

Teaching Online Consumer Health Skills

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Abstract

Health education literacy can be advanced through the use of technology, and encouraging effective consumer health skills in students is always a challenge. By focusing on the appropriate use of technology to gather health related information, the assignment described in this article teaches high school or college students how to evaluate the quality of health information while learning to use the Internet. Independently or in small groups, students construct answers to anonymous letters written to a fictional health advice column in a newspaper or magazine. Students are required to use the Internet to research appropriate responses to assigned questions. Internet resources are subsequently evaluated according to specified criteria.

Introduction

Students of all ages are continually exposed to conflicting messages about how to maintain good health. The Internet has complicated matters by providing a new source of unlimited and unfiltered health information. Below is a description of a learning activity that can help both college and high school students learn to appropriately use online health information resources.

Technology and Health Literacy

The sheer volume of available health related data continues to multiply at a staggering rate. In the information age, student competencies in health education will become increasingly dependent on how well students are able to access health information and less on what they know. One of the seven areas of health literacy identified in the National Health Education Standards states,

“Students will demonstrate the ability to access valid health information and health promoting products and services” (Joint Committee of National Health Education Standards, 1995, p. 8).

Recent technological advances in online information retrieval allow people of all ages to have unprecedented quick access to volumes of health related information. In discussing this issue, the National Health Education Standards document quotes the National Education Commission on Time and Learning,

“Technology is the great unrealized hope in education reform. It can transform learning by improving both the effectiveness of existing time and making more time available for self-guided

instruction, both in school and out” (p. 70).

The Standards document goes on to state, “Use of information technology by health education students is the clear intent of the National Health Education Standards which expect students to demonstrate the ability to access health information and school districts to provide for utilization of information technologies in the delivery of health instruction.”

The emergence of online information resources and specifically the Internet has provided new exciting means for the delivery of health instruction. The availability of easy to use World Wide Web (Web) based search engines allow one to search millions of Web pages and hundreds of Usenet groups to find useful health related resources (see appendix A). According to a recent survey of Internet users (Emerging Technologies Research Group, 1997), 43% of men and 50% of women indicated that they have used the Internet to search for health/medical information. The Internet is supplying access to a virtual community of health support groups and health information providers never before available.

Although the volume of health information available on the Internet is without dispute, the quality of much of the information is questionable. It is important for students to know how to access information, but it is also crucial for students to develop the skills necessary to evaluate the quality of health information available on the Internet. A study commissioned by the Emerging Technologies Research Group (Brown, 1997) to

review 160 randomly selected consumer-oriented, health and medical information Web sites, found that more than half of the sites are owned by organizations or individuals who may be providing biased or inaccurate information. With so many individuals using the Internet to access health information - and with no reasonable way to control the quality of information one may find - health educators must begin to do a better job of teaching individuals how to evaluate the usefulness of information available on the Internet.

A typical scenario might include a high school student who wants to learn more about marijuana for a school assignment, or to help make a more informed decision on whether or not to use marijuana. The student has recently learned how to search the Internet to get information on a wide range of topics. What sort of information will the student get from the search? What should health educators be teaching students about evaluating information available on the Internet?

The following assignment can be used to illustrate the necessity of teaching consumer health skills while introducing students to the wealth of online information. Adaptable to students in high school through college, this assignment was most recently used to train health education majors enrolled in a current health issues course. Whether students get online by way of a school's computer lab, through a computer in the school library, or through the community library, this assignment can be adjusted to local needs.

Procedures

Students are assigned the role of a newspaper or magazine journalist who responds to anonymous health questions from the general public in an advice column. Assuming no health content expertise, students must compose answers to health questions using only information found on the Internet. Written responses must be of a professional nature with letters to the advice column asking for help on a broad range of health related matters.

The instructor may ask students to come up with representative health questions, or they may choose to have letters typed for students in

advance (see samples in Appendix B). The focus of letters should be of someone asking for specific assistance to questions, or concerns on health related issues. Letters can request advice on any number of common concerns such as: personal weight loss/gain, friends with eating disorders, a grandparent with poor compliance to prescription drugs, dealing with insomnia, how to start a fitness program, learning to relax, evaluating claims for a new food supplement, concerns about STDs, or helping someone suspected of being alcoholic.

Searching for Health Information

Once students have been assigned letters (either individually, or in small groups to encourage cooperative learning) they can be given an overview of information available on the Internet and how to use some of the more common directories (e.g., Yahoo and Magellan) or search engines (e.g., Lycos, Excite, and AltaVista) on the Web. Students should understand the difference between directories and search engines and also that various search engines use different techniques to index and recover information on Web pages. Directories such as Yahoo attempt to catalog the Web by listing sites in categories and multiple sub-categories. One can search Yahoo's directory or travel through various subcategories looking for appropriate resources. Search engines utilize algorithms (spiders) to search out and find relevant Web pages included in their index of pages.

Differences between various search facilities can be demonstrated easily by using Yahoo, Lycos and Excite to search for the same term. Multi-search engine services and search engine directories are also available for one stop health information shopping (e.g., MetaCrawler, Savvy Search, and DogPile). In addition to common Web search engines and directories, instructors should also demonstrate the use of scientific databases such as Medline (<http://www.ncbi.nlm.nih.gov/PubMed/>) which are also available on the Internet. If an instructor has access to a server and knows how to put together a simple Web page, they can provide students with a page that has links to a number of Web sites that are useful in locating health information (e.g.,

<http://msubillings.edu/hpe/linksHPE201.html>).

Students may also need assistance in identifying key terms and in using search techniques such as the use of Boolean operators. If a student wants to find out what the treatment options are for his aunt's breast cancer and conducts a search using the words "breast cancer" they will locate thousands of Web pages. Depending on the strategy of the search service, the Web pages listed first may be those that have the words breast and cancer repeated most frequently in the text of the page. At this point the student can begin surfing through pages or they can refine their search by being more descriptive in their search terms and by using specific syntax to group terms together. Techniques are different for each search engine.

Obviously, instructors will need to be well versed in the use of the Internet to lead students in this assignment. The best place to learn about the Internet, is the Internet itself. An example of a useful Web site with instructional modules on searching the Internet was developed by Alexander, Powell, and Tate (1997). Some of the most current information regarding the use of search engines including review articles and tutorials is the Search Engine Watch Web site (<http://www.searchenginewatch.com/facts/index.html>). School librarians and computer center personnel should also be able to offer some assistance in this phase of the assignment.

While most schools offer students some level of Internet access, unrestricted student access is not without controversy. Some schools install software (e.g., CyberPatrol, CyberSitter, Net Nanny, SurfWatch) onto their computer networks that will not allow students to display pages that have sexual references. Depending on how this software is configured, students may not have access to some of the excellent online information available on sexually transmitted diseases, contraception, or alternative sexual lifestyles. Health educators need to become aware of decisions to use such software in their schools in order to advocate for reasonable information access.

Evaluating the Health of Health Information Resources

The second phase of this assignment requires

students to use their evaluation skills to determine if the resources they find are scientifically sound and useful in constructing a reasonable written response to their assigned questions. The evaluation of online health information is not significantly different from other forms of written health information (McKenzie, 1987), however, the general public may attach unwarranted credibility to any information delivered through the medium of computers. Instructors must take special care to discuss this issue with students, or take the chance of overlooking a major objective of this assignment.

The Michigan Electronic Library Web site (<http://mel.lib.mi.us/health/health-evaluating.html>) offers links to a number of online articles that discuss the evaluation of health information on the Internet. A number of guides to criteria for evaluating health related Web sites have been developed and one of the best of these was developed by Leslie Teach for the Office of Health Promotion at Emory University (<http://www.sph.emory.edu/WELLNESS/abstract.html>). Another example of consumer information checklist was provided by Pealer and Dorman (p.234, 1997). Some instructors may wish to integrate the use of instruments designed to evaluate Web sites and health information into this assignment.

To simplify matters, students can be instructed to evaluate health information provided on the Internet by addressing the following four major areas: Authorship, Purpose, Currency, and Scientific Validity. In assessing authorship, students must consider the source of the health information when ever it is available. If a specific individual or group is providing the information what are their credentials and background? Anyone can publish information on the Internet and access to a Web server does not mean that one is qualified to provide medical/health advice. In addition, Wyatt (1997) notes it is easy for anonymous authors to conceal commercial or other conflicts of interests and one must be diligent in determining author background. Individual authors may provide an e-mail address, or have a link to their personal Web page - supplying detailed evidence of their qualifications. Students can also be instructed to conduct an

online search by the author's name to find additional references.

In addition to authorship, one must evaluate the Web site's motivation in providing the information? Are the sponsor/s or the author/s of the information trying to sell a product or a service? In what way may the information be biased? This will be especially evident when examining commercial sites providing information on topics such as nutritional supplements or herbal remedies. While biases must be considered, many commercial sites do offer excellent health information for their users.

Thirdly, students must try to identify how current the information is. Due to the innovative nature of the Internet, users assume that information provided by the Web is on the cutting edge. Health information changes rapidly, so it would be important to know when the information was first published and last updated. Unfortunately, many Web pages do not identify authors or indicate how old their resources are, making evaluation more difficult. A recent investigation (McClung, Murray & Heitlinger, 1998) found that Web pages from seemingly reputable sources (i.e., medical training hospitals) occasionally provided misleading and out of date health information. Consistent with principles outlined in a white paper developed by the Health Information Technology Institute (1997) quality health Web site should offer citations to information sources, and also indicate when the page was created and last updated.

Lastly and most importantly, students should be taught to look for references that will validate any scientific evidence provided by the Web site. It would be helpful if students had knowledge of how health research is conducted so they could better evaluate the usefulness and reliability of health information they receive. Regrettably, most students whether in high school or college will not know the difference between a double blind study and a longitudinal study without formal instruction. The International Food Information Council (IFIC, 1997) provides a useful review of criteria to be used in evaluating health related scientific studies. As a minimum students should understand the value of peer reviewed resources in the health information jungle.

Additional Considerations

One factor that makes this media unique is the user's ability to identify multiple sources of information very quickly. Students should be encouraged to search for corroborating evidence from a number of Web sites. For the assignment described in this article students are required to produce one page printouts from five different Web sites to show that they are constructing the response to the anonymous question from a variety of sources. If a number of credible sources are providing supporting evidence for health information, then one can be more confident of its validity. Depending on the topic being researched (e.g., alternative medical therapies) students will often express frustration in not being able to find adequate scientific evidence to construct a useful response to their letters. If conflicting reports from credible sources are identified, then the student can simply say that conclusive evidence is not yet available.

Some authors (Pealer & Dorman, 1997, Richetelle, 1997) have suggested that health Web sites also be evaluated for their aesthetics. While this is often a determining factor for the subjective rating given by many Web award programs such as Lycos' Top 5% of Health Sites, this should have little or no bearing on the evaluation of health content. Students should be taught to not judge a book by its cover, and to ignore the innovative "eye candy" delivered by many sites. As an illustration there are many government sources of health information that provide excellent content in a text only format.

Similarly, we should not be concerned about the presence of advertisement on Web pages. The Journal of the American Medical Association is filled with influential advertising yet the content of its articles is highly regarded.

Completing the Assignment and Classroom Discussion

Once students have collected their information resources and the validity of the information has been assessed, students write a response to their anonymous questions and turn this into the teacher. As mentioned above, to document adequate use of Internet resources, students are required to turn in printouts of at least five Web resources that they found useful in

researching their questions and the URL (Uniform Resource Locator) of that page.

Students should be encouraged to share their questions and answers with the rest of the class. As a supplement to this assignment, students can be asked to critique each other's written responses, thereby increasing the opportunities to develop the students' evaluation skills. A final classroom discussion should include student commentary on the process of using the Internet to access useful health related information.

If health educators are to advance health literacy, we must assist students in acquiring both technological and evaluation skills they need now and in the future. This assignment will provide a method for the development of these skills while exploring the emerging opportunities of the Internet.

Appendix A

Resources used to locate information on the Internet are constantly evolving. Some common directories, search engines and search directories include the following:

Directories

Yahoo <http://search.yahoo.com>

Magellan <http://www.mckinley.com>

Search Engines

AltaVista <http://www.altavista.digital.com>

Excite <http://www.excite.com>

HotBot <http://www.hotbot.com>

InfoSeek <http://www.infoseek.com>

Lycos <http://www.lycos.com>

WebCrawler <http://query.webcrawler.com>

Multi-Thread Search Services

Dogpile <http://www.dogpile.com>

MetaCrawler <http://www.metacrawler.com>

SavvySearch

<http://www.cs.colostate.edu/~dreiling/smartform.html>

Search Engine Directories

All-in-One <http://www.albany.net/allinone>

C/Net Search.Com <http://www.search.com>

IT! <http://www.cam.org/~psarena/it.html>

Medical Literature Searches

Medline <http://www.ncbi.nlm.nih.gov/PubMed>

Appendix B

Sample letters

Dear HealthNut,

My Mom has finally decided to try to quit smoking. She has tried to stop once before, but that didn't last long. She is very worried about gaining weight if she quits. I'm really concerned about her and want to help her quit in any way I can. Do you have suggestions on the best way to quit without gaining weight?

Signed,
Smokeless Sue

Dear HealthNut,

My boyfriend and I have been dating for two years now, and I really like him. However, he has one habit that really worries me. He likes to smoke pot, but just on the weekends. I tell him that it is a dangerous habit, but he says there's nothing wrong with using it on weekends only. We're talking about getting married, but I'm afraid that this bad habit will not go away, and I don't think I want to marry someone that needs to use pot so often. I'm also worried about the long term effects on him, and whether or not our future children would be affected by his drug use. Please give me some advice on how I can talk him out of his nasty habit.

Signed,
Worried Bride-To-Be

Dear HealthNut,

My flaky older sister is always getting into weird new stuff. For awhile it was chanting, then astrology, then meditation. Her latest thing is aromatherapy which she said has cured her migraine headaches. I told her it was all in her mind and her room smells funny. Can you tell me if aromatherapy really works and could it be dangerous?

Signed,
Holding my nose for now

Dear HealthNut,

One of my friends just told me about how her friend from high school was drugged at a party with something called roofies and then raped by three guys. The thing is, she doesn't remember anything about what happened or who did this to her. I've never heard of this drug before how common is it and what does it do to a person.

Signed,
Scared and Staying Home

Dear HealthNut,

I just saw a TV news show that said drinking alcohol every day decreases the chances of developing both cancer and health disease the two leading causes of death. If this is true why are people under 21 not allowed to drink? My dad says that it still is unhealthy because of cirrhosis of the liver. Does alcohol save more people than it kills?

Signed,
I Need A Drink

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