Online Educational Resources — Will More Information Make Us Wiser?

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Abstract

Although the Internet is still primarily an information resource, there is increasing emphasis on its instructional potential. Practitioners can receive Internet-based information and education from a variety of sources around the world. However, they must learn to assess this information and to assimilate it into knowledge that will help them in their practices. They must also be given the opportunity to interact with colleagues to discuss issues pertinent to practice. This article describes the advantages of online education and provides resources to help practitioners evaluate the quality of online information and courses.

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Can the Internet improve our clinical decision making and our performance as dentists? Does our ability to access information from around the world mean that we can learn to be better dentists? As professionals, are we capable of learning without the support of conventional educational providers and institutions? Access to information is a good thing; the challenge lies in evaluating that information and assimilating it into knowledge that can help us in our practices. That implies being able to connect new information with what we already know and having the opportunity to discuss relevant issues with other practitioners. Is it worth the time, effort and cost to learn the skills necessary to access and evaluate online information and educational resources? I believe it is, because of the potential for online education to improve access, communication and interaction.

The Advantages of Online Education

The emphasis on the instructional potential of the Internet is perhaps the most important distinguishing characteristic of online education and training.[1] Terms such as Web-based training and Internet-based education are used to distinguish the use of the Internet as a training and education tool from other applications, for example, as a source of information. It has been predicted that online education will become a ubiquitous tool for conventional and continuing dental education because technological applications will promote:

- the replacement of textbooks;
- the emergence of trained instructional technologists;
- intelligent instructional systems;
- an education object economy;
- the merging of information, instruction and practice systems;
- increased instructional quality.[2]

There is a substantial body of literature (print and online) that provides examples of how technology can be integrated into educational systems to promote learning. Online instruction and training can be good educational practices when the learning environment is structured to take advantage of the technology. When you are looking for an Internet-based educational site, you want a site that does more than just offer information. You will also need guidance in finding additional resources that help explain concepts you might be unfamiliar with, and a means to discuss these concepts and to interact with other learners or knowledge facilitators.

The process of higher education involves 3 primary functions: content (what is taught), context (the environment that fosters or supports instruction and learning), and certification (documentation of learning outcomes and competency). Online education can improve the learning process or outcomes. The effectiveness of traditional educational methods, aimed at improving practitioner performance or behaviour, is poor because these methods typically consist of the presentation of new information or research findings without providing for interaction between practitioners. The key to effective continuing and distance education is to include a high level of interaction.[3-7] Online education can potentially increase the

opportunity for practitioners to engage in discussions with peers in an ongoing relationship that transcends time and distance. Ease of access to information and ability to communicate with colleagues will also promote the practice of "just in time" learning.

The evolution of the Internet from an information delivery vehicle to a medium for enhancing learning appears to be well on its way. Online education can broaden access to certified and credited programs without increasing the infrastructure of training and educational institutions. Businesses and educational institutions are increasingly adopting the Internet as the medium for delivering instruction, and contemporary learning theories are being referenced as the basis for designing online instruction.[8] The strengths of online education and training are:

- improved access for geographically dispersed practitioners, especially those living in rural areas;
- convenience (i.e., easier integration into busy schedules, self-pacing, flexibility to accommodate different learning styles);
- transmission of standardized technical information in a timely manner;
- individualized instruction, simulations reflecting real-life settings, and interactivity among learners and instructors;
- improved organizational benefits such as decreased training costs (travel, postage) and economies of scale, "just in time" training, monitoring of learner progress for support and remedial action, possible interruptions in training to accommodate a learner's work schedule.[9]

In a nutshell, online education improves access, communication and interaction. For practitioners, the primary motivator for participating in online activities is the opportunity to have better access to learning resources and to be able to communicate with colleagues. The greatest advantage of new technology is that it allows the learner to interact with others in the process of knowledge formation and validation.

Looking for Quality

Whether you use the Internet primarily to access information, or to take online courses, you should be concerned about the quality of the resources. Improved access to information will not necessarily mean improved learning, judgment or skills. Ultimately, the onus is on each individual to develop his or her decision-making skills and to assess the quality of the information available. The most important attribute a health care practitioner possesses is the ability to make sound clinical judgments. This capacity is the result of developing your knowledge base, making and defending your clinical decisions, and learning from your experiences. New technologies and more information will not automatically make decision making easier. As individuals we have to develop the skills to:

- think about what we are learning;
- determine for ourselves how any new knowledge is applicable to our situation;
- try to apply that knowledge to improve our practice;
- evaluate the results of our efforts;
- change our practice or beliefs based on these results.

Practitioners can access a variety of free online materials. However, all educational material, whether in print or online, must be assessed and used with caution. In the biomedical field, the most important criteria for evaluating information sources are validity and reliability. Using online versions of conventional peer-reviewed journals or specific sites that filter information for credibility are ways to validate your sources. A number of initiatives exist in the biomedical field to assess instructional resources on the Internet.

- A working group of the Accredited Standards Committee Medical Devices (Task Group on Dental Informatics) is currently drafting standards for educational software used by students, patients and practitioners. (http://www.temple.edu/dentistry/di/edswstd/)
- The National Learning Infrastructure Initiative (NLII), sponsored by EDUCAUSE, acts as a catalyst for the development of instructional software that will increase access, improve quality and reduce the cost of online learning environments. (http://www.educause.edu/nlii/)
- The Organising Medical Networked Information (OMNI) group has undertaken the development of a database project to provide a quality review of information used for instruction. The group locates information of interest to the biomedical community and ensures the resource, whether it be text, audio or video media, is of high quality. (See the site Dental Education Resources on the Web [DERWeb], at http://www.derweb.co.uk/, which provides over 2,300 images.[2])
- "Meta" sites are being developed to review, catalog and rate "primary" sites for content and quality.[10]
- Health on the Net (HON), which publishes a voluntary code of conduct (http://www.hon.ch).[11]

Unfortunately, the information found on the Internet is much less credible than the information available in conventional medical literature.[11] For an extensive list of evaluation criteria and quality indicators pertinent to general online material, practitioners can visit the following sites:

- http://www.usc.edu/isd/doc/libraries/guides/ps-105.html — This University of Southern California site contains a series of questions users should ask themselves before using print or online resources. It also contains links to guides for evaluating Internet resources.
- http://itech1.coe.uga.edu/Faculty/gwilkinson/criteria.html — This site from the department of instructional education of the University of Georgia lists 125 criteria for evaluating online sites including access, authors, information scope, content, relevancy, accuracy and validity, ease of use and esthetics.
- http://www.netskills.ac.uk/TonicNG/content/detective/0.html — This Internet Detective site is an interactive online tutorial that "provides an introduction to the issues of information quality on the Internet and teaches the skills required to evaluate critically the quality of an Internet resource."

It is difficult for practitioners to evaluate the quality of online courses if they have no prior experience with course content. There are, however, existing guidelines to help you

choose an online course. When assessing the quality of online material, remember to look for the following: the degree of interaction provided, the degree of learner support provided and the degree to which learning principles are adhered to.

You can make the above determination by asking the following questions:

1. What is the content and design of the course?
2. What are the regulations affecting enrolment and completion of the course?
3. How current is the course content? How relevant is the content to my goals?
4. What credit is associated with completion of the course? Is the credit transferable?
5. What support is provided to students who wish to enrol or are already enrolled?
6. How does one gain access to the course material and support services? How does one communicate with fellow students and staff?
7. What is the cost, direct and indirect?

For more information on how to apply these guidelines, visit the Commonwealth of Learning Web site at http://www.col.org./guideli.htm.

Conclusion

Although quality evaluation criteria have been identified and published online, criteria testing, validation and dissemination for general adoption have not been completed. Practitioners who broaden their exposure to various educational systems, instructional materials and technologies are strategically positioned to take advantage of that experience to make their own quality assessment.

The key to effective continuing education is to provide motivation to learn by increasing the relevancy of the educational activities and by promoting a high level of interaction. Online education provides practitioners with the opportunity to interact with peers and mentors in an ongoing relationship that transcends time and distance. If this concept appeals to you, let professional bodies and continuing education providers know that you are interested in online education. ◆

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