Title
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Permalink
https://escholarship.org/uc/item/86n117wm

Journal
Drexel Library Quarterly, 16(1)

ISSN
0012-6160

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Publication Date
1980

Peer reviewed

Informational Graphics and Sign Systems as Library Instruction Media

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This article originally appeared in *Drexel Library Quarterly* 16 (January 1980), 54-68.
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ABSTRACT

This article discusses signs and graphics in the library building as tools for communicating with users. It reviews typical approaches to signage in libraries, describes the objectives and components of sign systems, and outlines a method for designing and developing an effective system. It was written in 1980; because the same principles apply remarkably well in 2008, the text has not been modernized to reflect changes in library buildings and technology. Following the text and notes is an additional bibliography listing more recently published items.

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Informational graphics and sign systems are among the most basic, and at the same time most indispensable, forms of library instruction. Like other media employed to educate the library user, they derive their importance and usefulness from the needs that users experience as they search for information. The same kinds of analysis and objective-setting that go into the planning of a class lecture or an audiovisual presentation can and should be applied in designing effective graphics, from a single information display to a comprehensive sign system.

Every person who enters a library building in search of information must deal with the library's physical environment throughout the search process. [1] This environment is the medium through which the user moves, and it is also a source of informational cues that he/she uses in making a series of wayfinding choices ("Which way is the catalog?") and strategic choices ("Does this catalog list periodicals?"). Every user receives cues from the environment; this is true whether these cues are planned or unplanned, consistent or random, helpful or confusing. Whether the environment will be an aid or an obstacle to the user depends upon the extent to which the library acts to shape its environment as an instructional tool.

APPROACHES

Signing practices in libraries vary widely, running the gamut from conservative to activist, sometimes guided by written policies and sometimes not. The basic approaches most commonly taken by libraries in dealing with the need for informational graphics are discussed below.

Prohibition

Some libraries, attempting perhaps to preserve an atmosphere of dignity in keeping with the traditionally monumental nature of library architecture, simply avoid posting signs altogether. If strictly enforced, this method creates an informational desert in which library users have to find their own oases--usually by asking the staff what may seem like an endless series of redundant directional questions.

Laissez-faire Approach

Many libraries make no attempt at sign control in either a positive or a negative sense, leaving the staff free to put up whatever signs they wish. Although the resulting signs are likely to respond to actual user needs as perceived by the staff, the disadvantages of this method make it an unwise choice. Because the signs are put up on an ad hoc basis, and often in haste, they tend to cluster around public service desks, reflecting the problems that arise there without addressing the user's need to make choices in more remote parts of the building. Because there is no overall planning, the information presented may be inconsistent, and outdated signs may not be removed. Because the materials and techniques used are generally not suitable for the purpose, the signs tend to be illegible from more than a few feet and to deteriorate quickly. A conglomeration of such

unplanned signs, besides being informationally confusing, can project an offhand, amateurish impression that benefits neither the user nor the library.

"Sign System" Method

As an alternative to these approaches, a library may take action to develop a unified sign system. In a recent survey by the Association of Research Libraries, 37 of 68 responding institutions indicated that they had done so.[2] While the specific aims, components, and costs of sign systems vary widely, the crucial and distinctive element in this approach is planning. Because the design process is based on a careful analysis of user needs, the resulting system can address those needs on a library-wide basis. Because terminology, layout, color, and other design elements are standardized, informational consistency as well as speed and economy in producing new signs can be achieved. Because a properly prepared system incorporates durable materials, changeable features, and a maintenance manual, its effectiveness can be constant over a long period of time.

A comprehensive system, consisting of a number of related components (see Figure 1), can influence library users' perceptions and behavior in several ways. As user efficiency increases, the proportion of simple directional questions asked at service desks may decrease, thereby freeing the staff to deal with more substantive inquiries and possibly improving staff morale.[3] As users become more aware of the full range of services and facilities available to them, use may increase in some areas.[4] Equally important is the synergistic effect of a sign system. When the various parts of the system work together, users--even those with complex tasks to perform--can find their way in the library as they do in other signed environments, such as airports or hospitals, looking for and receiving an orderly series of cues. This effect creates an overall impression of the institution from which libraries clearly have much to gain, whether this is called public relations, corporate identity, or simply a professional appearance.
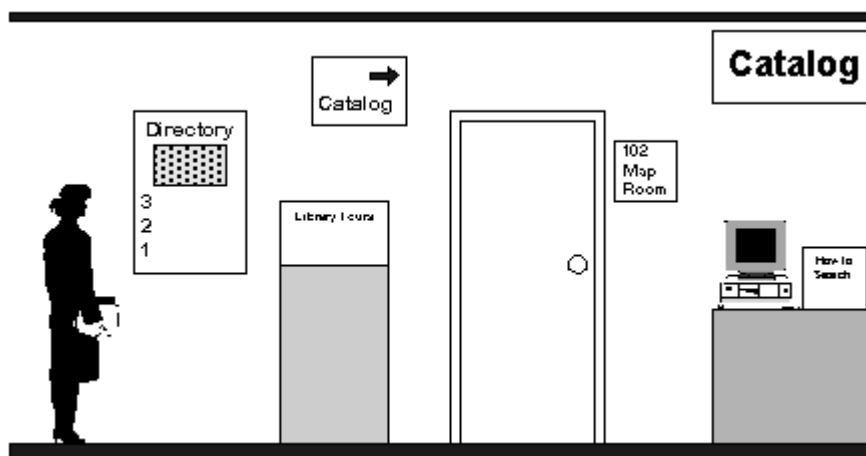

Figure 1. Some components of a hypothetical sign system, shown together for comparison. From left: main lobby directory; movable/changeable floor sign; directional sign; room identification sign; major identification sign; point-of-use instructional aid.

OBJECTIVES

As with other media used in library instruction, the design of informational graphics involves two basic tasks. The first is to define the desired user behavior or knowledge at a given step in the search process--and, in this case, at a given location within the library building. The second task is to select and develop the best possible means of encouraging that behavior or communicating that knowledge. This fundamental design sequence applies to decisions affecting the entire sign system as well as to those dealing with individual components.

Thus, the behavioral and cognitive objectives of the system determine what kinds of signs and displays will be used and how they are to function. While any such project necessarily involves a unique set of problems and solutions, the most common objectives of comprehensive sign systems can be grouped into six general categories: orientation, direction, identification, instruction, regulation, and current awareness.[5] These broad objectives are discussed below along with the means that might be used to achieve them. Only interior signs are covered, although signs outside the library (e.g., directional, identifying) are often necessary as well.

Orientation

A user entering the library or moving from one area to another needs to identify and select relevant resources and establish their general locations within the building. The sign system should respond to the user's need to progress from general to specific information during this process. Such a system might include several types of orientation displays:

- Main lobby directories listing library resources, areas, and services and relating them to a building map.

- Displays in specific areas, such as elevator lobbies on stack floors, providing more detailed orientation to these areas.

- Self-guided tours, in printed or cassette form, keyed to marked locations in the building.

Direction

The user needs to make correct wayfinding decisions as he/she moves along the route from starting point to destination. This process demands careful attention in libraries where resources are spread out or architecturally hidden, and where the user often has a series of tasks to perform. The system should provide:

- Directional signs placed at decision points, i.e., wherever significant numbers of users have to make wayfinding choices or change direction.

Identification

The user (who may not be able to distinguish one library resource, tool, or service point from another based on appearance alone) needs to recognize his/her destination upon arrival. Since some destinations are more heavily used or must be seen from farther away than others, identification signs are usually designed in a hierarchy of sign sizes or type sizes. These consist of:

- Large signs, supergraphics, or color coding to mark major areas.

- Signs giving numbers and names of individual rooms and offices.

- Signs identifying special facilities for handicapped users.

- Signs identifying specific library tools; these may also display instructional information as discussed below.

- Stack end labels and other signs identifying particular parts of the library collection.

Instruction

The user, having arrived at a particular resource, needs to know what to expect from it and how to use it effectively. The aim here is to present basic information as clearly as possible, reinforcing what the user may have learned about search strategy through other forms of library instruction, and, where appropriate, reminding the user that the staff is available for further assistance. The following devices might be used for instructional purposes:

- Information displays at major tools--card catalogs, public-access computer terminals, and reference sources or groups of sources such as periodical indexes. This type of display is especially important with the advent of COM and on-line catalogs, computerized literature searching, and other developments requiring significant changes in user behavior.

- Point-of-use presentations, in audiovisual or printed form, coordinated with the graphics in design, content, and placement.

- Displays designed to give an overall view of search strategy or library procedures; these are less common than the above but certainly possible.

- Signs explaining specific procedures at circulation desks and similar locations, as needed.

- Exhibits calling attention to particular library resources.

- Suggestion/response boards, an excellent communications tool that can incorporate graphic elements consistent with the rest of the system.

Regulation

The user needs to know what behavior is forbidden, permitted, or required in a particular area or situation. With careful planning, a library can often reduce the number of regulatory signs while at the same time clarifying their messages. The use of symbols, color, size, or placement to distinguish regulatory signs from other signs should be considered. Several regulatory messages are commonly required:

- Signs regarding smoking, food/beverages, noise, and security procedures.

- Signs showing fire exit routes, emergency procedures, meeting room capacities, or other information required by building codes.

- Copyright notices posted at copy machines.

Current Awareness

The user needs to know about temporary conditions or changes in the library that might affect his/her tasks, as well as library hours, special events, and similar information. This objective can be achieved through making parts of the system changeable and the current information recognizable as such. The following means should be considered:

- Bulletin boards for posting of current information, located in high traffic areas, perhaps on or near the major orientation directories.

- A consistent format for library notices so that users will recognize them at once.

- Provision for listing "Changes" on or adjacent to library floor plans and directories.

- Posting of explanatory notices at locations in the building where changes (e.g., shifting of books) are taking place.

- Incorporation of changeable text strips or panels into signs and displays where information is likely to change frequently.

DESIGNING AN EFFECTIVE SYSTEM

Since the effectiveness of graphics depends upon proper placement, lighting, and relationship to other architectural elements, the opportunity to include plans for a sign system as part of the design for a new library building should not be missed.[6] Although it may be impossible to specify every sign that will be needed until the new facility is actually in operation, the need for graphics can be indicated in the building program and the basic design and major components of the system can be developed as part of the interior design and space planning process.[7]

Many library sign projects, however, take place in existing buildings that have been inadequately signed or not signed at all. This situation presents a special challenge, since the system must be designed to adapt to--and sometimes to clarify for users--the building's idiosyncrasies. Some changes in the building itself, such as removal of old signs, repainting of some areas, or building of special structures for major signs and directories, may also be necessary. On the other hand, this situation also presents a special advantage in that user behavior is a known factor that can be studied in advance and taken into account in the design process.

A sign system is the product of decisions made by a planning group that may include representatives of the library's governing authority, of the library administration, of the staff (particularly those concerned with public services), and of any library units especially affected, as well as the building superintendent. If the project requires the expertise of a professional design consultant, this person's involvement should begin with the initial stages of planning.[8] In addition, the entire library staff, and possibly members of the user community, may be involved at some stages. Success in this complex undertaking is most likely if all parties share a common understanding of the scope and objectives of the project, and if good communications are maintained throughout. The following discussion focuses on those aspects of the design process that are most critical in determining the system's instructional value.[9]
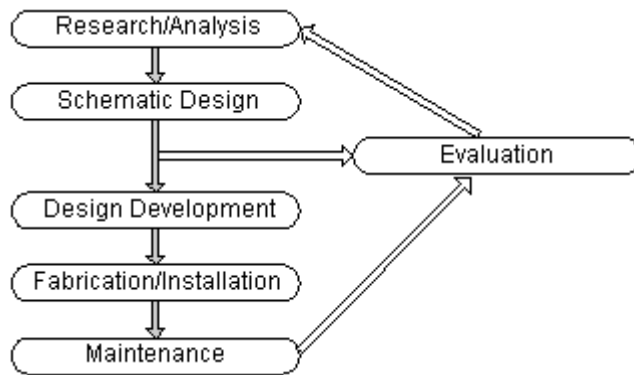
Figure 2. Phases in a typical design project.

Of all the phases in a normal design project (see Figure 2), the initial **Research/Analysis** phase demands the most time and attention from the library staff. Several developments at this stage can "make or break" the system as an instructional device. The planning group must first gather as much information as possible about user behavior and needs, whether from existing library use statistics and user studies or from studies done specifically for the project. The latter might include observations of actual user behavior and traffic flow, staged problem-solving exercises, or a survey of users through interviews or a questionnaire. Whether or not the resources to conduct such studies are available, the library staff--particularly those who deal most with the public, such as service desk staff and stack attendants--can and should be consulted for their knowledge of user needs.

Another critical task in this phase is to gather and edit the information to be presented through the system. Much of this information can be assembled from existing floor plans, lists of rooms and other resources, stack location directories, staff rosters, and other readily available sources. The editing process, however, may pose some complexities. Because a sign system demands a high degree of consistency, some libraries may at this point have to choose between functional and memorial names for certain rooms, select the most readily understandable of several common designations for the card catalog, or make other similar decisions. What emerges will be, in effect, a controlled vocabulary of terms which the library uses to identify its own resources. Moreover, standardized and simplified explanations of various library procedures will also have to be developed. In the course of codifying this information, the staff may discover that it makes more sense to streamline or otherwise change some procedures than to present them in their traditional forms. For example, if discrepancies or unneeded complexities are revealed in the course of formally articulating a library's circulation rules, revision of these items can be a valuable by-product of the design process.[10]

When the desired information has been gathered and organized, the **Schematic Design** phase can begin. In this phase, the designer works to identify the best means of displaying the various pieces of information at the point of need. Elements to be developed and presented to the library staff for approval generally include: overall design (the system's unifying principles and a description of all related components); graphic

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standards (typography, colors, layout, and other characteristics); informational standards (terminology, abbreviations, and syntax to be used on signs); and structural standards (materials, construction, and placement of signs). Since decisions made on each of these points will affect the system's instructional function, the library staff should carefully evaluate the design and conduct whatever on-site tests may be necessary to ascertain that the proposed solutions will actually work.

The third and fourth phases, **Design Development** and **Fabrication/Installation**, build upon decisions that have already been made. The designs for the system are translated into working drawings and specifications; the "sign schedule" (a detailed, sign-by-sign list keyed to locations in the building) is prepared; the contract for the project is awarded; and the system is manufactured and installed.

The final phase, **Maintenance**, is an ongoing process, not only of keeping the signs clean and in good repair, but also of seeing that the system continues to display accurate information and that any new or revised signs conform to the original design standards. If some measure of control is not achieved, the resulting inconsistency in form or content will detract from the system's effectiveness, just as inconsistency detracts from the effectiveness of a lecture, an audiovisual presentation, or any other instructional device. A sign manual for the staff to use in maintaining the system and ordering or producing new signs, and clearly defined responsibilities and procedures for carrying out these tasks, are the keys to ensuring consistency over time. Updating the information displayed to users through signs and graphics should be treated as one of the library's basic instructional services.

Evaluation is as essential to sign systems as it is to other forms of library instruction.[11] Data on the system's effectiveness can be gathered through a variety of methods, ranging from relatively simple procedures, such as counting directional questions or recording relevant comments from a user suggestion box, to more sophisticated techniques, such as actively surveying users or systematically observing their wayfinding behavior. Comparable data gathered before the system is installed will likely prove very useful, as will a set of measurable objectives for various parts and functions of the system. As in other instructional situations, evaluation should be used as an indicator of, and stimulus to, any necessary modifications in the system.

INTEGRATING GRAPHICS
WITH OTHER FORMS OF INSTRUCTION

As the foregoing discussion suggests, informational graphics and sign systems can play an important role in educating the library user. They are "on the job" any time the library is open, reaching even those users who have had no other instruction. They can perform a number of functions, from orienting users to the library's resources and services to presenting specific instructional information at the point of need. They can affect the kinds of interactions users have with the staff and the ways in which users perceive the library itself.

The consequences of overreliance on signs and graphics, however, may be just as serious as the consequences of neglect. Signs cannot convey the subtleties of reference sources or the conceptual framework necessary for successful research as effectively as a well-planned bibliographic instruction session. They cannot involve the user in an active role as effectively as exercises, workbooks, or interactive computer programs. They cannot serve as portable reference aids as effectively as printed guides and bibliographies. Their role is different from--and complementary to--those of the other media.[12]

Thus, no instructional medium should be seen as a substitute for the others; especially when staff time and resources are at a premium, all applicable media should be designed to work together for maximum effect. A sign system can provide the reinforcement that links the conceptual and factual content of bibliographic instruction to the library environment in which the user must actually operate from day to day. If the graphics incorporate elements of form, content, and terminology that also occur in the library's verbal, audiovisual, and printed instructional presentations, the user will be encouraged to remember and apply what he/she has learned. The only way to achieve this synergistic effect, other than by chance, is through a unified design program that recognizes the proper function of each medium.

CURRENT TRENDS AND RECOMMENDATIONS

The current interest among librarians in informational graphics and sign systems is traceable to a number of trends both within and outside the profession. Over the past two decades, librarians have become more and more concerned with user behavior, with the interface between user and library, and consequently with various forms of library instruction. Problems of scale resulting from large user populations and limited budgets have led some librarians, particularly in university settings, to concentrate on media and methods that enable them to reach as many users as possible with basic library information. At the same time, designers have given increasing attention to the need for informational graphics in public buildings; both the professional practice of sign design and the technology available for sign construction have gained in sophistication. The confluence of these trends has led to a number of relevant conferences, to the publication of some useful literature[13] and even to official recognition in the form of a recently established Library of Congress subject heading "Library signs." Although published information on the number and quality of actual library sign projects is scant, these phenomena indicate that both are on the rise.

There is a need for further research and communication in the evolving field of library graphics. A number of developments (some already in progress) that would advance the "state of the art" are listed below:

- Systematic research on the effectiveness of various forms of information display in library settings, including "before-and-after" studies by libraries installing sign

systems.[14]

- Public documentation of existing sign programs (including both successful and unsuccessful aspects), through the literature and through clearinghouses, such as LOEX and its regional and state counterparts.[15]

- Widespread dissemination to librarians of information on how to produce or purchase signs that are both professional in appearance and low in cost.

- Coverage of in-house and commercial sign production methods in library school audiovisual media courses.

- Workshops and conferences bringing librarians and designers together to foster communication on signing problems and solutions.

- Consideration of sign system designs as part of critiques of library building projects.

- Inclusion of basic guidelines for adequate informational graphics in published standards for all types of libraries.

The most fundamental need, of course, is for individual librarians and library staffs to undertake the task mentioned at the beginning of this article--that of shaping the library environment as an instructional tool. Those who do will find that both they and their users will benefit from the effort.

NOTES

[1] For a more detailed treatment, see the first two chapters in *Sign Systems for Libraries: Solving the Wayfinding Problem*, ed. Dorothy Pollet and Peter Haskell (New York: Bowker, 1979). These are: Ross J. Loomis and Margaret B. Parsons, "Orientation Needs and the Library Setting," pp. 3-15; Roger M. Downs, "Mazes, Minds, and Maps," pp. 17-32.

[2] Association of Research Libraries. Office of Management Studies, Systems and Procedures Exchange Center, "External Communication in ARL Libraries," SPEC Flyer #56 (July-August 1979).

[3] Mary Seng, "Reference Service Upgraded Using Patrons' Reference Questions," *Special Libraries* 69 (January 1978): 21-8; Herbert Spencer and Linda Reynolds, *Directional Signing and Labelling in Libraries and Museums: A Review of Current Theory and Practice* (London: Readability of Print Research Unit, Royal College of Art, 1977), pp. 8-9.

[4] Nancy Fjallbrant and Malcolm Stevenson, *User Education in Libraries* (London: Clive Bingley and Hamden, CT: Linnet Books, 1978), p. 149; see also pp. 11-12, 43, 69, 100, 151-2.

[5] Lists of sign categories are common in the literature; for an unusually thorough discussion, see Spencer and Reynolds, pp. 65-74 (see note 3).

[6] For an instructive example, see Stephen Langmead and Margaret Beckman, *New Library Design: Guide Lines to Planning Academic Library Buildings* (Toronto: John Wiley and Sons Canada, 1970), pp. 66-8, 80-1, 118ff.

[7] "Color and Signage" are discussed in Aaron Cohen and Elaine Cohen, *Designing and Space Planning for Libraries: A Behavioral Guide* (New York: Bowker, 1979), pp. 183-212.

[8] For an interview with a design consultant, see Dorothy Pollet, "You Can Get There from Here: New Directions in Library Signage," *Wilson Library Bulletin* 50 (February 1976): 456-62; for further discussion, see John Kupersmith, "The Role of the Design Consultant," in *Sign Systems for Libraries*, pp. 69-78.

[9] A detailed account of the design process appears in Katherine M. Selfridge, "Planning Library Signage Systems," in *Sign Systems for Libraries*, pp. 49-67.

[10] For an interesting discussion of "User Education and Its Integration into the Functioning of the Academic Library," see Fjallbrant and Stevenson, pp. 141-9.

[11] John Lubans, Jr. and Gary Kushner, "Evaluating Signage Systems in Libraries," in *Sign Systems for Libraries*, pp. 115-23.

[12] A useful list of the pros and cons of various modes of instruction, unfortunately not including graphics, appears in: Association of College and Research Libraries, Bibliographic Instruction Section, Policy and Planning Committee, *Bibliographic Instruction Handbook* (Chicago: The Association, 1979), pp. 46-55.

[13] In addition to the sources cited above, see Crosby/Fletcher/Forbes, *A Sign Systems Manual* (London: Studio Vista, 1970); John Follis and Dave Hammer, *Architectural Signing and Graphics* (New York: Whitney Library of Design, 1979); and Wayne Kosterman, "A Guide to Library Environmental Graphics," *Library Technology Reports* 14 (May-June 1978): 269-95, partially reprinted as "Sign Materials and Methods" in *Sign Systems for Libraries*, pp. 79-87. An excellent "Annotated Bibliography on Visual Guidance Systems," by William W. Prince, appears in *Sign Systems for Libraries*, pp. 243-58.

[14] For a much more complete list of possible research topics, see Spencer and Reynolds, pp. 10-11 (see note 3).

[15] A notable example is Marvin E. Wiggins and McRay Magleby, "A Signage System for a University Library," in *Sign Systems for Libraries*, pp. 149-59.

ADDITIONAL BIBLIOGRAPHY

American Institute of Graphic Arts. *Symbol Signs*. Washington, DC: U.S. Department of Transportation, 1974.

Susie Andretta. "Visual Literacy." *Library + Information Update* 3 (April 2004), 26-27.

Association of Research Libraries. *Effective Library Signage* (SPEC Kit 208). Washington, DC: 1995. Includes sample materials.

Beck, S.G. "Wayfinding in Libraries." *Library Hi Tech* 14 (1996), 27-36.

Benedict, Marjorie A. *Library Signs and the Disabled*. ERIC Document ED221162, 1979.

Bosman, Ellen and Carol Rusinek. "Creating the User-Friendly Library in Evaluating Patron Perceptions of Signage." *Reference Services Review* 25 (Spring 1997), 71-82.

Carey, R.J.P. *Library Guiding: A Program for Exploiting Library Resources*. London: Clive Bingley, 1974.

Cohen, Aaron and Elaine Cohen. *Designing and Space Planning for Libraries: A Behavioral Guide*. New York: R.R. Bowker, 1979.

Crosby/Fletcher/Forbes. *A Sign Systems Manual*. London: Studio Vista, 1970.

Dempsey, Beth. "Wayfinding in Action." *Library by Design* supplement to *Library Journal*, 131 (2006), 14-15.

Eaton, Gale, Michael Vocino, and Melanie Taylor. "Evaluating Signs in a University Library." *Collection Management* 16 (1992), 81-101.

Eaton, Gale. "Wayfinding in a Library: Book Searches and Route Uncertainty." *RQ* 30 (Summer 1991), 519-527.

Follis, John and Dave Hammer. *Architectural Signing and Graphics*. New York: Whitney Library of Design, 1979.

Johnson, C. "Signs of the Times: Signage in the Library." *Wilson Library Bulletin* 68 (November 1993), 40-42.

Johnson, Johanna. *Signs and Guides: Wayfinding Alternatives for the EMS Library*. MLS thesis: UCLA, 1981. ERIC document # ED217840.

Kinder, J; Eckman, C. "Where Do I Go From Here?" *College and Research Libraries News* 54 (1993), 79-80.

Kosterman, Wayne. "A Guide to Library Environmental Graphics." *Library Technology Reports* 14 (May-June 1978): 269-95.

Kupersmith, John. "The Graphic Approach," quarterly column in *Research Strategies*; 23 installments (Winter 1983 - Summer 1988).

Mallery, Mary S. and Ralph E. DeVore. *A Sign System for Libraries*. Chicago: American Library Association, 1982.

O'Neill, Michael J. "Effects of Signage and Floor Plan Configuration on Wayfinding Accuracy." *Environment and Behavior* 23 (September 1991), 553-574.

Piech, Carlo R.; Delmont, Mary K.; Newman, G Charles. "Butler Library Displays Vital Signs." *College and Research Libraries News* 47 (June 1986), 379-381.

Pollet, Dorothy. "You Can Get There From Here: New Directions in Library Signage." *Wilson Library Bulletin* 50 (February 1976): 456-62.

Pollet, Dorothy and Peter Haskell, eds. *Sign Systems for Libraries: Solving the Wayfinding Problem*. New York: R.R. Bowker, 1979.

Reynolds, Linda and Stephen Barrett. *Signs and Guiding for Libraries*. London: Clive Bingley, 1981.

Ridgeway, Trish. *Library Orientation Methods, Mental Maps, and Public Services Planning*. Rock Hill, SC: Winthrop College, 1983. ERIC document #ED 247942.

SignWeb (signage industry website)
http://www.signweb.com/

Spencer, Herbert and Linda Reynolds. *Directional Signing and Labelling in Libraries and Museums: A Review of Current Theory and Practice*. [London:] Readability of Print Research Unit, Royal College of Art, 1977.

Stanley, John. "Signs: Dos and Don'ts." *Library +Information Update* 3 (April 2004), 25.

Swart, I. "Library Signage." *Cape Librarian* 35 (March 91), 12-13.

Van Allen, Peter, Sr. "A Good Library Sign System: Is It Possible?" *Reference Services Review* 12 (Summer 1984), 102-106.

Wurman, Richard Saul. *Information Architects*. Zurich: Graphis Press, 1996.

Yeaman, Andrew. "Lost in the Information Supermarket." *Wilson Library Bulletin* (December 1989): 42-46, 89.