MERLOT
Multimedia Educational Resource for Learning and Online Teaching

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1. HISTORY

In 1996, the California State University Center for Distributed Learning (CSU-CDL) was established as part of the CSU’s Integrated Technology Strategy for the 23 campuses of the CSU System. The CSU-CDL’s challenge was to design tools and services that would be easy to use, leverage the widespread yet uncoordinated development of academic technologies both within and outside of the CSU, and be low cost to operate. In 1997, the CDL developed an online digital library called MERLOT which was also a project of the CSU Integrated Technology Strategy. Free access was provided via the Website, www.merlot.org. MERLOT was modeled after the National Science Foundation-funded project, “Authoring Tools and An Educational Object Economy (EOE),” hosted by Apple Computer, and other industry, university, and government collaborators. One of the key design requirements was to provide a service that would enable users to contribute directly to a community’s collection of online resources without “human mediation.” MERLOT’s goal was to enable the cottage industry of campuses and individual instructor’s development of academic technologies that would become scalable and sustainable.

In 1998, a State Higher Education Executives Organization/American Productivity and Quality Center (SHEEO/APQC) (Hartman et al., 1998) benchmarking study on instructor development and instructional technology selected the CSU-CDL as one of six best practices centers in North America. Visitations to the CSU-CDL by higher education institutions participating in the benchmarking study resulted in a number of institutions’ expressing interest in collaborating with the CSU on the MERLOT project. As a result, the University of Georgia System, Oklahoma State Regents for Higher Education, University of North Carolina System, and the California State University System created an informal consortium representing almost 100 campuses. SHEEO was the coordinator for the cooperative of the four state systems.

In 1999, the four systems recognized the benefits of a cooperative initiative to expand the MERLOT collections, conduct peer reviews of the digital learning materials, and add student-learning assignments. Each system donated funds to further develop the MERLOT software, and contributed in-kind support to advance the peer review process. The CSU maintained its leadership of and responsibilities for the operation and improvement of processes and tools.

In January 2000, the four systems sponsored instructors from the disciplines of Biology, Physics, Business and Teacher Education to develop evaluation standards and peer review processes for on-line teaching and learning materials. In April 2000, other systems and institutions of higher education were invited to join the MERLOT cooperative, and by July 2000, 23 systems and institutions of higher education had become Institutional Partners of MERLOT. The CSU continued its leadership of and responsibilities for the operation and improvement of MERLOT’s processes and tools for the CSU and the international user community.
2. MERLOT CONSORTIUM PARTNERSHIPS

As of September 2007, the MERLOT consortium was composed of 28 higher education systems, consortia, and individual institutions of higher education representing over 500 campuses and five million students. There were more than 20 professional academic organizations, and more than 50,000 individuals, all comprising a community of participants who strive to improve teaching and learning with high quality online resources.

The MERLOT consortium is a diverse and complex mix of partners, and there are multiple levels of participation. MERLOT’s institutional partners include smaller liberal arts colleges, large state university systems, and community colleges - all focused on undergraduate teaching. Participants also include research institutions focused on scholarship, research, and graduate education. Collectively, MERLOT provides services that require an approximate annual budget of $3M, but no single institution provides the full funding. For institutions of higher education, MERLOT has four levels of participation. The definition of, and contribution required from each can be found at http://taste.merlot.org/allpartnerlist.html

Of particular importance to the MERLOT community are the consortium’s business and technical relationships with all the major learning management system companies and organizations, as well direct linkages to 12 other digital libraries around the world. Participant institutions are located in the U.S., Canada, Australia, Japan, Europe, and Africa. New partners from South Korea and Israel are expected to join MERLOT in 2007/08.

Whether the borders are the campus property lines or the international dateline, any higher education institution can participate in MERLOT’s consortium. MERLOT’s responsibility is to facilitate a productive community and to engage the consortium members in shared governance and program implementation through open communications, cooperative planning, and program delivery.

Though the consortium members are very diverse, they share the commitment to MERLOT’s vision to be a premier online community where people from around the world share online learning materials and pedagogy. They also share MERLOT’s strategic priority to improve the effectiveness of teaching and learning by expanding the quantity and quality of peer-reviewed online learning materials that can be easily incorporated into instructor-designed courses. It is the combination of shared values, the collaborative delivery of quality services, and the public recognition of the partners’ contributions to MERLOT that sustains the MERLOT consortium.
3. MERLOT ESSENTIALS

3.1 Overview

MERLOT and its institutional and individual members have created a digital library which, in September 2007 contained a directory of 50,000 members. As well, there were more than 17,500 online teaching/learning materials categorized by discipline (visit the MERLOT homepage at www.merlot.org to view the disciplines), and by “special interest communities” (viewable at http://www.merlot.org/merlot/communities.htm). The MERLOT Website is a cooperatively developed, free, Web-based resource where instructors, staff, administrators, and students can easily find digital learning materials together with evaluations and guidance for their use.

Learning materials from a wide variety of academic disciplines are indexed on the MERLOT site. Most of the learning materials are modular (e.g., simulations, tutorials, animations, drill and practice exercises, lecture presentations, case studies, collections, and reference materials), and designed to be integrated into a larger course. Most of the materials run inside a Web browser, facilitating their use within online courses, or as Web assignments in classroom-based instruction.

The MERLOT website is designed for easy and effective navigation. Users may browse the collection or search for targeted learning materials from a number of links on the homepage (www.merlot.org). MERLOT does not store the actual learning materials on its servers; it provides links and their descriptions (metadata) to materials that are stored elsewhere on the Web. Once a link to the desired material is found in MERLOT, users click the URL, taking them to material’s actual location where they can check for any licensing regulations or costs involved with their reuse; they can then incorporate the resources into their curricula (e.g. enter a link to the material in their course Website, or e-mail the URL to the students).

To find or use materials in the MERLOT collection, users do not need to be a member of MERLOT nor does the user’s institution need to be in the MERLOT consortium. This feature of “on-demand” access is a founding principle of MERLOT; it enables instructors to solve their research and curriculum design problems immediately.

MERLOT also provides a “federated search” service to enable users to search MERLOT together with other digital libraries simultaneously, returning an integrated hit list. This search service provides one-stop-access to collections developed by different communities around the world. To view/search MERLOT’s partner digital libraries visit http://fedsearch.merlot.org/search.jsp.

For users of Blackboard, WebCT, Desire2Learn, and Angel Learning, MERLOT provides direct search functionality from within those LMSs into the MERLOT collection. For additional information regarding this feature, campus LMS administrators should contact each appropriate vendor.

3.2 The Repository of Learning Materials

A distinctive feature of MERLOT is that individual members perform the cataloging of materials voluntarily. Once instructors register as a member of MERLOT (at no charge), they are able to create catalogue records of materials they deem worthy of sharing. Every contributed item, comment, review, or assignment is visibly connected to the individual’s MERLOT ePortfolio that is captured through the member’s logon credentials; this creates some social pressures for
members to apply reasonable judgment when they add new items or review existing ones. It also provides a mechanism for MERLOT to identify and discipline members for abusing their privileges. A premise underlying MERLOT’s decision to open the cataloging to the community is that if individuals are qualified enough to be hired by a higher education institution, they are qualified to identify materials that might be valuable to their peers. In addition, if users are concerned about the qualifications of persons submitting materials, they can click on the names of submitters and learn more about them.

There are a number of critical features to MERLOT that makes it more than a collection of URLs. Contributors of items write description of the items within the context of teaching and learning. Other members can later add Comments and Assignments regarding the quality and use of the materials. (See below for details.) All the metadata on pedagogy enable instructors effectively and easily to choose and use online learning materials that are compatible with their own teaching methods and the learning goals of their academic program.

Cataloging of items by the community enables MERLOT to grow the collection in breadth and depth in ways that directly meet the needs of its members. As the community becomes more diverse in its interests, the collection can grow to satisfy members’ interests. Members of different cultures and nationalities can contribute materials without having to satisfy gatekeeping requirements that could be culturally insensitive. The process for building the collection is also scalable; if every one of MERLOT’s members contributed one item of material this year, the collection would grow by 17,500 without MERLOT’s having to hire staff to catalogue the materials. The workload cost to catalogue one item is low compared to the benefit received by the 17,500 members. Materials in any language can be contributed to MERLOT; using the ISO 639-1 code, the language becomes part of the catalogue record. This capability enables users to search for and contribute materials in specific languages. Both the community cataloging process and cataloging by language enables cross-cultural learning communities to develop and thrive.

3.3 Personal Collections

MERLOT recognized that people can easily get overwhelmed by the volume of available materials and they can easily forget the value and relevance of materials they have found. Consequently, MERLOT created the capability for its members to create and annotate shareable Personal Collections. Once a member finds material that satisfies their needs, they can add it to their Personal Collection and describe why they found the material valuable. These Personal Collections are analogous to a person’s play list in the iPod. As of September 2007 there were more than 7,600 Personal Collections in the MERLOT library. Members can create multiple Personal Collections that can form the foundations of different course portfolios, where the instructor can describe how the selected materials can be used to achieve specific learning objectives for each different course. A critical aspect of the Personal Collections is that members define the pedagogical and/or personal context for selecting and using the materials. The ability of users to contribute their context for the materials enables the user of any country, culture, or language to share with other members, their knowledge and purpose for using the online materials.

3.4 Member Assignments

MERLOT learning materials can be used by members in an infinite number of instructional contexts, any one of which has particular value to the individual instructor’s teaching and learning environment. If an instructor wishes to describe for the MERLOT membership
community his/her particular method of using a learning material, MERLOT provides the “Assignment” wizard to guide the instructor through a step-by-step process of documenting the instructor’s particular method of using the learning material. MERLOT Assignments provide supplementary advice on MERLOT learning material utilization. As of September 2007, in addition to the collection of learning materials, there were almost 900 Assignments in the MERLOT library.

3.5 Member Comments

Any individual member of MERLOT can contribute Member Comments and rate MERLOT materials. This user-centered review process is very important in a number of highly used and popular Websites such as Amazon.com, allowing individuals to submit their comments and evaluations on the learning materials within MERLOT. Members are asked first to describe how they reviewed the materials (e.g. 5 minutes browsing or used it in teaching a course) and then asked to evaluate the quality of the content, effectiveness for teaching and learning, and ease of use. As of September 2007 there were more than 2,650 comments about materials in the MERLOT collection.

4. DISCIPLINE COMMUNITIES

Overview

The MERLOT repository contains more than 17,500 materials cataloged by discipline. However, the repository alone does not provide a discipline with the opportunity to present to members of its discipline elements of teaching and learning that extend beyond the materials themselves. Accordingly, MERLOT developed a community “template” that provides each discipline with a set of criteria whereby the discipline can express, discuss, present, etc. its own perspective on online teaching and learning. The content viewable at these discipline-specific templates, called portals, is maintained by members of the discipline editorial boards, each of whom is responsible for overseeing the overall quality of MERLOT’s online presence. Each of these portals is accessible at http://www.merlot.org/merlot/communities.htm.

4.1 Editorial Boards

The review and management of the collection is the responsibility of MERLOT’s Editorial Boards. Currently, MERLOT has 17 discipline-based boards: Biology, Business, Chemistry, Criminal Justice, Engineering, Faculty Development, Health Science, History, Information Technology, Library and Information Services, Mathematics, Music, Physics, Professional Coaching, Psychology, Teacher Education, and World Languages.

In addition to these, and at the request of and together with its consortium partners, MERLOT has developed the Workforce Development Communities. The first of these, Fire Safety can be found at http://firesafety.merlot.org/.

MERLOT’s Faculty Development Editorial Board mission is to build and review an interdisciplinary collection that supports the effective integration of technology in teaching and learning. Part of the commitment a MERLOT institutional partner makes is to support instructors’ participation on the Editorial Boards. With each partner supporting approximately five instructors, MERLOT has a workforce of more than 120 instructors. The partnering systems and institutions use the following criteria to appoint members of the Editorial Board; 1)
expertise in the discipline, 2) excellence in teaching, 3) experience in using technology in teaching and learning, and 4) connections with their disciplines’ professional organizations.

The MERLOT strategy is to use the institutions of higher education to help establish the Editorial Boards and then share the responsibility for the peer review with professional discipline organizations. MERLOT provides a variety of tools and processes to ensure the integrity and manage the efficiency of the peer review process, including the training of peer reviewers, and process controls on the evaluation of the materials. MERLOT also provides conference calls, listservs, threaded discussions, and password-protected Websites for posting documents, enabling the Editorial Boards to communicate and coordinate their work in a secure environment. Editors coordinate the workload among the instructors as they perform the reviews, add materials to the collection, and design the collection’s categorization scheme.

4.2 Peer Reviews

The infrastructure of the MERLOT system was designed to manage peer review of online materials in the collection, a process that helps ensure that learning materials are contextually accurate, pedagogically sound, and technically easy to use. As of September 2007 there were 2,300 peer-reviewed materials in the collection. MERLOT has modeled its peer reviews on traditional practices of discipline-based peer review of scholarship and research. MERLOT’s peer review process also provides a mechanism for professional recognition for instructors who develop and use instructional technology, independent of instructors’ choices of development methodologies. The peer review process begins with the Editorial Board triaging part of the collection in their discipline to determine which materials are worthy of the intensive review process. Once identified, the material is reviewed by two trained peer reviewers who have the relevant expertise. Instructor-reviewers write individual evaluation reports; the Editor integrates them into a single report. During the peer review process, the Editorial Board members are in communication with the author of the material.

The outcome of the peer review process is a comprehensive report containing a description of the learning goals, the targeted student population(s), prerequisite knowledge and skills, the type of learning material (simulation, animation, tutorial, quiz, lecture/presentation, collection, reference material), a summary of the procedures for using the learning object, technical requirements for usage, and an evaluation of the quality, potential effectiveness for teaching and learning, and usability. Comments and recommendations for the author are also included.

4.3 Evaluation Standards

The Editorial Board members (and reviewers) must consider the following three criteria when assessing the on-line learning materials:

1. **Quality of Content:** The learning materials must present valid (correct) concepts, models, and illustrations. Content validity is verified by the reviewers. Quality of content also means that the learning materials must present educationally significant concepts, models, and skills for the discipline. To evaluate the educational significance of the content, reviewers decide if the content is part of the core curriculum within the discipline, difficult to teach/learn, and/or is a pre-requisite for understanding more advanced material in the discipline.

2. **Potential Effectiveness for Teaching and Learning:** Determining the effectiveness of the material requires consideration of the actual use of the learning materials by both students and instructors, together with a systematic assessment of possible learning outcomes. Evaluation of the potential effectiveness of the material requires that reviewers judge the materials based upon their expertise as teachers. The reviews document whether or not the materials are likely to
improve teaching and learning, given the ways the instructors and students might use them. Reviewers are provided with a set of guiding principles to determine if the material is consistent with MERLOT’s standards.

3. *Ease of Using the Material:* The primary feature of this standard concerns ease of use of the material for teachers and students who might use the materials for the first time. MERLOT provides a summary of appropriate usability standards to follow as a guideline. The standards are based on Nielsen’s (1994) heuristics for usability.

5. **INSTITUTIONAL TEACHING COMMONS**

In 2006, MERLOT was asked by some of its partners to provide customized renditions of a MERLOT-like presence for their own, local teaching environments. MERLOT extended the portal concept used for its discipline and workforce portals and introduced the concept of the *Institutional Teaching Commons (ITC)*. ITCs, constructed from MERLOT’s portal building tools, are available to any partner in the consortium to deploy at their own physical site, for customization and localization. The list of currently available ITCs can be seen in the Partner Communities drop down list at [http://www.merlot.org/merlot/communities.htm](http://www.merlot.org/merlot/communities.htm).

Currently, the CSU has deployed ITCs for the following:

CSU Business - [http://teachingcommons.cdl.edu/business/](http://teachingcommons.cdl.edu/business/)

CSU San Bernardino Educational Leadership - [http://teachingcommons.cdl.edu/edleadership/csusb/](http://teachingcommons.cdl.edu/edleadership/csusb/)

CSU Science Education - [http://teachingcommons.cdl.edu/sec/](http://teachingcommons.cdl.edu/sec/)

CSU – ePortfolios in the CSU - [http://teachingcommons.cdl.edu/eportfolio/](http://teachingcommons.cdl.edu/eportfolio/)

While this list is specific to the CSU environment, other MERLOT partners and potential partners have received the ITC kit to install and support their own renditions of the MERLOT, similar to the ones listed above. In addition to renditions that will be institution-based, plans are underway to deploy ITCs that represent international consortia whose philosophies of online teaching and learning are in harmony with MERLOT’s.

6. **COMMUNITY COMMUNICATIONS**

**Overview**

The MERLOT community is widespread, reaching diverse institutions around the country and beyond. MERLOT has developed a variety of communications tools to keep in touch with its more than 50,000 individual members, almost 20 editorial boards, portal editors, institutional and corporate partners.

These include:

6.1 Meetings

6.2 The Vineyard

6.3 The Grapevine

6.4 MERLOT International Conference (MIC)

MERLOT
6.5 Journal of Online Learning and Teaching (JOLT)

6.1 Regularly Scheduled Meetings
MERLOT maintains a monthly meeting schedule with both its Editor Board and with the Project Directors, each of whom is the assigned contact between MERLOT and its institutional partners. Monthly meetings are held via teleconference, supported through Adobe Communicate, provided by Adobe as part of their corporate partnership with MERLOT.

Editors and Project Directors also meet together with MERLOT staff at the “mid year” meeting which takes place in the January/February timeframe, as well as at the MERLOT International Conference.

6.2 The Vineyard
MERLOT produces the online email-based newsletter, The Vineyard, distributed 3 times/year, exclusively to approximately 150 volunteer individuals who work with MERLOT on a regular basis. These individuals tend to be faculty and administrators at MERLOT partner institutions. The Vineyard updates institutional partners about internal MERLOT news, events, plans, activities, etc.

6.3 The Grapevine
MERLOT produces the online email-based newsletter, The Grapevine, distributed to about 60,000 subscribers including members of MERLOT who wish to receive it, as well as others who are not members of MERLOT. The Grapevine is distributed 3 times/year and provides subscribers with news and information about MERLOT and its partners, as well as tips on MERLOT functional use. A list of back issues of The Grapevine can be found at http://taste.merlot.org/newsletters.html

6.4 MERLOT International Conference
Each year, MERLOT conducts the annual MERLOT International Conference (MIC) hosted by one of the MERLOT consortium partners, and supported by a variety of corporate sponsors. In 2006, the 6th Annual MIC was held in Ottawa, Canada and in 2007, the 7th Annual MIC was held in New Orleans, Louisiana (http://taste.merlot.org/mic.html)

In 2007, more than 400 registrants attended participated in the program in which more than 150 peer-reviewed papers were presented in the following tracks:

1. Authoring Learning Objects
2. Research and Scholarship
3. Faculty Development
4. The Digital Library
5. Case Studies
6. Students Jazzing IT Up
7. Communities of Practice – Humanities

In addition to internationally acclaimed keynote speakers, a highlight of the conference is MERLOT’s presentation awards to individuals with outstanding contributions to MERLOT, in terms of service, repository contributions, innovative learning material authoring, etc.
6.5 Journal of Online Learning and Teaching – JOLT

The MERLOT Journal of Online Learning and Teaching (JOLT) is a peer-reviewed, online publication addressing the scholarly use of multimedia resources in education. JOLT is published quarterly in March, June, September, and December. The objectives of JOLT are to:

- Enable faculty to use technology effectively in teaching and learning by learning from a community of researchers and scholars;
- Enable academic programs to design and deploy academic technology to optimize teaching and learning;
- Build a community around the research and scholarly use of multimedia educational resources.


7. TECHNOLOGY, TEACHING AND TENURE

One of the pervasive issues for both instructors and administration is recognition and reward for effective teaching with technology within the hiring, retention, tenure, and promotion process. The discontinuity between stated priorities for innovative uses of technology and actual policies and practices for personnel evaluation is a major barrier to effective and sustained use of technology in teaching and learning. For those institutions that are ready to align priorities with policies and practices, MERLOT provides a means to their success.

Guidelines for evaluating the quality of innovation of the use of technology in instruction have been published by a number of professional societies and institutions. Examples include:

- Duquesne University: [http://www.tltgroup.org/resources/rdugten.html](http://www.tltgroup.org/resources/rdugten.html).
- American Association for History and Computing: [http://www.theaahc.org/tenure_guidlines.htm](http://www.theaahc.org/tenure_guidlines.htm)

An examination of these guidelines reveals a number of common principles (Somers, 2002). Some of these are:

- Peer evaluation and testimony by experts in a discipline are required to verify quality and importance of the materials to the discipline.
- An innovator’s digital scholarship should be made “visible” to the professional community.
- Instructor-candidates for tenure/promotion should provide electronic portfolios of their innovations for review.
• The evaluation of the materials should be performed in the medium in which the scholarship was created.

MERLOT provides resources and tools to campus administrations, review committees, and candidates to implement these kinds of evaluation guidelines (For more details, see http://teachingcommons.cdl.edu/business/_media/documents/Peer_Review_and_MERLOT1.ppt)

MERLOT’s peer reviews are performed by an independent panel of experts who have been trained to reliably apply a standards-based evaluation process. Administrators, committees, and candidates can use the peer reviews as external reviews validating the quality and significance of the candidate’s digital scholarship. MERLOT provides an international venue to make the digital scholarship visible, and enables the professional community to evaluate, use, augment, and reference in their Personal Collections. Finally, MERLOT provides documentation for the quality and quantity of digital scholarship contributions instructors make through the ePortfolios and with letters of recognition.
REFERENCES


Somers, Jessica (2002, August). Tenure and Promotion Reviews with MERLOT. Presentation at the annual MERLOT International Conference, Atlanta, Georgia.