

# Project Merlot: Bringing Peer Review to Web-based Educational Resources

Ralph Cafolla, Ed. D.  
Associate Professor, Educational Technology and Research  
Florida Atlantic University, USA  
cafolla@fau.edu

**Abstract:** The unprecedented growth of the Web has resulted in a profusion of educational resources. However, the challenge for faculty is finding these resources and integrating them into their instruction. Even after the resource is found, the instructor must assess the effectiveness of the resource. As the number of educational web sites mount into the millions, this task is becoming increasingly difficult.

To address the problems of finding instructional sites, evaluating their educational value, determining their accuracy and assisting professors to integrate the resource in a learning environment, the Multimedia Educational Repository for Learning and On-line Teaching (MERLOT) was established. The MERLOT virtual repository ([www.merlot.org](http://www.merlot.org)) of instructional materials is hosted by the California State University Center for Distributed Learning. The project also provides a peer review process to ensure the quality of the educational resource.

The exponential growth of the World Wide Web has resulted in a profusion of educational resources that are potentially useful in higher education. The challenge for faculty interested in using web-based resources as an important aspect of their instruction is finding these resources and integrating them into their instruction. Even after the resource is found, the instructor must assess the effectiveness of the resource. As the number of educational web sites mount into the millions, this task is becoming increasingly difficult.

The unparalleled growth of the Web is partly due to the fact is that just about anyone can develop a Web site. With the aid of inexpensive or free Web editors, creating a Web site is almost as easy as using a word processor. There are also a myriad of companies that will host your site for very little or no money. Since it is so cheap and easy to establish a web presence, the number of web sites, both good and bad, have proliferated. While using the traditional search engines can be useful in finding educational sites related to a specific topic, experienced Web users know how difficult it can be to find relevant information. Search engine may find a few million sites it deems relevant, but it does not separate the good from the bad. Educators have a particular responsibility to ensure that Web resources that they use in their courses are *authoritative*.

The concept of *authoritative* gets at the question, "Who says this material is accurate?" By knowing the background of the authoritative source of a work, one can judge how much one trusts it. For example, if you access the Microsoft® knowledge base (Technet, 2001) to look up information on installing a new NT driver, you would tend to trust what you read. Also, if you access a particular professor's course web site, you would know that the professor is the authority behind the information on the site. The professor's students would know that they need to believe what they read, at least for the rest of the semester. Since these pages are probably posted on a university's server, the reputation of the institution also gives it additional authority. However, until recently, there has not been any "objective" review of higher education Web resources available.

Even after finding the educational resource and determining its accuracy, the potential user must determine if the resource is effective in teaching or demonstrating the concept. A Web page could be both relevant to your topic and accurate, but may not be useful by the target audience you want to use it with. If it is pure text with no interactivity, has inappropriate vocabulary, or is simply ineffective instruction, you would probably not want to use it. To address the problems of finding instructional site, determining their accuracy, and determining how to integrate the resource in a learning environment, the Multimedia

Educational Repository for Learning and On-line Teaching (MERLOT) was established. The MERLOT virtual repository ([www.merlot.org](http://www.merlot.org)) of instructional materials is hosted by the California State University Center for Distributed Learning. As the project evolved, a peer review process initiated to "improve the effectiveness of teaching and learning by expanding the quantity and quality of peer-reviewed online learning materials" (University of Michigan, 2000). The balance of this paper discusses both MERLOT as a virtual repository of web based educational resources and as a source of peer reviewed resources.

## MERLOT as a Virtual Repository of Education Resources

The MERLOT community has established and maintained a virtual collection of educational resources. Membership in the MERLOT community is open to any interested educator and there is no cost for membership. Once you have registered as a member on the MERLOT web site ([www.merlot.org](http://www.merlot.org)), you can contribute to the MERLOT community by posting links to web-based materials or by providing user comments to sites already posted. MERLOT members also receive periodic updates about MERLOT activities and projects.

Experienced Web users know that there are several ways to find information on the Web. When one is interested in searching for broad topics, a Web index like is useful. These indexes are useful for browsing, using hyperlinks to make it easy to navigate through a Web site. However, when you are looking for something more specific, a powerful search engine may be more useful. These search engines allow for complex searches using Boolean logic and sometimes even use artificial intelligence to find information. To accommodate both of these approaches, the educational resources, called *learning objects* in MERLOT terminology, can be accessed by either browsing through the materials by broad subject areas or using a powerful search engine.

### Browsing the MERLOT Site

As shown on the MERLOT home page (see Figure 1: The MERLOT Home Page), the learning objects are categorized by both subject area (Arts, Business, Education, etc.) and academic discipline communities (Biology, Business, Chemistry, etc.).



Figure 1: The MERLOT Home Page

Selecting a subject under the Browse Materials menu takes you to a screen showing the sub categories of the subject. For example, Figure 2: Science and Technology shows the categories produced by click on the main Science and Technology subject.



These searching and browsing capacities alone make MERLOT a valuable source for finding educational learning objects. However, as the project developed, it became obvious that MERLOT could perform an additional valuable service by providing some means of indicating the educational quality of the web sites. In 1999, a rigorous peer review process was initiated (MERLOT History Page, 2001). While only a small percent of the websites on MERLOT have currently been peer reviewed, the number is constantly being increased. This will make MERLOT an even more valuable resource in locating and using quality, authoritative learning objects.

## **Peer Review**

Traditionally the quality of published educational materials has been ensured by the publisher. Publishers use processes including peer review, editorial assistance, and other procedures to ensure that published materials are authoritative and up to scholarly editorial standards. Because publishing on the Web has little or no expense, all of the expertise involved in the publishing process above the author is often eliminated. This means that the author, who sometimes isn't even identified, becomes the sole authority for the site. The MERLOT community decided to implement a peer review process for leaning objects to ensure that the sites are well designed and contain accurate information.

In order to develop a scholarly method for peer review, three models of peer review were considered: the peer review process used by journals, the process used in reviewing published materials, and the methods used for pre-publication reviews. All three of these methods select materials and review a bit differently.

Scholarly journals require the author to submit previously unpublished materials for review. In general, authors are expected to have knowledge of journal's standards and must submit the material in a specific format. It is incumbent upon the author to follow the journals style and subject area. The paper is generally sent out to several scholars in the field for review. The more scholarly journals perform a blind review to ensure fairness in their acceptance policy. The journal will then read the reviews and make a decision on the fate of the work. The editor may accept, reject, accept with revisions, or reject with recommendations.

Book companies use a pre-publication review to both determine if a manuscript is worthy of being published and how it can be improved. As such, it is more formative in nature. The reviewers are generally professionals in a field who are given a small honorarium for the review. The reviews are usually given to the author along with "suggestions" from the publisher.

After a work has been published, the editor of a professional journal may wish to have it reviewed. The editor selects both the reviewers and the book to be reviewed. Obviously, this type of review is for a different purpose. It is to evaluate the quality of an already published work rather than determining if something should be published.

Despite these differences, all of these models of scholarly peer review processes follow similar general processes to assure quality. For example, all of these publications establish evaluation standards and communicate these standards to their academic community. Reviewers then apply the evaluation standards to determine the worth of the material and write some sort of recommendation regarding the material. The model developed by MERLOT is a synthesis of these models.

## **The MERLOT Peer Review Process**

In order to help higher education faculty to decide if online learning resources are appropriate for their courses, MERLOT provides a structured peer review process. To ensure the validity of the review, they are all performed by experts in the academic field of the topic being reviewed, not by instructional technology experts. (Unless, of course, if the academic topic is information technology.) All reviewers are professors that actually use Web based resources in teaching their academic discipline.

The reviews are all conducted by at least two higher education faculty members who use Web based resources in their courses. A composite review form based upon the individual reviews is posed to the MERLOT website. There are now twelve discipline-based communities conducting reviews.

The peer reviews evaluates learning resources along three dimensions: 1) quality of the content, 2) usefulness as a teaching tool, and 3) ease of use. Each review evaluates each dimension using a 5 point rating system. The ratings rate from 1 star (poor) to 5 stars (excellent). Only sites averaging 3 stars or higher are posted on the site (MERLOT Peer Review Page, 2001).

The MERLOT review process focuses on specific leaning modules (or learning objects) rather than entire Web sites. This allows professors to incorporate these modules into there own Web sites. Materials that have higher ratings come up first on MERLOT's search engine.

It should be noted that Merlot is not the only guide to academic Web sites. For example, see the World Lecture Hall at the University of Texas' World Lecture Hall (World Lecture Hall, 2001). Many scholarly associations and other groups have developed guides to course materials for their specific subjects, but these sites generally don't assign ratings to resources (Young, 2000).

## Conclusion

Historically, college professors are rewarded for their scholarly activities. A professor that publishes a book with a respected publisher is able to use that scholarly accomplishment for promotion and tenure. Unfortunately, if one chooses to publish electronically, it may be difficult to get the proper "credit." The reason for this is partly due to the fact that the traditional scholarly processes used to validate a work have not been in place for the electronic media. MERLOT offers a solution to this problem. "If you spend a lot of time working on a module, then you should get some credit for it," says Cathy Owens Swift, a professor of marketing at Georgia Southern University who is one of Merlot's reviewers. "People spend a lot of time developing modules, but nobody else ever sees them except their students." Merlot's also plans to recognize professors who have developed excellent sites by mailing notices to their department heads (Young, 2000).

## References

Young, J. R (June 1, 2000). Merlot Project Brings Peer Review to Web Materials for Teaching, *Chronicle of Higher Education* (June, 2000), URL <http://chronicle.merit.edu/free/2000/06/2000060101u.htm>

MERLOT Home Page. (visited December 10, 2001). URL [www.merlot.org](http://www.merlot.org)

MERLOT Room History Page (visited December 10, 2001) *A Brief and Simplified History of MERLOT*. URL <http://taste.merlot.org/history/history.html>

MERLOT Peer Review Home Page (visited December 10, 2001).. URL <http://www.merlot.org/home/PeerReview.po>

Technet Online. (Visited December 20, 2001). Microsoft Knowledgebase, URL <http://microsoft.com/technet/default.asp>

University of Michigan News and Information Services. (August 23, 2000). *Online instructional materials offered through new partnership*, URL <http://www.umich.edu/~newsinfo/Releases/2000/Aug00/r082300a.html>

World Lecture Hall, (November 29, 2001). URL <http://www.utexas.edu/world/lecture/>