Building an Online Professional Learning Community

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Introduction

Best practices for the development of online professional communities change as rapidly as, and in parallel with, the technologies they rely on. Starting with email in the early 90’s to the current collaborative and user-centered Web 2.0 tools, online professional communities are constantly evolving with respect to what they do and how it is done.

In 2009, Falk and Drayton published an overview of multiple long-running projects that have succeeded in establishing online communities for math and science professionals (Falk & Drayton, 2009). While these programs made significant contributions to their respective professional communities, one of the principle values of the book is in its reflective view of the evolution of these programs, of the iterative changes in design, technology, human infrastructural support and learning goals in response to new technology, user expectations, and assessment of user interaction.

The Center for the Integration of Research, Teaching, and Learning (CIRTL) is a National Science Foundation project focused on preparing future faculty in the fields of science, technology, engineering and mathematics (STEM) to become both excellent researchers and superb teachers. Since 2006, the CIRTL Network has supported the establishment of local learning communities at six academic institutions and brought together each of those local communities to form a national learning community. While the development of this cross-Network learning community is young and still in process, a reflective view of its development can be instructive in considering the factors that impact the success or failure of such national professional networks. This paper describes the development to date, of the CIRTL cross-Network learning community.

Center for the Integration of Research, Teaching, and Learning (CIRTL) Network

The CIRTL Network began as a National Science Foundation Center for Learning and Teaching in higher education in 2003 and expanded to include six research universities in 2006. The mission of the CIRTL Network is to enhance excellence in undergraduate education through the development of a national faculty committed to implementing and advancing effective teaching practices for diverse learners as part of successful and varied professional careers. Today, the CIRTL Network includes Howard University, Michigan State University, Texas A&M University, University of Colorado at Boulder, University of Wisconsin-Madison, and Vanderbilt University.

Each CIRTL Network member institution operates an interdisciplinary learning community founded on the CIRTL core ideas of Teaching-as-Research, Learning Community and Learning-through-Diversity <www.cirtl.net/pillars>. The teaching-asResearch idea integrates research, teaching, and learning by guiding STEM educators to engage in their teaching as they engage in their research—know prior work, hypothesize, implement, collect data, analyze, and improve. Development of graduates-through-faculty is fostered in an interdisciplinary learning community that engages and connects all participants in
improving their teaching. The diversity of such learning communities promotes the understanding that learning of all is enhanced through diversity.

**CIRTL’s National Learning Community**

The primary purpose of the CIRTL’s cross-Network learning community is to leverage the benefits to future faculty of learning with and from faculty and peers at a diverse set of research universities. CIRTL’s contributions to diversity in STEM are founded on the principle that excellence and diversity are necessarily intertwined. Faculty and students bring an array of experiences, backgrounds, and skills to the teaching and learning process. Effective teaching capitalizes on these rich resources to the benefit of all, which we call "Learning-through-Diversity" The cross-Network learning community provides a mechanism for community members to learn from the diversity across six academic institutions that vary in several dimensions—private/public; large/moderate size; majority-/minority-serving; and geographic location.

**Synchronous Opportunities for Engagement**

CIRTL’s cross-Network learning community has developed an array of synchronous opportunities for STEM graduate students and post-docs to share, learn, and collaborate. Our first cross-Network initiative connecting students from various institutions was the establishment of online, synchronous graduate courses in teaching and learning. Through these courses we developed a technological approach that would allow us to interact online while utilizing a pedagogically sound methodology that was student-centered, employed active learning techniques, and relied on utilizing the diversity of the student experience to create a rich teaching and learning environment. Several factors were considered when selecting a technology for synchronous interactions. Desirable features included cross-platform compatibility, accessibility for users of assistive technology, support for video, Voice over IP, text chat and application sharing. In addition, given the interactive nature of the CIRTL courses, support for virtual breakout rooms was weighted heavily during the selection process. Finally, choosing a tool that would have a fixed, or at least predictable cost for the year, was an important consideration. After considering these factors, an Elluminate vClass virtual meeting room was chosen as the platform for synchronous events, including courses. The Elluminate virtual meeting room provides the desired features in a space that is available 24/7.

Capitalizing on our successes with the online courses, we established other synchronous, cross-Network events, including the CIRTLCasts, the CIRTL Virtual Coffee Hours, and the Capstone Seminars. These new initiatives have contributed significantly to cross-Network participation.

**Courses**

The primary goal of the CIRTL distance-learning curriculum is to provide a rich array of learning opportunities that take advantage of the diversity of the CIRTL Network. A minimum of two, semester-long graduate courses are offered every semester by faculty and academic staff across the Network. Seven unique courses have been developed and offered one to five times each, with a total of 185 graduate students and post-docs enrolled. Since 2006, the following CIRTL Network courses have been offered: The College Classroom; Teaching & Learning Science; Diversity in the College Classroom; Effective Use of Technology in Teaching and Learning; How Teams Work and How to Work Better in Teams; Preparation for Teaching; and Research Mentor Training.

**Coffee Hours**

Started in Spring 2010, the CIRTL Virtual Coffee Hours are a venue for informal online chats on a wide range of topics. In academic year 2010-2011, a Coffee Hour series was developed with a regular monthly time slot, an overall theme of navigating the academic job market, and a target audience of STEM graduate students and post-docs. One powerful aspect of this series was the opportunity to involve recent CIRTL alumni as mentors to the
graduate students in the conversation about academic careers and the job search. In addition to the expected benefit to the grad students, it has provided an opportunity to reengage recent alumni/new faculty with CIRTL.

CIRTL Capstone Seminars <http://www.cirtl.net/capstone_TAR>. Every local CIRTL learning community has a capstone, internship-like program. This is a prime opportunity for the relatively small number of students doing the advanced CIRTL internship (referred to as a Teaching-as-Research project) at each institution to join together into a larger community for special programming. We have set up presentations by faculty with expertise from the Network, and in academic year 2011-2012 plan to add cross-Network working groups of students with similar projects and a Network-wide virtual poster session of all final projects. In terms of growth of the online Network, the numbers of students here are small (approximately 22 last year); however, these are the most committed and engaged students in the Network. By better serving them, we are engaging those most likely to take leadership in the online community as it grows.

CIRTLcasts <http://www.cirtl.net/cirtlcasts>. CIRTLcasts are more formal online presentations that provide opportunities to make localized expertise within the Network available broadly to all Network institutions, supplement ongoing conversations in the Network, and provide contemporary perspectives to energize and support an active learning community. In the future we envision an increased strategic use of the CIRTLcasts to target a specific audience, topic, or need of the community, such as bringing in a speaker to address an issue that is being discussed in an ongoing online discussion thread.

Asynchronous Opportunities for Engagement
Enhancing asynchronous interactions across the community is critical to the growth of the cross-Network learning community. Asynchronous interactions such as discussion boards, blog posting, and uploading resources, support flexible interaction in terms of time, place, topic, degree of engagement, , and methods of interacting. However it also requires more individual initiative, as the user must decide to visit the site and engage, and decide to do so over a sustained period of time. Crossing the barrier to sustained, independent, user-driven participation is a critical and highly challenging step in the growth of an online community. We are attempting to cross this barrier through the development of Online Communities of Practice.

Opportunities for asynchronous interactions are available through the CIRTL Website <http://www.cirtl.net>. Over the last few years, the Website has evolved to go beyond providing static information and resources to providing an online presence that would support interactivity. Initially the CIRTL “Portal” was developed to allow users to interact with one another through groups, forums and blogs. In the second phase of the redesign process, these functions were consolidated into the CIRTL Café <http://www.cirtl.net/cafe>, a space on the Website for STEM graduate students, post-docs and faculty interested in teaching and learning to interact with their counterparts across the country. The CIRTL Café supports text chat, blogs, RSS feeds, connectivity with the virtual meeting room and CIRTL’s social networking presence on sites like Twitter and YouTube. Still, with the CIRTL Café, we have not made the transition to sustained, independent, user-driven participation in an online community. We are in the process of developing Online Communities of Practice that will encourage active, asynchronous interactions within the learning community by providing a functional reason for individuals with a common goal to seek out and interact with each other and by building in integrated, ongoing support into the site’s structure.

Online Communities of Practice
The Online Communities of Practice (OCoP) will be organized around themed areas of intellectual content that are central to CIRTL’s goals and are supported by CIRTL Network courses. By connecting
the themed areas with CIRTL Network courses (Diversity in the College Classroom, Effective Use of Technology in Teaching and Learning, and TAR capstone courses), the Web space becomes a place for classroom discussion to extend beyond the traditional boundaries of a single semester and a single cohort of students. The courses can help to provide a regular influx of new people, new energy, and contemporary resources, while the Web space provides a long-term presence that brings together past and current course cohorts and teaching and learning community members interested in issues of diversity, technology, and teaching-as-research.

In the OCoP STEM graduate students, post-docs, current faculty and staff will have opportunities to (a) share ideas, practices, knowledge, and resources in core areas of STEM teaching and learning, (b) collaborate and build professional connection, (c) support extension and continuation of classroom learning for CIRTL courses, and (d) to engage in ongoing professional development with others involved in STEM teaching and learning. We hope to do this through threaded discussion boards, chat capability, blog postings from Network experts, collaborative authoring tools, such as wikis, a co-constructed resource library that includes links to resources and a bibliography, and a bulletin board feature for announcements about upcoming events in the STEM teaching and learning community.

Critical to sustaining an active online learning community will be the presence of a committed group of core members who can anchor each content-focused community, provide leadership, and add significant intellectual content. The core group will consist of at least one CIRTL Network faculty with expertise in the content area who will contribute intellectually to the discussions though regular comments, posting of resources and occasional responses to discussions. This Network expert would take on this role for a minimum one-year term. In addition to the Network experts, a staff person would provide ongoing management and support to each community. This support would include monitoring and facilitating discussions, communication with the Network faculty, and soliciting occasional input from additional Network faculty when opportunities arise. Additionally CIRTL staff would manage, oversee, and continuously assess the community functioning.

Cross-Network programming will connect with and support each OCoP. This programming will include Network courses, sponsored CIRTLCast speakers brought in to address key areas of discussion, capstone seminar presentations, and Coffee Hour topics pulled from questions or issues raised in discussion threads. In this way, we are designing synchronous and asynchronous opportunities that support one another and can be responsive to the emergent needs of the community.

In keeping with one of CIRTL foundational pillars, the teaching-as-research approach to iterative design, assessment and modification, the OCoP will be evaluated to determine the efficacy of the site in meeting the needs of the community. Evaluation will be based on three factors: sociability and usability, based on Preece (2000), and member satisfaction. Sociability, the social interactions between community members, would include assessment of the amount and quality of interaction, and the duration of membership. Usability will be assessed through user interactions with the site including measures such as the time required to complete tasks such as finding information or posting a comment. Member satisfaction will be assessed based on surveyed feedback, user tenure, and cross-program migration from the OCoP to other cross-Network programming.

Conclusion

In Fall 2011, the CIRTL Network will expand to 25 member institutions. An appropriate balance among synchronous and asynchronous cross-Network activities will need to be established in order to maintain the fidelity to the core ideas of CIRTL while meeting the demands of future faculty. Our efforts have thus far been successful in engaging new participants and providing additional opportunities for previous participants to keep connected with the CIRTL Network. However, additional opportunities to more fully
engage the community exist and will continue to evolve. Increasing the vitality, utility and value of the cross-Network community will require a sustained effort from CIRTL leaders, affiliated faculty and participating future-faculty to ensure that our online programming is accessible, current, stable, and dynamic.

References


About the Presenters

Robin Greenler has worked for more than two decades in the field of science education reform. Through a succession of national programs, she has explored how to build and support creative communities of teachers and learners by bringing authentic science process and content into the classroom. She takes a leadership role in the Center for the Integration of Research, Teaching, and Learning (CIRTL) Network by supporting and mentoring members of the Network, and helps guide the development of the national learning community.

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