The changing paradigm for continuing medical education: impact of information on the teachable moment

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The teachable moment is the time when a learner is ready to accept new information for use conceptually or in practice. Adult educators are always searching for that "moment" and models in which it has been incorporated.

This article reviews the changing paradigm for continuing education of the health professional and the impact of information from the context of university-based providers of continuing education and information. Providers of continuing education and information face similar external opportunities and threats. The continuing education provider is a "marginal dweller" in the organization. The information provider (the library), although moving in that direction as technology affects the way information is accessed and managed, is much more a part of the core institutional mission. These parallel conditions provide opportunities for both organizations to work closely together to identify successful models to serve the "teachable moments" of all health care practitioners.

A range of new library roles that suggest strong interaction with continuing educators is presented. Workable models are identified as well as characteristics of successful models. Suggestions for survival for continuing educators and librarians in "stalking the teachable moment" are discussed.

INTRODUCTION

A wealth of continuing education (CE) opportunities exists for today's practicing health professional. CE has become a fast-paced growth industry—a multi-million dollar enterprise. Exponential expansion has occurred in part because of the explosion of information and new technology in the health care arena. The marketplace has also been influenced by regulatory and professional liability concerns, changes in practice patterns, and a movement by health care delivery organizations to employ continuing education as a marketing strategy at every level of the health care economy. From a more philosophical viewpoint, an orientation toward lifelong learning is more prevalent among practicing health professionals.

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If one analyzes this growth in the quantity of CE offerings, several subtle changes emerge in the ed-

ucational paradigm used by continuing medical education (CME) providers. This paper examines that changing paradigm and analyzes its impact on information services. Several successful models of continuing education are reviewed that may suggest changes in the traditional role of academic health sciences/hospital libraries and librarians for the future.

THE CHANGING PARADIGM

CME has traditionally been a passive pedagogical learning experience akin to the traditional educational continuum. Practitioners usually enroll in continuing education programs offered at a medical school where the faculty will update participants with current information through a lecture/slide modality. That modality continues today as a major form of CME. However the locus and format of CME have begun to shift. During the last decade, for example, more CME has been offered in the community hospital and practice setting; the lecture remains the primary format. This movement of CME closer to the practitioner has altered the type of CME offered at academic medical centers. More extensive use of technology for learning and an increasing emphasis on clinical skill development are apparent [1]. At the same time, a wider variety of CME opportunities exists for the practitioner. One need only look at the list of sponsors accredited to provide CME. Nearly every specialty society, medical school, and state medical association is involved in CME [2]. Self-study programs, distance learning, and computer-assisted instruction are provided by a growing number of these 480 accredited organizations. The net effect of all of these changes is that CME is no longer a passive medical school-based experience [3].

In addition to these changes, more is being learned about influences affecting a physician's learning. A recent study on the process of change and learning conducted by members of the Society of Medical College Directors of Continuing Medical Education (SMCDCME) reports that personal, professional, and social forces influence the need for new learning activities. "Professional forces are more likely than other forces to lead to new learning activities" [4]. Further, learning related to professional forces is more likely to be problem-specific and experiential. If this study is correct, it enforces the shift in the traditional paradigm of CME and suggests a movement toward applied types of learning experiences.

These circumstances have stimulated new CME formats. Proponents of practice-linked CME propose that CME be brought into the office or practice site and that it meet specific needs of the practitioner in that environment [5]. The individual physician profile pioneered by Sivertson et al. [6] has evolved into a

consortium of medical schools using the Physician Initiated Continuing Medical Education (PICME) plan. Both programs emphasize self-directed learning. The physician determines the learning objectives in the PICME program, and CME is developed that responds to those objectives.

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CME has shifted in two significant ways. First, the learner now has more options and consequently more control over what, when, where, and how learning continues. Second, because of the first change, the CME provider must make a greater effort to meet learners' needs in terms of what, when, where, and how. In business terms, CE has changed from a seller's market to a buyer's market.

The new paradigm for CME is in search of the teachable moment, that point in a learning experience when the learner is more receptive to accepting and using new information, accepting new attitudes, or learning new skills [7]. Some of the more progressive CME leaders have proposed this movement from a passive experience toward an interactive, student-directed experience. This activity brings the learner closer to the teachable moment and shifts the educational paradigm for CME.

IMPACT ON ACADEMIC CME

The CME offered by academic-based providers has become more interactive and dynamic. Providers now focus more attention on external practice environments and are reexamining the format of medical center-based programming. The continuing educator in an academic medical center has had to recognize and accept the role of "marginal dweller" in terms of organizational sociology. This transition has not been easy nor is it complete. Providers have had to assume a posture very different from the traditional academic model. This posture is essential to the success of academic CME within the institution as well as with the practicing physician. In many respects, this posture, which bridges the academic community and the practicing community, will benefit the academic institution.

According to Marksburg, being a marginal dweller means that one's traits, values, and behavioral patterns may differ from those in the mainstream or in support of the central mission of the organization.

Marginal dwellers are as important to the life and evolution of the social group as are members of the mainstream.... the frustration and restlessness that marginal dwellers derived from their ambiguous status gave them a certain amount of energy and creative impulse to be used in a leadership capacity ... marginal dwellers often are considered the true innovators of society [8].

New partnerships are required if the academic health center CME program is to remain viable in the 1990s. A partner with exciting potential for service exists in the medical or hospital library and in redefining future roles of the health sciences librarian.

The combination of fundamental change in the traditional educational paradigm (moving the education closer to the learner's need geographically and in time) and the stresses of organizational marginality have had a major impact on CME providers in academic settings. As delivery systems change and orientation to the practicing health professional shifts, so does the nature of the relationship of the CME provider to its constituencies—the medical school and the practitioner. With the demand for more content-specific and problem-based education comes the need to make delivery systems and programs more responsive and timely. New partnerships are required if the academic health center CME program is to remain viable in the 1990s. A partner with exciting potential for service exists in the medical or hospital library and in redefining future roles of the health sciences librarian.

CME ROLES AND RESPONSIBILITIES OF HEALTH SCIENCES HOSPITAL LIBRARIES AND LIBRARIANS

Gruppen [9], Quilligan [10], and Stinson [11] have all documented the fact that physicians use books and journals consistently as their major form of CME [12].

In contrast, Covell reported recently that, in reality, sources used by physicians for "immediate patient care problems" were mainly other physicians, other health workers, and lab tests [13]. This study suggests that physicians did not use references from a journal, textbook, or other informational sources for problem solving because they were not as readily available or were too costly to locate in an immediate situation. The implication is that if materials from a journal, textbook, or other informational source are to be helpful to a practicing physician, the information provider (CME faculty or the librarian) must find a way to make them more economical and more readily available when they are needed at the teachable moment [14].

Nationally, the library profession has obliged the needs of these practitioners by providing numerous databases and an automated, organized system of accessing them. On a local or regional basis, various programs, such as the clinical medical library (CML) program, have made printed resources more readily available and practical to academically based clinicians. But, just as in CME, the library profession must advance products and services to a more realistic level to make them useful to the practicing physician. A look at some current and emerging roles may provide a better understanding of the health sciences librarian of the future.

The local or regional librarian must not focus on organizing information for use (databases), but rather on using information for the organization or the practitioner.

Organization role. Historical evidence and current documentation suggest that the traditional role of the librarian in the "organization" of accessible information for the user will continue. However, one must distinguish between the profession's role on the national level and the role that academic health sciences or hospital librarians might play within their own service area for their specific patrons. In simple terms, the local or regional librarian must not focus on organizing information for use (databases), but rather on using information for the organization or, in this case, the practitioner. This paper focuses on this latter area.

Access role. The major responsibility attached to this role for academic health sciences or hospital librarians is to use national databases as tools to support the CE of health professionals. The academic health sciences or hospital librarian must, in fact, help gather the available literature for that practitioner and make it accessible in the form that would be most useful [15–17].

This dynamic, proactive, and progressive role proposes a matrix of new responsibilities. The academic health sciences or hospital library must reach out to the practicing health professionals in a far different way in the future. The literature suggests that practitioners want a gatekeeping function for selection of needed information [18–20]. There seems to be some receptivity to this role by practitioners; how it is carried out will determine its success.

Two new roles are proposed to position the library for success in the future.

Selection/synthesis role. Organization of information will become secondary to the selection of ap-

propriate information to meet the CME needs of practitioners. This most aggressive role for the librarian requires a continued awareness of individual learners and their information needs in the community setting. In consultation with the faculty, the librarian will easily be able to select information for formal group CME. The difficult part will be the follow-up to those programs for individual learners and the constant work necessary to meet individual needs on an informal, proactive basis.

The selection/synthesis role carries some risk because librarians begin making decisions about the kinds of information a practitioner might need. Rice advocated this "hidden role" for librarians [21]. Academic health sciences (and hospital) librarians must assume a more prominent role in support of formal and informal CME. This new responsibility is an exciting opportunity for service. It does not remove the responsibility from the practitioner, nor will it restrict the use of other sources beyond the librarian for CME. In this new role, the librarian can enhance learning dramatically by screening, selecting, and perhaps synthesizing information that will be most helpful for the busy practitioner [22].

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Education role. Newer roles for librarians in CME have been explored. In 1971 Wender reported a study conducted in Oklahoma that looked at patterns of literature search requests so that areas of study for CME could be determined [23]. Comparisons were made between library reference requests and responses to a questionnaire sent to physicians to ascertain interest in topics of CME courses. The results were inconclusive due in part to a fairly large time lag between the physician's request and the mailing of the questionnaire. However, evidence suggested that an analysis of information requests made to librarians may be one approach to determining practitioners' needs for CME programming. CME needs assessment is a natural function for academic health sciences or hospital librarians and enhances their status as educators. In a sense, librarians become educators because they must know the needs of their clients, be familiar with relevant resources, and respond to requests in an appropriate and timely fashion. Moore advocates this new role with students in an academic setting [24], but it can and should be used just as effectively with practicing physicians. As

more students are trained in this role, they will move into communities and expect the same services. Consequently, an increasing number of practitioners will have similar expectations.

The medical school or hospital library must compete with and enhance highly automated national information/educational user-friendly services such as AMA Net, Grateful Med and other similar services.

These new roles reflect the changing circumstances in which many medical schools and hospitals find themselves. Institutions must reach out and be more sensitive to the needs of traditional clients as well as newer client demands. Alterations will be necessary if the librarian is to be included in the design of the evolving educational paradigm. The conditions facing the librarian are not unlike those that face the CME provider. The library and the librarian must move closer to the organizational margin and not remain wedded to the central mission. The health sciences library must support CME needs at the medical center and in the community hospital. The medical school or hospital library must compete with and enhance highly automated national information/educational user-friendly services such as AMA Net, Grateful Med* and other similar services. If CME providers and librarians accept these challenging new roles, they will not only provide a needed service to patrons but enhance their professional positions for the future.

Technology. As potential CME roles and responsibilities of libraries and librarians are considered, both in academic medical centers and in hospitals, two pieces of technology seem to be destined for immediate impact. They are the microcomputer and the telefacsimile. These two allow a practitioner the freedom to access current information more easily, conveniently, and closer to the teachable moment than ever before. In some ways, this technology allows interactive learning rather than simply a passive receipt of information [25].

National organizations such as the American Medical Association (through AMA Net) are beginning to use this technology to provide information in increasingly sophisticated ways. The effect may be a diminution in importance and role for health sciences librarians and possibly CME providers. Halsted ar-

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* Grateful Med is a registered trademark of the National Library of Medicine.

gues against a diminished role when outlining five educational services of the CML faced with increased end-user searching [26]. Although the services related to academically based librarians, they could apply to hospital librarians as well.

Technology, therefore, is influencing librarian roles in two ways. First, it is increasing end-user searching, which alters the traditional role of the health sciences librarian, and second, it allows other commercial information brokers into the field as competitors in what was traditionally a medical center-controlled marketplace.


Librarians must emphasize their product, information service, as well as effective processes for providing the product. The librarian must become a learning consultant for the practitioner and, in a sense, a CME provider.

In summary, these changes in the traditional patterns of accessing information (especially technology) suggest a different model for the library and librarian. No longer will it be adequate to be just the repository and the organizer of information, nor simply the reactor to information requests, although that role cannot be eliminated. Access to usable information, its selection and synthesis, and the education of the user will become increasingly important to the librarian, CME provider, and practitioner. Technology must be used to aid the new roles. It is time for the library and the librarian to be a more dynamic, progressive, and proactive force in the CME of the physician. The librarian must move to the margin of the organization and work with CME providers to meet practitioner needs. Librarians must emphasize their product, information service, as well as effective processes for providing the product. The librarian must become a learning consultant for the practitioner and, in a sense, a CME provider [27-28]. As Naisbitt observed in *Megatrends* [29], this is the age of parenthesis. It is a time between eras—a time when significant changes can be made if only a vision is created of the road ahead. That vision for the future is a partnership model for health sciences librarians and CME providers.

MODELS THAT WORK —
A GLIMPSE INTO THE FUTURE

CME is changing. Health sciences libraries and librarians are being challenged as well. CME providers and health sciences librarians require a partnership to ensure a successful future for both. An effective model for this partnership would consider the impact

Figure 1
Traditional model (Reactive)

Figure 2
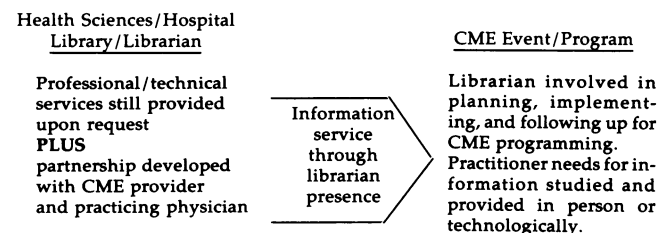Market-oriented model (Proactive)
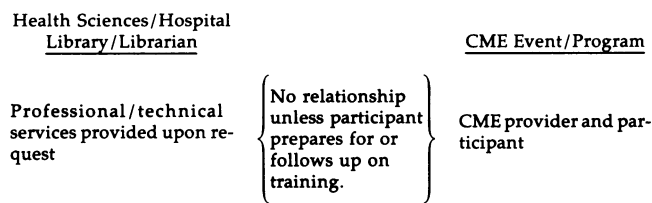
of technology and embrace all of the roles outlined in the previous section: organization, access, selection/synthesis, and education.

Traditional models outline a reactive and self-limiting potential for the health sciences librarian in an academic health sciences center and a hospital (Figure 1). A newer model for health sciences librarians is market-oriented and proactive (Figure 2). It brings librarians, or at least their services and products, closer to more effective use by the practitioner and the CME provider. This model also recognizes and encourages competition with the private vendor, who has become a major market force.

This newer, market-oriented model is illustrated by several programs that may become more common in the future. These prototypes represent a positive positioning of health sciences librarians on the frontier of inevitable changes in the lifelong learning habits of professionals.

These models represent examples of partnerships that have been forged between the library and CME. The models provide a glimpse of an effective relationship building between these two professions and suggest a pattern for the future. One involves extending librarians and their product to the practitioner, and the other represents the extension of the product only through technology. In all cases, the models promote organization, access, selection, syn-

thesis, and education as roles for the health sciences librarian of the future.

Area Health Education Centers. Area Health Education Centers (AHECs) provide one excellent example of extending librarians and their product. This is a partnership in several contexts: between CME provider and librarian, between academician and practitioner, and among all health disciplines [30]. By definition, the AHEC is a community-based organization that responds to health staffing problems by providing a range of educational services, such as medical education, resident training, and continuing education. A library is necessary to support all of the education programs of an AHEC, including continuing education [31]. This library and the professionals necessary to operate the program are atypical. A hybrid-type library must be developed that meets the needs of an academic training program *and* the practicing health provider, especially the practicing physician. The library becomes the information portion of the CME partnership. The librarian cannot just wait for information requests, but must take a more proactive role in dealing with practitioners who use the information for immediate problem solving. Different AHECs use their librarians in different ways. The most effective method combines the roles mentioned previously for a health sciences librarian—especially making the information easily accessible—and serving as a selector and synthesizer of that information for the busy practitioners. In addition the CME provider working in the community must consider information services as a primary resource to supplement and complement the community-based CME.

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The impact of partnerships between the community librarian and medical school librarian may seem obvious, but it is not easy to develop. The medical school librarian must be willing to reach out and work with the CME providers and the community-based libraries to provide needed information for the practitioner, while still providing traditional core-mission functions [32].

Information systems. Another model for librarians in meeting the information needs of practitioners is

the effective use of technology to develop regional or statewide information networks. Effective use of technology is essential in linking practitioners to their information needs. National databases have been developed to meet certain practitioner needs not met by local or medical center libraries.

A model that illustrates a statewide medical center-based system and the new role librarians can play is the Georgia Interactive Network for Medical Information (GaIN) [33]. The GaIN project, funded in its developmental years (1983–1986) by the National Library of Medicine, links Mercer University School of Medicine with more than 500 individual practitioners and twenty-eight hospital and health care institutions. GaIN was developed as a prototype medical information system creating an electronic link between the academic center and practice sites. The network incorporated many of the principles promoted in the Matheson study [34], including not only the electronic linkage mentioned earlier, but an academic database built on a fully automated, integrated library system and a gateway to external databases. The GaIN network includes GaIN MEDLINE,† the post office (an electronic mail system), the reference desk (an electronic bulletin board for CME courses, patient management information, and access to remote databases), and the conference center (an online CME conferencing system using software developed by the Veterans Administration). GaIN represents more than online linkages providing practitioners access to traditional library resources—it makes possible the academic institution's reaching out to the practicing physician for clinical and CME services. Clearly GaIN as a model holds promise to revolutionize more than library service delivery; it represents a new vista in intrainstitutional linkages, with the library, the CME office, and clinical departments cooperating in meeting the lifelong learning needs of rural practitioners.

The Medical Information Service via Telephone (MIST) of the University of Alabama at Birmingham represents another excellent example of physician consultation services. In twenty years of toll-free telephone service, MIST has taken nearly one million calls at the teachable moment from health practitioners from around the state and the country. The service has made possible practitioner consultation with academic faculty and provided ready access to a variety of other services within the university setting, including CME. Similar systems have begun to spring up all across the country. A sophisticated data-collection and retrieval system has become an integral part of MIST in the past two years. This computerized system is providing administrators and CME profes-

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† MEDLINE is a registered trademark of the National Library of Medicine.

sionals with useful information concerning call origins, specialties of callers, and a wealth of detailed data about specific consult requests; these form the basis for CME needs assessment and certain kinds of institutional planning. Efforts have been made to link the resources of the Lister Hill Library on campus to the MIST system so that current literature is available to callers at a moment's notice.

The three described model programs extend librarians and information services and products closer to the teachable moment. The merger with CME providers on the margin represents a philosophical, as well as practical, adjustment to the environment of both professions. This adjustment will change the roles of the librarians and allow for service to a new market (practicing health professionals) and better service to their main patrons (students and faculty). Stalking the teachable moment will enhance both professions and illuminate their futures in an academic organization that must continually be focused on the ever-changing environment.

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