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ABSTRACT

Studies and reports on functions and training of educational media personnel are summarized, and recommendations based on them are presented. Most of the studies catalog specific tasks performed by different types and levels of educational media personnel, analyze the nature of the tasks, classify them as being most appropriately performed by "professional" or "non-professional" personnel, group them into job clusters, and recommend levels of training or education for each. Recommendations include: 1) differences in position titling and functions should be reconciled; 2) recommendations from existing studies should be used rather than augmented 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. (JK)

March 1971

RECENT MANPOWER STUDIES: SOME IMPLICATIONS FOR AECT

By

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Introduction

The present burgeoning interest in improving education through systematic applications of instructional technology emphasizes the need to analyze professional functions of such operations and to recruit and educate individuals qualified to plan and conduct the tasks involved.

But while such needs appear to be greater than and considerably different from what the media field has known in the past, they are by no means new. A DAVI-sponsored Seminar on the Education of AV Communication Specialists [25] held in Cincinnati in 1956, for example, is sometimes identified as the start of serious consideration of the matter of role identification for individuals associated with the audiovisual field.

Only a short time later, a DAVI task force of 21 individuals brought together by the NEA Division of Audiovisual Instructional Service formulated a general statement regarding roles of media and media specialists that has continued to the present to exert influence in the field. [42] That paper called for "a technological leap forward" in education and for increased applications of "a new technology for instruction that has been developed and proved through basic research and practice." Perhaps most importantly, it stressed that "a new kind of professional will be required to provide leadership in design, implementation, and evaluation of programs of education which make the fullest use of new media. The functions performed by this leader and the resources he brings will be among the essential determinants of success or failure in tomorrow's schools."

Two "media functions" were especially highlighted in the 1963 statement: (1) using media with the teacher--supplementing his efforts and enhancing his effectiveness in the classroom through improved "clarity in communication, diversity in method, and forcefulness in appeal," and (2) enhancing overall educational productivity through applications of media in instructional systems in ways which do not depend directly upon teachers and which, in fact, might actually replace some of the "in-person" activities traditionally carried out by such persons.

Media manpower implications of the 1963 DAVI policy statement were clearly discernible. In one of its supplementary sections, for example, the suggested school system media staff was identified as properly consisting of: (a) a media director operating at the level of assistant superintendent, (b) supporting media specialists in the central office for such areas as television, language laboratories, programmed learning, materials production, systems design, and others, (c) building (or unit) media coordinators assigned to each school (or groups of two to four schools) to work in support of the central office media director--one per school of twenty or more teachers, full-time if teachers there used a wide variety of instructional resources, shared in schools with fewer teachers, and (d) an adequate technical and clerical staff (plus student assistants) to permit full utilization of professional talents.

Since the issuance of the DAVI Task Force Statement, numerous other studies, reports, and papers have examined similar problems in an effort to sort out and define titles, functions, and training requirements for media-related positions. These positions have been variously characterized as "professional," "non-professional," "technical," "clerical," "manual," and a host of other titles.

The more recent of these studies, summarized in Part I, following, have several things in common. Most have sought to catalog, as objectively as possible, specific tasks which are (or should be) performed by different types and levels of educational media personnel, to analyze the fundamental critical natures of those tasks, to classify them as being performed most appropriately by "professional" or "certificated" personnel or by "non-professional" or "non-certificated" persons, to group them (however imperfectly) into various handleable job clusters, and (eventually) to recommend levels at which to conduct education or training (from on-the-job through junior college to advanced master's or doctoral work) for each.

Another large and varied group of studies, reports, and statements--contained in Part II, following--are included here because of their unquestioned value for inferring still other media-related job possibilities and manpower requirements.

Part III of this paper presents a few of the author's own conclusions and recommendations about the present media manpower situation that appear to be reasonably well supported or strongly suggested by items reported in Parts I and II.

PART 1. MANPOWER STUDIES IN EDUCATIONAL MEDIA/TECHNOLOGY

Six studies, each quite directly related to "media manpower," are described and briefly commented upon in this section. They appear roughly in the chronological order of their publication. They are: (1) Godfrey Study of Audiovisual Technology (1961-1966), (2) Martin and Stone Study (1965), (3) EMIE-DAVI Evaluations of Educational Media Specialist Institutes (1967), (4) The JIMS (Jobs in Media) Study (1970), (5) The Emreus-Edling Media Guidelines Project (1970), and (6) The AASL School Library Manpower Project (1970).

Godfrey Study of Audiovisual Technology (1961-1966)

As one part of her study (performed for the Bureau of Social Science Research) Eleanor Godfrey described how audiovisual coordination was handled, in 1962, in 517 schools from 247 districts of this country. 18 In 55 of those schools, no one handled the work; in 170 of them the principals did it. The responding audiovisual coordinators made several things clear:

* Very few school districts outside of metropolitan or suburban systems had full-time audiovisual directors.

* None of the elementary schools and only nine of the secondary schools had a building staff member whose major job title was "audiovisual coordinator" (or equivalent), and only four of the nine spent full-time at such work.

* Typically, it was the principal who performed audiovisual coordination for the elementary school; in the secondary school, this work was more likely to be done by a classroom teacher.

* In either situation, and for all types of coordinators, the chief function performed was one of logistics: ordering and scheduling materials and equipment, teaching teachers and students how to operate projectors and recorders, or repairing and maintaining equipment.

* Whatever he did, the coordinator was usually expected to do it on top of a regular teaching or administrative load. Still, and despite such handicaps, he appeared to continue to be enthusiastic about the values of new media and their contributions to improved teaching.

Martin and Stone Study (1965)

One of the first objective studies of media manpower utilization and requirements was that undertaken by Ann M. Martin and C. Walter Stone 37 at the University of Pittsburgh (1965). Employing the functional job analysis and critical incidents techniques, this study provided (1) quantitative indicators for grouping media jobs according to areas of performance or capability, interests, or satisfactions, and (2) qualitative dimensions for classifying educational requirements for the job groups described.

Conclusions of the study were:

* As more and more technological changes occur in instructional services to schools and colleges, cross-media job relationships become more essential. Specialists are needed to identify educational needs, to select or aid in the design of specifications related to those needs, and to program materials required for the process.

* Several different jobs (or groups of related jobs) exist in the media field to accomplish similar purposes. In large organizations, such jobs are sometimes done differently from the way they are done in small organizations (or in single schools, for example). Availability or lack of appropriately classified personnel, rather than scientific job assessments, appear to be key elements in such job assignments.

* Previous assessments of instructional media manpower requirements were judged to have been generally unreliable as well as unrealistic in calling for job qualifications rarely found in one person. As a result, Martin and Stone recommended that media tasks be regrouped around job clusters for:

-- Educational managers (supervisors, administrators)

-- Educational specialists (for research and development; production, distribution, and utilization of media)

-- Educational technicians (operation, maintenance, and repair of materials and equipment), including clerical staff (for coding, compiling, filing, typing, and circulating and processing of materials)

Fourteen functional job areas cutting across job clusters were identified by Martin and Stone: (1) administration of media, (2) supervision of curriculum/development of media, (3) teaching the use of media, (4) research and development of media, (5) television production, (6) audiovisual production, (7) distribution/production of media, (8) distribution of printed materials, (9) distribution/computers, (10) distribution/audio or video transmission, (11) utilization of media, as a special TV teacher or consultant, (12) utilization of media, as a classroom teacher, (13) utilization/distribution/production of media, and (14) clerical/technical assisting in the use of media.

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

The need to do something about improving the supply and capabilities of educational media specialists, as highlighted by the Godfrey and the Martin and Stone studies, was emphasized in planning done by the U.S. Office of Education in establishing professional institutes authorized originally by the amended National Defense Education Act. The EMIE (Educational Media Institutes Evaluation) Project, directed by James W. Brown and sponsored by Dr. Anna Hyer and the then-named Department of Audiovisual Instruction, was assigned to evaluate immediate and delayed effects of the short-term, intensive educational experiences of 74 "educational media specialist" institutes upon 3,149 media-related participants who attended them. 5,7

Findings revealed that there could be little doubt attendance at those institutes did do much to change and improve participants' abilities and insights with respect to educational media. And while there was less to be said about the eventual ability of these individuals to apply what they had learned in improving the "education media" climate of situations in which they were employed, it was not all black. Findings showed, for example, that:

* Seven out of ten participants left the institutes with refined media program improvement plans in hand. Back on the job, 70 per cent of them reported (up to two years later) "complete" or "partial" success in implementing them.

* Immediately following attendance at the institute, a majority of the participants were given increased "media" responsibilities, about a third had the same number, and only a very few had less. Chief changes in their duties occurred in selecting and purchasing materials and equipment, producing locally-made instructional materials, and conducting in-service training activities for teachers. Little change occurred in curriculum planning, budget planning, or physical facilities planning.

* The most "time-consuming" duties of basic media institute "graduates," back on the job, turned out to be: (a) distribution (more than 33% of the specialist's time), (b) local production of media (about 25%), and (c) utilization (about 25%). Those found to be most time-consuming for "advanced" institute graduates were (a) planning or designing "educational messages," (b) advising teachers, (c) administering collections of non-book media, (d) organizing media selection

programs, and (e) actually producing a variety of graphic instructional materials.

* The first year following attendance at a media specialist institute was likely to be marked by substantial increases in the time participants devoted to media activities.

* More than half the responding participants reported that through their efforts they had "very greatly" or "greatly" extended the availability and quality of use of educational media in their situations.

The JIMS (Jobs in Media) Study (1970)

The Jobs in Instructional Media (JIMS) Study 62, 63, 64 supported by a U.S. Office of Education grant and directed by James Wallington and Anna Hyer of AECT, recognized that increased use of media and increased automation of learning require (and make it possible to use) more trained non-professional support personnel to perform tasks, which, although important, do not dictate advanced academic credentials. The study sought generally to find ways of: (1) identifying new media jobs through recombining present tasks in the field, (2) using present non-professional personnel more efficiently, and (3) designing suitable training programs for new personnel entering the field. Phase 1 (now largely completed) forms the base for 2 and 3.

The JIMS Study used the functional job analysis approach applied earlier by Martin and Stone to (a) describe what media workers do, (b) systematically classify the tasks involved, (c) regroup or cluster tasks according to levels of functional skills involved, and (d) state levels of educational development necessary to perform them. Using a two-dimensional matrix in which to record results of examining what the worker does and what gets done in the media field, the JIMS staff studied non-professional media job activities in representative public schools, institutions of higher learning, business and industry, military establishments and organization, and government. An all-inclusive question was asked about each set of observations: Upon what instructions, who does what, in relation to what or whom, to accomplish what immediate result, with what tools, equipment, or work aids?

Three procedures were then carried out in the JIMS Study's efforts to analyze and categorize resulting data and to describe media job functions in terms of:

* Instructional systems components--which were identified as involving: message, man, material, device, technique, and setting. These elements are seen as independent ideas, people or things that are related to, manipulated, and used in instruction. Using "communication" as a model, one sees that these terms embody the idea that information is being transmitted (message), that someone or something is storing or transmitting it (man, material, device), that it is being transmitted by certain procedures (technique), and that transmission occurs in some location or under some set of circumstances (setting).

* Instructional development functions --which were identified as being those of (a) research-theory, (b) design, (c) production, (d) evaluation, (e) support-supply, and (f) utilization (including utilization for dissemination). This particular classification grew out of efforts to identify and examine the nature of functions, which were defined, in turn, as "unique clusters of goals and activities playing similar roles in the development and management of instructional systems components, and which play different roles from those played by the goals and activities in other clusters." By itself, a "function" is not intended to represent a job, but it is believed to be useful in describing one.

* Instructional management functions --which were categorized as answers to the question, "What is managed?" Two factors were identified: (a) organization management--involving abstract planning and coordination, and (b) personnel management--involving people in the organization, their interrelationships, assignment, and supervision.

Finally, questions were asked in the JIMS Study concerning (a) quantitative and qualitative criteria or standards by which to measure media personnel job performances, (b) suggested training curricula to develop job competencies in the classroom, on the job, or through general education, (c) scaling of worker instructions, ranging from detailed structuring specification of inputs, expected ouputs, necessary tools and equipment, and procedures,

at one extreme, to almost completely unstructured assignments presented largely as "needs" and requiring an approach characterized by considerable originality and creativity to achieve their solution, on the other, (d) scaling of worker functions with data (comparing, copying, computing, compiling, analyzing, coordinating, synthesizing), with people (taking instructions, helping, serving, exchanging information, persuading, diverting, consulting, instructing, supervising, negotiating, monitoring), with data and people, with things (handling, feeding/offbearing, tending, manipulating, operating/controlling, precision working, setting up), with people and things, or with things and data, and (e) scaling general education development) required for the various jobs.

An example in the functional field of materials production may be used to illustrate the "laddering" of positions discovered through applications of JIMS Study techniques: (a) minimum entry levels--a production clerk, and a production materials handler, (b) aide level--a production aide, and a graphics aide, (c) technician level--a production assistant, an illustrator, a graphics assistant (transparency), a photographic technician (2" x 2" slides), and (d) specialist level--production coordinator, artist, transparency production specialist, photographer (2" x 2" slides).

Positions at the minimum entry level usually require few, if any, skills, including even those involved in reading, performing mathematical computations, reasoning, and making judgments. Those at the aide level have specific boundaries, with emphasis being placed on fixed kinds and amounts of output and methods producing them. The aide usually operates and adjusts equipment his directions call for or which experience teaches him, rather than through reference to theory or principles. He is usually concerned with only one part of the process, not its entirety.

Positions at the technician level usually require more formal or on-the-job training than do the two just mentioned. The technician must understand the technical processes, applications, and principles applicable to the tasks he is required to perform. He may refer to handbooks to guide his actions, but he is nevertheless responsible for abiding by applicable rules. Although the product for which he is responsible is specified, the technician may usually choose what he considers the best method (perhaps of several) to produce it.

Positions at the specialist level require still more formal education encompassing a broader view of techniques, processes, and theory--with the result that increased attention is given to data. A premium is placed upon the specialist's ability to generalize from application to application and to utilize appropriate theory to develop specific applications. Emphasis is also placed upon finding solutions to meet particular needs rather than upon producing a specific product. The specialist may often turn over to individuals of lower ratings the work of continuing the production, once he has worked it through to a successful completion. From that point on, then, he may serve simply as supervisor, over-all evaluator, or consultant to the process.

In its efforts to promote the establishment in local community colleges of more and better training for media technicians and aides, the JIMS Study reported 64 details of instructional programs already in existence in a number of such institutions in various parts of the country. Results showed the frequent inclusion in such curricula of courses and "hands on" experiences in such diverse fields as: 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 programmed instruction, language and electronic learning laboratory operation and management, multi-media projection, technical illustration, data processing duplicating processes (including offset printing), library technical services, facilities design, and others.

The Hamreus-Edling Media Guidelines Project (1970)

The Media Guidelines Project 23, 24 funded by the U.S. Office of Education and conducted by Dale G. Hamreus and Jack V. Edling (Oregon State System of Higher Education, Monmouth), also employed intensive job analysis and the "clustering techniques" to isolate and describe com-

competencies currently being performed in "managing, developing, and utilizing media in instruction." 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."

The "conceptual model" of the "media domain" envisioned by the project is proposed by Hamreus as a three-dimensional map plotting media functions in relation to:

* Institutional settings in which they are performed: (a) elementary and secondary schools, (b) county-district school agencies, (c) state education agencies, (d) colleges and universities, (e) business and industry, (f) military organizations, and (g) various government agencies.

* Responsibilities groupings identified as: (a) directive-administrative, (b) professional, (c) artistic-production, (d) technical, (e) clerical, and (f) manual.

* Functions of media-related jobs identified in two 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.

Brief descriptions of the several operations function, as provided by Hamreus, 24 help to clarify their purposes in the media services structure:

* Research and development involve the generation and testing of theory and methodology related to instructional technology and to developing validated instructional media porducts.

* Evaluation provides information for making appropriate adaptive decisions regarding the operations and management of media in instruction.

* Design requires translation of theory and empirical evidence about learners, media, content, settings, and techniques into instructional design specifications.

* Production leads to the development of specific products by following design specifications and artistic creative standards.

* Logistics involves the acquisition, storage, supply, and maintenance support for the operations and management of media instruction.

* Utilization involves the actual use of media for purposes of instruction to bring about specified changes in learners.

The management facet of the media field includes functions necessary to control the above operations:

* 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 concluded, 24 with respect to the nine function areas isolated in his study, that: (1) very little training is currently offered for the research and development function, although the need for it (and for qualified research and development personnel to do it) is high and continues to grow in importance, (2) evaluation training now provided generally reflects a low level of conceptualization of purpose, process, and results, (3) individuals being trained in the design function are rarely found, (4) training for the production function appears to be quite adequate, with minor exceptions, to meet the need, (5) the logistics function receives by far the greatest emphasis in training programs in higher education, (6) the utilization function appears to be less frequently provided and, when it is, it is to too few people and with too little emphasis, (7) with minor exceptions, no reasonably high-level formal training in the three management functions (organization, information, and personnel) appears to be provided.

Hamreus concluded that the demand for qualified media researchers, instructional designers, evaluation specialists, information management, and personnel management far exceeds the present supply; 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 seeming to have a good supply of specialists is logistics.

Recognizing the probable influence of future societal changes upon media personnel educational and training programs, Hamreus and associates utilized a "future projection" plan resulting in the identification of eight trends to which, in time, educational media programs will be expected to adjust, as follows:

* Change and challenge will be the dominant societal characteristics of the 1970's.

* Computers will be increasingly used to manage information, facilitate research, and provide instruction.

* The systems approach will be a significant methodology employed in identifying problems and organizing resources for their resolution.

* Educational programs will be reconceptualized, expanded, and developed at all levels.

* Educational coalitions and collaborations will increasingly form to promote common goals of two or more groups, agencies, or institutions.

* Those who are affected by a given program will increasingly be represented by judgments regarding its direction and process.

* Individualized instructional programs will increasingly emerge to meet the needs of learners at all levels.

* Technology will be increasingly used to transmit messages to specific learner populations.

The likely influences of the foregoing trends upon each of the media operations and management functions (described earlier) were hypothesized. 24

The AASL School Library Manpower Project (1970)

The School Library Manpower Project, funded by the Knapp Foundation of North Carolina, Inc., (and coordinated by Robert N. Case and Anna Mary Lowrey) was planned and is being carried out by the American Association of School Librarians. Its Phase I research (now completed) was conducted by the Research Division of the National Education Association. The study was designed specifically to investigate and to make recommendations concerning three aspects of developing and utilizing school library manpower: (1) task and job analysis, (2) education for school librarianship, and (3) recruitment of manpower.

Data for the task and job analyses were derived chiefly from responses to questionnaires by what was described as " ... a purposive sample (including) ... the total universe of schools, both public and private, in the nation considered by experts to meet specially developed evaluative criteria." 9 Schools selected for the sample were nominated by school library supervisors of the fifty states as first meeting the general criterion of providing, at the single building level, unified (print and non-print) media services (including various devices) in support of teaching and learning--whether called libraries, media centers, educational resource centers, or by other names. Other specific criteria were then applied to isolate those located in districts employing a school library supervisor, employing at least two trained librarians, containing a suitable depth and variety of educational media and equipment, demonstrating effective physical layouts and administrative arrangements to facilitate full and convenient use of resources, providing integrative curriculum services, and others.

A 300-item checklist of tasks (developed from an original listing of approximately 1,700) used for the study was designed to determine which media personnel performed them, where they were performed (that is, outside or inside the school building), and which were not performed at all. Responses concerning the 300 tasks were grouped into twelve major categories and those included in each were then grouped and studied according to size of the paid media staff and level (elementary or secondary) of programs represented. Finally, a Task Analysis Committee proceeded to make judg-

ments as to which tasks should be performed by educational media personnel, and by whom, in a school library media center with a full complex of staff positions.

A reclassification task was then carried out 46 with four questions in mind: (1) What tasks must be performed? (2) Who should perform them? (3) Who retains responsibility for these tasks? and (4) What are the necessary knowledges and abilities to perform them? The principle followed was to fix the responsibility for each task-related action as low as possible in a professional-nonprofessional continuum.

As a result of these several efforts, many items that had appeared in the initial list were deleted, some were added, and still others were moved upward or downward in the "professional-nonprofessional" scale.

The final result of this phase of the study was a four-element classification scheme for principal media-related positions, as follows:

* School Library Media Specialist. The professional School Library Media Specialist was projected as the product of a minimum five-year educational program having professional level responsibilities for such functions as: (a) evaluating, selecting, and acquiring materials, equipment, and services in accordance with established criteria, (b) stimulating improved utilization of them, (c) providing supplementary materials, (d) developing and implementing media policies and procedures -- including those for the organization and management of physical facilities, equipment, and materials, as necessary, (e) participating as a member of various curriculum and study committees, (f) performing long-range planning and development activities based on analyses of educational needs, grant opportunities, and budget requirements, (g) providing reading, listening, and viewing guidance and training for students and teachers, (h) supervising and improving job performances of media center support staff, (i) informing faculty and administration of innovations, research, and current developments in instructional technology, and (j) performing certain public relations activities to communicate the philosophy and goals of the school library media center to students, faculty, administration, and community. The following types of further specialization for School Library Media Specialists, attained through further study, are recommended for subject area and/or grade level, organization of materials, media production and design, or media technology--the latter involving expertise in such areas as reading and language laboratories, programmed instruction, dial or random access programs, computer technology, electronics, radio, educational television, and communication systems.

* Head of the School Library Media Center. This professional position is envisioned as being assigned in instances in which there is only one media professional of the media center staff as well as in those providing more generous professional, technical, and clerical personnel assistance. In all such cases, additional emphasis must be placed upon administrative and leadership responsibilities -- which are in addition to those of the School Library Media Specialist, just described. The recommendation of the School Library Manpower Project is that the incumbent of this position be the product of a sixth year (or doctoral program, if required and appropriate.) His chief duties would relate to such functions as: (a) recommending means of effecting improvement of instructing through applications of educational media, (b) contributing to the determination of desirable educational goals and objectives, (c) consulting with teachers, administrators, and others concerning curriculum needs and plans, (d) systematically exploring new developments in instructional media and relating his findings to the needs of individuals, offices, and organizations with whom he deals, (e) evaluating and determining ways of applying results of research to achieve an increasingly productive media program, (f) continuously evaluating and refining the media program to meet changing requirements, (g) assisting with in-service staff development for teachers and media personnel, (g) developing, refining, and proposing policies and procedures for optimum operation of the media program, (h) developing the educational program of the media center, (i) delegating responsibilities to and supervising and evaluating the performance of media center personnel, (j) performing liaison functions between the school staff and administration and the creators or manufacturers of educational materials and media equipment, (k) setting performance standards for media center equipment, supplies, and furnishings (in cooperation with district media center personnel), (l) planning and supervising distribution and control of the media center's materials and equipment, (m) developing, defend-

ing, and supervising expenditures from a media program budget, (n) planning the organization of materials when this service is not performed centrally at the district level, (o) offering public relations and interpretation services for the media program generally, and (p) assuring the development and maintenance of an environment for the media center that is conducive to learning and personal development.

* District School Library Media Director. This professional position assignment involves organization and implementation of media services intended to support and extend the effectiveness of single-school media centers within a school district. The School Library Manpower Project recommendation is that it, too, be based on a sixth year study program (or doctoral program, if appropriate) to obtain necessary competencies beyond those required of the School Library Media Specialist. The District School Library Media Director's chief duties are projected as those of: (a) planning, directing, recommending improvements in, and assuring appropriate flexibility of the school library media program for an entire district, (b) participating as a consultant in curriculum development activities, (c) assessing innovative developments in instructional media, (d) developing means of effectively utilizing inter-district and community media resources, (e) overseeing the staffing and operation of individual school media centers, (f) managing and developing policies for certain centralized district-wide programs of selecting, acquiring, and locally producing, processing, cataloging, and evaluating uses of materials, equipment, and services, and applying appropriate controls to these processes, (g) working cooperatively with appropriate personnel in developing and defending long-range budget requests for the district media program, (h) offering in-service staff development opportunities for faculty, administrative, media service, and community personnel, (i) managing media personnel matters, (j) maintaining centralized equipment testing, repair, and maintenance services, (k) offering expert advice with respect to facilities design, including those for school media centers, classrooms, learning laboratories, and others, and (l) maintaining liaison relationships with local, county, state, regional, and national educational agencies, including radio and television broadcasters, equipment manufacturers, and producers and distributors of materials.

* The School Library Media Technician. One or more non-professional positions of this title (each requiring at least two years of higher education) would be expected to be found in media centers at various levels of education. Such positions could range from trainee to supervisor of a large number of technical operations. Possible areas of functional specialization include: acquisition, processing, and maintenance of media equipment; circulation and dissemination of materials; information and bibliographic services; producing instructional materials; and others. In his assignment, the media technician may be responsible, under appropriate direction, for such matters as: (a) completing materials and equipment orders, (b) preparing and maintaining catalogs, (c) inventorying materials, (d) issuing, receiving, and recalling materials, (e) maintaining circulation and inventory records, (f) designing and producing graphic, photographic, and audio instructional materials, (g) repairing, demonstrating, testing, operating, and maintaining media equipment, (h) scheduling materials, equipment, facilities, and operator personnel, or (i) many others.

The School Library Manpower Study also recognizes the need for two additional non-professional media-related positions--those of media clerk and student media assistant.

PART II. RELATED INFERENTIAL STUDIES, REPORTS, AND STATEMENTS

The eighteen studies, reports, and statements discussed only briefly in this section provide a kind of perspective and base from which to view and assess findings and recommendations of the studies reported in Part I, preceding. Items considered here are as follows: (1) The STEMS Study (1964), (2) Pittsburgh Professional Education of Media Personnel Proposals (1964), (3) Council of Chief State School Officers Policies (1964), (4) The DEPLAA Project (1964), (5) The States Audiovisual Education Study (1966), (6) DAVI Statement on the Role of the Media Professional (1967), (7) The HEMS Higher Education Media Study (1968), (8) The CED Statement on Innovation in Education (1968), (9) The DAVI-AASL Joint Standards Recommendations (1969), (10) AECT-PEMS Commission Certification Guidelines (1969), (11) The Professional Audiovisual Education Study (1969), (12) Clark and Hopkins Study (1969), (13) Report of the Commission on Instructional Technology (1969), (14) The American Library Association Proposals (1970), (15) Stone Survey for American Library Association (1970), (16) Larson Survey of Graduate Media Personnel Preparation Programs (1970), (17) UCLA Study of Needs for Research in Library and Information Science Education (1971), and (18) The Maryland Manpower Project (1971).

The STEMS Study (1964)

The STEMS Study (Seminars on the Training of Educational Media Specialists) conducted by Robert O. Hall (principal investigator) and Fred F. Harcleroad, [21] used the technique of group discussions by selected experts of a series of position papers to explore opinions with respect to desirable content and pattern of pre-service and in-service training of professional educational media communication generalists and specialists. The study was the outgrowth of an earlier seminar on the same subject [25] held in 1960 in connection with the annual conference program of the Department of Audiovisual Instruction (NEA).

Principal outcomes of the STEMS Project may be summarized in the findings or predictions that:

* There was considerable lack of consensus among participants both as to the proper content and the patterning of curricula for the preparation of professional media personnel;

* In the foreseeable future, the model for the training of the audiovisual specialists was predicted to be one of encouraging admittance to the field on the basis of diverse specialization, development of a common "general" background for various types of specialists, and appropriate on-the-job training or internship experience;

*Continuous interchange of experiences and ideas about program development and job aspiration should take place in at least a minimum number of major universities offering doctoral work in the field.

The types of media specialists recognized in the several STEMS papers included: (a) management specialists (essentially "generalists," in charge of programs at various school system or school system administrative levels), (b) audiovisual specialists, (c) educational designers, (d) educational systems specialists, (e) librarians, (f) educational television specialists, (g) programmed instruction specialists, (h) research specialists, (i) materials production specialists, and (j) film production specialists.

Pittsburgh Professional Education of Media Personnel Proposals (1964)

The University of Pittsburgh's study of the Professional Education of Media Service Personnel, [55] funded by the U.S. Office of Education (and co-directed by Morris L. Cogan and Harold Lancour) provided a publication containing a series of papers authored by five consultants dealing with as many facets of the field:

a general overview analysis, by Wesley C. Meierhenry; a proposal for educating audiovisual specialists, by William H. Allen; school librarians, by Leslie H. Janke; educational broadcasters, by Armand L. Hunter; and programmed instruction and computer-guided learning specialists, by Wendell I. Smith.

A chief focus of the five papers was upon the kinds of media positions for which graduate curricula must be developed to prepare individuals for assignments as professional audiovisual specialists. school librarians, educational broadcast specialists, and instructional technologists. Recommended entering competencies and backgrounds, fifth-year and sixth-year common core competencies and objectives, fifth-year and sixth-year specific competencies, and seventh-year specific competencies for specialists were outlined by Meierhenry.

Council of Chief State School Officers Policies (1964)

A study commission of the Council of Chief State School Officers developed for that organization an official policy statement pertaining to new media applications to the school program. 11 Its recommendations provide cues from which to infer certain media personnel requirements and responsibilities at that level.

Responsibilities of state departments of education with respect to "new media," for example, were identified as follows: (1) continuously planning for and offering encouragement of effective uses of educational media, (2) providing adequate staff and facilities within the state department of education itself, (3) encouraging and assisting school personnel in evaluating and developing local and regional media services, (4) cooperating with local school systems and teacher education institutions in providing opportunities to learn to use new media effectively, (5) encouraging and actually conducting some new media research and disseminating information about its results, and (6) establishing qualifications and standards calculated to assist school districts in employing educational media personnel, in evaluating and selecting materials, and designing school buildings that contain proper facilities for the use of new educational media.

The DEPLAA Project (1964)

The DEPLAA (Development of an Educational Plan for the Library-Audiovisual Services-Administration Building for the California State College at Hayward) Project, 26 under the direction of Fred F. Harcleroad, provided, by inference, a number of suggestions relating to selecting, training, and utilizing educational media manpower at the level of higher education. Two patterns of administrative organization for higher education media services were identified, for example. One placed them under an executive dean for "learning resources and instructional services" (who reported directly to a vice president for academic affairs). With this arrangement, several media units--libraries, independent study center, utilization and consultation services, audiovisual distribution services, materials preparation services, instructional television and radio services, instructional publications services, museum services, and the university press--were distributed on a single, coordinate line of responsibility.

The second organization model presented by Harcleroad placed under a dean of instruction two line positions--each at the same level of responsibility: (1) a director of libraries, and (2) a director of learning resources. The director of libraries was presented as being in charge of all "regular library" services, while the director of learning resources was assigned services usually subsumed under the category of "new media." Detailed analyses of personnel functions under each category of service provide valuable clues for manpower selection, training/education, and supervision for higher education media services.

The States Audiovisual Education Study (1966)

Francis Noel, et al., 44 studied activities and trends with respect to new media activities in state departments of education, including personnel requirements and assignments at that level. He concluded that the principal activities conducted by these individuals were in such activities as: (1) fact-finding--conducting surveys and reporting findings concerning the status of media programs within the states, (2) experimenting--obtaining grant-support, designing studies, conducting and reporting results

of experiments, (3) setting and enforcing standards--for materials and equipment selection, for institutional accreditation on the basis of their support and use of media resources, evaluating existing media programs, and the like, (4) planning--with respect to long-range curriculum development, media personnel procurement and training, and physical facilities requirements, (5) budgeting--for immediate and long-range media program needs, allocating and supervising the expenditure of funds--directly and/or on matching grant basis, (6) selecting and procuring--the development of programs to guide the actual selection and purchase of media equipment and materials, (7) stimulating and informing--by providing information concerning the status of media programs, describing promising innovative practices, holding conferences and workshops, and similar practices. Several states assumed further media responsibilities in connection with the actual production of media resources for use in schools, although not in many cases.

DAVI Statement on the Role of the Media Professional (1967)

The DAVI "Statement on the Role of the Media Professional" 45 stressed that this individual was changing from one serving chiefly as "a keeper and dispenser of teaching aids" to "an analyst and designer of instructional systems." The media professional envisioned in this statement was to be expected to: (1) work with educational leaders to design learning experiences and to recommend materials suited to the accomplishment of specific instructional objectives, (2) take responsibility for managing certain instructional logistics, (3) work with teachers, supervisors, and students to implement the program, and (4) participate in continual instructional media evaluation, redesign, and production activities (including those related to the design and validation of instructional systems).

Detailed checklists of specific tasks believed to be proper responsibilities of the professional media specialists were supplied for: (1) individual schools, (2) multi-school levels in district, county, or regional programs, (3) state and federal levels, and (4) colleges and universities. Although these checklists were uncategorized with respect to various sub-specialties within the media field, several possible professional specializations were suggested, including "audiovisual," "library science," "broadcasting," "programmed instruction," "instructional systems," and "computer-assisted instruction."

The HEMS Higher Education Media Study (1968)

Brown's and Thornton's survey of new media innovational practices in higher education 58 also provided inferential bases for determining certain manpower procurement and preparation requirements in a relatively large sample of institutions of higher learning within the United States. Some 500 reports of innovative practices conducted in more than 300 institutions were categorized by them under the headings of: (1) open- and closed-circuit television, (2) kinescopes and videotapes, (3) experimental television and mobile television units, (4) films, (5) language and listening laboratories (including dial access units), (6) audio recordings, (7) programmed instruction, (8) self-instructional installations and programs, (9) various instructional applications of computers, (10) so-called "multi-media" units, (11) transparencies, slides, and filmstrips, (12) telelectures and telewriter applications, (13) simulation devices and procedures, (14) so-called "systems" applications in college instruction, (15) special facilities installations, and (16) radio.

Several conclusions of the HEMS study were emphasized: (1) to that time applications of instructional technology to higher education had appeared to have been far more adaptive than creative--with the too-frequent result that educational objectives were subordinate in actual importance to the capabilities of technical instrumentation, (2) there was an urgent need for concentrated effort--nationally, within regions, and within single institutions--for the development of "software" suited to use with the technology already available to higher education, (3) physical facilities for uses of technological new media devices were still woefully inadequate, (4) faculty development efforts were held to be essential to any plan to modernize instruction through applications of new media, (5) systematic approaches to instruction were regarded as offering significant promise for attaining economies of effort

and expenditure of instructional time in higher education, and (6) substantial institutional commitment (sufficient to provide a "critical mass") was felt to be needed if there was to be any hope of effecting significant change in applications of new media to improve college teaching.

The CED Statement on Innovation in Education (1968)

A small, influential booklet titled Innovation in Education: New Directions for the American School, issued in 1968 by the Research and Policy Committee of the Committee for Economic Development [29] strongly emphasized the needs for: (1) more use of innovative methods, techniques, and materials to improve educational practices of the schools, (2) better organization of schools to accomplish innovation and change, (3) increased production and use of valuable educational research, and (4) applications of cost/benefit and cost/effective analyses as bases for allocating educational resources.

The DAVI-AASL Joint Standards Recommendations (1969)

The DAVI-AASL Joint Standards [54] identify three levels of positions involved in the work of the educational media field:

* Professional specialists (directors of unified media programs; "library," "audiovisual," or "television" specialists; subject area cross-media specialists; or age/school level specialists; others)

* Supportive media technician staff to perform a variety of duties (graphics production and display, information and materials processing, photographic production, and equipment operation and simple maintenance)

* Supportive media aide staff to perform clerical and secretarial work (typing, keeping records, sending invoices, opening mail, handling office and circulation routines)

Increased numbers of individuals employed in the media field, increasing complexity of tasks, and the consequent need to achieve management efficiency were seen in the Joint Standards as requiring more refined scaling of media positions and more differentiation of work assignments than are commonly used. The Joint Standards thus make it essential to identify: (1) the several (there are many) different areas of professional activity in which staff should be prepared to serve through appropriate collegiate or on-the-job education and experience, and (2) the separate elements and requirements of those positions that suggest ways of scaling, interrelating, and differentiating them in organizational plans of educational media centers.

Different types of professional assignments suggested by the Joint Standards include: (1) the broadly prepared professional in charge, (2) various differentiated professional specialist assignments in "print" and "non-print" selection, utilization, and management, including, perhaps, systems planning and implementation, closed-circuit television, dial-access information retrieval systems, computer-assisted instruction, supervision of graphics or audio production, and others still to be invented.

AECT-PEMS Commission Certification Guidelines (1969)

The Certification Committee of the PEMS (Professional Education of Media Specialists) Commission, AECT, has also produced a series of recommendations and standards. [16, 19]

The guidelines statement containing these materials postulated two levels of certification for audiovisual personnel, both requiring prior possession of a bachelor's degree and a record of at least two years of successful classroom teaching. Level I standards were directed toward the preparation of coordinators of minimal audiovisual programs in elementary and secondary schools. Level II standards, on the other hand, were directed toward the preparation of more highly trained individuals seeking to assume positions as directors of district media programs, or as one of several different types of media specialists. The audiovisual media functions common to both these levels (but differing in the sophistication with which they are performed) included: (a) organization and administration, (b) production of materials, (c) selection and evaluation of media and media equipment, (d) staff and student development, and (e) instructional design and development.

The Professional Audiovisual Education Study (1969)

Milkman studied "entering audiovisual competencies, areas of graduate study in audiovisual education, and placement expectations of master's degree candidates in audiovisual education." 41 He found that ten of fourteen areas of possible graduate study were considered "essential" by a larger proportion of audiovisual education degree candidates than by those who had already received such degrees. Only two areas of study ("Audiovisual Materials in Education"--a basic course in the field--and "Administration of Audiovisual Programs") were available to all degree candidates who considered them essential.

Other findings of a similar nature led Milkman to conclude that there is a substantial lack of communication about relationships between academic preparation and eventual employment and assignment in the audiovisual field. He indicated, further, that it was possible to indict college and university departments of audiovisual education on at least one count for failing to provide adequate information to their degree candidates, and, on another, for denying many of them opportunities to obtain instruction in areas they consider essential.

Clark and Hopkins Study (1969)

Another study 10 conducted by David L. Clark and John E. Hopkins, Indiana University, provided a challenging outlook with respect to the need for a new type of professional, the "instructional developer." These investigators concluded that by 1974 nearly 10,000 such persons would be needed in education to bridge the growing gap between research-based educational theory and actual practice in the classroom.

To Clark and Hopkins, the properly prepared professional serves as an instructional developer. They envision him 28 as possessing a background of: (1) research training--to permit him to work with researchers and understand research findings; (2) "praxiological" training--in the real world of educational practice --so as to be able to recognize educational problems and to appreciate their ramifications, to communicate with practitioners in the field, and to diffuse products growing out of the program; (3) educational media training--to provide basic skills and acquaintance with techniques of audiovisual communication; (4) communications training--calculated to prepare him to design and devise communication products capable of being disseminated to others and to develop techniques for using such products to accomplish desired ends; and (5) evaluation training--to prepare the individual to conduct valid pilot tests, field tests, and operational tests of educational products over a period of time, and to draw from the results kinds of information needed to guide future program operation.

Report of the Commission on Instructional Technology (1969)

The Commission on Instructional Technology (Sterling McMurrin, chairman), in reporting its study of the actualities and promises of applications of educational technology in American education, 59 drew a number of conclusions that bear on media manpower requirements, procurement, preparation, and assignment. The Commission proposed, for example, that steps be taken to: (1) establish a National Institute of Instructional Technology to work with existing agencies concerned with instructional technology and to establish other regional centers and programs, as appropriate, (2) take the lead in searching out, organizing, and preparing for distribution of various high-quality materials, in all media, judged to be needed to improve education, (3) set up and conduct projects to demonstrate the value of instructional technology in improving education, (4) organize, support, and stimulate others to organize and support programs calculated to up-grade the capabilities of educators to make appropriate uses of educational technology, and (5) encourage education and industry to join in multiplying effective applications of technology to the problems of teaching and learning.

The Commission further concluded that the United States should invest in instructional technology far more heavily than it has to date. Programs of the National Institute of Instructional Technology, as proposed, would be directed especially toward purposes of helping administrators and department heads to learn to manage educational technology applications more effectively, to educate school

and college teachers in their use, and to educate increased numbers of instructional technology specialists--including those known as "instructional designers," instructional materials producers, programmers, and media program managers. The role of qualified media specialists in contributing professionally to the processes of curriculum planning was regarded as crucial and as the key to a successful melding of technology with instruction. Special attention was recommended to the processes of individualizing instruction and to ways of enabling students to pursue learning independently.

The American Library Association Proposals (1970)

Lester E. Asheim, Director of the Office for Library Education of the American Library Association, developed as a discussion piece his own analysis of recommended levels of library personnel assignments. [2] A later (1970) report on the fate of Asheim's earlier proposal [33] showed certain revisions. The desirability of having two paths of professionalization--one for positions requiring "library-related" qualifications and the other not--was recognized and dealt with. Proposed categorizations of professional positions were as follows:

* Senior Librarian or Senior Specialist--each requiring, in addition to relevant experience, a post-master's degree (a doctoral degree for some assignments) and relevant continuing education --for top-level responsibilities, including but not limited to administration, or superior knowledge in some field of librarianship or in some subject field.

* Librarian or Specialist--each requiring a master's degree; each assuming professional responsibilities, including management duties, requiring judgment, skills of interpretation, analytical problem-solving and inventive or creative capabilities.

The policy adopted (Spring, 1970) by the ALA Executive Board also contained further provisions for certain "supportive" personnel, as follows:

* Library Associate or Associate Specialist--based on a bachelor's degree, with or without library science work, or a bachelor's degree and additional work short of a master's degree (in Librarianship for the Library Associate; in relevant subject fields for the Associate Specialist). Individuals at this level would engage in high level supportive activities, within established guidelines and procedures, and under some professional supervision.

* Library Technical Assistant or Technical Assistant--based on at least two years of college; or an associate in arts degree with or without library technical assistant training; or post-secondary training in relevant skills. Individuals at this level would perform tasks supportive to Library Associates and higher ranks, following established rules and procedures.

* Clerk--requiring business school or commercial courses and some in-service or on-the-job training.

The Spring, 1970, decision of ALA's governing body to adopt the above categorization as policy was resisted by school librarians who objected to classing as "supportive" and "non-professional" the individuals at the Library Associate or Associate Specialist level who held only bachelor's degrees.

Stone Survey for American Library Association (1970)

C. Walter Stone's survey of new media (audiovisual) requirements of today's professional library personnel, sponsored by the American Library Association, [56] suggests a number of implications pertaining to future media manpower requirements. Among the study's outcomes were suggestions that the ALA should: (1) refine qualitative and quantitative standards for audiovisual collections and services for libraries of all types--not just school libraries, (2) produce (or have produced) a number of publications intended to assist library professionals with "new media" tasks (some reviewing new releases of audiovisual materials of many different kinds, selecting audiovisual equipment, and the like), (3) organize and conduct a variety of library personnel training (both in-service and pre-service) activities to improve their knowledge and skills with respect to audiovisual resources and services, (4) provide clearinghouse and advisory functions (through a secretariat) covering audiovisual library service matters, and (5) organize and sponsor essential research and special studies (including demonstration projects)

calculated to extend the acceptance of audiovisual responsibilities by library personnel.

Curriculum implications of such activities for today's graduate library schools may be inferred from such recommendations.

Larson Survey of Graduate Media Personnel Preparation Programs (1970)

Larson analyzed the present activities and future plans of 62 U.S. institutions of higher learning offering programs for the preparation of professional educational or instructional technology personnel. 30, 31 Fifty-four institutions reported individuals enrolled in fall 1969 master's degree programs (567 full-time; 1,526 part-time; 617 completing degrees that year). Two-year preparation programs were offered in 19 institutions (enrolling 73 full-time and 159 part-time students). Doctoral programs were offered in 33 institutions (enrolling 410 full-time and 465 part-time students). A total of 108 of the students in doctoral studies completed their programs in the 1968-69 academic year.

Larson also reported statistics provided by the American Library Association pertaining to programs for the professional preparation of librarians. Some 400 institutions were found to be offering courses in school librarianship; 117 offered graduate degree programs in the field. These programs were populated (1967-68) by 5,605 undergraduate, 10,577 master's level, 157 intermediate degree, and 239 doctoral students. During that same year, 4,606 students earned master's, 20 the intermediate, and 21 the doctoral degree in the field.

In studying his data, Larson discerned a prevalence of shifts in training programs to "educational media," following (as he believed) the promotion of this terminology in Standards for School Media Programs (ALA-NEA). In his opinion, most of the educational media personnel in these programs were being prepared to serve in what he regards as a traditional teacher-centered classroom learning environment which places instructional materials on an "optional, enrichment, and additive cost" basis. In his estimation, only a relatively few institutions in the country were preparing professionals for employment in systems-oriented, student-centered learning environments where they would be expected to serve as "instructional systems technology specialists."

Larson supported Clark and Hopkins in their earlier predictions 10 that large numbers of individuals trained in educational research and development activities would be needed in 1972, as compared with only 5,000 in 1966. He further stated that he anticipated that instructional design, development, and media professionals will be increasingly involved as research and development team members along with the subject-matter specialist, curriculum-specialist, and evaluation specialist.

UCLA Study of Needs for Research in Library and Information Science Education (1971)

The University of California at Los Angeles "Study of Needs for Research in Library and Information Science Education," headed by Harold Borko, 3 soon to be published by the American Library Association, promises to cast some further light on professional librarians' perceptions of research needs in their field. The study, based on responses to a specially-designed questionnaire submitted to 100 or more professional practitioners at several levels of the field, will be directed toward respondents' opinions concerning what research needs to be done to provide guidance in improving modern library practices. Increased attention to "new media" applications and problems seems likely to be reflected in the list of suggested research topics to come out of the study and to be reflected, eventually, in revised programs of instruction in library education programs.

The Maryland Manpower Project (1971)

Under way at the University of Maryland since 1967, the University of Maryland's School of Library and Information Services manpower study 65 promises a useful assessment of the library profession and of its manpower needs.

Eight different studies are under way for the project (which is directed by Dr. Paul Wasserman, Dean of the School), as follows: Paul J. Wasserman and Mary Lee Bundy, "The Executive in the Library and Information Activity"--stressing value-

interest orientations of library-information service personnel; Robert Presthus, "The Librarian's Role in a Changing Organization"--emphasizing responses required of the library in a period of challenge and change in ways of performing tasks; Stanley J. Segal, "Personality and Ability Patterns of Library and Information Service Workers"--attending to differences between traditionally-oriented and innovational practitioners in the field; Rodney F. White, "Education, Careers, and Professionalization in Library and Information Science"--investigating ways in which librarianship education programs seek to cope with demands implicit in new developments of the field and in society generally; J. Hart Walters, "Image and Status of the Library and Information Services Field"--examining the attractiveness of the librarianship profession, self-perceptions of librarians, and personal expectations of new entrants to the field; Barbara H. Kaplan, "Sociological Aspects of Change in the Library and Information Professions"--relating to the social dynamics of changes in the nature of information itself, and of individual and organizational clients of information agencies; August Bolino, "Economics of the Library and Information Professions" --employment trends, employment status, mobility patterns, work force characteristics, salaries and working conditions, and possibilities of developing a system for regularized measurements of the field's manpower situation; and a study titled, "Environmental Factors Influencing Library and Information Development," dealing with changes in the cultural environment believed to influence or change libraries.

PART III. A FEW OBSERVATIONS AND RECOMMENDATIONS

1. The field seems to be about ready to move toward reconciling some of the remaining differences in position titling and functions developed through the several recent manpower studies, and particularly those of the "Big Three"--(a) the JIMS (Jobs in Media) Study, (b) the Hamreus-Edling Media Guidelines Project, and (c) the AASL School Library Manpower Project. These studies seem to suggest the desirability of moving toward a media manpower structure that takes into account the nature of several common functions performed by (a) media management generalists, (b) a number of different types of media specialists, (c) media technicians, (d) media aides or assistants, and (e) media clerks --in various shades of "print" and "non-print" persuasions and for various levels of education, from elementary through college, or for such fields as government, industry, the military, or research.

2. Sufficient data (and expert opinion) also seem to be available to warrant moving ahead, without further delay, to the tasks of (a) refining personal and performance criteria to use in screening individuals seeking admission to such programs, (b) preparing benchmark curriculum proposals (and revisions) to be followed in preparing different types and levels of instructional technology and educational media personnel, (c) recommending generally the kinds of instruction and learning experiences, and the best locales in which to conduct them, for each position type, (d) plotting feasible routes for "laddering" (i.e., for entering at one position level and moving upward through the organization, including going from non-professional or supportive levels to professional levels), or for "latticing" (i.e., moving across the job structure to assume different but similar levels of responsibilities), and (e) justifying performance and position ratings, certification standards (where applicable), and salary differentials for the entire job structure--including both professional and non-professional assignments.

3. AECT now has a reservoir of reports, evaluation standards, position papers, and other publications dealing with such subjects. It also has many (too many?) committees and commissions that continue to study problems and turn out findings and recommendations about them. Other professional organizations (AASL, the ALA,

NAEB, Council of Chief State School Officers, and still more) do the same. The problem, then, is how to pull together these good ideas and plans and to arrange and disseminate them in ways that enable us to use them. Perhaps what we need is a "national task force" that is sufficiently well-supported and staffed to do the thinking and writing jobs needed to backstop such an effort.

4. Effort should be made to capitalize upon the present opportunity to clarify the nature and functions of media personnel roles, and upon the realization that both "print" and "nonprint" areas of the media program require services of a range of individuals whose roles cut across traditional "territorial lines." This opportunity should be siezed by AECT and AASL, particularly, by expanding and continuing cooperative efforts: (a) to develop (or revise and update) quantitative media standards, (b) to design and validate professional and paraprofessional media personnel curricula--in vocational schools and community colleges as well as in senior colleges and universities, (c) to agree more fully upon the need for similarities and differences in organizational objectives, activities, and clientele, and (d) to work out interorganizational membership and conferencing arrangements on scales even broader than those of the past.

5. Steps should be taken to increase and improve the quality of personnel moving into the media field. It should be recognized that some of the manpower is still to be found in the ranks of good classroom teachers, and that, if "new blood" is needed, perhaps this may be an excellent source. Capable, successful people from other professional areas should also be encouraged to enter the educational media field: top-notch graphic artists or television personnel, for example, who may never have aspired to do "educational media" work but who might be persuaded to apply their talents there.

6. Steps should be taken to finance the preparation of an official "Statement of Professional Aims and Conditions" (or some such title) publication that grows out of a national conference and that is based on the best of the recent manpower studies, position papers, and other benchmark items. This publication should: (a) distill the best from the recent manpower studies, (b) place the findings into an understandable media title structure (involving all levels and types of positions from top administrative to clerical or manual), (c) define position duties and responsibilities, (d) recommend types and amounts of pre-service preparation for each position, (e) suggest typical rewards--financial and other--to be derived from the position, (f) spell out typical formal and on-the-job education requirements, (g) suggest possible locations in which such education or training may be obtained and describe the curricula offered at several of them. This same publication might spell out the opportunities for employment in the field, counsel potential entrants to the field with respect to personal, intellectual, physical, or other characteristics likely to be used as bases for screening applicants, and the like. Information should be given, also, about job opportunities in industry, business, government, and research, as well as those at various levels of education.

7. National certification guidelines should also be developed and presented in helpful booklet form with a view to their being more readily and effectively used to guide efforts of local affiliates and others seeking to change and improve professional standards and conditions in their states. Detailed study of current certification activities and conditions (such as those of the PEMS Commission) should be the base for all such recommendations.

8. Steps should also be taken to make available more on-the-job and other forms of continuing education to improve performance levels and capabilities of the professionals and non-professionals now at work in the media field. The cooperation of selected continuing education departments might be sought for this purpose (those of colleges and universities, community colleges, school systems, church-affiliated education agencies, and the like), as well as of producers of educational media and media equipment. Such a project might require priming with a grant; but, once launched, it might be expected to pay much of its own way. In this connection, perhaps it would be well to remember that professional development activities such as those of the professional media specialist and librarianship in-

stitutes did (and continue to do) a great deal to improve school media situations in which their graduates performed their duties. The "institute" approach to media program improvement could be used, more than it is, even without Federal support.

AECT might well take the leadership in developing plans and programs to assist colleges, universities, school systems, and even private entrepeneurial organizations to undertake to offer more of them.

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