From repositories supported by communities to communities supported by repositories: Issues and lessons learned

Tom Carey
University of Waterloo, Canada
and California State University, U.S.A.

The Carrick Institute for Teaching and Learning in Higher Education is developing the Carrick Exchange to provide a forum for sharing resources and expertise about learning and teaching. This paper reflects on relevant experience in North America with related initiatives, which highlight (a number of) issues to be considered and (a few) lessons which can be incorporated in the design and development of the Carrick Exchange.

Most of the experience cited here comes from the MERLOT network, including both the MERLOT discipline community Editorial Boards and related communities such as the Cooperative Learning Object Exchange in Canada, the disciplinary Teaching Commons sites within the California State University, and the new MERLOT Innovation Projects such as ELIXR creating reusable resources for staff development.

This paper also analyses the resulting reflections in the context of an independently-developed taxonomy for distributed collaborations in a parallel domain: large-scale scientific collaboratories. This analysis suggests that a full range of possibilities needs to be explored across dimensions such as aggregation versus co-creation and the range of valuable contributions of resources, information and knowledge. Another conclusion is that a number of user needs can be met without the full infrastructure of a distributed community of practice.

Introduction

The Carrick Institute for Teaching and Learning in Higher Education is developing the Carrick Exchange to provide a forum for sharing resources and expertise about learning and teaching (Lefoe, 2007). This paper reflects on relevant experience in North America with related initiatives, which highlight (a number of) issues to be considered and (a few) lessons which can be incorporated in the design and development of the Carrick Exchange.

Most of the experience cited here comes from the MERLOT network, including some of its member and subsidiary communities such as the Cooperative Learning Object Exchange in Canada and the disciplinary Teaching Commons sites within the California State University, as well as new MERLOT Innovation Projects such as ELIXR. (These are personal reflections from the author, and should not be construed as official statements on behalf of the MERLOT network.)

The MERLOT network is a consortium of higher education systems and institutions who collaborate on the exchange, reuse and adaptation of exemplary learning resources and shared teaching expertise. The MERLOT open repository, www.merlot.org, provides a portal to over 16,000 open educational resources and contains nearly 8,000 contributions of teaching expertise about those resources. Use of this repository continues to experience dramatic growth: at the start of 2007, the number of unique users seeking out shared learning resources was up 50% over the previous year to over 40,000 unique users per month (Carey & Hanley, 2007). Critical to MERLOT's success are the 15 discipline communities that peer review the learning materials as well as expand the shared teaching expertise available for re-use and adaptation.

The main point to be observed in the experiences related below is the way our thinking about repository structure and function can be enriched by expanding our perspective from a repository-centred view to a community-centred view. In the title of this paper this shift is expressed as *From Repositories Supported by Communities to Communities Supported by Repositories*. In specific terms for the Carrick Exchange, this might be expressed as an evolution from thinking about

> the communities, networks and workspaces expected to establish around [the Carrick Exchange] (Lefoe, 2007) and to support repository services

to a view that puts the communities in the forefront with a focus on

> existing, emerging and nascent communities for teaching practice and how our repository-related online services and spaces expand, enhance and enable them.

The next section of the paper reviews some distinctions about the communities we may seek to support, and the sections which follow present illustrations and reflections from my personal observations about this expanding perspective, as it has occurred within the MERLOT repository and affiliated projects.

Some useful distinctions for types of communities

Much recent attention has been paid to the notion of a *community of practice*, a concept which focuses on the process of social learning that occurs when people who have a common interest in some subject or problem collaborate over an extended period to share ideas and solutions and to establish professional identity and norms for practice (Wenger, 1998). Many communities of teaching practice in higher education are, in my experience, more limited in scope: the norms for practice may be influenced more by local conditions within an institutions than by the larger group of teachers engaged with similar subject matter, and professional identity often rests more with the discipline knowledge domain ("I am an Historian") than with the pedagogical content knowledge associated with the discipline ("I am a History teacher").

Consequently, we might do well to consider other types of communities with smaller scope and impact as the initial targets of our work. For example, a *community of interest* is a group of people who share a common interest or passion, whereas a *community of purpose* is a group of people who are going through the same process or are trying to achieve a similar objective (Schummer, 2003). As the next section illustrates, a well-designed resource exchange and affiliated processes can enable a community of interest in a particular teaching area to become a community of purpose around improving teaching through the resource exchange. We can also design facilities to support particular subtypes with a community of purpose which are characteristic of higher education, such as *communities of inquiry* (Garrison & Anderson, 2003*)* and staff/faculty *learning communities* (Vaughan, 2004).

From communities of interest to communities of purpose: The MERLOT experience[1]

Whether or not teachers in higher education are fully engaged in communities of teaching practice, they are often very interested in their subject matter and have a passion for particular teaching areas. However, it is a common experience for those interests to not align with their immediate colleagues, i.e., within an academic department it may be unusual for more than one individual to be passionate about a particular teaching area so that if a community of interest is to form it will have to be distributed across a number of institutions. The faculty who could contribute to and benefit from such a community typically have competing interests in scholarly research, and the academic system for recognition and reward promotes the allocation of discretionary time into community collaborations to support scholarship.

The 15 discipline communities in MERLOT have become communities of purpose whose aim is to advance teaching and learning in their disciplines through the exchange, re-use and adaptation of exemplary learning resources and shared teaching expertise. These communities function as Editorial Boards for their discipline portals within MERLOT, a shared purpose which is manifested in the development of collaborative artifacts: a repository of open educational resources which they organise and manage (including triage of outdated resources) and to which they contribute resource recommendations, and pedagogical content knowledge such as peer reviews as discussed in the next section.

This shared purpose and corresponding work artifacts are key elements in developing the strong sense of community that characterises these discipline communities. However, to achieve the purpose of

[1] The author has served in MERLOT as Project Director for the Canadian province of Ontario, co-chair of the MERLOT Advisory Board, and Chief Learning Officer.

advancing teaching and learning in their discipline some other elements to drive usage are important. In some partner institutions or systems, usage of the resources is accelerated by the presence of local catalysts who identify resources of interest to their colleagues and insure effective communication about advances in the resource base. With other partners, the driver is a strategic priority – such as developing online courses, engaging in Course Redesign to enhance outcomes while simultaneously reducing costs, or widening access to under-served groups – to which the resource exchange contributes in visible and measurable ways. Carey and Hanley (2007) discuss examples of such strategic initiatives, and the resulting commitment of partner institutions to support the work of the community of purpose through allocations of faculty time.

The general pattern for advancing practice in this way has been expressed succinctly by Diana Woolis as the double-PoP principle (Woolis 2007). One PoP is the Point of Passion: this is what drives contributions to the Teaching Commons space, aided but not replaced by whatever incentives and support structures can be put in place. The second PoP is the Point of Pain or Problem: the vast majority of users may never contribute to the resource exchange but will draw benefit from it when they have a problem to solve in their teaching practice or a challenge to resolve in moving forward on institutional strategic priorities – providing the costs of finding and using the resource are outweighed by the benefits in resolving the problem.

Supporting cooperative design: The CLOE experience[2]

My next example illustrates that a community of action can also be a useful target for support through a resource exchange and its associated services and processes. In this case, the action was cooperative design of reusable learning resources. The point of this example is that requiring the involvement of intended re-users in the early design stages of learning resources can increase their suitability for re-use, and that even a small number of such re-users can make a big difference in the eventual sharing of the resources and the pedagogical expertise underlying it.

The Cooperative Learning Object Exchange (CLOE) was an experimental resource exchange within universities and colleges in the Canadian province of Ontario (http://cloe.on.ca). The resources developed as part of this innovation project are available to members of the cooperative and partner repositories; the website also contains a number of case stories of learning resource re-use and its impacts on both the authoring and re-using instructors (http://cloe.on.ca/stories.html).

In addition to a Peer Review process derived from MERLOT, CLOE also included support for cooperative design of learning resources (Goldsworthy & Harrigan 2007). The grants provided for the creation of learning resources carried the condition that authors must identify instructors at other institutions who would commit to participating in the design process and reusing the resource. While the primary authors were responsible for developing and testing the resource, the cooperative design team provided formative peer review throughout the process. Assessments of the program concluded that this early design feedback was a significant factor in insuring the resources were reusable in multiple instructional contexts. Development of the Carrick Exchange and accompanying grant programs may benefit from consideration of this CLOE policy and its support through the repository processes and services.

Supporting faculty learning communities: The ELIXR program[3]

While most of the value of resource exchanges appears to come through the engagement of distributed communities who lack the opportunity for frequent face-to-face interactions, it is also valuable to consider how the Carrick Exchange may enhance place-based communities. My last example, the ELIXR project, illustrates one way this might take place. ELIXR (http://elixr.merlot.org), a work-in-progress within the MERLOT Innovation Projects program, is intended to support faculty learning communities and other efforts in staff development, through sets of discipline-oriented digital case stories which all illustrate a particular theme of exemplary teaching practice. Themes currently under development include Universal Design for Learning, Enhancing the First Day of Class, and Course Redesign. The key idea is that instructors participating in training on a new teaching approach will be able to see it in action in their own discipline context. In addition to accelerating the adoption of new teaching practices, the ELIXR project has a secondary goal relevant to the Carrick Exchange: exposing instructors to the use of reusable

[2] The author was Founding Director of the CLOE and also served as Chair of the CLOE Advisory Board.
[3] The author is Lead Catalyst for the ELIXR program.

resources in their own learning is intended to make them more aware of the potential benefits of such resources in their teaching.

Related work: Applying a collaboratory taxonomy to the Carrick Exchange

A similar analysis to the preceding discussion, in a different work domain, is shown in Table 1 below, reproduced from an analysis of large-scale distributed scientific collaborations in the U.S., so-called "collaboratories" (Bly 1998).

Table 1: Collaboratory types by resource and activity (Bos et al, 2007)

	Tools (instruments)	Information (data)	Knowledge
Aggregating across distance (loose coupling, often asynchronously)	Shared instrument	Community data system	Virtual learning community, virtual community of practice
Co-creating across distance (requires tighter coupling, often synchronously)	Infrastructure	Open community contribution system	Distributed research center

The horizontal axis "differentiates based on the type of resource to be shared": a scientific instrument such as a telescope, an information resource such as a shared database maintained by a distributed set of users, or a knowledge base which might provide access to both implicit and explicit knowledge. The vertical axis differentiates by the type of collaborative, from aggregating existing tools, data or knowledge in the top row to creating new tools, information or knowledge in the lower row.

This informal taxonomy illustrates the need for different technical and social infrastructures to support the differing needs across the table. As these researchers concluded:

> In general, the collaborations become more difficult to manage and sustain from the top left of this table to the bottom right….A question that arose early on in the project was, 'What technology should be recommended for collaboratories?' However, the nature of the projects that were being generalized across was so diverse as to make the question specious. The technology needs of a Shared Instrument Collaboratory are very different from those of a Virtual Community of Practice, for example. (Bos et al, 2007).

To summarise the preceding analysis of issues for the Carrick Exchange using this framework, the space of possibilities and examples might look like Table 2 below.

Table 2: Collaboratory taxonomy applied to learning resource repositories

	Learning resources	Information about learning resources	Knowledge about learning and resources
Aggregating across distance	Resource repository	Usage data, ratings (e.g., MERLOT collections)	Peer Reviews, e.g., MERLOT Pedagogical content knowledge links, e.g., DLESE (2007)
Co-creating across	Cooperative design of resources (e.g., CLOE)	NSDL Discovery Team Expert Voices e.g., lesson plan scenario in Minton Morris (2006)	Proposed *MERLOT Guides to Best Evidence*, Carey and Hanley (2007)

Conclusions

Two conclusions can be drawn from this taxonomy work, which reinforce the ideas introduced earlier in this paper. First, a full range of possibilities needs to be explored across dimensions such as aggregation versus co-creation and the range of valuable contributions of resources, information and knowledge. Our second conclusion is that a number of user needs can be met without the full infrastructure of a distributed community of practice. It would be wise to keep in mind the subtle distinctions between an online community and an information resource that is communally maintained. In the latter, a few people answer questions as they come forward from those seeking information. In the former, there is a mutual exchange

that goes beyond information sharing to issues of identity, setting norms for practice, support relationships and even mutual caring.

Given the broad goals stated for the Carrick Exchange, it seems likely that different facilities will be needed to target the needs of different users – with links across these user domains to bridge across the communities in which participants use and contribute to the Exchange (Bringelson & Carey, 2000). The variety of participants and levels of engagement can be expected to require a variety of incentive structures (Ellis, Halverson & Erickson 2005; Cosley et al 2005; Beenen et al 2004) and community designs (Restler & Woolis, 2007).

Finally, some new developments in MERLOT also bear watching as potential directions for consideration in the Carrick Exchange. The most promising of these is the design of local Teaching Commons which provide appropriate community facilities and services within an institution, a regional cluster or an affinity group of similar universities and colleges. For example, within the California State University there are now prototype Teaching Commons sites [http://www.cdl.edu/cdl_projects/teachingcommons_home] for disciplines such as Teaching Business in the CSU, Teacher Education in the CSU and for special interest areas such as E-Portfolios. As other MERLOT partners re-use and extend the Teaching Commons templates, the lessons learned from these experiences will also be of benefit to the Carrick Exchange and other endeavours to exchange, re-use and adapt exemplary learning resources and shared teaching expertise.

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Thomas Carey
tcarey@uwaterloo.ca, tcarey@calstate.edu
http://eduspaces.net/tcarey/profile/

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