Learning Resources Approach to College and University Library Development

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RECENTLY, IN THE FOREWORD to an important book written for the Council on Library Resources, Verner W. Clapp defined "library work" as "the operations connected with assembling information in recorded form and of organizing and making it available for use." [1] In the introduction to this same book, J. C. R. Licklider, the author, wrote, "The 'libraries of the future' may not be very much like the present-day libraries, and the term library, rooted in book, is not truly appropriate to the kind of system on which the study focused." [2] In a sense, these two somewhat contrasting statements epitomize the difficulty of modern library theorists and their concerns for "learning resources."

Today's problem is one of abundance—abundance of printed materials and of information stored in non-print form. One hundred years ago, the Harvard Library contained approximately 120,000 volumes. In this year alone, Harvard Library expects to accession more than 120,000 books. Because of the increasing flow of printed materials, even Harvard Library's accession rate is too slow for a great university library which hopes to meet its research function; maintain constant, comprehensive growth in its book and periodical collections; and continue its reputation for high standards. With the development of the computer and the resultant systems for rapid information storage and retrieval, forward-looking librarians have focused their attention on the problems of cataloging, storing, searching for, and reproducing this mammoth amount of information. It is perfectly logical that the major focus of the scholars of the library world, working in large research institutes or universities, should be on ways to cope with the massive flow of new information and its proper storage and use in meeting the research function of the university.

At the same time, the technological improvements in photography,

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magnetic recording, and pictorial transmission have reached a confluence with the increased research on the "learning process." Several libraries have added materials which are preserved by these methods. However, in many established libraries they remain outside the pale and are operated by units independent of the library. These new materials and techniques for storing and presenting knowledge to students and scholars have brought about an emphasis on independent study and learning far greater than was possible before. In addition, they have made it possible for students and professors on many campuses to produce their own materials to meet local needs. Such demanding work is considerably beyond the concept of a library which assembles material prepared previously by others.

Several factors make a difference in the development of learning resource programs on various campuses and their relationships to library development: (1) the size, (2) age, and (3) major purposes of the institution. Small institutions with relatively limited financial backing and building space tend to include very few of the newer learning resources among their book and microform collections. On the other hand, comprehensive institutions with large libraries tend to have separate television and radio units, audio-visual service units, programmed instruction centers in many departments, and duplicating centers all over the campus. Older institutions with long-established libraries do the same, adding new units for technological developments such as television, audio-visual services, programmed instruction, computer and data processing operations. Some new institutions incorporate all these operations within the library and develop a Division of Educational Services or of Learning Resources. The type of institution also appears to make a difference, although this factor is associated with the size and age of the institution. Institutions which emphasize instruction over public service or research tend to combine their services in some fashion. The great research universities of the United States have massive libraries—and massive problems. They tend to leave television, video-tape, audio-visual and photographic services to other units of the university. Specialized research services provided by these other technological areas usually remain outside the university library. Also, extension divisions of large research universities often offer the additional film, television and photographic services to the public and then add such services for their campuses. Although these generalizations have many specific exceptions, they are worthy of careful analysis and further study.

A few illustrations will provide some indication of the variations

between institutions and of the importance of size, age and objectives. Illustrations selected are: (1) two community or junior colleges—the new Brevard Junior College in Cocoa, Florida, and Stephens College in Columbia, Missouri; (2) two small liberal arts colleges—the Oklahoma Christian College and the Oral Roberts University, both in Oklahoma; (3) a new expanding state college—the California State College at Hayward; (4) a university in transition—the Southern Illinois University; and (5) two older established universities—the University of Minnesota and the University of California.

These descriptions are not complete and are quite brief, but will provide enough information to indicate some of the directions in which learning resources programs have been developed on various types of college and university campuses.

Brevard Junior College, Cocoa, Florida. Brevard Junior College has developed a Division of Educational Services with a Director who is immediately responsible to the President. Seven different departments or units are part of this Division, including (1) the Office of Institutional Research, (2) the Office of Data Processing and Technical Research, (3) the Library, (4) the Television and Radio Center, (5) the Audio-Visual Resources Center, (6) the Study Skills Clinic and (7) the Language Laboratory. The Language Laboratory, Audio-Visual Resources Center, and the Television and Radio Center were first brought together in 1964. In 1965, the Library was added as a fourth unit. Then, in 1966, the other three units were made part of the Division.

In describing the functions of the various units one important difference distinguishes the Library from the Language Laboratory, the Audio-Visual Resources Center, and the Television and Radio Center. The Library "selects and acquires recorded knowledge, catalogs it and makes it readily available for retrieval—or retrieves it and circulates it." The other three units do this for commercially-prepared material, but they also originate and store information materials which they develop themselves on the campus.

The Audio-Visual Resources Center and the Library have been located in a new "Learning Center." A new communication center is proposed, which will include new facilities for the Television and Radio Center and the Study Skills Clinic. They already have developed a group of specialized booths for self-study which are called "inquiry modules." These modules allow the student to use films, video-tapes and live, closed-circuit telecasts on a dial-access basis,

and give them access to stereotapes, language and other general taped materials containing tests or classroom lectures. In the modules the learner can watch color movies, study microfilm, use controlled reading scanners or read printed materials which have been checked out of the Library section of the Division of Educational Services.

Descriptions of the Brevard Junior College program emphasize the fact that it is attempting to innovate in education, as well as to integrate the use of media; it is interested in pioneering new approaches to learning processes, coordinating all the interrelated professional resources, and using all the appropriate new technology for the welfare of students and faculty. In this relatively young junior college the Library has become only one of seven units in a Division of Educational Services, but it is an exceedingly important unit. Nevertheless, the new technological aids to learning and the production of local learning materials were developed outside the Library and gradually have been amalgamated into a total Division which includes the Library as one of its component parts.

Stephens College, Columbia, Missouri. In the last decade, Stephens College has studied extensively the use of all types of learning resources and has planned and built the James M. Wood Learning Center to incorporate the results. Two useful reports[3, 4] and one magazine article[5] present good descriptions of the development at Stephens.

The Learning Center includes at its core a library for books and other educational media. The total design attempts to provide flexibility in use of space for many purposes, a great variety of learning resources for several educational purposes, and close proximity among the spaces, resources and persons working together for teaching and learning; it also tries to make resources easily available which may improve the educational process.

This Center includes five buildings: an old one which was remodeled, and four new ones. The heart of the Learning Center is the dissemination system which originates in the television, radio and film department—a building which also houses the audio-visual center and a 300-seat classroom. Nearby is the humanities and communications department building with classrooms and faculty office space. On the same mall nearby, is the "resources library" which houses the general library, five divisional libraries, some faculty offices and seminar rooms, and a large collection of audio-visual materials such as motion pictures, slides, filmstrips, records, and tapes. The other two buildings,

housing the art department and the religion, philosophy and language departments, are connected to the television, radio and film building by coaxial cable.

In this Center the faculty have planned many projects. They have used amplified telephone lectures for instruction in a variety of fields. Tape-activated, rear-screen slide projection is planned and used by the humanities division. There are listening tables (audio-lab facilities) in several divisions including theater arts, speech, business education, social studies, and the humanities. The language laboratory and programmed instruction materials are used for testing and teaching in communication, mathematics, foreign languages, and the humanities, with an emphasis on the aural-oral, reading, and writing approaches to languages.

However, the most important point about this new Learning Center may be that the entire operation is organized under a Director of Educational Development, emphasizing its close relationship to the instructional program of the college. Leyden and Balanoff[4] repeatedly emphasize the need to reexamine course objectives, analyze methods currently being used to achieve these objectives, identify educational media being employed in the teaching, and, finally, identify those methods, materials and media which the faculty consider critical in meeting their course objectives. The instructional emphasis at Stephens is obviously strong and the organization of their Learning Center has evolved as a result.

Oklahoma Christian College, Oklahoma City, Oklahoma. Oklahoma Christian College, a fifteen-year-old liberal arts college, developed a learning center in 1962, although it was started originally as part of a plan for a new library. The result of the planning is a three-story building with the first floor allotted to a library of 50,000 volumes, with seating for 110 students, a microfilm room, a reference area, periodical room, and technical processing area. The other two floors house more than 1,000 study carrels, the offices of the Director of the Learning Center, faculty offices, conference rooms, two recording studios, and a control room for electronic equipment.

Each student pays a thirty-dollar fee per semester to rent a carrel and guarantee his private, specially-designed study. The student has direct dial-access to three different types of recorded materials: (1) taped lectures, often used with workbooks, prepared by faculty to serve as instructional material for certain portions of a course; (2) dial-access "taped exercises" which are largely drill material needed

in such subjects as language, math or science; and (3) dial-access "aural material"—such as music, poetry, drama, speeches—which must be heard for optimum learning. In addition, the student may check out small projectors and view films or single-concept film cartridges. He can look at filmstrips and slides in the carrel or check out a portable recorder for language laboratory listening, recording and/or playback.

Oklahoma Christian College is an example of a liberal arts college which encourages development of teaching materials by its own professors and students. The carrels or "study spaces" are used heavily during most of the day. As late as 4 p.m. one-third of the students will still be using them. A traditional library is located nearby and has a few additional seating spaces for people who wish to use them. However, the fundamental organization is that of a learning center of which the library is but one part.

Oral Roberts University, Tulsa, Oklahoma. Oral Roberts University has developed a new Learning Resources Center six stories high with very extensive electronic aids. The library is a critical part of the Learning Resources Center and includes "nests" of audio-video carrels. The entire Center is based on a dial-access, audio-video system, with television studios, tape and film rooms, a science laboratory with a closed-circuit television loop, and specialized programming possibilities for film change with slides, filmstrips, video-tape clips or audio materials without the video. Furthermore, the building provides for use of both audio and video response systems for individual or group evaluation of success in learning from programmed materials. In addition to the carrels in the library, there are audio-video carrels in the learning laboratory and audio carrels in the language laboratory. On the whole, this center is used as a supplement to normal instruction. However, there has been some experimentation with its use as a complete self-teaching system. Classrooms with a specially prepared teacher's desk are able to receive any programmed materials that can also be channeled to the audio-video carrels.

Comparing Oral Roberts University with Oklahoma Christian College, one sees that Oral Roberts University provides for extensive transmission of video material to study carrels, while Oklahoma Christian College has audio materials available and is using these materials for certain phases of instruction which are almost "total." Oral Roberts University, however, is still using its Learning Resources Center mainly for supplementary instruction. Once again the emphasis must

be on materials which have been developed within the institution and are made available for study through a dial-access system. The library —the book library—is still available as a part of the Learning Resources Center.

California State College at Hayward, Hayward, California. The California State College at Hayward started in 1959 and now has 5,000 students, enrolled in twenty-nine undergraduate and ten graduate degree programs. Two divisions make up the total learning resources program: first, there is the Division of the Libraries and second, the Division of Learning Resources (which is actually a misnomer, since it does not provide for those learning resources in the library.) The Division of Learning Resources includes (1) the Audio-Visual Utilization Service; (2) the Audio-Visual Technical Service; (3) the Materials Preparation Services, including film and filmstrip production; (4) the Instructional Television and Radio Services; (5) the Instructional Publication Services, including duplicating and stenographic services; (6) the Audio Laboratories which provide for the audio retrieval of foreign language, music, and speech materials; and (7) a Center for Independent Study. The Center for Independent Study enables students to study programmed materials with a variety of different mechanical and electronic machines. It provides for (1) students who want prerequisite background for courses (such as trigonometry, needed for calculus); (2) parts of courses (such as genetics or chemistry in a film series); (3) credit by proficiency examination after studying full course materials; and (4) remedial or developmental work (such as a course in slide rule, which is not given for credit and must be taken on the Autotutor with programmed materials.)

Organizationally, the Division of Libraries and the Division of Learning Resources are parallel, and the Directors of both report to the academic dean of the College. Information regarding the background for this program and plans for its future development in terms of buildings and operation are found in the book *Learning Resources for Colleges and Universities,* a project completed at the California State College at Hayward for the United States Office of Education. This was published in September, 1964, and suggests future roles which digital computers can play in the learning resources center. At present, there is no provision for their direct use as part of computer-assisted instruction at the College.

Southern Illinois University, Carbondale, Illinois. Southern Illinois

is a developing university with a long history. While its library is not large in comparison with the biggest university libraries in the United States, it has grown enormously in the last decade and recently accessioned its millionth volume. In 1964, a study was made of the interrelationships of the various learning resources on the University campus. As a result a number of these resources—for example, the audio-visual services, materials preparation services, and the self-instruction center—have been incorporated into the library organization as operating units. There are audio-tutorial services in the self-instruction center where a great deal of programmed tape material is provided for students. Combination audio-tape and two-by-two slide series are available for group instruction. Also, students can study film materials in the self-instruction center after checking them out from the center or the audio-visual services. Students taking large courses in art history use the center's self-contained slide projectors, while those in biology use a variety of materials including 8mm. single-concept films, slides, tapes, laboratory materials and models.

A new large general classroom building has been completed recently and makes use of multi-media instructional support provided by the audio-visual section of the library. It has extensive potential for large-group instruction. Student response systems are planned for this building so that professors can have instant feed-back on the learning which is taking place within their classes.

This university's experience exemplifies incorporation in the library of a part of the learning resources on the campus while certain other resources still remain independent and have only limited relationship to the library. Examples are the closed- and open-circuit television facilities, the film production center, and the data processing or computer center. Nevertheless, it represents a way in which learning resources developments can take place in the library of a large university with a rapidly expanding book collection.

The University of California, Berkeley, California. Recently the library at the Berkeley campus of the University of California was rated second in the "over-all library resources index" list which was prepared by the American Council on Education. In June, 1966, the Berkeley campus library had about 3,200,000 books and was receiving 45,000 periodicals. Nevertheless, in December, 1966, the academic senate library committee stated, "Substantial improvements will be necessary if the Berkeley library is to meet the challenge presented by new areas of study, new teaching methods and an increasing

emphasis on the search for knowledge by students, faculty and the many other users." [6] The *Daily Californian* Weekly Magazine devoted four pages to discussing the problems of the "rich but frustrating" library at Berkeley.

The library obviously has so many problems in maintaining its stature and accommodating the enormous load of book and magazine acquisitions that developments in other technological forms of information storage have been delegated elsewhere.

For example, Berkeley, through its television office, provides a library of video-tape and film for faculty and student use. These materials are available on an interbuilding random-access, closed-circuit television communication system. The television office has 350 reels of recorded video-tape and film inventoried to departments and on deposit in its library. Various materials are prepared by television and film coverage, both in and outside the studio. The office develops thirty-minute lectures and demonstrations for such departments as industrial processes, optometry, and engineering graphics. Shorter modules (programs) of fifteen minutes or less are often made for the life sciences, such as physiology and biology. Documentaries of thirty minutes or longer are prepared for such fields as sociology, criminology, forestry, speech and law. The video-tape and film library is part of the master distribution center of the television office. This master distribution center serves twenty-eight different instructional rooms in five different buildings, with permanent equipment available in each. The television center is but one illustration of the many different "learning resources" which are available on the campus, but organized completely separately from the book library.

The University of Minnesota, Minneapolis, Minnesota. The University of Minnesota is another example of a strong, developing university with a large library and strong research program. Over the years the University has developed a unit called "university services" which includes the Audio-Visual Education Services and the Printing Services which normally might be considered part of the learning resources division of a college or university. The Audio-Visual Education Services include a production department which provides motion picture films, teaching filmstrips, microfilms, and copies of opaque and recorded materials. One phase of their production service, the Artist Service, designs and constructs charts, graphs, exhibits, displays; models animation material for motion picture production; and prepares almost any other kind of graphic art required by the university faculty.

The Audio-Visual Education Services are expanding the language laboratories and closed-circuit television; doing programmed material research; working to provide learning resources in the campus dormitories and study centers; and developing facilities for self-directed learning and independent study. Plans are under way for construction of a central learning resource center where a student can obtain both audio and visual reinforcement by dialing proper code numbers on a dial-access system, including closed-circuit television, film and tape playback, recording devices for both visual and auditory materials and for language lessons. Audio-Visual Education Services hope to have home dialing systems for audio-response materials, including language lessons or capsule reviews of lectures given that day. Once again, new technological means of storing or producing information have developed outside the aegis of the book library.

It seems obvious that great research libraries and the professional leaders from these libraries must continue to spend most of their energy and attention on the book and periodical collections, and on the enormous outpouring of new materials which are to be stored for posterity. Recent books on such subjects as "libraries of the future," "libraries and automation," or "information retrieval and storage" indicate the enormous complexity of the problems which face this portion of the learning resources area. Swanson's recent paper on "Design Requirements for a Future Library,"[7] contains no mention whatsoever of materials described in this article as parts of learning resources, other than books, magazines, and microfilm. In fact, the 258 pages in *Libraries and Automation*[7] include practically no reference to any learning resources except books and magazines. Licklider in *Libraries of the Future,* does describe the schemata of the body of knowledge as including "strings of alphanumeric characters, and the associated diagrams, graphs, pictures, and so forth, that make up the documents that are preserved in recognized repositories."[8] He also discusses briefly "the problems and developments in the use of computers as aids in teaching and in learning, and as a basis for group cooperation in the planning and design of buildings."[9] However, most books in the library field which describe themselves as dealing with the libraries of the future or the state of the library are concerned basically with punched cards, electronic searching, notched cards, feature cards, microphotography, national library systems, indexing, information frameworks, file storage access, automated storage and access, output printing, interface problems, principles of design, and choice of equipment.

One of the few contemporary articles which goes beyond these problems is Osborne's paper on "The Influence of Automation on the Design of the University Library." He states that, "University libraries of the year 2000 to 2100 will look very much like the newer libraries of today. They will be more complex in their organization because the bookstock will be greatly splintered, because they will be interconnected nationally with other repositories, and because they will even more than today rely on a multitude of forms, including A-V and TV devices, over and above the microforms and other non-book materials now available." [10] In further discussion, he indicates that "the university library of the future . . . can be anticipated as a still more sophisticated complex of the traditional bookstock, plus A-V, plus IR [information retrieval]. And this means in particular: (1) an intensification of the trend towards individual accommodations such as wired carrels; (2) all conceivable wiring and equipment for technical processes, as well as reader services." [11]

But even Osborne, although he noted the importance of A-V in varied forms and the need for wired carrels, did not consider the problem of producing local, personalized, and individualized teaching materials on the college and university campus. Ideally, a library will be associated with the total learning resource capability of the university or college and this organization (as suggested in Chart 1 or

Chart 1—Learning Resources Organization Plan A

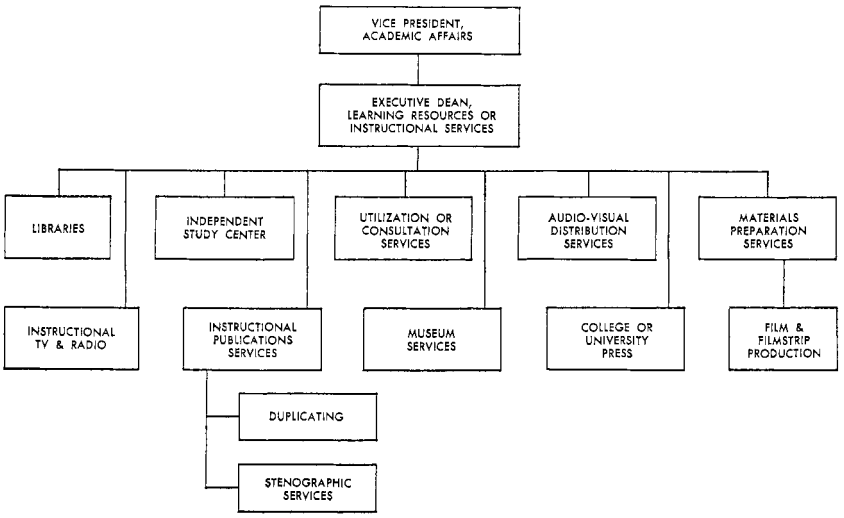

Chart 2—Learning Resources Organization Plan B

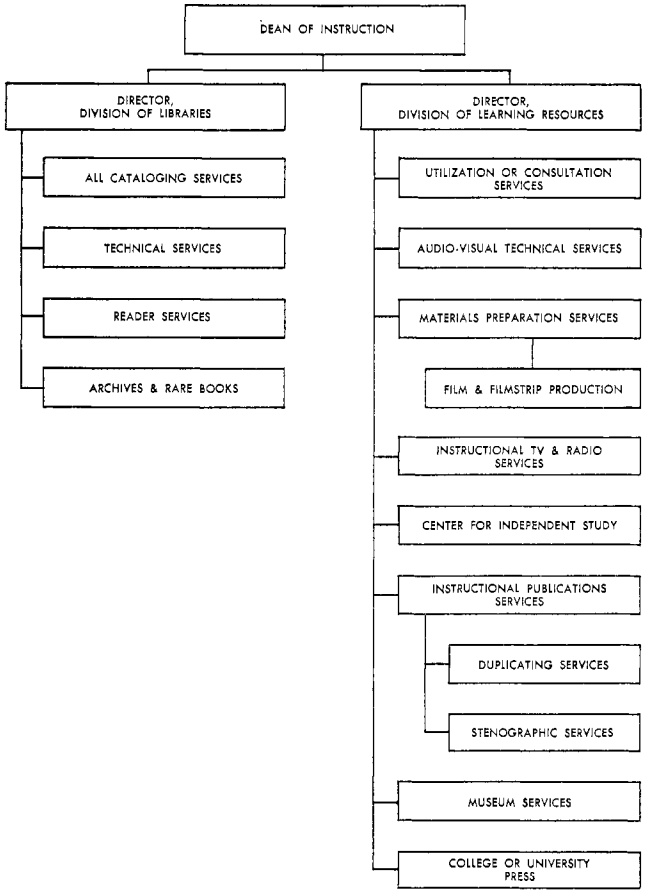

Chart 2) should be quite comprehensive. Although the large libraries may have to be separate because of their large book collections and enormous problems of storage and retrieval, ideally there should be some relationship between the other learning resources on the campus and the basic part of the learning resource of any campus, the book and magazine collections. At the present time, however, the most promising organizational developments for using learning resources are taking place outside the library in large research universities, and in a new division of educational services or learning resources which includes the library in smaller, instructionally-oriented colleges and community colleges.

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8. Licklider, *op. cit.*, p. 24.

9. *Ibid.*, p. 170.

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11. *Ibid.*, p. 73.