization management (b) information management, and (c) personnel management.

Brown's report gives a brief description of the operations and management functions listed above. Because these descriptions of functions, identified by Hamreus, would be so vital in the development of curricula I am including them here:

- Research and development involved the generation and testing of theory and methodology related to instructional technology and to developing validated instructional media products.
- Evaluation provides information for making appropriate, adaptive decisions regarding the operations and management in instruction.
- Design requires translation of theory and empirical evidence about learners, media, content, setting, and technique into instructional design specifications.
- Production leads to the development of specific products by following designed specifications and artistic creative standards.
- Logistics involved the acquisition; storage, supply, and maintance support for the operation of management of media instruction.
- Utilization involves the actual use of media for purposes of instruction to bring about specified changes in learners.

- Organization management involves planning, establishing, and maintaining organizational structures required to operate and manage media services.

- Information management involves planning, establishing, and maintaining the means of supplying essential information both internally and externally needed to operate and manage the media service.

- Personnel management includes a number of activities performed to provide qualified, adequately prepared staff to operate and manage the media service.

Hamreus's study concluded that the demand for qualified media researchers, instructional designers, evaluation specialists, and information management personnel far exceeds the present supply. Hamreus felt that there was something less than a reasonable balance between the supply of and the demand for specialists qualified for media production, utilization, and organizational management; and that the only specialization that seems to have a good supply of specialists is logistics.

6. The AASL School Library Manpower Project (1970)

This study was funded by the Knapp Foundation of North Carolina Incorporated, and was designed to investigate and make recommendations concerning three areas of developing and utilizing school library manpower: (1) task and job analysis, (2) education for school librarianship, and (3) recruitment of manpower.

A fourth element classification scheme for principle media related positions was developed. They are as follows: (1) school library media specialist, (2) head of the school library media center, (3) district school media library media center, and (4) the school library media technician.

The last item, the school library media technician, is the one that would be most applicable to training at a

community college. It was the feeling of this study that one or more non-professional positions of this title, each one requiring at least two years of higher education, would be found in media centers of various levels of education. Possible areas of functional specialization would include: acquisition processing and maintance of media equipment; circulation and dissemination of materials; information and bibliographic services; producing instructional materials; and others.

Included among the recommendation in Brown's paper are: (1) differences in position titling and functions should be reconciled, (2) recommendations from existing studies should be used rather than segmented by further studies, (3) standards for training media personnel should be agreed on, (4) the quality of new media personnel should be improved, (5) an official statement of professional aims and conditions should be prepared, (6) national certification guidelines should be prepared, and (7) provision for on-the-job and continuing professional education should be made.

The above studies have been taking an in-depth look at the field of media and media technicians. Now let us take a closer look at the library technical assistant, so we can see the relationship between media and library and evaluate the compatibility between training for the library technical assistant and see how it relates to the comprehensive picture of communications media technology. The University of Toledo's study (8) postulates that the graduate library technical assistant should have a liberal educational background and should be sufficiently familiar with the cultural aspects of our society and their implications for

whatever institution he or she may be serving in. Basic to a library technical program is a familiarity with the tools and resources of the library. However, concurrent with this is an introduction to non-print media. The technical content of such a program should be intended to give a broad background in the diverse functions and services of a library and instructional resource center, a media center, or whatever particular name is applied to the resource center. These information centers or libraries would include public and private school libraries, academic libraries, public libraries, and special libraries such as medical, business, and governmental.

The Toledo study recommends that in the first year a student develops an understanding of library organization and personnel served. In addition to specific skills in library procedures, tools, techniques, there should be some understanding of the use of bibliographic tools and searching techniques commonly used by all types of libraries. Due to recent technologies, it is important to acquire knowledge of processing, storage, and retrieval of diverse forms of special materials, such as microforms and other audio and visual media. Also in the first year the student should have been provided with some experience in the operation and minor maintenance of equipment, basic techniques of utilization of media equipment and materials, acquisition tools and techniques unique to technological media, and methods of scheduling and distribution of audio equipment and materials.

In addition, it is recommended that the student will learn "the techniques of sound recording and reproduction, production of still projection materials, processes and skills involved in the duplication

and copying of print materials, and the basic elements of graphic design." The student must also have a basic foundation in communications skills, literature, humanities, science, and data processing.

In the second year of a library technical assistant program, the student would acquire a more comprehensive understanding of the bases and techniques of organizing library materials, and the application of computer technology to information storage, dissemination, and retrieval.

The duties of a technical assistant would cut across a variety of library functions. Depending upon the type of library or information center, these functions may be very general or very specific, and generally one would find these functions or adaptations thereof in a number of educational, business, or governmental organizations.

These services would be as follows: (1) Administrative Services: recommending new supplies and equipment, preparing specifications for purchase of equipment, compiling and tabulating data for statistical reports, training clerical staff, and preparing reports on work programs etc. (2) Technical Services: this would include varifying data, searching journals, catalogs, etc., supervising records maintenance, etc. (3) Public Services: this would include supervising circulation routines and controls, assisting in compiling reading lists, bibliographies, etc. (4) Data Processing Services: assisting with or supervising data processing operations. (5) Related Media Services: supervising the maintenance and operation of audio/visual equipment, and processing, shelving, and filing microforms, tapes, recordings, etc. (6) Media Production Services: this would include photographic production and reproduction, audio/recording

and duplication, and graphic design and illustration. (7) Publicity and Public Relations Services: this would include developing and preparing bulletin boards, posters, etc. (8) Information Services: might be responsible for answering directional or factual questions, and answering basic reference questions. (9) Clerical Services: this might include compiling statistics, assisting in the development of procedures manuals, mail, maintaining files and records management, preparing purchase orders, etc.

A two-year program to educate library technical assistants must be realistic and pragmatic if it is to meet the modern information needs coupled with current technology.

Instructional Model

A model developed by Kenneth Silber is useful in the communications/media analysis because it endeavors to cut through the "morass of definitions" currently used. [6]

The Domain of Instructional Technology model begins with a LEARNER. Certain factors affect this LEARNER and bear directly on him. Silber called them ISC's or Instructional Systems Components. The ISC's can be messages, man, materials, etc.

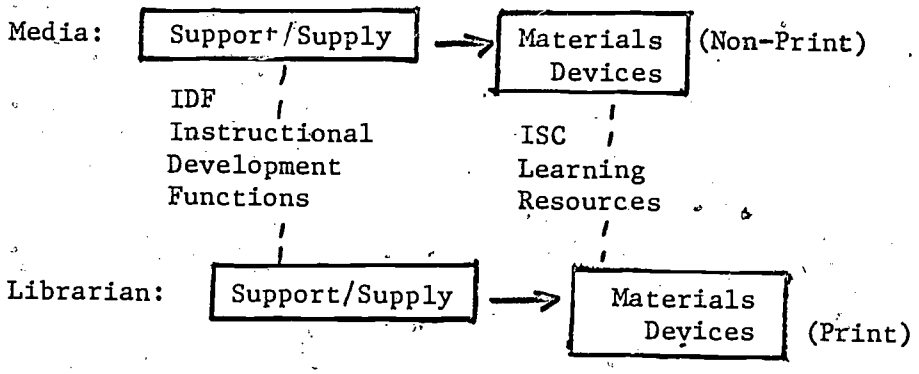
But resources must undergo manipulations to get them to the learner. These functions called IDF's, Instructional Development Functions might be: research, design, production, evaluation, utilization or contact and support/supply (logistics).

A final factor in this model is the overall management function. (Fig I)

In summary then, the Learning Resources are things directly bearing upon the learner. The Instructional Development Functions (IDF's) bring Learning Resources into contact with the learner. The Instructional Management Functions direct or move the IDF's.

The grouping of activities into broad areas, as seen by the model, allows media specialists and/or librarians to see their relationships to each other and the learner. Grouping, thereby, overrides semantic differences, emphasizes functions, and bridges "communications gaps between people, such as the so called "library-audiovisual" difference. Titles do not differentiate, but activites do.

Media personnel and librarians perform similar "activities". [6]



It must be remembered that all functions contain tasks at varying levels of complexity. All levels of personnel can perform in each function limited only by the complexity and responsibility of the activity.

This same concept can be seen in the University of Toledo [5] description of library technical assistant duties as they relate to various functions. Based upon Silbers' model, then, I believe the question becomes not "What are the differences?" but "What is the common link between libraries, information, and media?"

DOMAIN OF INSTRUCTIONAL TECHNOLOGY

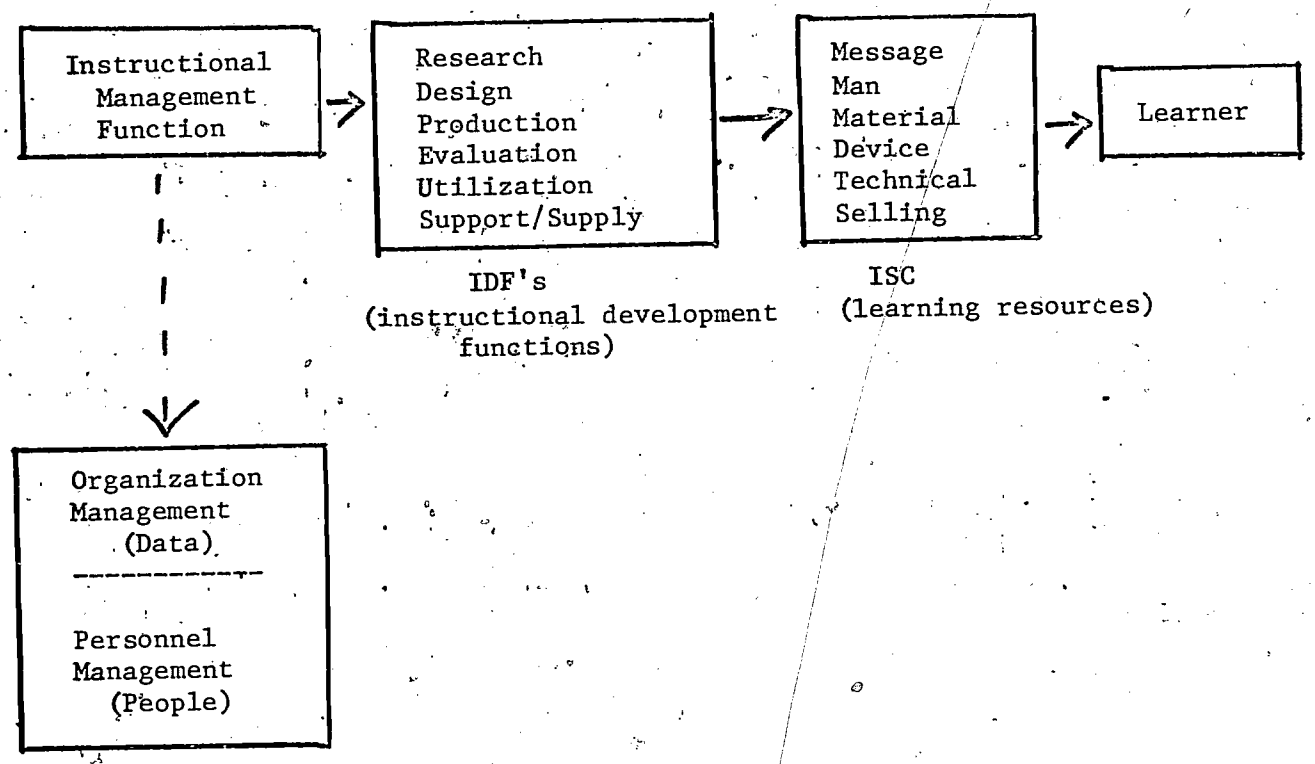


Fig I

It appears that both library or information technicians and media specialists should possess the following special "abilities." [5]

- A comprehensive knowledge of and facility in the use of materials, processes, apparatus, procedures, equipment, methods, and techniques used in the technology under study
- A broad foundation of general education courses including: communications, social sciences, humanities, physical sciences and mathematics
- An expanded knowledge in a specialized area of the information field (medical, special libraries, science, etc.) or communigraphics, reprographics, telecommunications, etc.
- Business skills (typing advisable), records management, etc.
- Personal qualifications to include: ability to communicate clearly both in oral and written form and to follow oral and written directions; ability to supervise effectively work of others.

Above all the commodity involved in either the classroom or work situation is people and people differ. "Task analyses define minimal levels of competency and do not take into consideration the worker who puts something extra into the job, who can figure out a better way to do things, who wants to do his job better. People of this caliber are a precious commodity. . . .recognize that people bring themselves to the task and thereby can change the task in some respects." (6)

Meltzer (8) has alerted executives, managers, and supervisors in business, industry, and government of the "vital role information plays in their personal progress and the growth of their organizations." A businesslike approach is needed to control the "flood" of information "pounding at the floodgates" of all organizations.

We might want to consider not library technicians or media specialists or information technologists in developing curriculum to prepare people to control this flood, but rather information ecologists -- people prepared, in varied environments: to work with data bases; control

inputs; analyze, synthesize and index multiple formats, have knowledge of manual, micorform, and computer-based storage systems; retrieval, disseminate and communicate information; and last but not least organize and evaluate.

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COMMUNICATIONS/MEDIA TECHNOLOGY

Core Curriculum

First Quarter

ENG 100 or 110	Composition 100 or 110	3
PHY ED 210	Physical Ed	1
	Physical, Social or Behavior Science Elective	3
	*Media Technology I	4
BUS 130	Introduction to Business	3
LIBR 110	Introduction to and Use of Libraries	3
		17

Second Quarter

ENG 201	Technical Writing	2
DP 110	Introduction to Data Processing	3
LIBR 121	Technical Processes	3
	*Media Technology II	4
ART 120	Art Appreciation	3
		15

Third Quarter

GT 135	Photography	3
IM 211	Effective Communication	3
	Physical, Social or Behavioral Science Elective	3 -4
	Math elective	3
JRNL 140	Introduction to Mass Media	3
		15 - 16

* = Course descriptions attached.

Core Curriculum

Fourth Quarter

IM 247	Training Techniques for Supervisors	3
IM 248	Instructional Television	3
BUS 212	Principles of Management	3
	Concentration Options	6-10
		15-19

Fifth and Sixth Quarters

Options

Reprographics Option

Fourth Quarter

ART 130	Art Drawing	3
GT 214	Typography or Graphics Option	3
BUS 243	Advertising	4
		10

Fifth Quarter

GT 211	Production & Printing I	3
GT 212	Illustration I	5
GT 213	Graphic Design	5
GT 223	Advertising Design or Graphics option	3
		18

Sixth Quarter

GT 221	Production and Printing II	3
GT 231	Commercial Photography	3
	Field work in Graphics or Media Center, Print Shop etc.	4
GT 222	Illustration II	5
		15

Telecommunications Option

Fourth Quarter

THEAT 140	Introduction to Theatre	3
EET 201	Introduction to DC/AC Electricity	4
	Option Elective	3
		10

Fifth Quarter

* Telecommunications-TV Workshop	4
Field Work	4
* Broadcast Studio Operations	3
Electives	4-5
	16-17

Sixth Quarter

* Motion Picture and Video tape production	3
* Projection Equipment Maintenance	3
* Basic Acoustics and Optics	3
Electives	6-7
	15-16

Maintenance and Repair Option

Fourth Quarter

EET111	DC Circuits	5
	Electronic Electives	4
	Math Elective	3
		12

Fifth Quarter

EET 133	Electronics I	4
EET 121	AC Circuits	4
	Field Work	3
	Electives	5
		16

Sixth Quarter

EET 213	Electronics II	5
	Home Entertainment Equipment Circuits	3
	Electives	8
		16

Comprehensive Option

	Fourth Quarter	
	Technical electives from any option	10
	Fifth Quarter	
	*Business Information Sources and Services	3
	*Introduction to Graphics	3
BUS 222	Human Relations	3
IDS	Interdisciplinary Science	3
	Technical Electives from any option	3-4
		15-16
	Sixth Quarter	
	*Office Management or Records Management	3
	Library/Media or other related field work	3
	Introduction to Humanities or Humanities elective	3
	Electives	6
		15

Selected Course Descriptions

Instructional Media Technology I

In this course the student is introduced to the entire spectrum of technological media. Exploration with lab experience in the preparation, presentation and full utilization of instructional media. Include: still projection, motion picture projection, graphic arts, record players, tape recorders, broadcast sound systmes, educational TV, supporting equipment for instructional media, and non-projected instructional media materials.

Instructional Media Technology II

Development of specific audiovisual skills; Conversion of ideas into audio or visual materials; Study of the functions and responsibilities of an instructional media center; Students should collect, organize, and file examples of materials as well as information sheets and brochures concerning sources of production equipment and materials. Use resource directories to prepare bibliographies of available A/V materials for a project.

Telecommunications-TV Workshop

Experience in producing various types of television programs with emphasis on educational, community and industrial use. Utilization of television equipment in remote, on-location sites and studio operation.

Broadcast Studio Operations

Operation of studio and control room equipment and techniques of production needed for broadcast operation. Elementary technical theory of broadcast engineering.

Motion Picture and Videotape Production

Develop proficiencies in the production of 8mm and 16mm motion picture film and videotape that can be used for instructional purposes.

Projection Equipment Maintenance

Enables the individual to acquire knowledge and skills in the simple maintenance and care of 8mm and 16mm film projectors and videotape systems.

Basic Acoustics and Optics

Introduction to the theory and operation of sound and accoustical principles, their behavior, function and properties.

Records Management

A course designed to handle the massive paperwork problems in business, industry and education. Would include: records creation, records control, microphotography, information storage and retrieval, records retention and protection.

Business Information Sources and Services

A course designed to orient business, media, education and othe r students to the vast resources of information available in libraries, from government sources, associations, companies, etc. How to use these resources, information research procedure and methodology. Bibliography preparation. Information research projects.

Introduction to Graphics

A course designed for the non-technical person to orient him to the field of graphics technology with elementary theory and terminology used in the field. A comprehensive overview of the entire industry.

Appendix A *

Institutions Having Educational Media Technician Programs

ARIZONA
Pima College, Tucson

CALIFORNIA
Citrus College, Azusa
City College of San Fransico, San Francisco
Grossmont College, El Cajon
Los Angeles City College, Los Angeles
Modesto Junior College, Modesto

COLORADO
Community College of Denver, Denver
Mesa College, Grand Junction

CONNECTITUCT
Northwestern Connecticut Community College, Winsted

DISTRICT OF COLUMBIA
Washington Technical Institute

FLORIDA
Hillsborough Community College, Tampa
Polk Community College, Winter Haven

ILLINOIS
College of DuPage, Glen Ellyn
Thornton Community College, South Holland

IOWA
Des Moines Area Community College, Ankeny
Southwestern Community College, Creston

KANSAS
St. John's College, Winfield

KENTUCKY
Richmond Community College, Richmond

MARYLAND
Anne Arundel Community College, Arnold

MASSACHUSETTS
Greenfield Community College, Greenfield

MICHIGAN
Macomb County Community College, Mount Clemens
Oakland Community College, Farmington

MINNESOTA
Lakewood State Junior College, White Bear Lake
North Hennepin State Junior College, Minneapolis

MISSOURI
East Central Junior College, Union

NEBRASKA
Central Nebraska Technical College, Hastings

NEW JERSEY
Essex County College, Newark
Mercer County Community College, Trenton

NEW MEXICO
New Mexico Military Institute, Roswell

NEW YORK
Alfred Agriculture And Technical College, Alfred
Hudson Valley Community College, Rochester
Monroe Community College, Rochester
State University of New York-Farmingdale, Farmingdale

NORTH CAROLINA
Technical Institute of Alamance, Burlington

NORTH DAKOTA
North Dakota State School of Science, Wahpeton

OHIO
Cuyahoga Community College, Cleveland

OKLAHOMA
Tulsa Junior College, Portland

OREGON
Portland Community College, Portland

* Information contained in these appendices are taken from Wallington, Reference #6.

TEXAS
Brazosport College, Lake Jackson
Tarrant County Junior College, Hurst
Texas State Technical Institute, Waco

VIRGINIA
Virginia Western Community College, Roanoke

WASHINGTON
Bellevue Community College, Bellevue
Skagit Valley College, Mt. Vernon
Washington State Community College, Spokane

WISCONSIN
Madison Area Technical College, Madison
Milwaukee Area Technical College, Milwaukee

PUERTO RICO
Humacao Regional College, Jumacao

CANADA
Humber College, Rexdale Ontario
Seneca College of Applied Arts and Technology, Willowdale Ontario

APPENDIX B

Institutions Having Library Technician or Technical Assistant Programs

ALABAMA
The Marion Institute, Marion

ARIZONA
Arizona Western College, Yuma
Maricopa County Community College, Phoenix
Pima College, Tucson

CALIFORNIA
Cabrillo College, Aptos
Chaffey College, Alta Loma
College of the Canyons, Valencia
College of the Desert, Palm Desert
College of the Siskiyous, Weed
Cuesta College, San Luis Obispo
Fullerton Junior College, Fullerton
Los Angeles Southwest College, Los Angeles
Modesto Junior College, Modesto
Moorpark College, Moorpark
Mt. San Antonio College, Walnut
Mt. San Jacinto College, Gilman Hot Springs
Palomar College, San Marcos
Pasadena City College, Pasadena
Reedley College, Reedley
San Diego Evening College, San Diego
Santa Ana College, Santa Ana
Taft College, Taft

COLORADO
Community College of Denver--Auraria Campus, Denver
Community College of Denver--North Campus, Denver
Southern Colorado State College, Pueblo

CONNECTICUT
Norwalk Community College, Norwalk

DISTRICT OF COLUMBIA
Mt. Vernon Junior College

DELAWARE
Delaware Technical and Community College, Wilmington

FLORIDA
Brevard Community College, Cocoa
Hillsborough Community College, Tampa
Palm Beach Junior College, Lake Worth

HAWAII
Leeward Community College, Pearl City

ILLINOIS
City Colleges of Chicago, Chicago
College of Lake County, Grayslake
Illinois Valley Community College, Oglesby
Moraine Valley Community College, Palos Hills
Sauk Valley College, Dixon
Vocational-Technical Institute, Southern Illinois University, Carbondale

INDIANA
Indiana Vocational Technical College, Indianapolis

IOWA
Southwestern Community College, Creston

KANSAS
Pratt Junior College, Pratt

KENTUCKY
Henderson Community College, Henderson
Jefferson Community College, Louisville
Prestonburg Community College, Prestonburg
Somerset Community College, Somerset

MARYLAND
Charles County Community College, La Plata

MASSACHUSETTS
Bristol Community College, Fall River
Northern Essex Community College, Haverhill
Worcester Junior College, Worcester

MICHIGAN
Alpena Community College, Alpena
Lake Michigan College, Benton Harbor
Lansing Community College, Lansing
Oakland Community College, Farmington

MINNESOTA
Lakewood State Junior College, White Bear Lake
North Hennepin State Junior College, Minneapolis

MISSOURI
East Central Junior College, Union
Florissant Valley Community College, Ferguson

MONTANA
Dawson College, Glendale

NEBRASKA
Northeastern Nebraska College, Norfolk

NEW JERSEY
Essex County College, Newark
Mercer County Community College, Trenton

NEW YORK
Manhattan Community College, New York
Maria Regina College, Syracuse

NORTH CAROLINA
Beaufort County Technical Institute, Washington
Caldwell Community College and Technical Institute, Lenoir
Durham Technical Institute, Durham
Edgecombe County Technical Institute, Tarbou
Halifax County Technical Institute, Weldon

NORTH DAKOTA
North Dakota State School of Science, Wahpeton

OHIO
Community and Technical College, University of Toledo, Scott Park Campus, Toledo
Lakeland Community College, Mentor
Miami University--Middletown Campus, Middletown
Ohio University--Lancaster, Lancaster
Raymond Walters General and Technical Institute, Cincinnati

OKLAHOMA
Poteau Community College, Poteau
Tulsa Junior College, Tulsa

PENNSYLVANIA
Community College of Philadelphia, Philadelphia
Harcum Junior College, Bryn Mawr
Mount Aloysius Junior College, Cresson
Northhampton County Area Community College, Bethlehem
Williamsport Area Community College, Williamsport

TENNESSEE
Walters State Community College, Morristown

TEXAS
El Centro College, Dallas
San Antonio College, San Antonio

VERMONT
Green Mountain College, Poultney
Vermont College, Montpelier

WASHINGTON
Clark College, Vancouver
Grays Harbor College, Aberdeen
Highline Community College, Midway

WISCONSIN
Kenosha Technical Institute, Kenosha

WYOMING
Casper College, Casper

OTHER
Community College of American Samoa, Pago Pago

APPENDIX C

Institutions Having Joint Library/Media Aide Programs

ARIZONA
Pima College, Tucson

CALIFORNIA
College of the Canyons, Valencia
Modesto Junior College, Modesto
Mt. San Antonio College, Walnut
Mt. San Jacinto College, Gilman Hot Springs
West Hills College, Coalinga

GEORGIA
Brewton-Parker College, Mount Vernon

MASSACHUSETTS
Bristol Community College, Fall River

MICHIGAN
Oakland Community College, Farmington

MINNESOTA
Lakewood State Junior College, White Bear Lake

MISSOURI
Jefferson College, Hillsboro

NEBRASKA
Northeastern Nebraska College, Norfolk

NEW JERSEY
Brookdale Community College, Lincroft

NEW YORK
Manhattan Community College, New York

NORTH CAROLINA
Caldwell Community College and Technical Institute, Lenoir
Edgecomb County Technical Institute, Durham

NORTH DAKOTA
North Dakota State School of Science, Wahpeton

OKLAHOMA
Poteau Community College, Poteau
Tulsa Junior College, Tulsa

PENNSYLVANIA
Northampton County Area Community College, Bethlehem

TEXAS
McLennan Community College, Waco
Navarro Junior College, Corsicana