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ABSTRACT

The Learning Resources Center (LRC) represents a merger of library and audiovisual resources. The material in this publication consists of an overview of the various aspects involved in this merger. There are chapters on the emergence of the LRC: the library as LRC; LRC administration; resource centers in elementary schools, secondary schools, and colleges and universities; technical processes; individualized study; regional resource centers; special materials and facilities; the systems approach and behavioral objectives; and instructional development. There are bibliographies at the end of each section, and at the end of the document a glossary, a list of associations related to learning resources, and a list of addresses of some basic information sources. (Author/LS)

LEARNING RESOURCES CENTERS FOR SCHOOLS AND COLLEGES

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PREFACE

The Learning Resources Center represents a merger of library and audio-visual resources. The material in this publication consists of an overview of the various aspects involved in this merger.

For those needing additional information; a bibliography is provided at the end of each section, a glossary defines terminology as it is used in this publication, a list of associations related to learning resources is given, and a list of addresses of some basic information sources is provided.

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EMERGENCE OF THE LRC

Learning resources have emerged during recent years from various backgrounds. Library holdings in printed materials have increased rapidly, audiovisual materials and equipment have been made available to a wide range of users, sophisticated technological innovations have pointed toward automated information retrieval and computer assisted instruction. These developments have been encouraged by the availability of federal funds.

The professional people that have guided these developments have been librarians, audiovisual specialists and various others with more specialized titles relating to their roles in such areas as acquisitioning, selection, production, data processing, instructional designing, and user services.

The proliferation of print and non-print materials pushed the school library toward an instructional materials center concept. This meant that space had to be provided for audiovisual equipment, audiovisual material had to be cataloged and stored, production facilities were needed, and there had to be study carrels or other learning spaces available. Someone was needed to operate the equipment, or explain the operation, and try to get the projector to work when it decided to quit. Some teachers were trying to meet the challenges of expanding class sizes and the concurrent knowledge explosion - they needed help in instructional planning. Other teachers needed to be guided in production techniques. Meanwhile, the number of books on the shelves was trying to double in size.

Some help relating to guidance in media collections was provided by the American Association of School Librarians' Standards for School

Library Programs published in 1960. The more controversial 1969 edition, Standards for School Media Programs, was developed by the combined efforts of AASL and DAVI (Department of Audiovisual Instruction).[1] This last edition has not been used as extensively as the 1960 edition in actual application. It has been criticized for setting the standards too high and for not having a concerted plan for implementation.

Guidelines of a more theoretical and comprehensive nature have been provided by individual writers. Listed here in abreviated form are the suggestions of one writer (Hannigan, 1972). The objectives of a media program must be determined. Following this, she offers a set of "programmatic units that might be presented for a school media center operation, from among which priority choices may be disignated:

"1. The program requires flexible accessibility to materials and equipment...

"2. The program exerts a direct influence on the base of ideas to which the learner will be exposed...

"3. The program includes a functional retrieval system for all media...

"4. The program enables the learner to become an intelligent and discriminating user of all modes of communication media...

"5. The program supports the creative communication of the child...

"6. The program determines the quality content of the resources...

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[1]AASL is a division of the American Library Association and DAVI (now the Association for Educational Communications and Technology) is a department of the National Education Association.

"7. The program designs new materials to enhance the learning process...

"8. The program influences the format of the resources used by the learner...

"9. The program exerts direct influence on the methodological approaches to be employed in learning strategies...

"10. The program establishes an environment conducive to individual differences among the users...

"11. The program encourages the development of analysis, interpretation, and evaluation of materials of communication, so that seeking valid solutions becomes habitual...

"12. The program provides training in the effective use of a variety of communication media...

"13. The program stimulates the student to acquire and strengthen an interest in and appreciation for recreational use of the communication arts as a lifetime source of pleasure..."

The present situation suggests the need for a comprehensive plan of administration for the total media program. Factors that contribute to this suggestion include: 1) the accumulated materials, programs, and people need to be coordinated with instructional needs, and 2) the potential tightening of funds indicates a need for maximum utilization of all resources.

Hamreus (1972) listed the functions performed in media centers and in libraries and found a significant overlapping in the kinds of functions performed by each. He concludes that a single administration may be most advantageous to learners.

This is not an argument for the blurring or elimination of traditional roles. We still need reference librarians, catalogers, audiovisual specialists, and others with specialized skills, but an organized system is needed that will insure maximum results in terms of user services. The Learning Resources Center concept provides that comprehensive organization.

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THE LIBRARY AS LRC

The Learning Resources Center is a title applied to the combined library and audiovisual services. This designation provides the total media program with identity and one administrative responsibility. There are several advantages relating to the LRC concept (Wheelbarger, 1973).

"1. There is greater flexibility in the utilization of budgets, staff and facilities.

"2. Total coordination of all elements can be called upon in solution of learning problems.

"3. The traditional emphasis on library science may give way to a variety of meaningful activities.

"4. The traditional emphasis on book storage and protection may shift to an emphasis on service.

"5. The learner should be the center of attention."

Thus, the LRC becomes the common ground for the merging of a variety of learning elements.

The starting point for LRC operation is the retrieval function. Peterson (1973) identifies a Learning Resource Center as a depository for resources and a Learning Center as a place where the emphasis is on learning. This may be an over-simplification, but the LRC does serve as a depository for a wide range of resources. A list of possibilities might include the following.

Books
Periodicals
Microforms
Pamphlet files
Vertical files
Maps
Filmstrips
Films
Phonorecords
Audio tapes
Cassettes (audio and/or video)
Transparencies
Slides
Music scores
Learning lists
Globes
Curriculum guides
Assorted realia
Models

The equipment needed in conjunction with this software will be stored and maintained under the direction of the LRC. The degree to which study carrels are used will be determined by the institution, but consideration must be given to the provision of adequate study space. The amount of production space needed will be determined by: 1) production skills to be taught, and 2) amount of local production for instructional support that is anticipated. Photographic darkroom facilities and television equipment should be available for both purposes. An adequately designed LRC should, also, have copy cameras, thermal copiers, diazo printer, primary typewriter, and writing guides. These facilities should be located in an area that has work benches (with pressed carbon tops), adequate electrical outlets, and sinks.

Acquisitioning and cataloging may be centralized or distributed within the units. Centralization, to the extent feasible, seems to be the desirable alternative.

The LRC will be successful to the extent that it meets the needs of the learner. Therefore, the entire operation must be examined from the viewpoint of the learner. The card catalog, or other retrieval information should adequately facilitate the location of materials (preferably from one catalog). These materials should be as accessible as they can be made without leading to excessive loss. Staff members should be aware that their first responsibility is to the patron - and that this responsibility is to be fulfilled courteously.

Faculty members and staff members are collaborators in the educational task. Special privileges extended to faculty members are helpful to the extent that the learner is the one who is eventually benefited.

Regulations relating to checking privileges and fines need to be formulated with the intention of maximizing service for the greatest number of patrons. Extending individual privileges for special purposes has to be weighed against general patron needs.

In essence, the LRC concept is a service oriented concept that attempts to marshall all of communication media to assist the learner in the pursuit of knowledge.

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ADMINISTRATION

McAnally (1973) has examined the role of the directors of the larger university libraries and describes the recent turn-overs and mounting pressures. He provides a list of possible solutions for this difficult position. Several of these suggestions are inherent in the LRC concept. They include: planning that is realistic and fair, organizational changes responsive to need, emphasis on service, and selective acquisitioning to insure maximum benefit from limited funds.

The LRC is usually identified with smaller schools and colleges where pressures have not become so great for the person with administrative responsibility. Adequate attention given to these crucial areas now may produce a properly functioning organization that produces maximum service for learners and minimum pressure for media professionals.

The Guidelines for Two Year College Learning Resources Programs (1973) indicates four elements included in the role of the LRC: provision of leadership for the instructional program, provision of materials and equipment appropriately accessible, provision of adequate staff, and encouragement of learning.

From these sources, and others, we begin to get an emerging conceptualization of the Learning Resources Center. If it is to be effective in meeting the learning needs of schools and colleges, the following administrative principles should be considered.

1. Organization that provides comprehensive coordination. The emphasis is placed on "coordination." McAnally (1973) indicated a need for less comprehensive administration at the university level. However, this is not a conflicting viewpoint for he identified the administration

concerned as being directive or authoritarian. The LRC concept is concerned with the coordination of all media elements in meeting learning tasks. It does not propose a one-level decision-making position. Decision-making occurs at all levels and reflects the best professional competence for the respective area of operation. Coordination is needed when decisions start crossing lines of competencies, or calling for priorities in budgets, space or resources.

This unitary organization provides an excellent entry point for a patron wishing to register a complaint or make a request for service - especially if the service is going to require combined competencies.

2. Unitary budget. One distinct advantage of a single media program is the monetary flexibility.

The director of the LRC should have internal control of the budget allocations. This could mean one LRC budget with portions designated for specific purposes - subject to realignment by the director as long as he stays within the limits of his general budget allotment. Excessive budget manipulation would be discouraged internally by the presence of several media professionals, each safeguarding his respective area of operation. Flexibility permits the reapportionment of unused, or misused, funds to another area having a critical need. The result is a budget that is more responsive to learning needs and more effectively utilized for the institution.

This budget flexibility is important enough to be a priority item on the list of a prospective director that is interviewed for an LRC position.

The amount of the budget in relation to the total institutional budget should be fair and reflect a proper commitment to providing resources.

The desirable portion for adequate funding will vary according to the kind of school, but should be somewhere close to six percent of the total institutional budget.

3. Varied professional staff. The technical skills of librarians and audiovisual specialists are needed as determined by the specific needs of the institution. The important consideration is that professional work should be performed, or supervised, by professionally trained people. It is necessary to have a trained cataloger in technical processing and just as important to have an audiovisual specialist administering the AV services. This principle holds for all of the various professional functions within the center.

The director's position is one of responsibility to the total program. A one-sided program related to the background of the director is detrimental to the LRC concept. Individuals being interviewed for this position need to reflect a commitment to all of the learning resources needs of the students.

The director is responsible for all center operations. He reports to the academic dean or the president. Media professionals at the second level operate within clearly drawn guidelines. Maximum autonomy, within areas of professional competence, produces a more effective operation. This is especially true if each professional shares a commitment to student services.

4. Extensive collection of resources. As schools move toward more individual instruction, or other means of meeting the needs of the individual learner, there is a concurrent increase in learning resource needs. One set of texts may serve a lecture oriented class, but student projects, papers, and other forms of research need a wide variety of

sources. Likewise, programed materials can be used to best advantage when the selection is extensive enough to meet the range of needs.

Format variety in resources permits the learner to approach a subject through a visual, aural, kinetic, or tactile medium that is most advantageous to the learning style ofthat individual. New aspects of a subject are revealed, subject review can be made more interesting through a change in presentation format, and other similar advantages can be realized. This calls for a collection that is wide ranging in format and deep in title selection.

A collection that is adequate provides the teacher with maximum resources for communicating concepts, and provides students with maximum resource avenues for desired learning. The book collection should not be slighted by the presence of more non-print materials. It should be as large as would be expected in the absence of the additional materials. The collection of non-print materials should refleot the needs and preferences of students and teachers. It should relate to the school curriculum, but may not be limited to specific curriculum needs.

5. Environment conducive to learning. Environmental considerations include maters of space, furniture, lighting, temperature, comfort, esthetics, storage, and provisions for audiovisual equipment.

Space needs include areas for large groups, small groups, and individual study. Movable walls provide some flexibility but less sophisticatated dividers are adequate for some situations. Carrels have been used extensively by some schools, but consideration might be given to alternatives such as comfortable chairs and more extensive use of dormitory rooms (encouraged by liberal equipment checking privileges).

Furniture should be pleasing in appearance and comfortable to use. Living-room styled furniture and carpeted floors have the appearance of luxury, but these elements can be functional in a learning situation. Noise is decreased, students tend to conduct themselves in a more subdued manner (with a corresponding improvement in discipline), and the improved atmosphere tends to instill a more positive connotation of the learning area.

Lighting needs to be constant. This indicates a preference for artificial lighting as opposed to natural lighting. Large windows provide excessive lighting for areas near the windows and poor lighting across the room in areas away from the windows. A room the size of the average classroom will provide this large discrepency and this unsatisfactory situation can be illustrated by using an inexpensive light meter to measure desk-top light in various parts of the room. Artificial lighting can be carefully designed to provide the proper illumination in all parts of the building at all times.

Temperature provisions include heating and airconditioning as minimum requirements. Humidity control should be provided if needed.

A comfortable learning area results from a combination of the other elements being discussed. It should be added that comfort is a worthwhile objective itself and should not be considered detrimental to learning. On the contrary, very little learning occurs when the student is uncomfortable.

An esthetically proper learning area is pleasing to the eye; but to be functional the walls, ceilings, and furniture should not be distractive. The student is there to learn and not to gaze at distractions. Shapes and colors used in the decor should be attractive without being disruptive or loud.

Storage needs include shelving areas for books, cabinets for various materials, and rooms for equipment.

Provisions for using audiovisual equipment must correspond with anticipated student usage. Electrical outlets need to be sufficient in number and in potential power usage. Standards can be consulted for equipment variations and numbers, but the final determination is made by user demands.

6. Commitment to total service. This is the factor that distinguishes the Learning Resources Center. The thrust of administration is toward the coordination of all resource elements in the pursuit of learning.

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RESOURCE CENTERS IN ELEMENTARY SCHOOLS

The Learning Resources Center in the elementary school is sometimes identified with an open-education arrangement. The LRC concept can be utilized with, or without, the open-education program. However, there should be a clear understanding regarding the type of administration employed.

It is unfortunate that schools will provide open areas within the building and assume that they have open-education. Teachers accustomed to teaching in self-contained classrooms move into these open areas and continue employing self-contained classroom principles. The result is frustration. Students are over-stimulated by the space, movement of other people, variety of learning materials, and the choices they are supposed to be making. Teachers that are not prepared for this experience try to teach a subject-centered curriculum to the total group, demand individual attention, and expect a noise level consistent with that maintained in the self-contained classroom.

Open-education implies a student-centered curriculum in which the needs of the individual carry the highest priority. The student is evaluated and given direction in his learning experience. Teachers that are not oriented to open-education may simply release their students to do as they please. The result is chaotic. A proper learning structure is based on the student's evaluation and guides him in selecting materials and experiences as he moves toward his learning objectives. The actual work may be done alone with the student exercising freedom of movement, talking, and doing research, but the activity is productively controlled. Resources and policies of the LRC will facilitate the individual's learning experiences. The amount of freedom granted to a student must be commensurate

with the student's ability to operate advantageously within that freedom. Some students may need to be permanently maintained within a teacher controlled situation.

If the school administration is based on the self-contained classroom concept, the LRC operation will vary accordingly. The collection and operational policy will reflect a subject-centered curriculum. An open-door policy should be maintained for students and teachers to the greatest extent possible. The once-per-week "library day" visitation in public schools may simplify matters for librarians and teachers, but it is not adequate for student needs.

The provision of equipment operators is partially met by the use of student workers. When used, these students need to be carefully selected in terms of responsibility. William Monroe Trotter School in Boston has centralized learning areas in the various units of the school plant. A media specialist is on duty at each unit to project films, slides, and filmstrips. His services are available to classes or groups at the discretion of teachers within that area of the building. In all schools, media specialists need to provide in-service training in equipment operation for the teachers in order to maximize learning benefits to be derived from the materials and equipment.

Local production at the elementary school can be interesting and helpful. Some elementary teachers are notorious for collecting periodicals, pictures, and anything else that may be used in the classroom. With professional guidance, these materials can be mounted, or photographed and collated for maximum utility and for preservation. The media specialist can do some of the work, but much more can be done if the teacher and students can be trained to participate. Materials used in the classroom

are usually given added attention if students know that the materials were produced by their teacher or classmates.

There has been a trend toward experience oriented learning in the early grades. Kindergarten classrooms are equipped with various large geometrically shaped blocks and forms for children to use in work and play. Simple tools are introduced at this early stage. Some elementary schools have started offering shop classes for students - including girls. The LRC should be prepared to offer a wide range of kinetic and tactile experiences. This implies a variation of realia that may range from models to animals.

Field trips are arranged and conducted by classroom teachers, but the LRC could offer assistance by providing planning guides, advice on coordination of the trip with other learning experiences, and providing materials needed to supplement the trip.

As individualized instruction increases, programed instruction and other individualized materials must be made available. Learning packages such as the PILS program (Wheelbarger, 1972) call for the availability of a variety of materials; each capable of teaching precisely the same concept. This adds flexibility for the learner, but the material demands are greater.

Research at the elementary level should be encouraged by the teachers and the media professionals. Something beyond the typical book reports and subject reports, consisting of a little information copied from the encyclopedia, must be taught if research is to become meaningful. The full range of resources in an LRC should be brought to the attention of the student along with instruction in the skills needed for utilizing these resources.

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RESOURCE CENTERS IN SECONDARY SCHOOLS

LRC's at the junior high and senior high levels have more students coming to them on an individual basis. As with the LRC at the elementary level, there needs to be a very clear understanding as to administrative organization (i.e. open education or subject-centered teaching).

The collection of materials will reflect more subject related depth. The student has received a general introduction to numerous subjects in the elementary grades and will be delving deeper into those subjects at the secondary level. The degree of sophistication in books, filmstrips, films, and other materials must be sufficient to permit the introduction of greater detail and deeper understandings.

Scheduling of services is responsive to greater student involvement on the individual basis. Students may have blocks of time in which they can use the LRC and there will be some quick checking of materials between classes. For maximum benefit, there should be available periods of time in which the student can use the center for collecting information, reading (for information and pleasure), and using audiovisual materials.

Media used at the LRC should give students experience in various modes of communication. This experience should not be limited to the information gathering function. It is important enough to be well planned. Photo essays could replace some of the written reports, filmstrips developed and left with the school for later usage by other students, practice gained in the use of 8mm film units, and general communication skills developed by the productive usage of media. Basic High School in Henderson, Nevada has students video taping their own productions for use within the building. A variety of prospective employers are beginning to recognize the need for communication skills. The student experienced in a variety of communication modes could have an advantage in the job market.

Students begin dropping out of school at the junior high level and by the end of the secondary program a large portion has been lost to the educational system. This calls for terminal learning experiences for a large number of students. The collection of materials should be capable of providing this experience.

Work-related learning experiences suggest the need for materials concerning job-interviewing, employee relationships, criteria for promotion, and technical skills needed to secure jobs.

Learning experiences related to social skills could teach citizen participation in government, preparation of income tax forms, consumerism, games for individuals and small groups, and similar skills needed for functioning in society.

For those planning to enter college, a sharpening of subject related skills is needed for the competition that these students will meet.

The learning experiences that have been discussed here are largely the responsibility of the classroom teacher, but the teacher needs materials designed for these purposes. Teachers and media professionals can combine their knowledge in the task of building a collection of materials that will be capable of meeting student needs. Local production in the LRC may be used to complete the collection.

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RESOURCE CENTERS IN COLLEGES AND UNIVERSITIES

Some of the junior colleges and community colleges began their existance with an LRC. They have helped to advance the concept and have served as leaders in the field. Most of the difficulties arise when you go beyond these schools.

The four-year colleges have been lagging, but a few are beginning to move toward an LRC concept. Progress has had to contend with years of tradition that saw the library as a place for book storage and audio-visual facilities almost non-existant.

The liberal arts concept is related to the great books concept. The worthwhile ideas of the past had been carefully recorded and would be sufficient for the present. These records were carefully stored in the library and the librarian was there to protect and care for them.

As audiovisual materials made their way into the instructional program, they were administered by a library clerk, or someone in the Department of Education, and in some cases "the projector" was kept in the Dean's closet. As the equipment and materials increased in number, the audiovisual department became a separate entity within the library, or within the Department of Education, and sometimes independent. In other cases, the individual departments purchased equipment and materials and kept them within the department. The result of department purchasing has been an inefficient system of usage and very poor provisions for maintenance and storage. With all of the inadequacies inherent, this policy is still being used today - and will continue indefinitely unless departments can be convinced that they will have adequate services from a centralized organization.

The inadequacies of piecemeal systems call for a consolidated program that provides total media deployment for learning situations. This does not mean a return to clerical checking of equipment. It means that all of the skills of all media professionals are needed to coordinate the usage of media for maximum learning. It means providing media support for teachers and opening avenues of learning for students.

The service concept is beginning to gain acceptance. Progressive librarians realize that librarianship is much more than book protection. Many are finding ways to make their print collections more available and some are finding ways to take their services to their users - such as placing paperbacks in dormitory areas. This service priority is very important in the LRC operation and should be encouraged to the fullest.

The location and structure of classroom buildings cause audiovisual service problems for colleges. The newer elementary schools, secondary schools, and junior colleges are often one floor structures and in many cases there is just one building involved. Equipment carts can be rolled to the desired location with little physical difficulty and with minimum damage to equipment. Liberal arts colleges traditionally have several multifloored classroom buildings. Equipment must cross roadways, alleys, greens, climb steps, and put the media people through various contortion induced tortures. AV equipment is very cumbersome to carry over long distances and rolling equipment carts across gravel, or even paved roadways, is inviting an early end to the life of that equipment.

A partial solution is the storage of basic items within each building. This makes the program difficult to administer, but it is probably necessary.

The biggest factor in media progress at the college level is probably the academic administration. Schools that have promising programs usually

point to an academic dean or president (or both) that is supporting the program. Likewise, those that are doing little to adjust to learning needs point to administrative reluctance. The number of schools in the latter group is much larger than it should be, but it will probably remain that way until there is administrative recognition of learning needs.

The educational program is most fragmented at the university level. Building problems are similar to those at the college level - and there are more of them. The college "departments" have grown to become "schools" and are further removed from each other.

University professors have traditionally been more reluctant to accept new teaching techniques than teachers at other levels. Opportunities for initiating teacher improvement are not as good at this level (e.g. elementary schools can call the entire teaching staff together for in-service teacher training).

The larger size of the university has some inherently potential advantages. Financially prohibitive programs can become feasible because of numbers, and a fuller complement of trained professionals are available to contribute ideas and skills.

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TECHNICAL PROCESSES

Technical processing is probably most efficient when centralized. The equipment for processing is established, the technical skills consolidated, and reference materials are present in this one location. Centralization reduces the need for duplicating equipment, materials, and human effort.

The difficulty with centralizing occurs when a backlog is accumulated and materials are slowed in coming through. Users will purchase materials direct and put them into use without processing, or place them on isolated shelves with minimum record keeping. If centralizing can work at a pace that will prevent excessive delay, the needs of all are met in the most proficient manner.

Cataloging and classification require the professional competence of someone trained in these areas. Decisions must be made relative to these areas and there needs to be an understanding of the consequences of those decisions (e.g. how to classify a particular book, use of marking system for identification purposes, placing materials of odd-size format into the general collection, maintaining the card catalog, use of international cataloging standards, etc.).

Standard works such as Wynar (1972) and Standards for Cataloging Nonprint Materials: Third Edition should be consulted for technical information.

Policies of acquisitioning relate to the curriculum and to the needs and interests of those making purchase decisions. Faculty participation is extremely important. This helps to provide a desirable balance and adds incentive to incorporate materials purchased into the teaching program. Some schools give students an opportunity to affect purchase

decisions. This is something that probably needs further encouragement for greater student activity and, hopefully, a corresponding increase in student usage of materials.

As the collection grows in diversity and in numbers within those diverse categories of materials, there needs to be a unity of student accessibility to all learning resources. This unity of access is best served by the careful construction of a fully integrated card catalog. Materials are identified to the student by a coding system that is intelligible to the user. Thus, a glance at a card will identify the title as a book, filmstrip, record, or other medium. Cards are interfiled for easy access.

The card catalog will probably be a dictionary catalog in most schools. It will be most advantageous when it properly reflects local needs. At the same time, the cataloger is under pressure to standardize with some larger body of cataloged material. Should the international format in cataloging be used? What about provision for a potential computer system? These questions must be answered, by the cataloger, in the manner that indicates maximum long term benefit for the school.

Some things that might reflect local needs could include the specific use of headings, and number of digits in numbering for classification (close or broad classification).

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INDIVIDUALIZED STUDY

Individualized study seems to be leaning in the direction of "prescription" learning. Prescribed instruction permits the teacher to pattern the instruction to the needs of the individual and, at the same time, maintain a structural framework for the learning that occurs. There are several programs that operate on this principle. The general operational procedure begins with an evaluation of the student in terms of a particular subject. A prescription for learning experiences is prescribed by the teacher; the student withdraws needed materials and proceeds with the learning experience individually. At the completion of the learning experience, the student takes a self-evaluation test (followed periodically by a teacher administered test) and this evaluation is used to determine the next prescription.

An increase in individualized study, whether prescribed or otherwise, has important implications for the LRC. The collection and facilities must be suitable for meeting the increased needs.

Facilities must accommodate a larger number of students on an individual basis. This means the presence of individual students in the LRC for longer periods of time without direct teacher supervision. The student may be working on a major project, completing prescribed learning experiences, gathering information, or reading for pleasure. Study carrels are helpful in providing a place for the individual to work. Carpeted floors, drapes, and other like materials absorb some of the excess noise and promote a better learning atmosphere for the student. Chairs, tables, and rooms must be arranged to permit individual work.

The materials in the collection must be readily available to the individual. A fully integrated card catalog will facilitate access to

all learning materials. Checking policies will reflect local needs and be liberal enough to meet added demands of individual study.

If the individualized study is extensive, there must be additional equipment available to meet the demand. Filmstrip projectors (and/or viewers), tape recorders, cassette recorder/players, record players, 8mm projectors, film loop projectors, and perhaps 16mm projection and other classroom related units should be available and accessible to individual students.

Closed-circuit television can be used for dissemination of information or as a medium of communication. This second alternative permits students to compose, direct, and transmit their own programs. Cable television (CATV) and network television are used for dissemination of information and may be utilized as learning resources by groups or individuals.

Programed instructional materials are needed in increasing volume as these materials are needed in blocks of specific learning experiences. The materials may be commercially produced or locally produced. The potential volume of titles and potential bulk of materials within those titles can quickly become extensive. The LRC may serve as the central supply point for these materials in some schools. In others, they may be handled by the administration as other textbooks are handled.

Learning packages can easily produce a proliferation of needed materials. An example is the Programed Individual Learning System (PILS) produced by Learn, Incorporated. This is a form of prescribed learning in which the student is evaluated and a learning experience is prescribed. At this point, the student is given a list of potential learning experiences (implementing a variation of media) and carefully designed to teach precisely the same concept. The student has a choice of medium and can make a selection based on interest or known learning skills. The PILS program

is based on the utilization of materials that should be readily available to every teacher. The LRC will have the responsibility of assuring that availablility.

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REGIONAL RESOURCES CENTERS

The Regional Resources Center offers those services not available at the local school and supplements others that are available.

The local school may not have an LRC facility offering the needed resources. Some schools will have a library, but little or nothing in the realm of audiovisual materials. Statistics indicating schools without libraries are sketchy, but there are elementary and secondary schools lacking this basic facility. Unfortunately, these schools are likely to be isolated geographically and have no access to a regional center.

A more likely function of the regional center is that of supplementing resources at the local schools. Funds can be used to purchase one set of resources instead of several and these are shared among the schools for maximum utilization. A schedule overload of resources at a particular school can get momentary relief.

A very natural function of the regional center is to provide resources for special needs within the system. An example of this may be equipment that is priced beyond the budget capability of an individual school, or could not be justified by the limited workload in one school.

Materials, or software, purchased by the regional center may fall into the categories just mentioned (i.e. too expensive for the local budget, or impossible to justify on a limited workload). Some examples might include films, works of art, rare books, transparency sets of limited usage, models of varying types, live animals, and widely assorted realia of value in learning experiences.

If the regional center is adequately staffed, it may offer professional assistance to the schools by placing staff members on call. This would permit the person with professional skills to visit teachers,

librarians, or audiovisual specialists in their schools and work with them in the solution of learning problems.

Teachers needing assistance in instructional design can be assisted in all phases of their project: stating objectives, selecting the medium, script writing, planning for production, and planning for the presentation. After plans have been made, professional assistance can be provided in the design and production of materials. The actual production may be done in the local school or the teacher may be brought into the regional center and introduced to the facilities maintained there.

Some regional centers offer production services for teachers. A teacher needing a set of slides or transparencies for a particular unit can make crude sketches of illustrations, charts, or photographs needed. These sketches are submitted to the center with detailed instructions and the materials are prepared by the best professional skill available.

Center production and assistance in production is made possible by the existence of more sophisticated dark room photographic equipment, production equipment that is more efficient, and possibly the presence of artists for graphic work.

The eventual result of efforts made by the regional center is the learning that is accomplished by the student. The degree of direct usage of the center by the students may be limited, but it would seem desirable to have this option open if needed in the interest of learning.

The regional center is in an excellent position to positively affect the learning within the system it serves. Its capabilities and its relevance to learning should be publicized for widest application.

When the capabilities within the center and within the school system have been exhausted, the center should be in a position to direct

inquiries to outside resources. Contacts may be maintained to provide open channels of communication when inquiries arise. These contacts may extend to other school systems, colleges or universities, individual experts in various fields, or companies involved in providing resources.

In-service education is relegated to the regional center by some school systems. This means arranging for speakers, demonstrations by company representatives, work shops, or other methods of providing practical training. This training may take place at the system level or within the individual schools. In either case, it is hoped that center staff members can follow this training with more person-to-person work with teachers within their classrooms.

Information relating to the latest research should be gathered, maintained, and disseminated by the center. This is especially true of research related to learning resources, but may extend to include other research relating to teaching and learning.

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SPECIAL MATERIALS AND FACILITIES

Schools have gradually learned that the average student does not exist. The class consists of a conglomerate of indentities, social types, mental abilities, interests, motivation levels, etc. Education is trying to gear to the seemingly impossible task of meeting the needs of each individual - or come as close as possible to this ideal.

The LRC must assist in looking beyond the imaginary average student and make provisions for the very real persons that will come seeking resources.

There is a list of varying types of disadvantaged students that need to be served. The blind are in immediate difficulty in a print oriented society. They need guidance in finding resource avenues open to them. There are execellent recording programs made available to them by agencies such as the Talking Book Service, but some of the students are not aware of these services. Others are aware of the services, but have not been encouraged to conceptualize the possible contributions to their needs. The agencies are anxious to make their resources available and will work with the LRC in getting materials to students, providing textbooks on cassettes, and generally assisting the unsighted to learn.

Other non-print materials should be indicated to the unsighted. This might include models, material samples, and other items to provide kinetic and tactile experiences.

The deaf have a different set of needs. If the LRC is devoted to the fullest implementation of all learning resources, then it should be able to identify those resources adaptable to the special needs of this group and assist these students in sharpening alternative communication skills.

Special education students of low mental ability get little assistance from a traditional library. Some of them are retarded at a level that will prevent them from learning to read at any age. Most of the others in this group will never read beyond a very elementary level. Alternate experiences can be used to teach them the limited skills they need for functioning in society. Models can be used to illustrate clothing styles and care. Animals are excellent for teaching responsibility and the need for caring. Simple objects can be manipulated for math skills, and other concepts can be taught with an imaginative use of resources collected and utilized by teachers and media professionals working together. High-interest/low-ability books are a necessary part of the collection.

At the other end of the spectrum, the mentally accelerated need challenging experiences that will permit continued development at a level consistent with ability. Teachers are often busy with "average" students or trying to get the slow learners to complete the impossible task of catching up. The accelerated student becomes a neglected person. In many cases, these students and their teachers would welcome challenging material that can be placed in their hands. This might be programed instruction that will permit the student to progress at his own rate, it may be more sophisticated reading material, or it may be more individual freedom in selecting and using the total resources available.

Adult classes are taught in some public schools by the regular elementary or secondary teachers. If much of this is done, resources will be needed. When an adult comes to the school learn to read in order to read her personal mail, reading material is going to have to be more sophisticated than the normal beginning materials. The LRC should look

at the community to determine the kinds of skills that will need to be taught and provide materials (perhaps makeshift) capable of providing the necessary learning experiences.

Industrial education has its own workshops with specialized tools, but the LRC will have to provide supplementary materials. If the collection has been assembled on the presupposition of educating college-bound students, there will be problems. Elementary librarians have indicated that students in the early grades have a preference for "how to" books and other nonfiction reading. The collection should reflect these needs in books, drawings, charts, filmstrips, and other holdings. Excellent filmstrips are being prepared by various industries and some of these are given to the schools at no cost, others are available on a no cost loan basis, or sold to the school at a low price. This is, also, true of tapes in reel-to-reel or cassette format. Professionally produced 16mm films are available on loan at no cost to the school.

Sex education is being debated and the debates will continue. Meanwhile, the states are quietly proceeding with provisions for instruction in this area. Some states are producing their own materials, others are carefully collecting available materials. Much of the present sex-education material is biology oriented. The LRC could lend guidance by suggesting additional materials on other aspects of the problem; such as excellent films or books dealing with moral questions involving social and personal responsibility.

Skill classes such as music, typing, and art have special needs. Materials collected in these areas should be carefully selected in consultation with the respective teachers.

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THE SYSTEMS APPROACH AND BEHAVIORAL OBJECTIVES

The systems approach is a concept used by the Air Force. It begins with an objective that must be met, considers information input relating to all elements needed in meeting the objective and uses this total information to make decisions for the deployment of elements toward the resolution of the objective.

The objective might be the delivery of specific supplies to a specific location, providing for repair of malfunctioning equipment on some distant outpost, or confrontation of the enemy.

Elements needed include men with proper skills, materials or equipment, and transportation to get them to the destination.

An example might be the construction of a temporary air field. Elements needed in meeting this objective include men with proper construction skills, machines for construction work, and materials for construction. Information is needed as to the geographical location of the men, machines, and materials; and the best means of transporting each to the site. This objective is fed into a computer and it consults its data bank to determine which men to use, where they are located, and how to transport them to the site. Similar information is provided for the machines and material.

The systems approach is used in schools to solve instructional problems. A data bank includes the number and teaching competencies of teachers on the staff, classrooms within the school, and a class schedule. A computer can be consulted for the satisfactory arrangement of these elements in relation to the classes that must be taught.

Students can use the computerized systems approach to schedule their classes in terms of courses needed to graduate, preferred teachers, electives, and their time schedule.

A computer is not an absolute necessity in using the systems approach in a school, but it is extremely difficult to manipulate the data without a computer.

This concept permits flexible time scheduling using blocks of time having varying length. It gives the students greater selection in course and teacher selection and provides a more tailored educational experience. It permits maximum utilization of teacher talent and school facilities.

The systems appraoch can be used on the same principle within the classroom. When used in relation to specific instructional problems the concept is usually related to the use of behavioral objectives. Therefore, the first step is to identify the desired student behavior that will result from a given learning experience. The behavior that is identified must be something that can be observed and evaluated (such as writing sentences, identifying important facts, comparing realted facts, orally reciting information, etc.)

Behavioral objectives are usually quite specific. It isn't difficult to specify that a student will correctly spell six of ten given spelling words. It is more difficult to write specific behavioral objectives that will cover general areas of activity. Thus, objectives relating to the operation of an LRC may be difficult to state in good behavioral terms, but it would be desirable to consider the resultant behavior expected of students after using the resources. If such observable behaviors as "reading" visuals, communicating via a variety of media, recognizing excellence in visual and aural productions, distinguishing well written works, etc. are desirable; then planning must be given to the provision and manipulation of elements that provide learning experiences producing these behaviors.

The principles previously discussed will apply to instructional planning within the LRC. Behavioral objectives for specific units are established in conjunction with teachers. After identifying the behavioral objectives,

data is gathered concerning personnel (competencies of all professional, paraprofessional, and clerical staff members), facilities (including building and equipment), and materials. This data is used in designing potential learning experiences for the student.

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INSTRUCTIONAL DEVELOPMENT

The principles of instructional development are implemented in designing instruction for a unit or a complete course. Media professionals are consulted for assistance and should be cognizant with the principles involved.

The obvious starting point is the establishment of objectives. Learning experiences needed to produce the desired student behavior are identified and listed. If student choice is to be implemented, alternative learning experiences are identified in relation to the objectives.

There should be a review of the needs and interests of the students to be affected. This may mean a revision of the list of learning experiences.

The potential contribution of available learning resources are examined in relation to the learning experiences to be provided. If one of the learning experiences involves the identification of community plants, possible choices might include field trips, collected specimens, photographs, films, or drawings.

The preference of the teacher is considered in the selection of learning resources. One particular medium might be readily available and particularly suited for the learning experience, but the teacher may be more familar with another medium and capable of producing a better learning experience through the alternate medium. The latter medium should be used.

The immediacy of availability of resources is very important. The overhead projector, wall map, or other item may be available, but if the teacher has to go to a lot of trouble to secure that item every time it is needed, it will eventually be phased out of the teaching plans.

After available resources have been examined in relation to potential contribution, resource selections are made and plans drawn for their use in instruction.

The learning experiences identified earlier are now arranged in a desirable sequence and plans are developed for implementation.

Evaluation emerges from the stated objectives and attempts to determine success in meeting those objectives.

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GLOSSARY

Some of the terms included here are in a period of transition. For this publication, the following definitions are used.

acquisitioning: purchasing and processing of learning materials.

AECT: Association for Educational Communications and Technology; formerly the Department of Audio Visual Instruction (DAVI)

ALA: American Library Association.

audio: sound portion of a presentation.

audiovisual: 1) sound and sight. 2) comprehensive term for non-print resources.

audiovisual specialist: a media professional trained in audiovisual education (as distinguished from a media professional trained in library science).

behavioral objective: desired student behavior resulting from a learning situation. Behavior must be observable and capable of being evaluated.

CAI: computer assisted instruction. The computer is used as a teaching machine.

carrel: individualized seating-study area providing semi privacy.

cartridge: packaged tape or film (audio or video) designed for usage while remaining in package. Eliminates need for manual threading.

card catalog: collection of cards containing entries for authors, titles, and subjects. Usually filed in dictionary form. Provides information describing complete contents of the LRC.

cassette tape: cartridge of magnetic tape in audio or video format.

cassette recorder/player (audio): hardware for recording and playing sound.

cassette recorder/player (video): hardware for recording and playing visual materials.

cataloging: process of incorporating information relating to new acquisitions into the card catalog.

classification: assignment of Dewey numbers and/or other information designed to distinguish the particular resource item.

closed-circuit television (CCTV): facility designed for short range video transmission via line-or-sight or by cable.

community antenna television (CATV): cable TV. A master antenna is used to pull signal in for reception in limited vicinity.

contract teaching: teaching under signed agreement by an organization external to the school system.

dial access: facility with provision for retrieval of audio or video programs via a dialing system (e.g. language laboratory, learning laboratory, or electronic classroom).

direct experience: situation involving first-hand participation.

educational television (ETV): formal instruction and/or cultural programing broadcast for educational purposes.

film: usually refers to 16mm motion picture materials.

filmstrip: 35mm roll of pictures designed to be projected by individual frames for viewing purposes.

format: form, style, or organization of a resource item.

hardware: equipment (e.g. projectors, record player, computers).

instructional development: construction of a comprehensive plan for learning. Includes consideration of students, objectives, and learning media.

IPI: individually prescribed instruction.

kinetic: sensory impression of movement.

librarian: media professional trained in library science (as distinguished from a media professional trained in audiovisual education).

library: print oriented depository of learning materials.

Learning Resources Center (LRC): comprehensive depo sitory for all library and audiovisual materials (print and non-print).

LRC: see Learning Resources Center.

media: 1) print and/or non-print resources used in communicating information. 2) non-print resources.

media center: 1) comprehensive name for combined library and audiovisual services. 2) non-print oriented depository of learning materials.

media professionals: combination of all professionally trained library and audiovisual personnel.

media specialist: 1) audiovisual specialist. 2) media professional.

microfiche: transparent card (usually 4" x 6") used for micro-printed information.

microfilm: 16mm or 35mm roll film used for micro-printed information.

model: artificial replica.

multimedia: usage of more than one medium in presentation.

National Educational Television (NET): public network used for educational broadcasts.

network: interconnection of stations for simultaneous broadcasts.

non-print: all-inclusive term for all audiovisual media (except printed materials such as books and pamphlets).

open education: learning in an environment that is physically and administratively open; with student-centered curriculum.

paraprofessional: staff member that has not been formally trained as a media professional.

PILS: Programed Individual Learning System. Packaged programs produced by Learn, Inc. of Nashville.

PBS: Public Broadcasting System.

print: media primarily oriented to printed information (such as books and pamphlets).

production: planning and construction of learning materials.

programed instruction: instructional unit broken into small bits of information. Each bit is presented in an individual frame with provision for a response by the learner, and progression at the student's own rate of speed.

public address (PA) system: amplification of sound through loud speakers.

random access: availability of any item without consideration of other items in depository.

retrieval: process of withdrawing learning resources.

self-contained classroom: traditional teacher oriented classroom with one teacher carrying the major portion of the instructional responsibility for the class.

self-instruction: control of learning experience by the learner.

simululation: sensory experience in imitation of a particular real-life situation.

slides: 2" x 2" transparencies prepared for projection on a viewing screen.

software: materials used in conjunction with the equipment (e.g. films, filmstrips, and tapes).

stereophonic: sound system providing more than one independent source of audio output designed to recreate the full original sound.

subject-centered curriculum: teaching-learning situation in which the primary objective is to meet the educational needs and/or interests of the individual student.

systems approach: carefully designed plan for coordinating men, machines, and facilities for the most satisfactory resolution of an objective

tactile: sensory impression of touch.

tape: magnetic strip used to store visual or auditory information.

teaching machine: mechanical device designed for use with programed instructional software.

team teaching: combination of teacher resources to provide the best available teaching for various units of instruction.

technical processes: combined processes of acquisitioning, classifying, and cataloging.

transparency: material that transmits light and permits darkened images to be projected on viewing screen.

video: 1) pictorial portion of a presentation. 2) visual images.

ASSOCIATIONS

American Association of Junior Colleges
1 Dupont Circle N.W.
Washington, D. C. 20036

American Association of School Librarians
50 E. Huron St.
Chicago, Ill. 60611

American Library Association (ALA)
50 E. Huron St.
Chicago, Ill. 60611

Association for Educational Communication and Technology (AECT)
1201 16th St., N.W.
Washington, D.C. 20036

Educational Film Library Association
17 W. 60 St.
New York, N.Y. 10023

Educational Materials Producers Council
3150 Spring St.
Fairfax, Va. 22030

Educational Media Council
1346 Connecticut Ave. N.W.
Washington, D.C. 20036

Educational Resources Information Center
400 Maryland Ave. S.W.
Washington, D.C. 20202

Motion Picture Association of America
522 Fifth Ave.
New York, N.Y. 10036

National Archives and Records Service
Washington, D.C. 20408

National Association of Educational Broadcasters
1346 Connecticut Ave. N.W.
Washington, D.C. 20036

National Audio Visual Association
3150 Spring St.
Fairfax, Va. 22030

National Congress of Parents and Teachers (PTA)
700 N. Rush St.
Chicago, Ill. 60611

National Education Association (NEA)
1201 16th St. N.W.
Washington, D.C. 20036

National Instructional TV Center
Box A
Bloomington, Indiana 47401

National Microfilm Association
P.O. Box 386
Annapolis, Md. 21404

National School Supply and Equipment Association
79 W. Monroe
Chicago, Ill. 60603

SOURCES OF RESOURCE INFORMATION

American Foundation for the Blind
15 W. 16th St.
New York, N.Y. 10011

Audio Visual Source Directory
Motion Picture Enterprises Publications, Inc.
Tarrytown, New York 10591

Bell and Howell Company
7100 McCormick Rd.
Chicago, Ill. 60645

Beseler Company
219 S. 18th St.
East Orange, N.J. 07018

Department of State
Office of Media Services
Washington, D.C. 20520

Eastman Kodak Company
343 State St.
Rochester, N.Y. 14650

Educators Progress Service
Sta. A
Randolph, Wis. 53956

Encyclopaedia Britannica Company
425 N. Michigan Ave.
Chicago, Ill. 60611

Graflex, Inc.
3750 Monroe Ave.
Rochester, N.Y. 14603

The H.W. Wilson Co.
950 University Ave.
Bronx, N.Y. 10452

Hendershot Programmed Learning
4114 Ridgewood Dr.
Bay City, Mich. 48706

Indiana University
AV Center
Bloomington, Indiana 47401

Sony Corporation of America
47 Van Dam St.
L.I.C., N.Y. 11101

Tecnifax Corporation
195 Appleton St.
Holyoke, Mass. 01040

Tersch Products, Inc.
6529 Cambridge St.
Minneapolis, Minn. 55426

3M Company
3M Center
St. Paul, Minn. 55101