The concept of the instructional materials center (IMC) has evolved in response to the limitations of the traditional single-resource library. The IMC is an organizational solution for integrating traditional library services with the variety of multimedia devices and materials necessary to contemporary educational practice. The concept grew from the desire for more effective teaching in an increasingly complex educational system and the need for better use of the many audiovisual devices and other communications instruments developed for modern teaching and learning. Frequently, the literature does not differentiate clearly between libraries and IMCs. In earlier documents, discussions of library design often included useful information on multimedia accommodations. These discussions are reported in the first section of this review. The second section focuses on those documents attempting to define the IMC and its new roles in relation to educational practice and facilities. (Author)
Current educational philosophy has expanded the concept of a library to that of an instructional media center, an instructional materials center, a learning-resource center, an independent study center, a media utilization center and, in general, a focal point for the educational program. The creation of this unique concept offers an opportunity for educators, librarians, media personnel and architects to plan an educational facility designed to complement instructional programs. It makes little difference whether the facility is called a learning resource center, a library, an instructional materials center, or a media center. All are striving to provide an environment rich in materials and services.

Esposito (1969)

The concept of the instructional materials center (IMC) has evolved in response to the limitations of the traditional single-resource library. The IMC is an organizational solution for integrating traditional library services with the variety of multimedia devices and materials necessary to contemporary educational practice. The concept grew from the desire for more effective teaching in an increasingly complex educational system and the need for better use of the many audiovisual devices and other communications instruments developed for modern teaching and learning.

The IMC planner must give the architect a thorough statement of what functions the proposed facility will incorporate and how school policies will influence student and teacher use of materials and equipment. For instance,
the degree to which individualized learning is emphasized will determine how many audio-tutorial carrels should be provided, how large and diversified production studios for the different media should be, and where storage and conference areas should be located. With increasing student participation in the learning process, the IMC should be flexible enough to accommodate changing patterns of student and teacher use and the introduction of new programs.

Much of the ERIC system literature on instructional materials centers pertains to their organizational and management aspects. Architectural considerations appear most often in documents dealing with libraries, many of which discuss only public, higher educational, or research facilities. Needed is a comprehensive, well-documented, and amply illustrated study of physical facilities for elementary and secondary school IMCs—similar to that produced by Keyes Metcalf (1965) for academic and research libraries.

Frequently, the literature does not differentiate clearly between libraries and IMCs. In earlier documents, discussions of library design often include useful information on multimedia accommodations. These discussions are reported in the first section of this review. The second section focuses on those documents attempting to define the IMC and its new roles in relation to educational practice and facilities.

Available literature on IMC facilities for elementary or secondary schools conveys a lively sense of relativism with respect to individual school needs. Educators contemplating the design of either new or remodeled IMCs are urged to identify their particular needs in several ways. In addition to reading the literature, which offers an overall perspective and a few case studies of individual solutions, the IMC planner should visit existing facilities, discuss design and planning concepts with the teachers and students who are to use the proposed facility, and examine particular solutions with experienced librarians, media specialists, and curriculum planners.

TRADITIONAL LIBRARIES AND MEDIA ACCOMMODATIONS

Papers and discussions presented at a Library Buildings Institute and American Library Trustee Association Workshop in 1965 are collected by Shaw (1967). In addition to general library information, the publication reports sessions on public libraries, college and university libraries, and secondary and elementary school libraries. The section on school libraries includes a panel discussion of team-planning techniques and goals, an evaluation of unusual shapes for school libraries, and several papers on instructional materials centers and renovation of libraries to meet IMC needs.
This paper also stresses the relationship between the architect and the librarian emphasizing that the architect "must know what the educational profile is now and what it will be."

Libraries in the round are criticized primarily for the amount of space that is wasted or lost by combining square furnishings and equipment with a circular design. Other criticisms involve the inability to screen off noise and activity of the circulation desk, and the difficulty of enlarging such facilities once they are completed.

Among the case studies included in Shaw's compilation is one of an elementary school whose non-graded, non-class-structured program required designing the entire school around a learning resources center. The resource center includes a "nerve center," curriculum center, "perception core," projection room, children's theater, and art center. The "perception core" serves as a library, materials center, reading instruction center, study center, or whatever is needed to provide learning experiences for individual boys and girls who have been intensely caught up in the excitement and adventure of learning.

Various aspects of library interiors receive attention in a document edited by Poole (1965). This publication contains reports of the proceedings of the 1964 Library Equipment Institute Papers and discussions focus individually on furnishings, illumination, audio services and facilities, flooring materials, and transportation of books and people within the library.

Observations concerning informal library furnishings recommend comfortable informal seating and furniture arrangements conducive to library decorum. A general discussion of the effect of light on sight includes specific effects of lighting variables on task visibility and direct comfort, and approved lighting standards for libraries.

Treatment of audio services describes listening facilities and discusses recommendations for equipment selection. Information given regarding the performance of different flooring materials relative to specific library needs concludes that carpeting is best suited for library purposes.

Several articles in an H. I. Bulletin reprint (Johnson and Bomar 1964) are directed to basic considerations in library planning. To define a building program, the librarian and staff members must understand how to write educational specifications for use by the architect. The function of the architect is described, together with the means and steps by which he arrives at solutions to design problems.

Case studies of recently constructed elementary and secondary school libraries illustrate principles and features of good design and are supplemented with floor plans. Various trends in education and educational technology are discussed with regard to their implications for planning school libraries. A short annotated bibliography lists books, pamphlets, articles, and films relating to school library planning.

Strohecker (1963) reports the proceedings of a workshop on school library quarters and equipment. The significance of the library as a dynamic aspect of the educational process requires that library planning standards keep pace with changes in educational programs. Modern libraries should provide science facilities, audio-visual materials, and a variety of group-work and individual research areas.

Workshop sessions discuss interior decoration, floor covering, furniture and other equipment, lighting, sound and thermal
control, and the working relationship between the librarian and architect. The publication also reviews several workshop discussions and outlines suggested planning requirements and procedures. A bibliography of related reading is included.

According to Mason (1966), a library building program is a reference handbook for architects to use throughout their planning. With this focus, he offers advice to librarians writing such programs. The architect should be shown how separate physical units interact with the library processes. Reasons for the size and placement of each unit should also be stated.

Grouping related units within the program report further assists the architect in designing spaces that will facilitate library efficiency. Three statistics underlie the writing of specifications for the library areas: the total number of student seats to be provided, the total staff to be accommodated, and the total number of loads to be shelved in the new building.

The proceedings of a conference held at Selwyn School (1968) were primarily directed to planning a small independent school library, but conclusions apply equally well to the planning of any school library. Conference sessions reported in the document include: divisions of library service, media and electronic equipment, book collection, library atmosphere, cataloging media, library location, and study carrels. A checklist for library plans gives recommendations for educational specifications, maintenance considerations, and library concepts.

Four papers from an institute for training in library planning (Appalachian State University 1970) provide useful perspectives on current trends. One paper cites ten shortcomings most commonly found in library buildings. This list, compiled by an experienced consultant, pertains to junior college libraries, but the information is relevant to elementary and secondary school libraries as well:
- using plans prepared for another institution
- designing the building without concern for function
- locating the library so that expansion is difficult or impossible
- underestimating library growth
- providing inadequate work space
- failing to include storage space
- making the internal arrangement of the library inflexible
- giving insufficient attention to control and supervision for service during both quiet and busy times
- providing too few places for individual study
- ignoring non-book materials

Gilchrist in Appalachian (1970) pp. 16-18

Other papers describe the concept of a "living room library," give substantive details on library facilities and equipment, and discuss special problems of media utilization and architectural accommodations.

A state-of-the-art report by Evans and others (1971) summarizes current practice and accepted standards in library facility design. Intended for use in the planning of army libraries, the research reported is equally applicable to the design of nonmilitary resource facilities. The report is based on a review of relevant literature, visits to both military and nonmilitary libraries, and interviews with librarians, building consultants, and architects. Recommendations suggest the use of a team-planning approach throughout the building project, including a written, fully documented building program, exploration of all options for a new
facility, use of a proximity chart analyzing library activity relationships, and evaluation by methods described in detail in the report.

Metcalf's (1965) indepth treatment of all aspects of library planning for academic and research facilities provides useful perspectives for educators and architects planning secondary school resource facilities. He divides his presentation into two parts, the first dealing with basic information on library building planning, the second describing the planning process.

Topics in the first part include library objectives and their relation to aesthetic problems, quality of construction, function, and cost; modular building systems and their advantages; and information on various architectural considerations as they relate to library needs. The second part supplies detailed descriptions of the planning process, the selection of a consultant and architect, and various programs for special requirements. Appendices provide program examples, formulas and tables, lists of equipment "that might be overlooked," selected annotated references, and a glossary of relevant library and architectural terms.

INSTRUCTIONAL MATERIALS CENTERS

A publication by the Ontario Department of Education (1972) offers both architectural and organizational perspectives for those planning new or expanded facilities for the school media center. The document affirms that contemporary educational programs stress individualized learning and require an abundance of readily available learning materials.

Ideally, according to the document, the school media center is the central agency for the acquisition, production, organization, and distribution of learning resources required by students and teachers. These resources may include filmstrips, 8mm and 16mm films, audiotapes, videotapes, transparencies, pictures, maps, charts, globes, multimedia kits, educational games, and realia (objects and articles used by a teacher to relate classroom teaching to real life). The center may function additionally as a link with other community information services and resource personnel.

"New dimensions in educational technology for multi-media centers" is the focus of an entire issue of Library Trends (April 1971). The journal begins with consideration of current learning theories relevant to media centers, followed by a description of school media programs and a case study of a college media resource center. A remote access audio/video information system receives attention, together with microforms and equipment in the educational environment. Treatment of microform equipment covers user studies and experimentation and discusses retrieval techniques. Trends in the dimensions and use of carrels, furniture, and related facilities are presented, including a listing of suppliers.

Other articles stress that the media center must be flexible enough to adapt to anticipated changes in technology, curriculum, instructional aims, community structure, administrative organization, and staff competency and composition.

Esposito (1969) advocates that "as in other areas of learning, research skills can best be learned through first-hand 'laboratory' experiences in a library facility." His brief but substantive treatment of IMC's contains general recommendations regarding aesthetics, acoustics, lighting, temperature control, location, and layout of such facilities. In addition to considering spatial relationships, equipment, and furnishings,
he suggests basic and advanced accommodations for primary, middle, and secondary schools.

The interrelationship of program, personnel, and facilities in an IMC is considered in a publication by Artz and others (1965). Topics include a description of study, conference, office, production, storage, display, and adjacent areas. Case studies and examples are provided for making the maximum possible use of the center within both the school and the community.

Davis (1968) provides general perspectives necessary for planning an IMC, but does not deal at any length with design specifics. He discusses the organization and development of IMCs as part of a program of educational improvement and analyzes the advantages and disadvantages of centralized and decentralized resource centers. To illustrate his discussion, he cites examples of five successful IMCs on both elementary and secondary levels, with emphasis given to each center's scope, staffing, materials, and integration into the school system served.

Rogers (1968) maintains that, more than any other area of the school, the design of the instructional materials center depends on a statement of the school's objectives and goals. Her presentation explains how school library functions may be expanded into IMC programs and discusses personnel, programs, materials, indexing systems, budgets, and spatial allocations. She recommends that the school administrator do four things preparatory to writing specifications for an IMC:

- Contact practicing librarians and audiovisual specialists from local or nearby districts. They face and solve these types of problems daily.
- Visit libraries of other secondary schools, community colleges, and colleges. They have much more in common than we have allowed ourselves to believe.
- See that planning is based on research and design compatible with journal articles on school libraries, audiovisual departments, and administration. Rogers (1968) p. 7

An annotated bibliography of materials pertains to physical design, organization, and materials acquisitions for instructional materials centers.

In an NASSP Bulletin article, Powell (March 1971) takes the reader on an informal tour of a media center, blending observations on architectural characteristics and educational principles. Her major contention is that by providing for multiple activities to occur at the same time, the media center supports an optimum environment for individualized learning.

Principles of building redesign to develop IMCs in older buildings are discussed in a School Library Journal article by Taylor and Hull (November 1969). Their treatment includes experiences in remodeling several elementary schools.

**SPECIAL CONSIDERATIONS**

Furniture and equipment for libraries are dealt with in an American Library Association (1963) publication on the proceedings of a 1962 Institute. Discussions and information are organized in six categories: furniture selection, book stack selection, specification writing and bidding procedures, equipment and methods in catalog card reproduction, equipment and methods...
in photocopying with special emphasis on copying from bound volumes, and equipment and methods in the production of full-size copy from microtext.

A major objective of Metcalf's (1970) book on library lighting is to make the opinions and points of view of library users and various professional consultants available to library planners. His treatment of the subject begins with background information and an explanation of pertinent library lighting problems such as quality, function, aesthetics, intensity, and costs. The major part of the book consists of solutions to those problems, as recommended by Metcalf and specialists in various aspects of lighting design.

The influence of human movement on the layout of libraries is discussed in a short paper by Marples and Knell (1971). Quiet areas where readers can work undisturbed can be obtained by careful arrangement of stacks, periodicals, reference books, catalogs, staff areas, and browsing accommodations.

The authors point out that too frequently library designers are influenced more by general appearance than by concern for proper traffic circulation. With this in mind, they present five alternative floor plans designed to separate serious readers from general library traffic. These plans are based on a design formula distinguishing three separate areas: movement area (supervisory staff, catalogs, main book stacks), buffer zone (selected book stacks, periodical displays), and prolonged study areas.

Three case studies appearing in a recent issue of *American School & University* describe leading electronic book theft detection systems ("Technology vs the Academic Book Thief" October 1972). The security systems are based on sensing equipment designed to detect special paper, tape, or metallic strips inserted in each book. The studies report significant reductions in book thefts that more than paid for the costs of the system.

A substantive manual (Johnson 1963) reports information from a study on protecting the library and its resources. His guide identifies various methods of physical protection and discusses types of physical losses and their prevention. He also reports on types of insurance, including a model insurance policy recommended for libraries.

**BIBLIOGRAPHIES**

Wakefield (1968) provides an annotated reference list of documents received and processed by the ERIC Clearinghouse on Educational Facilities. These documents are concerned with the construction of libraries and study facilities for all levels of education. Each item in the bibliography is indexed and abstracted.

A more recent publication by the ERIC Clearinghouse on Educational Facilities (1970) lists publications of interest to architects, library planners, and librarians contemplating the planning, programming and/or designing of library facilities. Each item includes ERIC descriptors that describe its contents. The bibliography is arranged in six categories: library planning, carrels and study facilities, library automation and technology, resource and instructional materials centers, building equipment and materials selection, and additional references.

A bibliography by Davis and Crotta (1971) gives references pertaining to the planning, organization, and operation of modern IMCs. Items in the bibliography are briefly annotated and arranged alphabetically by author.
Poli (1970) has compiled an annotated listing of seventy-four articles and reports on IMCs. The references, published between 1967 and 1970, include such topics as the purposes of an IMC, guidelines for establishment, and the relationship of IMCs to technology. Most of the reports deal with elementary or secondary school IMCs.

An earlier bibliography by Davis (1967) provides annotated references on planning, staffing, and operating IMCs at all levels of education. Items listed include 24 books and 187 articles published between 1949 and 1966. Related topics cover team teaching, audiovisual materials, school libraries, independent study, learning centers, curriculum laboratories, and individualized instruction.

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Abstracts of the following documents can be located in Research in Education. The complete texts are available from the ERIC Document Reproduction Service (EDRS), commercial channels, or both. Publications can be ordered in either Xerox copy form (HC) or microfiche (MF).

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RESEARCH HIGHLIGHTS

As a means of getting ideas for the design of new or remodeled facilities, library planners should study uses made of the library by outstanding teachers. Shaw (1967)

The IMC may function additionally as a link with other community information services and personnel. Ontario (1972)

The IMC should foster development of research skills by providing for "first-hand laboratory' experiences in a library facility." Esposito (1969)

Perhaps more than any other area of the school, the design of the IMC depends on a statement of the school's objectives and goals. Rogers (1968)

Quiet areas where readers can work undisturbed should be provided by careful arrangement of stacks, periodicals, reference books, catalogs, staff areas, and browsing accommodations. Marples and Knell (1971)

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