MountainRise

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How do YOU SoTL: The Past, Present, and Future of Writing about SoTL

As most readers are likely aware, in 1990, Ernest Boyer issued a challenge to higher education; one that struck deep at the epistemological heart of the culture of higher education (Schon, 1995). Within the challenge, he developed a framework for scholarship that differentiated traditional research, the scholarship of discovery, from three other types, application/engagement, integration, and teaching. The latter, now commonly known by its SoTL acronym, has perhaps made the most progress towards defining itself as a field of inquiry and toward creating a functioning community among its practitioners (McKinney, 2004). This existence and persistence of this journal is an example of the establishment of the field of SoTL as both a national and international subject.

That assessment is a relative one and although SoTL has made great strides, there are many unresolved questions in the field, from reward and recognition, peer review, and others, even among the most recognized SoTL experts (Kreber, 2002). Despite these lingering questions, publication in SoTL has become increasingly uniform. The classic SoTL study follows a particular organization, which includes a question based on classroom practice, a literature review, an empirical study, an analysis of the findings of that study, and then a reflection on the meaning of those findings. It is perhaps no surprise that this formula is well familiar to social scientists and to educational researchers. Scholars in these areas were among the first to embrace the emerging field of study, and they offered their research tools to others. It could not have hurt that empirical studies, grounded in quantitative analysis, supported the credibility of the emerging field and created a bulwark against the inevitable critical backlash. The net effect, though, of this perception of how SoTL has done has worked against creating a broad community of practitioners and has, in effect, narrowed the field. Those with social science research skills have naturally gravitated towards the new area, while those researchers in fields with other research tools have faced greater obstacles to entry. Proponents of 'SoTL as genre' might argue that it has deepened the understanding of the field among experts and allowed for more consistent assessment of quality. In other words, breadth has been sacrificed for depth, but that may not be such a bad outcome.

On the other hand, if we can agree that teaching and learning are diverse and multi-talent activities, so it would stand to reason that a similar perspective should characterize how we write about those activities. In other words, if "teaching is not a normative science," as Diana Laurillard claims, then why do we tend to assess, and therefore, write about it as if it is, using tools developed specifically for that purpose? [1] While the list of appropriate methodological approaches that fall under the SoTL umbrella has certainly been growing, educational researchers, including cognitive psychologists, have led the pack and their pronouncement of what constitutes quality research have often (albeit unintentionally) drowned out other voices (Hubball and Clarke, 2010; Weimar 2006). Within that din, though, a growing number of scholars are clamoring for SoTL to become inclusive of the tools that characterize many different disciplines, often far afield from the classic social science education model (Hutchings, 2007). Rather than trembling at such a prospect, it is possible that such a diversity of voices will not result in discord and disorder, as the *Wiki-U* article attests. Rather, this issue of MountainRise is intended to suggest that multiple voices can produce a form of controlled creative chaos, a cornucopia rather than a cacophony.

Teaching and learning are not only diverse practices, they are to some extent unique and ineffable ones. The heart of SoTL inquiry is the discipline, which serves as an indelibly colored lens through which we all view our practice. I am, by training, an historian and we often teeter on the brink between humanities and social sciences. You may be familiar with George Castaneda's quote, "those who do not learn from the past are doomed to repeat it;" students frequently cite this idea as a reason for pursuing the study of history. On the other hand, the contemporary philosophy of academic history is fundamentally rooted in the humanities. We spurn Castaneda's ideas in favor of reveling in the singularity and ephemeral nature of historical events. Like other disciplines in the humanities, though, this leaves us with a dilemma about defending the relevance of historical study in the accountability climate of modern academia. If it does not repeat itself, then how is the study of history relevant or worthwhile? What if you substitute the word

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[1] Diana Laurillard, *Rethinking University Teaching: A Framework for the Effective Use of Educational Technology*. London: Routledge, 1993, 8. As quoted in Bass, R. (1999). The scholarship of teaching: What's the problem? [ElectronicVersion]. *Inventio: Creative Thinking about Teaching and Learning* 1, 1-9.

"teaching" for the word "history" in these preceding questions? Perhaps teaching and learning and therefore, SoTL may not simply be the domain of the social sciences.

Many have valiantly sought to articulate answers to these questions about the humanities, and sometimes those that resonate most deeply, such as the beauty and essential humanity that is deeply embedded in these fields, do not hold as much water with its detractors. The reasons many of us love teaching and learning and yearn to think deeply about it are not always those that will satisfy conventional standards of scholarship. Matthew Rave's essay presents an interesting case in point. Though reviewers praised its insight, several were left wondering if such a piece, with its absence of empirical basis, could really constitute SoTL. It may be time to consider closing this metaphorical loop and finding ways to appreciate not only multiple forms of scholarship, but multiple forms of expressing that scholarship.

One historian called his colleagues "amateurs in the operating room" when it came to SoTL, but that metaphorical operating room may not be the only place in which meaning-making and knowledge creation take place within teaching and learning (Pace, 2004). Historians have found it helpful to conceptualize history not so much as an operating room but as a laboratory for the human condition, one that shows us the range of what we are capable of, and allows us to consider conditions that do not currently exist. [2] A healthy appreciation for alternatives and 'paths less travelled by' is an attitude also engendered by many SoTL studies, but it is one that could perhaps be more productively applied to its scholarly products.

One example of these roads less travelled by is the format and organization of SoTL. For example, historical writing is fundamentally about narrative—the story. Those of us who are not professional historians may find scholarly historical writing has gotten somewhat esoteric, dry, and jargon-heavy, but even with these limitations, the driving force of the interpretative structure is the narrative. [3] Most works of

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[2] Peter Stearns, "Why Study History?" American Historical Association, 1998. http://www.historians.org/pubs/free/WhyStudyHistory.htm [Accessed November 28, 2010].

[3] Lawrence Stone, "The Revival of Narrative: Reflections on a New Old History," *Past and Present* 85 (Nov. 1979) 3–24. Reprinted in Geoffrey Roberts (ed.), *The History and Narrative Reader*. New York: Routledge, 2001.

history use sophisticated and varied methodology, for example, but historical works do not usually contain lengthy descriptions of these methods. Rather, they are allowed to speak for themselves, to emerge in a sense, through the story that is being reconstructed and interpreted. Kevin Yee and Jace Hargis, neither of whom are historians, practice something similar in their piece, *Jumping Head First*. Rather than performing post-mortem analysis of the results of the study, they choose instead to concentrate on the opposite poles of inquiry and application that came before and after the more conventional analysis. The result is a piece that closely mimics the instructors' own transformative journey in both form and function. Maria Moore's piece takes this even a step further and places SoTL on a different platform, both literally and figuratively. She does not simply eschew the classic social science formula, but challenges even its basis in the linearity of the printed page, by intertwining her study, the researcher, and the audience through multimedia. Her work explicitly challenges the passive reader to become a more active participant in constructing meaning from her scholarship.

The gradual switch from passive to active learning should sound familiar to those of us who swept up the "learning-centered" revolution that has galvanized contemporary higher education. SoTL has served as a significant catalyst for this process, but in doing so has neglected to embrace the same principles of teaching and learning that it has championed. The primary purpose of a community of scholars is, after all, teaching and learning for its participants. If faced with a room full of faculty from diverse disciplines, is the classic social science study how you would choose to reach them? What do you think would be the most effective way to reach them? Just as there is no single right way to teach, there may be no single right way to do SoTL. The question of how do you SoTL could be as unique, metaphorically speaking, as your own fingerprints.

Bass, R. (1999). The scholarship of teaching: What's the problem? [ElectronicVersion]. *Inventio: Creative Thinking about Teaching and Learning* 1, 1-9.

Hubball, H. and Clarke, A. (2010). Diverse Methodological Approaches and Considerations for SoTL in Higher Education.*The Canadian Journal for the Scholarship of Teaching and Learning*, *1*(1), Retrieved from http://ir.lib.uwo.ca/cjsotl_rcacea/vol1/iss1/2/

Hutchings, Pat. Theory: The Elephant in the Scholarship of Teaching and Learning Room. International Journal for the Scholarship of Teaching and Learning 1 (1), January 2007.

McKinney, K. (2004). The scholarship of teaching and learning: Past lessons, current challenges, and future visions. *To improve the academy: No. 22,* 3-19. Bolton, MA: Anker.

Pace, D. (2004). The amateur in the operating room: History and the scholarship of teaching and learning. *The American Historical Review, 109,* 1171-1193.

Schon, David (1995). The New Scholarship Requires a New Epistemology. Change 27 (6), 26-35.

Peter Stearns, "Why Study History?" American Historical Association, 1998. http://www.historians.org/pubs/free/WhyStudyHistory.htm [Accessed November 28, 2010].

Lawrence Stone, "The Revival of Narrative: Reflections on a New Old History," *Past and Present* 85 (Nov. 1979) 3–24. Reprinted in Geoffrey Roberts (ed.), *The History and Narrative Reader*. New York: Routledge, 2001.

Wiki-U: One State Comprehensive University's Experience
in Integrating Wikis across the Disciplines

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George Nickles, Phyllis Robertson

Abstract: This article presents a factor-based analysis of seven case studies at Wiki-U; each detailing ways wikis are being used to support the mission of the state comprehensive university (SCU) while also enhancing student learning. The case study narratives revealed that wikis complement the impetus for engaged teaching and learning, students' active involvement in their own learning processes, and the formation and integration of technological-pedagogical content knowledge; all of which dovetail with the unique situational factors characterizing the SCU.

INTRODUCTION

The ubiquitous Wikipedia defines its own platform as "a website that allows the easy creation and editing of any number of interlinked web pages." The use of wikis, and a related tool, blogs, in higher education has climbed in recent years and the pedagogical effectiveness of such tools extensively studied (Alexander, 2009; Alonso, Lopez, Manrique & Vines, 2005; Armstrong & Franklin, 2008; Augur, Raitman & Zhou, 2004; Bold, 2006; Boulos & Wheeler, 2007; Boulos, Maramba & Wheeler, 2006; Chen et al., 2005; Crook et al., 2008; Ferris & Wilder, 2006; Klobas, 2006; Lamb, 2004; Mason & Rennie, 2008; Mejias, 2006; Neumann & Hood, 2009; Parker & Chao, 2007; Raman, Ryan & Olfman, 2005; Ravid, Kalman & Rafaeli, 2008; Robertson, 2008; Ruth & Houghton, 2009; Sharpe, Benfield, Roberts & Francis, 2006; Swain, 2008; Trinder, Guiller, Margaryan, Littlejohn & Nicol, 2008; Wang & Turner, 2004; Wheeler, Yoemans & Wheeler, 2008). While the literature bifurcates itself over the differences in applications between K-12 usage and higher education, little work has been done on the distinctive role collaborative tools play by institutional type or classification. In the case of one rural, state comprehensive university (SCU), here deemed Wiki-U, collaborative tools and their respective pedagogies speak to an integral part of institutional identity.

It is undeniable that the wiki has become a staple of teaching and learning at Wiki-U. In 2010, for example, Wiki-U hosted over 700 active wiki/blogs. With a student body of approximately 10,000, this number suggests that collaborative tools are an integral part of the student's experience. And their use is not limited to a particular course of study. As the charts (Figures 1 and 2) below attest, the use of wikis works across colleges, disciplines, and program levels.

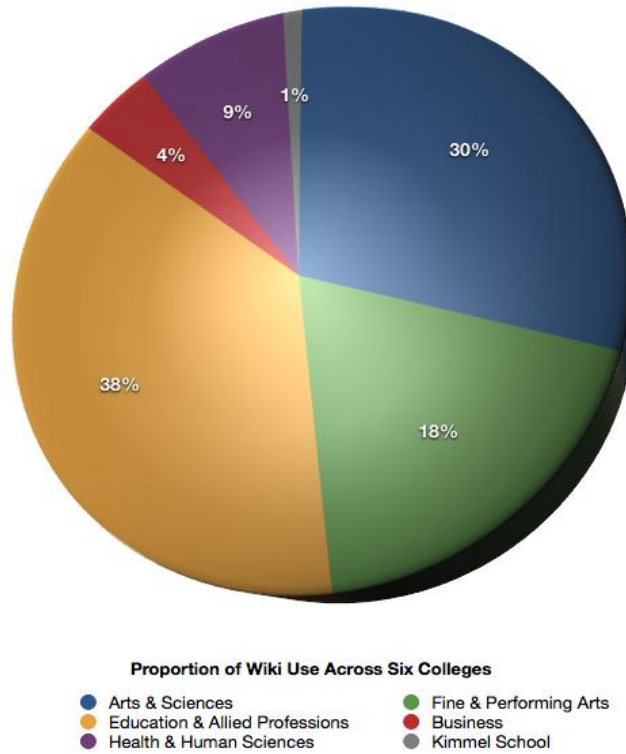**Proportion of Wiki Use Across Six Colleges**

- Arts & Sciences
- Education & Allied Professions
- Health & Human Sciences
- Fine & Performing Arts
- Business
- Kimmel School

Figure 1. Cross-institutional use of wikis at Wiki-U across each of the six colleges.

Proportion of Wiki Use Within Each of Six Colleges

- ● Arts & Sciences
- ● Education & Allied Professions
- ● Health & Human Sciences
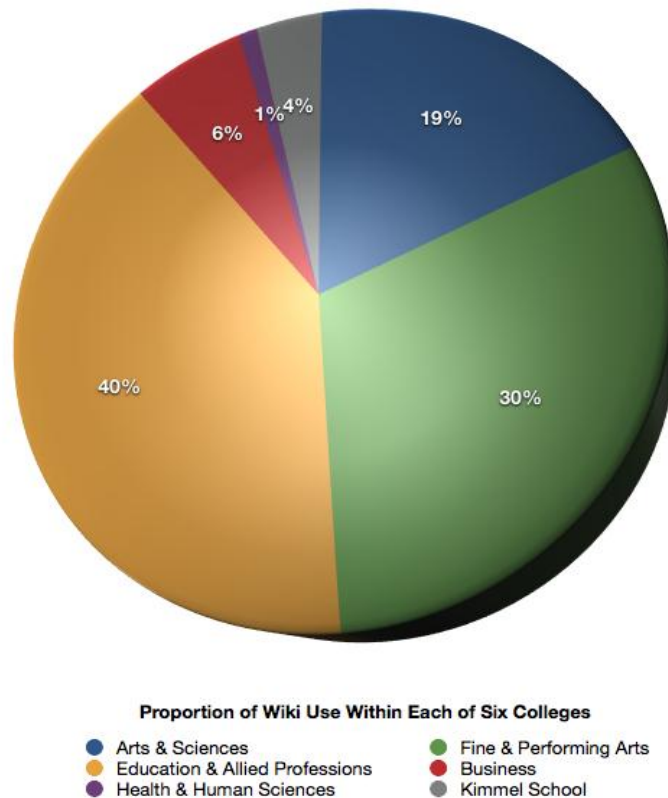- ● Fine & Performing Arts
- ● Business
- ● Kimmel School

Figure 2. Proportion of wiki use within colleges of faculty who are incorporating wikis into their instructional practice.

While the overall use of digital media at Wiki-U has been increasing, wikis proliferated at significantly higher rates than other tools. In order to uncover the reasons that wikis had become so widespread, the researchers asked seven faculty members who use wikis to supply qualitative accounts of their experiences, including discussions of method, evaluation, and reflection. These case studies include courses that are online and hybrid, undergraduate and graduate, required and elective and are drawn from a cross-section of disciplines. Researchers used a modified factor analysis procedure to determine the dominant trends in the narrative responses. The factors that emerged strongly correlated with many of the institutional characteristics inherent with SCUs, including innovation in teaching and learning, engagement, and regional integration.

INNOVATION IN TEACHING AND LEARNING

The case studies do have one thing in common: they are all courses being offered at a single SCU. If institutions of higher education were movies, Research One institutions might be the powerful action movies and liberal arts colleges the small 'Indie' films. Harder to cast is the state comprehensive university (SCU). An article in the *Chronicle of Higher Education* even went so far as to refer to SCUs as "the undistinguished middle child" (Selingo, 2000). At times emulating her 'brothers and sisters' the middle tier of higher learning has struggled to define a distinctive role for itself in the landscape of academia (Henderson, 2007). Many such institutions have their roots as teachers colleges' and the consensus in the literature seems to be converging on leadership in teaching and learning as its star vehicle (Henderson, 2009).

Part of that leadership includes the Scholarship of Teaching and Learning (SoTL), which   SCUs already engage in and forecasts suggest is a role that will continue to expand (Henderson & Buchanan, 2007). SoTL emerged as a field of study from the seminal work of Ernest Boyer, president of the Carnegie Institute for the Advancement of Teaching and Learning, which gave credence to systematic reflection on improving classroom practice (Boyer, 1990). Many SCUs, including the one featured in this article, have adopted Boyer's vision of changed expectations and created institutional support and rewards for such research. In the case of Wiki-U, faculty can gain credit towards tenure for creative applications in the classroom, which has led to a culture of attention to pedagogical research and innovation (Cruz, Ellern, Ford, Moss & White, 2010).

Attention to pedagogical research is similar to, though not synonymous with scholarly teaching. The latter term is often used to refer to teachers who stay current in their disciplinary fields, but do not necessarily conduct pedagogical research (McKinney, 2003). In 1989 Boyer's successor, Lee Shulman coined the term "pedagogical content knowledge" (PCK) to refer to the blending of disciplinary-based content knowledge with robust pedagogical strategies, and argued that future faculty development would need to encourage the intersection of these two practices (Shulman, 1986; Shulman, 1987). Twenty years later, Mishra and Koehler (2006) expanded on Shulman's vision, adding technology to the matrices, and coining the term 'technological pedagogical content knowledge' a mouthful more easily digestible as the acronym TPCK (Koehler, Mishra & Yahya, 2007). With technological mediation becoming an

increasingly integral part of best practices in teaching and learning, the addition was certainly timely. The

TPCK model has gained considerable traction in SoTL and educational research, and seems especially

aligned with the distinctive mission of the SCU.

Innovation in TPCK is demonstrated most clearly in the case of one graduate course in education

where wikis played two major roles in one instructor's instruction and professional work: first, as a solo

application used for a collaborative activity with students and colleagues and second, as a component in

a team of applications to support a larger composition process, a concept that is coined a CLIKI (a

Cascade of applications including b**L**og, w**IK**i and **I**nternet publication). As a solo tool, wikis were used in

several ways. Graduate education students were assigned to build a web site for a teacher's classroom

using Google Site's wiki application. The instructor preferred the Google Site product because of the

privacy control features and the capability of creating and cross-linking multiple sites. Students could

choose whether to allow public access or restrict viewers and editors of the sites. This instructor's

professional activities using the wiki included editing articles of interest in Wikipedia and creating wiki

projects for the participation of others in professional activities.

As a part of a CLIKI, the wiki is but one stage or perspective in the larger creative process. The **C**

is for the **cascade** of relevant applications needed to encounter and react to the thinking and problem-

solving activities of others, such as web browsers, Inspiration, MS Word, or Google Docs. This cascading

process is where ideas are initially brainstormed and sketched into life. The **L** is for **blogging** a sequence

of developing ideas whether visual, aural or text as they occur and inviting comments to the postings from

students and the entire Internet. Because this instructor's course textbooks are online, students' blog

postings were sometimes linked to larger readings to provide a place for reader input. The **IK** letters stand

for **wikis**, representing a stage in the creative process where a larger body of ideas is placed within a web

page where a group, a class, or even a larger Internet group can edit them. The final letter **I** stands for

Internet publication of a set of ideas as a fixed completed work, meaning a composition whose time to

edit is finished, and it must stand or fall on its own merits without further editing. The blog and wiki sites

might then be deleted depending on their value and the interest to others.

Another education course at Wiki-U also blends content, pedagogy, and technology in innovative

ways. Curriculum Toolkit (CTK) was an ongoing research project undertaken in cooperative teams of

three or four students formed according to the student's professional interests declared in the wiki-based student biographies published at the start of the semester. Each group proposed a collective new curriculum outline that they would recommend to decision-makers in an educational setting. Student teamwork was developed iteratively over several weeks in consultation with the course instructor on substantive assignment matters, and with the reference librarian on matters of topic development, research and data collection. Student communication was undertaken in the asynchronous threaded discussion boards within the course LMS, a dedicated live *Wimba Classroom* synchronous voice chat area, and *Blackboard* e-mail. Student work appeared on the wikis in real time as it developed, allowing instructors to offer formative feedback. Wiki-work produced by the assignment due date was considered a completed team project.

Students in the same course also worked with the "The New Curriculum Scaffold (NCS)." This particular assignment relies on student teams to create a curriculum framework linked to external standards (such as the North Carolina – Standard Course of Study) based on a contemporary event reported in the public media. Although students are provided a list of media links, they are also given the option of selecting their own current event. Somewhat unlike the CTK assignment, students interact in paired partnerships via live voice tools, asynchronous text discussions and e-mail. The results of both projects are impressive, with certain student team projects worthy of dissemination to a broader general public or formal proposal to target institutions.

Scholarly teaching requires continual feedback and development loops, and several instructors commented on ideas for new uses of wikis that show a different side of the TPCK matrix. For example, one Wiki-U instructor commented: "An experiment of particular interest to me has been creating a single wiki site created by an entire class of students. One version I think of as a "baton wiki" which is handed off to students and future faculty teaching a course in which multiple department faculty have taught over the years. Such a wiki's content is created through my own faculty writings and through the inclusion of assignments and creative works of an entire course of students. Students continue to have editing rights after they graduate but not owner rights to delete it. A second variation on this theme is a "raft wiki". Students create the site through course assignments and activities but then select class leaders to take over the ownership rights as they graduate to do with as the group wishes."

ENGAGED TEACHING AND LEARNING

As these cases attest, wikis are used at Wiki-U across levels and disciplines and serve a variety of purposes, but all display the integration of technology, pedagogy, and content knowledge each in its own distinctive ways. One significant factor in the narratives was engaged teaching and learning. At Wiki-U, close to one quarter of the student body are first-generation college students and many programs are in place, both inside and outside of the classroom, to enable these students to reach the highest potential of their abilities. For these reasons, Wiki-U ranks relatively high in the NSSE (National Survey on Student Engagement) results and has recently earned the Carnegie 'engaged university' classification. Most prominently, wikis serve as tools for collaborative and/or cooperative learning, both of which are products of the 'learning-centered revolution' that characterized educational research in the late 1980s and 1990s (Balkom, 1992; Guzdial & Kehoe, 2001; Ben-Zvi, 2007). Both methods recognize the social dimension of learning and contrast traditional instructor-centered teaching strategies with group-based learning strategies, including collaboration, peer feedback, and social networking (Leiserson, 2003). Additionally, studies have shown that students at SCU's are often less prepared for the nature of collegiate work than their counterparts at other types of institutions. The mission of SCUs (and their faculty) includes attention to such factors as "learning how to learn", study skills, metacognition, and other engagement strategies. Using collaborative methods of learning, such as group editing through a wiki, have proven success in helping students to develop strong metacognitive awareness of their own learning processes, particularly in comparison to others (Gordon, 1996; Godwin-Jones, 2003).

Approximately five years ago, Wiki-U instructors began embedding wikis for collaborative student composition in undergraduate- and graduate-level online and hybrid courses. On its most basic plane, one way that wikis are being used in a graduate education course requires individual students to contribute data to a course biography page. Because wiki composition facilitates the creation of multimedia vignettes, all students are asked to post information about themselves in text, image and voice so that their classmates can get to know them better and to reference parts of their narratives to support collaboration in subsequent assignments. These biographies serve to anchor another introductory assignment, called "The Icebreaker." Other communication tools in *Blackboard Vista*, Wiki-U's current LMS, support the wiki aspect of this assignment. Synchronous and asynchronous text and

voice communication "rooms" serve as forums for interaction where small groups of students exchange information about professional and recreational interests and then publish the results for the entire class on the wiki site.

In one case, a faculty member introduced a wiki to her Counseling graduate students for creating a glossary of research terminology. This resource, among other uses, was to serve as a study guide for the comprehensive final exam. This instructor states that it was her first time teaching the research methods course and chose the wiki glossary assignment as a way to encourage students to think critically about the importance of terminology in counseling research. She reflects that graduate counseling students often come from a variety of backgrounds and do not always understand the intrinsic importance of research to the profession. They often resist anything that has to deal with statistical analysis by announcing they will be working with people not numbers. Convincing students of the value and necessity of research to the profession requires creating opportunities for students to become actively involved in their own learning process from the beginning. Because this instructor used nontraditional methods to generate questions for her students' exam, this study guide provided them with some leadership in determining the content for their comprehensive assessment.

From the beginning, this instructor remembers being concerned that the variety and complexity of the terms posted might not be sufficient to meet the learning objectives outlined for the course. There was even one student who shared her skepticism and verbalized this to others. The instructor wound up choosing to trust her group of adult learners to do what was best for their learning and not what was easiest. She remembers remaining concerned up until the last month of class when to her pleasure and relief, the glossary terms which were being posted were representative of the ones she would have chosen and even contained a few that she had overlooked that were beneficial. The use of the wiki for creating a study guide provided impetus for active and responsible learning for her students and proved to have positive results in designing a measurement of proficiency. When it came time to create the final exam, the glossary had 49 terms that exemplified the basic components of quantitative and qualitative research. The exam was not an easy one just because the students chose the terms but was comprehensive and pertinent.

A new master's level course, Current Issues in Gifted Education, provided an ideal venue for using a wiki not only for biographies and collaboration, but also for peer evaluation. Using the Group Manager tool in *Blackboard Vista*, students signed up for three topics from a list of 12, with three to four students in each group. As this was their first experience with using a wiki, students were given three weeks at the beginning of the course to become acquainted with the wiki features by writing personal profiles. The instructor modeled this process by posting her own profile, using the wiki features to integrate various types of multimedia, challenging the students to be creative in the incorporation of multimedia in their own profiles. Synchronous *Wimba* chat rooms as well as asynchronous discussion areas were set up for the groups in the LMS to discuss how they would collaborate on the projects. In addition to collaborative writing on three research projects, each student was required to read all of the reports and write reviews of three of them in the comment section of the wiki page. The research reports were not graded until the groups revised their work based on the feedback from the peer reviews. Rubrics were provided for assessing the research reports, peer reviews, and self- and peer-collaboration. The research products as well as anonymous feedback provided by students at the end of the course demonstrated the power of using a wiki to achieve high-level learning outcomes and community-building.

In an undergraduate Dance Appreciation course, the instructor brought students in on their own formative and summative assessments. Students were divided into groups of two to three and were set on a quest to research a particular artist. With the final product being a wiki page that addresses specific questions about process, motivation, and aesthetics, students provided hyperlinks to actual footage on the Web that provided visual examples complimenting written content in addition to images of the artist and his/her work. In an effort to encourage all of the class members to view the work of their peers, each wiki also had to include exam questions (without the answers) that the instructor would then pull from for the final exam. Once these guidelines had been created, video tutorials and sample pages were embedded in the wiki that served as examples. Going 'outside the box' is always risky, and in a course where there are residential as well as distance learners, there is even more potential for communication issues. However, in this case, after students began to work with their peers, ask questions and start to experiment with the wiki, there were no insurmountable hurdles other than the usual – getting students to

work together as opposed to individually and to become accustomed to the wiki with respect to uploading content.

In "Popular Literature and Culture," a 200-level English course primarily aimed towards students fulfilling General Education requirements, wikis became essential critical thinking tools. In this course, Jane Austen's *Pride and Prejudice* is used as a case study to address the increasingly participatory nature of popular culture. Students study both the original novel and a number of its recent (re-)iterations on film, in novels and comic books, and on the Internet in order to reconsider our relationships to texts. The objective of this course is to encourage students to think about what it means to be a fan (either of Austen or anyone else) and to begin to see themselves as "prosumers" (a combination of producers and consumers) of culture, and the wiki is the essential tool for this process.

Students in the English course also experienced social networking. One of the particular challenges students face when studying *Pride and Prejudice* is dealing with the number of characters introduced right as the novel opens. As one student noted, Austen creates a "web" of figures linked to each other and defined chiefly through their relationships. The wiki has been a valuable tool in helping students teach themselves how the characters are connected and to critically examine what those relationships mean within the novel as a whole. During the very first class period, students draw the name of a minor character out of a hat and work in groups of two or three to create Wikipedia-like pages for that character. As they read along in the novel, they collect information and collaborate to present an ever-fuller picture of their character. Students are also encouraged to create links to the other character pages, illustrating the often surprising connections between them. By the time the novel is finished, the students had expanded their pages with links to topics associated with their characters and collectively constructed an image of the historical and cultural context into which the novel was released. In allowing students to focus their attention away from the famous couple at the center of the story, their wiki opens up the novel to new perspectives and new readings.

Though most of the instructors in our case studies commented on their successes, the integration of collaborative tools is not always simple or seamless. One Fine and Performing Arts instructor's journey into the world of the wiki began after converting a Dance Appreciation course originally taught in the classroom to an online format. While the goal was to create a collaborative research project for the online

learning environment, she comments that nothing strikes dread and trepidation in a student like the phrase "collaborative project." In the end, she felt the potential advantages the wiki held for making a lasting impression, in comparison to the traditional, singular research paper, were worth bypassing her personal reluctance to jump off the proverbial cliff with her students. The issue can go even deeper. Wiki production has been lauded for its democratizing capacity (Pittinsky, 2003), but these instructors warn that when student groups compose collectively, individual authorship becomes moot. Anybody's production can be edited, deleted or replaced by anyone else possessing composition privileges – a consequence that runs against the grain of scholarly tradition which celebrates authorship and assigns credit to individual scholars. Thus, the "value fit" of wiki production to collective knowledge creation in higher education can be awkward. Academics (and students) need not only master new technological tools and group processes, they also need to rethink certain fundamental professional value codes – a conundrum which potentially represents a constructive advance in scholarship, but one which is not necessarily comfortable.

STEWARDS OF PLACE: REGIONAL ENGAGEMENT

Another significant factor that emerged from the accounts was making connections beyond the classroom. Like many SCU's, Wiki-U also has mission that includes service to the region, often referred to as stewards of place (AASCU, 2002). Located in a geographically remote, largely rural part of the Blue Ridge mountains, the institution endeavors to reach out over those mountains and to connect its students to ideas, people, and places elsewhere. The use of technology, including collaborative tools, facilitates this function in several significant ways. First, like many institutions, Wiki-U has been expanding the number of programs that it offers fully online and web-based tools allow for recreating collaborative and cooperative learning in the online environment (Choy & Ng, 2007). Secondly, although most of the students at Wiki-U are residential, a growing percentage are not and the tools allow for those students to connect to others and to recreate the collegiality of the dorm room in completing group projects. Finally, several instructors have opened their wikis and blogs to include individuals and groups that are not present on campus, including international audiences. As part of its accreditation process, Wiki-U has to develop a Quality Enhancement Plan (QEP) which takes existing institutional strengths and works to enhance those strengths, especially at the program level. Because of its particular context and mission,

Wiki-U chose a QEP that focuses on integrative learning. With an emphasis on helping its student population integrate experiences inside and outside of the classroom, as well as before and after their college careers, the "synthesis" model carried with it an implicit call towards new models for collaboration that transcend the hills and walls of the campus. The broad use of wikis for integrative learning works, then, to serve both the University's mission and its accreditation goals.

A critical part of the regional engagement mission is to provide jobs in the region and one of the highest-need areas is education. Starting from its origins as a teachers college, one of Wiki-U's longstanding strengths remains its work with pre-service and in-service teachers. For example, the instructor who initiated the glossary experiment (explained above) remarked that she had two students who took the Praxis (teacher licensure examination) late in the semester return to class to say that the exam had terms on it that were in the course glossary and that they were thankful to have learned them. She concludes that it is always good to hear that assignments and practice can bring positive results in other areas outside of the classroom.

The English instructor also commented on the integrative capabilities of wikis. One of the central ideas behind this English course is that readers are, or often become, writers. Towards this end, students use the wiki to "publish" their own fan fiction and artwork. Students present scenes from the novel from the perspective of another character, they fill in gaps in the novel or extend it past the ending, and some have even to played out "what if" scenarios, using the wiki to create "Choose Your Own Adventure" versions which take Austen's characters down completely different narrative paths. The collaborative nature of the wiki allows students to comment on their classmates' work and even offers the opportunity to work together to revise or complete each other's contributions. In participating creatively with this novel via the wiki, students mimic the fan culture they are studying, and thereby gain a more intimate understanding of why this novel continues to inspire readers and writers almost 200 years after it was published.

Wikis are also being implemented on campus for purposes other than direct instruction in order to promote different forms of integrative learning. For example, the wiki opens a new door of opportunity for providing better communication with university supervisors who are supporting pre-service teachers working in public schools. In this capacity, the university supervisor provides mentoring and oversight for

pre-service teachers during their internships or student teaching. With ninety percent of our secondary university supervisors being adjunct faculty and new to the College of Education and Allied Professions, we needed a means of providing information and online training to people at various distances from campus. The Office of Field Experiences provides a handbook and multiple links to documents; taking the user from one location to another. And while this documentation provides the necessary information for supervisors, it is a complex web of information to navigate. Many of the university supervisors are retired teachers and administrators unfamiliar with navigating through multiple links and who are uncomfortable with the now-common phrase of "just follow the links" and who may also be intimidated by the fact that there are multiple ways to access documents. Therefore, the establishment of a wiki has become the first step in providing a single location for university supervisor support.

The Office of Field Experiences site was organized by areas of educational concentration. This organization directs all university supervisors to sub-pages created with content and links specific to them. Key individuals in each concentration were given access to edit their own sub-pages, so they could include any content they chose. Some sub-pages were created that contain general information, such as how to use the college's assessment portfolio system, *TaskStream.* This example of wiki use has been successful in providing narrated audio PowerPoint presentations aimed at training new university supervisors as well as to offer an opportunity for those who want to listen again or to refresh their memories. Links to FAQs as well as links to required student teaching/internship documents have been established. In putting as many document links together in one place as possible, the wiki has become a much more friendly location for new users.

IMPLICATIONS AND FUTURE RESEARCH

These case studies reinforce existing research on the efficacy of wikis, and other Web 2.0 tools, in promoting innovative and effective teaching and learning. That being said, by embedding these cases in the context of a particular type of institution, in this case a state comprehensive university, the study is able to provide additional implications for the use of wikis. New pedagogical tools seem to be 'hitting the market' at an increasing rate, and faculty express bewilderment and frustration at the prospect of keeping up with changes and developing a means to discern what will work for them. Nearly all of the faculty who provided information for this study, for example, expressed some degree of 'wiki wariness'. Faculty

development centers have emerged as the primary gatekeepers for filtering this new knowledge into

campus cultures. This gatekeeping function, though, is understudied and the parameters remain vague

and often personal, a situation that can contribute to the perception that many of these new tools are

fads, and subject to the fickle finger of fashion rather than pedagogical efficacy.

The collective and widespread success of the use of collaborative tools, especially wikis at Wiki-

U, suggests that a significant factor in finding tools that will work may be the broader institutional context

in which these proposed tools will be used. As most faculty and faculty developers know, successful

pedagogical tools and strategies may not always be 'one size fits all' and what works at one institution

may not at another. Just as each course is unique, so is each institution and the 'situational factors' that

affect learning in a course (number of students, level, expectations of stakeholders, characteristics of

learners/teachers, and specific challenges) can also play a significant role in affecting the integration of

learning tools (Fink, 2003). Further, this relationship between TPCK and situational factors is not

hierarchical; rather a symbiosis that integrates these unique features in a complementary way. Figure 3

provides a conceptual model that visually represents the situational factors (in the black shaded area) and

TPCK factors (in the white shaded area) that are facilitated and influenced by the distinctive nature of the

SCU. A reflection of institutional identity, the interplay of factors perpetuate one another and enable

mission goals such as stewards of place, active and collaborative learning, and engaged teaching, to

become a reality. It is this Gestalt-like, inextricable whole that speaks to the unique role of the SCU in

offering a new perspective that meets the demands for diverse goals and outcomes to be achieved.
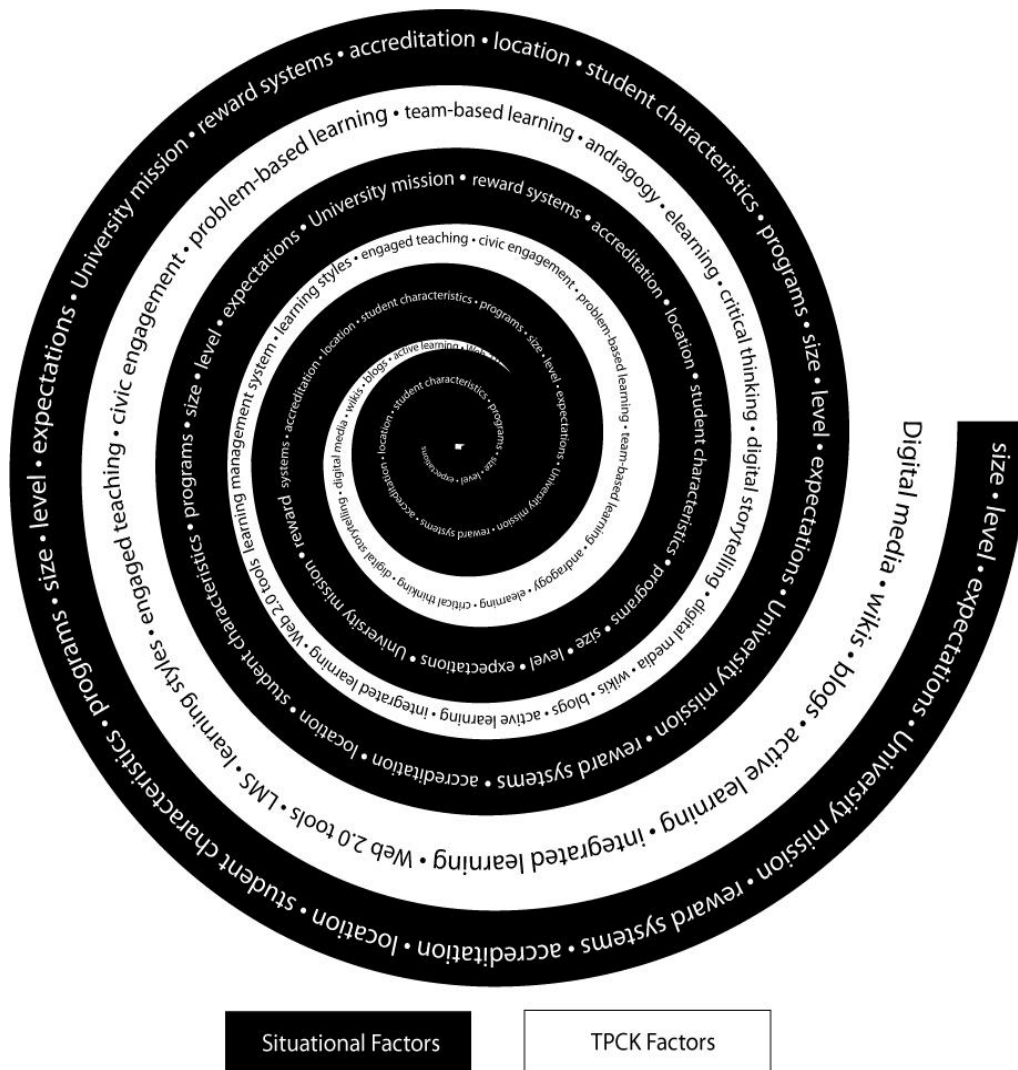
Figure 3. Conceptual model depicting situational and TPCK factors affecting wiki use across the institution.

In other words, wikis work at Wiki-U not simply because they are effective tools, but because they are effective tools that fit well with the goals, mission, reward systems, assessment measures, and overall identity of the institution that fosters their development. Further research needs to be done, but this study suggests taking a first step towards developing a model for the integration of pedagogy that is sensitive to the complexity of the institutional environments in which teaching and learning takes place.

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Completing the circuit: The feedback loop
between metaphor and instruction

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Abstract
Metaphors have been used since ancient times to describe the learning process. Discipline-specific metaphors, in turn, have been used to enrich the learning process itself. This article discusses the concept of a "metaphor loop": a self-referential metaphor that ostensibly explains a specific topic to be taught, but which actually says something meaningful about education in general. These metaphor loops can be used to add a level of complexity and meaning to the teaching of almost any field of endeavor.

1.   A simple metaphor.

"Imagine," I say to students on the first day of class, "that I am here to teach you how to play the piano."

There are usually some confused frowns here; after all, I teach physics, not music. "My teaching technique will be simple: I will sit at the front of the class, playing the piano, every day. You will listen attentively and take notes. You may even interrupt the music and ask questions, if you wish.

"At the end of the semester, you will be tested. Your test will consist of a recital in front of the entire class. Something by Chopin or Liszt or Prokofiev would be appropriate. I will assess how well you play, and your grade will be based upon that assessment."

Students are not shy in expressing how horrible this piano-teaching method sounds. Some students are visibly animated, ready to argue. Others are scowling with full-blown cognitive dissonance, wondering why the "physics" professor is rambling on about music. *Time to strike,* I say to myself, *while the iron is hot.* "What methods for learning the piano would be *better*?" I ask. "What do you suggest?" The class begins a lively discussion about teaching, learning, and the roles of professor and student. Eventually, a consensus is reached. "You can't learn a musical instrument without *practice*," the students invariably conclude.

"All right," I respond, pretending to concede a point, "practice will be an integral part of this class. What else?"

It is easy to imagine what happens next. With guidance the class works out a plan that includes practice, lecture, group activities, one-on-one feedback, listening, testing, and more practice. It is only then that I remind students that they are in this class to learn *physics*, not to play the piano. It dawns on students that this whole exercise has been a metaphor, intended to illuminate the learning process. *Practice* is a code word for *homework*, and the metaphorical lesson is that you cannot *learn* physics without *doing* physics yourself.

2. Metaphors of education.

There is a long tradition of using metaphors to describe learning and epistemology. In the *Republic*, Book VII, Plato describes a cave in which prisoners are chained, unable to see anything except shadows cast onto the wall (Shorey, 1935). To the prisoners, these shadows are "reality," and no higher level ideas are understood or even imagined. But a prisoner who is freed will eventually see that these shadows are but a poor imitation of reality—such a prisoner has gained "wisdom".

In the New Testament we find Jesus, in his role as a teacher, likening himself to light, a gate, a shepherd, and a vine upon which people grow (John 8:12, 10:9, 9:11, 15:5).   Much later, we have Descartes-as-architect building a house, that is, his philosophy, upon a solid foundation (Cottingham, 1984).

One of the earliest educational metaphors is Plato's student Aristotle advocating the "tabula rasa" model of learning: the idea that humans are a "blank slate," upon which a teacher may "write" whatever information is desired (Ross, 1961). This model was of course later developed in great detail by John Locke in his *Essay Concerning Human Understanding* (Locke, 1690). More recently, we have Friedrich Fröbel's concept of a child as a plant which needs to be nurtured if it is to bloom (Brosterman, 1997). This metaphor has been around long enough that we rarely consider the word *kindergarten*, coined by Fröbel, in its original translated German meaning: "children's garden". Nor, for that matter, do we think of the word *curriculum* in its original Latin sense as a "course to be run" (Lawton, 1984).

In the 20th century, R.S. Peters developed his "education as initiation" metaphor, which suggests that education is really an initiation into social traditions, specifically academia (Peters, 1965). We also have the idea of education as "liberation" from oppression, an idea which has roots in the early Marxist writings of Gramsci, most notably championed by Freire in his *Pedagogy of the Oppressed* (Freire, 1971; Lawner, 1979). In that same work Freire also derides the older tabula rasa metaphor by referring to students as "banks" into which knowledge is deposited. Other examples include the neo-Cartesian "curriculum as a framework" (DES, 1980), the tongue-in-cheek "teacher as caveman" (Benjamin, 1939), and the curriculum as a "jungle" (Aspin, 1984). And then there is the oft-repeated "education is not the filling of a pail, but the lighting of a fire," which is apocryphally attributed to Yeats.

Other educational metaphors are brought up so frequently that they have become clichés. With overuse, once-fresh ideas seem stale: "…at first glance, the list of metaphors in education induces an oppressive sense of the banal" (Elliott, 1984). Other metaphors have had their meanings changed entirely. Politicians talk about the "accountability" of teachers and about "quality control" in the education system, without seeming to realize that they are evoking the metaphor of students as products of an assembly line (Taylor, 1981). Such imagery, when taken to its logical conclusion, can be as savage as students jumping into a meat grinder, as in Pink Floyd's hyper-metaphorical film *The Wall* (1982).

There is also a danger that metaphors, being so common, may be taken too literally, with some proposing to "dispense with metaphors altogether" (Entwistle 1970, p. 156; cf. also Komisar, 1961). The idea is that metaphors act as models—they provide a conceptual framework for understanding a given theory. But therein lies the problem: no metaphor corresponds to any model *exactly*; the correspondence is not one-to-one. Unfortunately, people often cling to their metaphors, instead of rightly abandoning them when correspondence breaks down. The metaphor-as-model construction, if it is to have any value at all, must "first be pruned of [its] more dangerous branches" (Taylor, 1984, p.10).

Metaphors serve other purposes as well. A good, catchy, metaphor acts as a tag that reminds us of a conceptual model, rather than serve as the model itself. Thus when one speaks of Quine's "web of belief" we are reminded not only of the book of the same name, but of the entire body of Quine's epistemology and theory of language (Quine, 1970). Of course metaphors can also serve a literary purpose as well: "I am a rock," said Paul Simon, "I am an island."

3. Metaphors in education.

We now move away from metaphors *of* education, to the use of metaphors *in* education. As a physics professor, I am most interested in metaphors as a way of stimulating students' thinking, encouraging them to make new connections. Metaphors, when used in this way, are similar to the thought experiments that Dennett calls "intuition pumps" (Dennett, 1984). For example, I often introduce electric current with a traffic metaphor. By imagining the flow of electrons to be analogous to cars on a highway, students will often propose Kirchoff's 1st Law on their own, with prompting. "The number of cars

entering an intersection equals the number of cars leaving that intersection" becomes "the sum of all

currents entering or leaving a junction in an electric circuit is zero," which in turn becomes

$$\sum_{i=1}^{N} I_i = 0. \tag{1}$$

To the student, the jump from metaphor to a description of Kirchoff's 1st Law requires an

imaginative leap; the jump from this description of the Law to Kirchoff's 1st Law expressed in mathematic

symbols is cognitively similar.

Note that I do not intend traffic to be a literal model for electric current. There are important

differences—enough differences, in fact, that in order to propose Kirchoff's 2nd Law we already have need

of a new metaphor entirely. My metaphor is probably more accurately called a simile ("electrons are *like*

little cars on the highway") or an analogy ("the flow of current is *analogous* to the flow of traffic").

However, being a physicist, I retain the right to *not* discuss the semantics of *metaphor*, *simile*, *analogy*, or

even *metonymy* (cf. Gentner, 1982).

I consider myself in good company when using metaphors to describe science. Newton was

paraphrasing Bernard of Chartres when he said that he "stood on the shoulders of giants" when

developing his natural philosophy. Darwin's "natural selection" is clearly an anthropomorphic metaphor.

And when Einstein said that he was "convinced that He does not throw dice", he was subtly introducing

two metaphors: that of the universe as a pantheistic God, and that of quantum mechanics as a game of

chance (Einstein, 1926).

Spiraling outward, I will point out that the use of metaphor in instruction is limited only by the

imagination of the instructor. An English professor may describe the works of Shakespeare as the

wellspring from which all of Modern English flows. A history professor may describe World War I as the

crucible in which 20th century sensibilities were smelted. A psychology professor may describe

neurotransmitters approaching a neuron as barbarians storming the gates. As a physicist, I cannot vouch

for the validity or usefulness of these off-the-cuff metaphors, but the point is clear: metaphor is a

ubiquitous part of education, regardless of discipline. Such metaphors can enrich, enliven, and engage

the student, and teachers should be encouraged to invent new ones specific to their individual fields of study.

4. Another metaphor: trick-or-treat.

I begin my lecture on the Doppler effect by drawing a house. I then draw a line of students equally spaced, approaching the house. The students are going trick-or-treating, I say, as the Doppler effect lecture typically occurs around Halloween. "What factors influence *how often* the kids arrive at your house?" I ask.

A bit of Socratic give-and-take yields two facts, which I write as

$$f \propto v, \tag{2}$$

and

$$f \propto \frac{1}{\lambda}. \tag{3}$$

The first expression, "frequency is proportional to velocity," means that the frequency with which trick-or-treaters arrive at the house is proportional to how fast they are moving. The second expression, "frequency is inversely proportional to wavelength," means that the frequency of arrival will *go down* if the spacing between the kids *goes up*. Students soon realize that the line of kids is a metaphor for a *wave*, such as a light wave or sound wave. The spacing distance is a metaphor for *wavelength*. When they have internalized these ideas, I push the metaphor further.

"Suppose now that this house, the one that the kids are approaching with such zombie-like regularity, is actually an RV. And suppose that you decide to drive the RV away from the kids, to try and avoid them. The kids are moving at 5 mph, and so if you drive faster than that, the kids will never reach the RV.

"However, suppose you are only able to drive away at 3 mph. The kids will clearly reach you *eventually*. What happens to the frequency?"

"The kids won't reach the RV as often," students say.

"Good. A physicist would say, 'the frequency has decreased as a result of the motion of the observer." My students have just been introduced to the Doppler effect. "Now let us imagine what would happen if you decided to drive *towards* the kids—not too fast! We don't want anyone hurt!"

And at this point, I say to myself, *not too fast with the lecture. I don't want the students to feel overwhelmed. I wouldn't want their knowledge to be "Doppler shifted."*

5.   The metaphor/metaphor feedback loop.

We come now to the central premise of this essay, which is that discipline-specific metaphors used *in* education can often be co-opted to inform the discussion *about* education. In the language of electronics, there is a feedback-loop between the two levels of metaphors. I use a simple metaphor to explain the Doppler effect; in turn, the Doppler effect, as metaphor itself, speaks to my students about learning physics. I will call such a construction a "metaphor loop".

There is a double level of meaning inherent in the metaphor loop. This complexity adds richness to the students' learning experience. I talk about the Doppler effect; students begin to understand what the Doppler effect is, and how the concept applies to real life. I then let the Doppler effect itself become a metaphor: I allow the concept to loop back on itself, for the tiger to catch its own tail. "How does the Doppler effect apply to your own learning?" I ask. "What learning concepts correspond to frequency, and to wavelength?"

The discussion that follows is always fascinating: "Frequency corresponds to how quickly the professor talks."

"No, that would be velocity, not frequency."

"Wavelength is how much time occurs between homework assignments."

"That's just crazy! A time can't be a length."

"If we 'move away' from the professor, by resisting what he's trying to say, we won't learn as much. It's like the RV, not getting as many trick-or-treaters."

On one level, students are exploring ways in which they can learn physics—they are talking about the relationship between the professor, the student, and the knowledge and skills they are trying to acquire.

On another level, perhaps hidden to the students' consciousness, the students are internalizing and reinforcing the concept of the Doppler effect itself. By talking about physics, the students learn something about their own education. This in turn helps students master the physics concept that started the whole discussion in the first place!

    I prefer metaphors specific to my own discipline because I value this double-layering; my original piano metaphor might be more effective in a music class. But regardless of discipline, metaphor loops are easy to find, once you start looking for them. Almost any concept can be re-worked in some way to say something about student learning. Students themselves can even be asked to come up with their own metaphors, perhaps as an in-class exercise or homework assignment. If a metaphor is a good one, then the student has found a new and creative way to speak about the entire education process. This can only help students in the long run. Even if the metaphor "fails" in some way, the student can still benefit. In discovering the ways in which the metaphor breaks down, the student still demonstrates creative thinking and self-reflection. And the student has thought carefully about a discipline-specific topic, learning something valuable in the process.

6. A random metaphor: quite the stretch.

    As an example of how the process might work, I give here a discussion of a random physics topic that is probably unfamiliar to most non-scientists. I present the material as I would present it to a freshman physics class, and then attempt to "mine" a metaphor from the material to inform the broader discussion about physics education; whether or not the metaphor "succeeds" is not as important as the process itself.

    "Suppose," I might tell my class, "that you have a wire, made of copper. You hang the wire from the ceiling and measure its length. Maybe it is 6 ft. long. You also measure its diameter, which is 0.25 inches. From this you can determine that the wire's cross-sectional area is about 0.049 square inches. You then hang a fifty pound weight from the end of the wire. The wire stretches by an amount we'll call S. The question is: what factors affect *how much* the wire stretches?

"Clearly, the more weight (*W*) that you put on the wire, the more it will stretch. We would say mathematically that *S* ∝ *W*, or "stretch is proportional to weight." It is also obvious that a 'thicker' wire would be stronger; indeed, it turns out that *S* ∝ *1/A*, "stretch is inversely proportional to area." A bigger area means that the wire would stretch less. Strangely though, we find experimentally that *longer* wires stretch *more*, so we must also say *S* ∝ *L*. Finally, the stretch depends upon what *kind* of wire we have; a piece of taffy would stretch much more than copper. Let's call the wire's "resistance to stretching" *Y*, after the physicist who first popularized this approach, Thomas Young. We then have *S* ∝ *1/Y*. Putting all of these relationships together gives us the algebraic expression

$$S = \frac{LW}{YA}\,.$$ (4)

In other words, the stretch of a wire depends upon four things. On the one hand, a longer wire will stretch more, and a larger weight will have the same effect. On the other hand, a larger cross-sectional area will cause there to be *less* stretch, as does increasing the wire's 'resistance to stretching'. If you're keeping score, the mathematical expression says in 7 characters what the English says in 238."

I would allow some time, perhaps a week, for students to learn this formula, the "elasticity" formula. They would perform in-class exercises and solve several homework problems. I might then re-introduce the elasticity formula, this time as metaphor.

"You come to this class with a set amount of knowledge about physics, which we will call *L* for 'learning'. It is my goal as an instructor to help you increase that knowledge, to 'stretch' it if you will. By the end of the semester you might know a little more, be more 'learned'. *L* will be increased by an amount *S*.

"The amount that you learn will depend upon many things. Those who have had physics before, or know a little calculus, may find that it is easier to learn even more. Knowledge helps beget more knowledge. So we could say that *S* ∝ *L*. Of course the things that *I* say and do, as instructor, will obviously affect you learning experience as well. Maybe if I challenge you, push you harder, expect more out of you, then you will respond by being more receptive to the concepts we discuss. If we call the weight of my effectiveness W, then *S* ∝ *W*.

"Now, some factors may hinder your experience. It could be that some people are stubborn, unwilling to learn, as bull-headed as a yak. Let's take *Y* to be yak-headedness, so that $S \propto 1/Y$. Similarly, you may not be intrinsically stubborn, but, for whatever reason, you present a façade of apathy, which we will call *A*. It's fair to say that $S \propto 1/A$, your learning is "inversely proportional to your apathy.""

It is at this stage that students should be brought in, to discuss the metaphor, accept it, criticize it, modify it, and stretch it as far as it can go. They learn explicitly about learning, and implicitly about the original physics. Eventually the students may even ask questions that propel the physics further, into topics that have yet to be introduced. "What if the instructor pushes too hard, so that *W* is too large?" they may ask. "Well," I respond, "there may be a breaking point. If there is too much homework, students fail to learn at all. With the wire, if the weight is greater than a certain critical amount, the wire will break. This is called the 'elastic limit' of a material."

I won't belabor the metaphor any further. A seemingly "dry" topic like "elasticity" has been shown to provide a wealth of metaphorical language which the instructor can use to talk about the students' learning experience. In turn, the student has learned about stress, strain, Young's modulus, elastic materials, compression, pressure, and Hooke's Law. The feedback loop is complete: the tiger has caught its tail.

7. A final metaphor: completing the circuit.

In this essay I have introduced the idea of a lecture topic, such as the Doppler effect, itself becoming a metaphor for education, which in turn can help the understanding of the original topic. Thus, we can name this phenomenon a "metaphor loop", itself a metaphor meant to evoke the idea of a feedback mechanism. Let us develop this metaphor further, taking these ideas to their logical conclusion.

We begin with a demonstration that is well-known in the literature of physics education (Arons, 1973; Shaffer, 1992). University students are given a single wire, a battery, and a light bulb, and are asked to light the bulb. Many students, even science education majors, have difficulty with this task at first. As Arons observes,

 When these students are given a dry cell, a length of wire, and a flashlight bulb and are asked to get the bulb lighted, they almost invariably start by connecting the wire across the terminals of the battery and holding the bottom of the bulb to one battery terminal. They have no sense of the two-endedness of either the battery or the bulb… (Arons, 1973, p. 771).

The problem is that many students have strongly-held misconceptions about the way electricity works. A common misconception is that a battery is a "source" of electric current, and that therefore "electricity" should flow out of a battery and into a light bulb, thereby lighting it. This method fails (see Fig. 1) because there is no closed loop; in the language of physics, there is no complete circuit.

Why does there have to be a closed loop? The answer is that batteries do not *create* electrons, the particles that "flow" to make "electricity"; rather, batteries produce a situation in which electrons— already present in a wire—have "motivation" to move on their own. This "motivation" is called *potential*. In Fig. 1, there may or may not be a potential, but either way, a continual flow of electrons cannot be sustained. Instead there would be a bunch of electrons piling up on one end of the wire or the other. For a light bulb filament to light, there must be a *continual* flow of electrons; because there is no such flow, the light bulb remains dark.

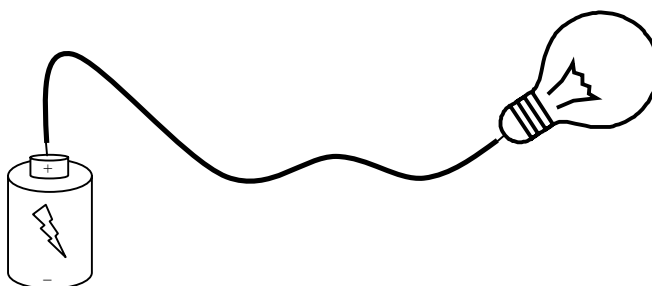**Figure 1. A failed attempt at lighting a bulb.**

Fig. 2 is a successful configuration because it allows electrons to be *reused*. There is a continual flow of current from the positive terminal of the battery, into the bottom of the bulb, through the filament, out the side of the bulb, and into the negative terminal of the battery. The same electrons are used again and again. The bulb lights up.
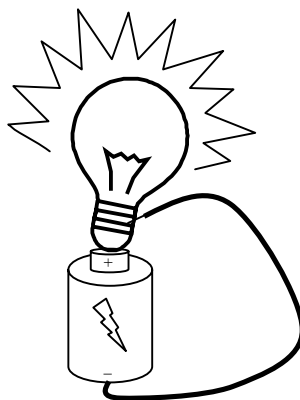
Figure 2. A successful lighting of the bulb.

Students have difficulty with this task because, as Arons pointed out, they do not realize that a bulb is "two-ended". A battery is obviously two sided, having positive and negative terminals. But a bulb has two separate "entrances" as well: the nub on the bottom, and the metal threads on the side. Once students are aware of this fact, and understand that a complete circuit is required for electrons to be reused, the "light-the-bulb" task becomes much easier.

I find this task to be a powerful metaphor for the teaching process. The battery is the teacher: not operating solely as a source of knowledge, but hopefully instead as an agent that produces in the student the *potential* to learn more. A student that "gets" the material will have the metaphorical light bulb light up over their head; a student that does *not* learn remains in the dark.

Many students, and teachers, unfortunately, consider instruction a one-way street. Their expectation is that knowledge will flow directly from the teacher/battery into the student/bulb. But such an approach, like Fig. 1, is doomed to failure. A better approach is to have a complete circuit, from the teacher, to the student, and back again. Knowledge, like electrons, can flow both ways. Students are "two-ended" in that they can teach as well as learn. Teachers can learn as well as teach. Only by making a closed loop connection can students reach their full potential.

I have shared this metaphor loop with students, and the feedback (metaphor intended!) has always been positive. Students realize that they are active participants in an "education circuit" and that without their participation, learning will be minimal. Additionally, on a purely *physics* level, the concepts of

potential, electric current, and electric circuits are enriched and reinforced. "Houston, we have a metaphor loop."

Interestingly, this circuit metaphor works on an even higher level—as a model for the entire "metaphor loop" concept itself. Thus we have a metaphor loop (the electric circuit) which itself is a metaphor for a metaphor loop. We should stop here before falling into an infinite regress, but I cannot help thinking of the *ouroboros,* the proverbial snake which swallows itself, a dream of which inspired August Kekulé to discover the chemical structure of benzene (Benfrey, 1958).

8. Conclusion

The physicist Douglas Hofstadter has proposed that consciousness itself is a meta-effect of feedback loops; when information loops back upon itself and reaches a critical level of complexity, consciousness emerges (Hofstadter, 2007). Whether or not one believes this thesis, self-referential behavior is certainly a fertile ground for metaphor and meaning. As Hofstadter points out, such behavior is ubiquitous in music (such as with fugues that loop back on themselves), art (such as the work of M. C. Escher), mathematics, and literature (in which an ending often echoes the beginning) (Hofstadter, 1979). It is natural to wonder whether such loops can infuse the structure of metaphors.

We have shown in this essay that this is, indeed, the case. The idea of a self-referential metaphor— what we call a "metaphor loop"—can be a powerful means for enlivening a student's experience. Such a loop can illuminate the education process, and in turn reinforce the discipline-specific topic that produced the loop in the first place. On an even higher plane, the feedback loop-as-metaphor says much about the process by which students and teachers interact. A professor is not simply a source of information, nor is the student simply a sink. Ideally, education is a self-referential process, and it is within this strange loop that the consciousness of learning resides.

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Jumping Head First into Second Life for Higher Education

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Abstract

A fully-online literature course taught by an instructor on the opposite side of the country usually has few options for content delivery and synchronous class sessions. The persistent online world of Second Life offers the possibility of real-time interactions through avatars and spoken communication, bringing class participants much closer together than would otherwise be possible. This case study illustrates typical successes, common technology and process failures, and possible workarounds toward a list of best practices.

Introduction

The near-universal adoption of the Internet since the mid-1990s among college students as well as their professors has led to heavy use of course management software in post-secondary educational settings. It has now become common to see fully online courses offered alongside face-to-face (F2F) classes in several large institutions of higher learning. The growth model of many U.S. colleges and universities, in fact, often factors in outsized increases in the online learning model without the concomitant expansion of F2F courses, which are more expensive because of the need for classroom space. With the business model at many institutions dictating continued growth, faculty members may find themselves increasingly under pressure to teach ever more (and possibly ever-larger) classes that are fully electronic and never meet in F2F settings. This is especially true at the larger institutions in the United States.

Research over the past decade has demonstrated that well-designed online learning can provide a rigorous, interactive, student-centered learning experience (Cavanaugh et al., 2004; Sitzman et al., 2006). Among the benefits described for online and blended learning with adult learners are a strengthened sense of community (Rovai & Jordan, 2004), increased instructional choices (Singh, 2003), differentiated instruction (DeGuia, 2004), gains in learning and interaction (DeLacey & Leonard, 2002; Oblender, 2002), and increases in motivation (Cameron, 2003). However, with any transition, the stakeholders need to be understood and empathized with, especially when considering a dramatic increase in the use of technology. The term "electracy" reminds us of the evolution from an oral form of communication to a written one, and now to a common "electrical literacy" or "electracy" as a mode of transmission. "Electracy describes the kind of "literacy" or skill and facility necessary to exploit the full communicative potential of new electronic media such as multimedia, hypermedia, social software, and virtual worlds" (Wikipedia, 2007). "The electracy mode has the potential to be both anonymous, and yet also assert the authority of authorship. It can be, and often is, linear and hierarchical, but it also has the potential to be fluid. It is at once immediate, and yet distant; ephemeral and concrete. Because of its electronic nature it is eminently

variable, and yet, it can be archived, and thereby achieve permanency" (Hargis & Rakita, 2005). Although an intentional "electracy" mode was used for instruction, a humanistic evaluation of pedagogy, student engagement and continuous improvement was employed throughout the study.

It has become standard for such online courses to be administered through a Learning Management System (LMS) such as Blackboard, Angel, Sakai, or Moodle. A typical LMS offers menu-driven tools such as content modules, assessments, discussion boards, assignment drop boxes, calendars, and chat functions. The primary strength of an LMS is its ease of use and secondarily to provide a protected portal or classroom, where all students can "gather." Users need not learn HTML (let alone the more complicated programming languages which underpin the interactive nature of the tools). They simply choose which tools to turn on and off, as well as configure each of them in certain pre-set ways. The idea has always been to make online teaching accessible and available to instructors who are not technically proficient, and remove technology readiness from the barriers to entry. In theory, this frees up professors to focus on content and pedagogy without giving a further thought to the technology tools.

For all of their utility, however, the LMS packages available still suffer from significant limitations. For instance, only in very recent software revisions have newer tools become available that imitate common Web 2.0 tools such as blogs, podcasts and wikis, and as a result, most LMS interfaces appear "older" and less flexible than the rest of the current Internet. While the impact on teacher and student alike may be subtle at first, the effects can have outsized repercussions. Students in one study reported a tremendous preference for Facebook (via closed groups) over Blackboard (discussion boards) in several parameters, including convenience (Yee, 2010). When an LMS is perceived as both out of date and strictly learning (read: "work") related, an unconscious association may be formed between the LMS and older technology. While not damaging initially, such an association increases the likelihood that users may find the LMS to be of only limited benefit.

Arguably the most glaring example of LMS limitations would be in the area of synchronous interaction. The only embedded tool in most LMSs is the Chat function, which despite its name does not involve

spoken interactions, but rather real-time typed messages. While having a dedicated Chat space may sound like an ideal way for students to interact with each other synchronously, or alternately provide a way to interact in real time with the professor (such as during online office hours), in practice few students (or teachers) use the Chat tool in most LMSs.

It should come as no surprise, therefore, that students report their online experience to be somewhat alienating (Johnson, 2005). Experienced teachers will recognize that the problem is one of engagement and extrinsic motivation. Without significant interactions between participants, an online course becomes so routine that students may even feel as if they are participating in a faceless course and interacting only with the instructor, particularly if the mandated peer interactions on the discussion board appear to them to be mechanical and rote in nature.

Alternatives outside the LMS are available that promise to inject needed vitality to the interactions, encompassing both asynchronous and synchronous options for engagement. Asynchronously, the choices include uploaded YouTube videos, tighter Facebook integration, and other captured video/audio possibilities such as podcasts, screencasts and webcam recordings. In the synchronous realm, the choices fall into three categories. First, there is voice-only, with such contenders as Skype and numerous telephony/Voice over IP (VoIP) alternatives. The second option concerns video, which only becomes possible if all parties have webcams, speakers and microphones. While there are several companies offering such services at a cost, the most potent of which is Adobe Connect, there are few good free alternatives. The third and final option is a Virtual Learning Environment (VLE) that moves beyond the simple Web browser LMS and expands to a fully three-dimensional virtual learning space.

Google had experimented with a persistent virtual environment called Lively, which shut down in 2008 after an insufficient number of users joined the service. Lively mimicked several popular sites aimed at teenagers in placing more emphasis on interactions and quick-start functionality than on customization. User characters (avatars) were only minimally customizable. Techcrunch recently reported that Google might purchase SL and interface with their powerful Google Earth, creating a metaverse for avatars to

interact in a Third Life. Regardless of the outcome, the ideas for further innovation in virtual worlds are promising for both consumer-driven and engaging in more authentic educational content.

Others have gone a different route and enabled granular customizations, rendering the final product far more personal to the users. Examples include HiPiHi, There.com, Multiverse, OpenSim, Fortera Olive, Habbo and the new Blue Mars. But by far the biggest player in this realm is Second Life (SL), a persistent online world that claimed six million users in 2007. Second Life is a VLE so open to customization that it's not, strictly speaking, a learning environment so much as a platform for interactions both synchronous and asynchronous. Second Life enjoys such market penetration and such customization tools as to make it the irresistible choice for synchronous interaction in fully online courses.

Amid this environment and array of options, a coast-to-coast literature class chose SL in the summer of 2009 as the primary means of interacting and holding synchronous communications. It may be oxymoronic to speak of a "face to face" distance class, but SL offers just such a possibility. The present case study explains the experimental nature of the class, illustrates typical successes, enumerates common technology and process failures, and explores possible workarounds toward a list of best practices.

Curricular Integration

A crucial component of any literature class is discussion and joint exploration of the texts. This task is accomplished easily enough in a F2F environment, where discussion proceeds at literally the speed of sound. In the fully online environment, however, the non-synchronous nature leads to discussions that evolve over days, can remain shallow in their scope, and run the risk that some class participants will not see the latter half of the discussion if they met minimal requirements earlier. Many institutions offer blended courses as the answer, so that mostly online classes have an option to discuss in real time.

The literature class on fairy tales, which this paper addresses, faced additional challenges in that it was bi-coastal. The instructor physically resided in Florida, while the students attended a private university

located in California, three time zones away. Thus, no typical blended experience was possible, and asynchronous communication would normally be assumed to be the only option. Inside the LMS (in this case, the open-source Sakai Collaborative Learning Environment platform), there are few options for synchronous communication apart from text-based chat.

Second Life, however, beckoned with other possibilities. Its status as a persistent virtual world guaranteed that students could explore asynchronously at their leisure, and its avatar-driven community offered a chance to simulate a synchronous F2F classroom environment. Classes have been offered in SL before, most frequently in subject matters that mirror SL's unique nature, such as computer programming or digital media.

Newcomers to SL may daydream about content left strewn about the digital landscape for students to find and interact with at their convenience, but the limitations of the program make such occurrences rare. Creating an account and wandering about in SL may be free, but owning land costs money, and few professors are inclined to pay out of pocket. Universities, such as the one in this study, purchase islands to represent their brand in the digital realm. Many times, these islands replicate campus buildings in pixels and allow only a small space or 'sandbox' for faculty and students to build objects that could be useful for teaching. However, unlike most universities, this one had hired a faculty member, experienced in SL to be an 'in-world manager' to assist with objects and development. It exceeds the programming ability of virtually all professors to create anything interesting in SL on their own, let alone imbue it with code to perform actions. The scenario may be somewhat analogous to the World Wide Web in 1994: the protocols existed to perform many functions and theoretically anything seemed possible, but how many professors would want to dedicate the time to design and hand-code the interfaces and quizzes necessary to teach online? True online teaching did not achieve mainstream success until automated tools like WebCT and Blackboard became readily available. So far in SL, there are no such automated tools to make teaching here intuitive.

What SL could do with relative ease, however, was provide a virtual meeting space that was one step above voice-only communications, such as might be possible with Skype or other telephony/VoIP solutions. Synchronous class meetings could still be held, and real-time discussions take place, in an environment that was "more" than merely recorded or even live audio. Ancillary technologies such as recorded PowerPoint presentations watched asynchronously, webcam interactions via Abode Connect, and Skype conference calls also augmented SL in the curriculum.

Second Life abounds in user-created simulated environments that range from the cultural (a faithful Sistine Chapel recreation, Shakespeare's Globe theater) and the educational (a molecule simulation at Genome Island, the International Spaceflight Museum) to the whimsical (Flintstones' Bedrock city, a fanciful ancient Rome). Our purpose in this class was to visit locations with relevance to our content: a medieval German city simulation called Neufreistadt provided context, for instance, and a typical fairy tale castle called Glimmer offered a useful way to discuss (and dispel) preconceptions. Even the Mouse World simulation of Disney World provided an effective venue for discussing the evolution of fairy tales into modern-day cultural phenomena.

Success Stories

If the goal of the SL classroom was to increase student engagement, the responses from students in both formal and informal surveys about their experiences indicate a rousing success. The ability to hold synchronous meetings that were essentially "virtual F2F" classes made the cross-country class interesting to all participants, and much less anonymous that would have been the case in a traditional online class administered only by the LMS.

One participant reported that she found the atmospheric elements of SL to be positive. When asked if the gently whistling wind or softly chirping birds were distracting, she replied that she found them relaxing and an improvement over the traditional classroom setting.

Second Life was also the preferred mode of interaction for these students, who were asked to compare side-by-side our various encounters using Adobe Connect, Skype, and Second Life. One student cited frequent disconnections when using Skype as a fundamental reason to prefer Second Life, and another cited enjoyment of the possibilities of exploring the digital universe.

Because we would transport between locations within SL, using the built-in verbal conversations in SL could be problematic, as verbal communication necessarily ceased during transit, and getting "lost" in the digital world would be all too easy. As a result, we used Skype conference calls to facilitate all spoken communications, even when SL was turned on and muted (to prevent echoes). Skype could also accommodate text chat, which could be useful both when people had microphone problems and when someone wanted to "comment" while someone else was speaking. This ability in Skype was useful only if participants could see both Skype and SL simultaneously. While SL normally filled the entire screen, a "windowed" mode was possible, enabling students to keep the virtual world on only one side of the screen while the Skype chat and conference call filled the other side.

Any given topic can find much of interest already built in SL. For our fairy tales class, we visited several fairy tale castles built by hobbyists and enthusiasts unrelated to our course, and analyzed the castles as they pertained to the history of fairy tales. Participants reported that these field trips did not bore them, and in fact seeing three dimensional representations increased their ability to comprehend the concepts being discussed.

Surprisingly, many of the traditional classroom activities like partner work, [quick one minute papers](#), and other "[classroom assessment techniques](#)" functioned equally well in the virtual world environment. For just about every interactive technique commonly employed in the F2F environment, a version could be imagined in Second Life, often without significant alteration of the directions. For instance, it's helpful to know that avatars "hear" verbal conversations less well over distance, and if there's enough virtual space between avatars, the spoken communication is not heard at all. This opens up the possibility of verbal group work.

Because the world was digital, it was both convenient and quick to alter the appearance of our meeting spaces. One virtual classroom in the university island was given over to our use, and it was quickly transformed by the in-world manager to display different image files as "posters" along the walls; each week we changed the posters to accommodate new themes in our class. The special nature of SL meant that students could actually "zoom" their point-of-view cameras around the room without the teacher knowing, so students could freely examine these related visual artifacts up close and at will during the lecture and discussion, resulting in a kind of self-guided PowerPoint presentation on steroids. [Linden Labs](#), the owner of Second Life, does charge for the right to upload images, but the collected images needed to decorate this entire room cost less than a single US dollar to upload.

Lessons Learned and Workarounds

If any lesson stood out among the others, it was that technology always and by necessity requires other backup technologies. Either SL or Skype failed on an almost weekly basis, even if only for a few minutes. Faculty members who are themselves not tech-savvy will require expertise from their institution. It was not uncommon to have to help students debug microphone issues (such as disambiguating for Windows which microphone should be turned on), or welcome them back after Skype kicked them off the network for no reason whatsoever. Network traffic could result in significant slowdowns in SL itself, as well.

While the various technologies simulated the F2F experience, the lack of physical space created unanticipated barriers. Students working in pairs and groups are usually enthusiastic about discussing their ideas, but sub-groups are less easily created in Skype conference calls, and "flying away" from other avatars in SL is time-consuming and perceived as artificial. Even when the groups did manage to separate, it was clumsy to approximate the typical movement faculty make between groups, to hover nearby and listen to the groups' progress.

Building community in general is harder in a voice-only class. Students even in a small class did not often use each other's names, whereas they would have done so in a similar F2F environment. This led to

some soul-searching by the instructor. How many of my previous successes have been due to my personality and interaction with students? How much depends on their ability to see my facial expression rather than just hear my voice? Not being able to see faces means, fundamentally, an inability to gauge what students are thinking and feeling at any given moment. Many teachers use the visual scan of a F2F class to interpret current student understanding and make ongoing adjustments as a result. With an essentially verbal class, this is not possible.

A traditional online class, without SL or synchronous voice discussions, is completely faceless. A SL class is a hybrid scenario, neither faceless nor fully equivalent to a F2F class, since it is partly humanized via customized cartoon avatars and personalized human voices but also lacking in complete facial interaction. It occurred to me that I would have to think in terms of "telephone pedagogy" more than anything else in this class.

Even in purely verbal terms, a class administered in SL required outside the box thinking. One student missed a class and requested that it be recorded. I captured the verbal action of the class in a podcast (.mp3 format), but could not email it to the student since the file size exceeded 55 MB. In this case, I had to use a personal web site to upload the file, further underscoring the need for a backup for faculty members considering a move similar to my own. Another option would have been to post to the universities iTunesU site for students to access after the class.

Students' seem to understand the exploratory, even experimental nature of the class. However, polling their opinion could not itself be done in SL, which lacks anonymous feedback mechanisms. We opted to use rypple.com for "midterm" feedback on what they perceived as successes and shortcomings in the class.

One prominent result of the midterm feedback was the realization that individual users in SL could adjust the volume of each avatar, one at a time, that they encountered "in-world." This was news to me, and a further reminder that SL offered customizations beyond most programs. My initial reaction was one of

embarrassment—how could I justify not knowing everything about the tool we were using for class? The next realization was more pragmatic: is it really feasible and realistic for faculty members to be the master of their own disciplinary topic as well as this new technology, not to mention the pedagogical questions involved?

Indeed, there were further questions about the very nature of SL. Like the broader Internet, sub-sections of SL were dedicated to less wholesome pursuits, with entire islands designated as "mature" areas. The top search results related to my field of fairy tales as returned by the SL search engine, in fact, had to do with BDSM, role-play, and the Gorean (sex slave) subculture. The existence of adult areas should not preclude educational activities. The World Wide Web, for example, is even more rife with pornography, but this does not dissuade professors from using the tool entirely. Like the Web, SL is essentially divided into zones and addresses; what students choose to do in their own explorations is up to them.

Best practices

Over time, ideas emerged during this class which suggested altered workflow and curricular structure for future instructors. If I were to teach in this fashion again, first on the list for updating the schedule would be to attempt a webcam "meeting" at the beginning of the semester rather than the end. The original attempt had been to maintain anonymity at the start, during the heavy usage of SL, but users reported that the webcam session (in our case, using Adobe Connect) so greatly assisted their development of community that it would have been better to come first.

Pedagogically, teaching in SL is closer to F2F teaching than to online asynchronous teaching. Accordingly, the same rules apply for engagement and attention spans. It can be tempting as the teacher to speak for long stretches of time, and if some students find lecture boring in a F2F environment, they are equally (if not more) likely to do the same when the instructor's cartoon face does not even move. The use of interactive discussions, minor problem-solving and even games becomes all the more vital. One becomes adept at finding SL versions of familiar techniques; for instance, the "one minute paper" activity (to gauge student understanding and involve them in the learning process) can be done by asking all

students to type an answer, but not press the Enter button to display their answer until everyone is prompted to do so at once.

Because minor technology problems were so numerous, it would be advisable to factor in additional time to debug problems. Start the first day early, and encourage students by email ahead of time to load the programs that same day to obtain any necessary updates, which can be almost weekly in some cases. Microphones need to be tested on all ends before the semester begins. And perhaps the most crucial of technology best practices is the use of headphones. Echoes and feedback will rise beyond irritation to utter disruption rather quickly if students allow sounds to escape from speakers, because the microphones pick up the sounds again and a cacophony ensues. Students should be told to purchase headphones along with other required materials for the course.

While the technology challenges may seem daunting, the experiment with SL is worthwhile on multiple levels. The original problem statement of student anonymity and (dis)engagement in online courses can be adequately addressed, even resolved, with a synchronous SL component to the curriculum, and while new problem statements may arise from the technology hurdles, they are small when viewed comparatively to the problems that are solved. Even if Linden Labs' Second Life platform does not turn out to be the virtual world used for educational purposes a decade hence, the pedagogical adaptations and best practices evolved now will continue to apply in whatever platform is employed in the future. Second Life is a playground not only for students, but for instructors everywhere wondering what is next on the educational horizon and how best to prepare for it.

Appendix

This literature class on fairy tales was offered in the summer semester of 2009, when student enrollment at the private university in question is historically lower. It was not uncommon for such classes to be small. In this case, four students enrolled in the class. The reduced size made SL all the more attractive as a virtual environment for the class meetings, since conversations could be held as a complete group without undue problems.

Students were asked in an anonymous mid-semester evaluation (hosted on rypple.com) to react in free-form sentences to the practices of the course they found useful, as well as to list those which they would alter (with the additional requirement here to suggest alternatives). They were also given a chance at the end of the term to complete the traditional online student evaluations of the course, though this latter instrument resulted in fewer substantive comments.

The deliverables in the course matched those of a similar F2F class on fairy tales, consisting primarily of one essay applying the literary theory to similar fairy tales we did not read and a second essay with the same prompt, but also included original research on the secondary literature of the subject. Short-answer tests (midterm and final) also provided verification of student comprehension of the material. In all cases, the grades and outcomes of the four students did not differ materially from students in a F2F class learning the same topics (typically taught with 20 students).

Many of the ideas presented in the present paper came not from quantitative measurements, but from observations recorded on a weekly basis in a journal by the instructor. This is particularly true of the best practices and list of lessons learned.

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Second Life URLs (SLURLs) Hyperlinked in the Text

Ancient Rome: http://maps.secondlife.com/secondlife/ROMA/215/25/22

Bedrock Flintstones city: http://maps.secondlife.com/secondlife/Drymonia/172/38/252

Genome Island molecule simulation: http://maps.secondlife.com/secondlife//146/139/35

Glimmer fairy tale castle: http://maps.secondlife.com/secondlife//72/199/53

Globe Theater: http://maps.secondlife.com/secondlife/Skin%20City/252/9/25

International Spaceflight Museum: http://maps.secondlife.com/secondlife/Spaceport%20Alpha/115/140/49

Mouse World: http://maps.secondlife.com/secondlife/Mouse%20World/158/3/27

Neufreistadt medieval German town: http://maps.secondlife.com/secondlife//178/181/173

Sistine Chapel: http://maps.secondlife.com/secondlife/Vassar/212/89/25

A Case of Collaboration: Faculty Experiences within a Multidisciplinary, Multimedia, Multi-campus Learning Community in an Urban Community College District

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ABSTRACT

This case study examines the experience of community college faculty participating within a specific learning community of students, teachers, and broadcasters charged with the responsibility to create common coursework and a town hall meeting on the issue of stem cell research. Videotaped data sources include learning community meetings, classroom sessions, the town hall event, interviews with participants, and group reflective discussions. Implications and opportunities for replicating this collaborative learning community experience are discussed. The case description and findings are presented through a Webtext with embedded video. As all data were videotaped, it became possible to present research findings through a unique new media approach to multimodal scholarship. This format honors the thick, rich, first person descriptions given by the faculty participants. It provides a showcase for the participants' own words expressed in their own way and empowers the reader/viewer of these findings to extrapolate their own interpretative meaning.

LEARNING COMMUNITIES: BACKGROUND AND CONTEXT

Existing as part of a community is a fundamental human attribute (Sgroi & Saltiel, 1998). Human collaboration has been embraced in the modern American workplace and classroom through team activity and projects (Hackman, 1990; Lencioni, 2005; Senge, 1990). Teachers at universities and colleges, however, frequently work in isolation enforced by principles steeped in academic tradition (Stevenson, Duran, Barrett & Colarulli, 2005; Lenning & Ebbers, 1999). The concept of making meaning through community is well grounded in the theory of social constructivism and through historical learning principles evidenced at colonial colleges (DiPardo & Potter, 2003). An innovative approach to higher education emphasizing teamwork and collaboration is the *learning community*, linking teachers and students together in interdisciplinary collaborative projects or coursework to create shared knowledge (Smith, MacGregor, Matthews & Gabelnick, 2004).

The body of work focusing on collaborative learning is extensive, as are writings on the subject of learning communities. Much has been said and written about the student experience in learning communities and about the institutional benefits and challenges. Paradoxically, there are few studies from the perspective of those who are critically essential to the learning community experience—the faculty (Ayers, 2004). As Barkley, Cross, and Major (2005) report, "We found no attempt to systematically study the impact of collaborative learning on teachers… There is little research to document advantages and disadvantages to teachers of collaborative learning" (p. 24).

Some instructors resist participating in learning communities through lack of knowledge or a perceived lack of skills required. "Many teachers are unaware of the

evidence about the benefits of collaborative learning, and many teachers do not know how to implement group learning activities effectively" (Barkley et al., p. xiii). Others decline to participate in a learning community because of a perceived lack of on-going administrative support (Drake, O'Rourke, Panttaja & Peterson, 2008).

Some faculty have expressed dissatisfaction based upon bad experiences. Others believe that there is a lack of institutional appreciation of and prioritization for participating in learning communities. Others suggest that they are already burned-out from increased demands and that participation in a learning community will create conflict between their already heavy demands in teaching and research. Some express doubts about not knowing the material as well as an authority specialist in cross-discipline learning communities. Other faculty believe that students will become confused and frustrated through this non-traditional approach to teaching. Others express fear about the loss of the comfortable autonomy and control they have in the traditional classroom. There are fears that participation will bring too big a time commitment, a loss of disciplinary integrity, having to make compromises, and giving up flexibility and spontaneity (Drake et al., 2008; Davis, 1995; Gabelnick, MacGregor, Matthews, & Smith, 1990).

For some, the learning community approach just isn't the right fit with their personality, skills, interests, or comfort. "Clearly some prefer the autonomy of their individual classroom and some faculty personalities within a learning community are not well matched" (Gabelnick et al., p. 83).

There are some faculty, however, who have found great and profound benefits to participating in learning communities with other faculty and students. Davis (1995) discovered in his interviews with participating faculty that the negatives were discussed rather matter-of-factly, but the positives brought out strong emotion and passion. "Perhaps the most surprising finding from these interviews is that the dissatisfactions are so few and the satisfactions are elaborated with such gusto" (p. 119).

Gabelnick et al. found consistent factors of faculty satisfaction resulting from participating in a learning community. Learning communities:
- give faculty the chance to consider material within their fields of study from a fresh perspective;
- provide opportunity for experimentation, change, and to share with colleagues as well as learn from them;
- allow for a safe haven to reframe the profession;
- give faculty an opportunity to understand their discipline in a different way; and
- allow the teacher to invest in students in a deeper, more meaningful way.

In learning communities some faculty indicate that they learn as much as their students because they learn from colleagues and they learn new teaching and learning models. The experience challenges old paradigms and redefines professional teaching roles (Shapiro & Laufgraben, 1999). The fluid teacher-learner roles within a learning community can also benefit students by modeling that teachers are learners too (Engstrom, 2008).

Faculty gain new knowledge from the student and faculty team and sometimes even find renewed interest in their own discipline. Faculty are challenged to learn different perspectives which are more similar to the worldview of current students and to learn other teaching methods. Learning communities provide faculty with an opportunity

to exchange ideas about teaching with their peers and to be pulled out of burn-out (Davis, 1995).

Some faculty have stated that participating in a learning community spurred their own personal growth through gaining better listening skills and becoming more adept at processing information. Working with other teachers may lead to rich, satisfying and energizing experiences. They have learned to better cope with diversity. They have gained personal confidence. Some have expressed great benefit through the social aspects experienced through the learning community. They have gained friendships and have experienced true satisfaction in seeing students succeed. Some have even found a renewed commitment to the profession of teaching (Stevenson, Duran, Barrett & Colarulli, 2005; Davis, 1995).

Diminishing the feelings of isolation by faculty along with a sense of shared purpose and increased cooperation are some of the other faculty benefits discovered. Faculty have increased curricular integration while finding a fresh approach to their traditional teaching methods with their discipline. They also have an increased satisfaction with student learning (Lenning & Ebbers, 1999).

In a summary of a collection of articles on learning communities, the consensus was that faculty became re-energized and felt more empowered through teaching in learning communities. This teaching environment allowed them to be more creative, and since they felt as if their efforts were valued, they increased their commitment towards the institution where they worked (Kellogg, 1999). Learning community participation also positively influences a teacher's self-perception in addition to increasing their positive opinion of their students, colleagues, and their institution (Brown, 2003).

One of the inherent challenges in an institution organized around disciplines is that the approach leads to isolation. Too much specialization leads to specialized language, insular thinking, and comfortable, yet narrow, patterns within one's department and its colleagues. Teachers start to believe that their understanding of a subject is "the" understanding; that their teaching method is "the" method (Davis, 1995) The interdisciplinary nature of learning communities overcomes this isolation.

> It was not surprising to learn that faculty enjoyed the interdisciplinary conversation and the dialogue about teaching, but it was somewhat amazing to hear so many comment on their new friendships, and astounding to hear faculty comment on the influence that this experience has had in providing personal growth and renewal for their career. (Davis, p. 123)

Interdisciplinary learning communities empower colleagues to share ideas and teaching practices as well (Ullmer & Lewandowski, 2003). Ayers (2004) also speaks to the positives gained through interdisciplinary camaraderie. She indicates that the chance to meet colleagues in other departments and broaden the teaching repertoire were the primary motivations that drew faculty members to this work in the first place.

Additionally, faculty benefit from one of the simplest learning community concepts—sharing a load is usually easier than carrying it alone. Michaelsen's work suggests that "Probably the greatest benefit for team-based learning is that it has a tremendous positive impact on the instructor. Being responsible for creating enthusiasm and excitement about basic, but essential, material is a burden that few are able to carry for long without burning out…. teaching with team-based learning is simply more fun" (2002, p. 50).

COLLABORATION DEFINED

Graphic	Video	Audio
	Fade up from black	
Dr. Dennis Lehman Distinguished Professor & Special Projects Harold Washington College	Close up of Lehman in interview	Lehman (interview): A group of people from multi-disciplines which are going to address a single issue or an issue from their discipline's approach.
	Group shot at collaborative table	Thomas (at table): In my classes, what's called the Scientific Analysis paper, where they choose their own topic as long as it's scientifically based.
	Close up of Lehman in interview	Lehman (interview) And all doing the similar theme, and all working with each other and maybe actually visiting each other's classes to do it.

THE LEARNING COMMUNITY PROJECT

This learning community on stem cell research brought together faculty from seven urban community colleges in Chicago, representing diverse disciplines. The expected disciplines of biology and physiology were represented but also surprising specialties like English, humanities, philosophy, and religious studies. A group of broadcast professionals also joined with the faculty team. Students were included in the collaboration as well. The work of the learning community led to implementing content focused on stem cell research in existing courses taught by the faculty participants at their respective colleges during fall semester 2005. The coursework from the semester prepared students and faculty to participate in a town hall meeting in December 2005. The town hall meeting was produced for later broadcast and aired on the college district's owned public broadcasting television station (Moore & Wood, 2005). It was an ambitious project, with perceived and documented successful learning outcomes for students (Moore, 2007).

Faculty Participant Selection

The seven college presidents were responsible for recommending faculty from their campuses for participation in the project. They were encouraged by the District's Chancellor to think across many disciplines—biology, ethics, philosophy, health sciences, business, public policy, religion, English, etc. The initial faculty list of 16 teachers included one to four teachers from each of the seven colleges. The disciplines represented were: biology, chemistry, physical sciences, English, nursing, biotechnology, humanities, and philosophy,

As the project proceeded; the college presidents, officers of the district, and current participating faculty were given the opportunity to recommend additional faculty

to the project. Newly recommended faculty were contacted, given a summary of project status and invited to join. There was no maximum limit on the number of faculty participating, only a minimum. The chancellor mandated to each president that they provide at least one course per college involving at least one teacher. Eventually twenty-one faculty joined the team by the time the Fall semester began. Some faculty, recommended to the project by their college, declined to participate. They were allowed to do so, with no negative consequence or concern. Faculty came to this project through recommendation from administrators or from fellow faculty. There was no mechanism for volunteering, as the participating faculty needed the pre-qualifying factor of recommendation.

Collaborative Preparation for Classes

At a series of collaborative meetings, prior to the start of the semester, each faculty participant had an opportunity to introduce themselves to the team and speak to their discipline, their experience with City Colleges, their background, their nationality, and their interest in stem cell research as a topic. The faculty brainstormed about possible topics and materials that could be used for coursework in the Fall. The discussion started tentatively, but quickly became engaging and robust. The ideas and discussions were flying back and forth across the table; the enthusiasm of the participants evident in speech and body language.

The project team members suggested journal articles, websites, books, editorials, documentaries, news reports, and speeches to be used by the learning community to develop coursework content. The materials were then made available to the faculty team electronically through a secure, limited-access website so that all participants could review and use them in the course content development process.

The full faculty team then met to review suggested course content and materials and to determine what materials will be included in the common set to be used by each college and by each teacher as fit the needs of the students, the coursework, and the strategic objectives of each college and each participating class. The team decided to be as inclusive in their decisions about resources as possible, so there would be many options available for classroom use.

Promotional materials for Fall registration were collaboratively developed with the faculty for inclusion in each college's Winter Course Catalog, website, and marketing materials. The goal was to empower each registering student with advanced information regarding their possible participation in the stem cell learning community project as part of registering for a particular class.

Collaborative Class Implementation

Classes begin and stem cell research coursework was included in a variety of existing classes at each of the seven colleges in the district. All participating faculty came together each month during the semester in collaborative meetings to share their success or concerns regarding their students and course content. The video production team videotaped these meetings. The video production team also visited various classrooms at each campus to videotape key discussions and events. Monthly reports were given to the

City College Board and to the Officers of the District regarding the progress of the project team, sharing content design and the team's experiences.

Collaborative Preparation for Culminating Project

In preparation for the end-of-semester Town Hall Meeting, a final pre-event meeting was held with the full faculty team to discuss the meaningful issues and content drawn from classroom experiences in order to identify the content goals of the town meeting; to identify students who would have a participatory role in the town meeting; and to identify faculty who would have a participatory role in the town meeting. A faculty member from each college personally invited the selected students for their town meeting participatory role.

A meeting was held with the participating faculty panelists and the video production team regarding the town meeting content and production. The meeting included role playing and brainstorming. A Town Hall Meeting technical and content rehearsal was conducted with the participating faculty, student and video production team in order for participants to feel comfortable with their roles, to answer last minute questions, and to solve last minute problems.

Collaborative Implementation of Culminating Project

On December 1, 2005 over 450 students, faculty, administrators, and broadcasters of the City Colleges of Chicago gathered at Malcolm X College for a spirited debate on one of the most controversial and important social and scientific issues of our time. Titled, "The Great Divide: The Stem Cell Debate", the program came to life after much study and preparation throughout the seven campuses of the City Colleges during the fall semester. Seven faculty and seven students, representing each of the colleges, appeared on stage as both experts and questioners. One faculty member served as host and moderator. Passionate questions and comments came from the audience. A production team of 25 broadcast professionals recorded the event for future airing. Throughout the three-hour event, the town hall participants explored the science of stem cells; the history of stem cell research; the ethics and religious points of views surrounding the topic; and the potential future for human health, corporate profits, and global power as stem cell research evolves. Faculty participated at the town hall event as on-stage speakers, they asked questions as audience members, they provoked discussion, and they sat with their students—encouraging and supporting the students who chose to participate from the audience.

But the work product of the learning community, while exciting and worthy, was only a means to an end for this case study. For what is examined here is not the end products of the learning community efforts—curriculum, coursework, town hall meeting, or broadcast program—but the communal process experienced by the faculty throughout their collaborative journey together. This research inquiry is examined through the section on method.

Graphic	Video	Audio
	(Squeeze-box this segment's video)	

The Great Divide: The Stem Cell Debate, March '06 *(graphic remains up during full segment as part of box-squeeze to indicate that this material was previously broadcast)*	Montage of town hall preparation and event includes scenes from video packages, the panelists, the audience, and the broadcasters. The montage is mixed between short sound bites from various participants.	(Jazz music plays underneath the full montage, rising and lowering in volume as participants speak) (Nat sound occurs throughout the full montage with broadcasters communicating with one another and with the participants) Tyree: The argument of ethics and morals versus science collided, that eventually the right thing happened. Wood: So let's get this straight, stem cells produce new stem cells. Moore: Make-up for broadcast is very different than the kind of make-up you might have been used to. Harris: In what ways do you think we ought to be cautious? Misayah: I was reading an article about a very prominent doctor and scientist in Korea.… Lee: I'm not responding just because he's my Korean brother Maksoud: We are looking at two different types of stem cells, embryonic stem cells and adult stem cells. Video Package: My name is Joan Rushman and in June of 2002 I was diagnosed with the disease of multiple sclerosis. Student in audience: We're here at college, who determines what's good and what's bad? It's those who are funded. Wood: Fears still exist when it comes to new technology. (Frankenstein movie clip, "It's alive! It's alive! It's alive!")

		Lee: We're dealing with something unique, and in my mind you can't separate the stem cell research issue from issues like abortion or in-vitro fertilization. Student in audience: Where does the conflict actually come in? Misayah: The heart of the debate really is, how do we define life? Video Package: Foreign countries are actually racing quite a bit ahead of the United States. Hamman: At some point, the government will realize the benefits of this kind of technology. Harris: An open mind is a valued asset. And knowledge is the best currency. (Audience applause)

METHOD

The objective of this case study analysis was to examine and understand the faculty experience of participating in this learning community project. There were two broad sources of data. The first was the collaborative project itself and the participatory activities and work-product that the faculty experienced as part of the creative process. The second was purposeful conversations with the faculty collaborators as they engaged in critical reflection about their experience within the learning community.

Three fundamental research questions guided this inquiry:

RQ #1: How does collaboration within a learning community impact a teacher's understanding of self, of practice, and of community?

RQ #2: What is the experience of creating communal knowledge and building a collaborative project?

RQ #3: What is the impact of the participation of broadcasters within the learning community and of broadcasting the collaborative project?

Data Sources: Work-Process and Work-Product of the Learning Community

- Collaborative Meetings: Eight video-recorded sessions were held with the full faculty learning community to create the stem cell project.

- Email**:** Most administrative functions for the project were conducted via email. Additionally, some of the conversations among faculty regarding content and resource acquisition occurred through email.

- Classroom Sessions with faculty at each campus: During the semester, a camera crew visited each of the seven campuses to record actual classroom activity on the subject of stem cell research.

- Researcher's Journal: This primary researcher kept a reflective practice journal throughout the project to record thoughts and insights regarding participating in the learning community

- Work Product

    o   Town Hall Meeting: the event as described in the project section.

    o   Town Hall Broadcast: the town hall meeting, in edited form, as broadcast.

    o   Website: a site for viewers of the town hall meeting to obtain more information. This site evolved from the private website created by the learning community. (This website is no longer supported)

Data Sources: Collaborative Inquiry with Faculty on Project Meaning

- One-on-one conversations with each of the seven faculty selected to participate on-stage during the town hall meeting were videotaped and transcribed. Each of the seven college presidents selected one faculty member from those participating from their college to represent their college on the panel. These were the key participants in the learning community project and had the most substantive and sustained knowledge and experience with the project. In addition to posing pre-determined questions, follow-up questions were used to probe more deeply the issues of interest as expressed by the interviewees. *Note: see appendix for illustrative question set used as initial prompts for conversation.*

- Group conversation among these same seven faculty members was also videotaped and transcribed. In addition to posing pre-determined questions, follow-up questions were used to probe more deeply the issues of interest as expressed by the interviewees. Additionally in the group discussions, participants asked further questions of their peers and occasionally contributed additional answers to questions asked of others. *Note: see appendix for illustrative question set used as initial prompts for conversation.*

- Town Hall debriefing session immediately following the event among the panelist faculty and students who chose to participate.

- Post-broadcast debriefing session among the same selected faculty.

- Faculty screening of the rough cut edit of the documentary about the collaboration (in documentary terms, this would be the review of the first draft) among the faculty participants included in the documentary.

Data Collection

A crew consisting of a videographer and a sound technician videotaped most of the activities described above. The videotaping occurred on site as each event or conversation happened. Professional standards of lighting and sound were used to ensure the quality of the footage. However, the events took place as part of their normal routine—no change in venue, no enhanced makeup, no professional broadcast talent, and no scripted conversation. The same videographer participated in each taping.

Data Analysis

Over 100 hours of raw footage was collected, labeled and categorized. The seven one-on-one interviews with the key faculty members were particularly important taped conversations and were fully transcribed word by word. All other footage was comprehensively reviewed and fully outlined for content.

With the transcripts and outlines in hand, the results were reviewed for the emerging themes of content that addressed the questions guiding this study. Coding categories and *key words* were: *isolation* of faculty through traditional teaching systems; the meaning of *collaboration*; *project meaning* for faculty; the impact of *broadcasting* the project and *broadcaster* participation; *power issues* experienced; and *new knowledge* of *self*, of *practice* and of *community*.

These themes then became an outline of content in what is called a *paper edit*, a rough and preliminary script of narration accompanied by suggestions of ideal companion video or sound-bite (a short quote on video). From the paper edit, the process moved into the edit room where the content was edited collaboratively among the primary researcher, a graphic artist and an editor. The decisions about which final quotes to use and what video to include were decided during editing among the collaborative video production team.

Data Validity & Reliability

The internal validity of this study was addressed by these strategies:

- Triangulation through multiple methods of data gathering: data collection occurred through interviews, focus groups, participatory events and actions, and a research journal. Multiple sources of data led to corroborating key findings as well as ensuring a comprehensive, rich and robust accounting of the learning community experience.

- Triangulation through multiple sources: sources of videotaped data were one-on-one conversations, group conversation among broadcasters and faculty, in-classroom visits, a debriefing session following the event, group screening of the Town Hall broadcast, and group screening of the rough cut video. Gathering multiple taped viewpoints from a variety of faculty participants individually, in groups, and over time allowed for common themes to emerge and results to be checked from a variety of perspectives.

- Member checks: collaborative participants were invited to screen the video segments to assess confirmation of interpretation and representation. They were given rough-cut copies of the edited segments and all recommended edits or changes were made to the participant's satisfaction.

- Long-term observation: The length of time from first meeting through documentary broadcast was nineteen months, during which the collaborative participants were involved in regular and repeated interactions of various types. Observation over time allowed for consistent themes to emerge through repeated contact and collaboration with the learning community participants.

- Rich, Thick Descriptions: Since this study produced video segments, the data was presented with authentic, first-person sight, sound, motion and emotion; attributes which singularly are found in video production. Participants viewed rough-cut copies of the edited segments to ensure and confirm their accurate portrayal.

- Collaborative participants: Inherent in the nature of a collaborative inquiry and participatory action research, is the involvement of the research participants in all phases of this research. As collaborative participants, they could view, assess, and confirm the valid representation of their experiences.

The reliability of this study, or the extent to which the results are consistent with the data collected, can be confirmed through a documented and videotaped audit trail with raw footage collected throughout the entire project and process. This archived raw footage details how data was collected and how decisions were made, including discussions and reflections of the primary researcher in collaboration with the project participants and the video production team.

DISCUSSION

After all this collaborative learning community project activity, what was learned about the practice of teaching and learning? What was accomplished?

A business model assessment would examine the "customers" served by the products created by the learning community. Coursework, discussion and projects on stem cell research were developed and implemented in dozens of existing courses across seven colleges reaching over 700 hundred students. For 450 event participants, a town hall meeting was created and executed. The project's website received 2,316 page views from 319 unique visitors (A. Chaudhuri, personal communication, March 27, 2006). Over 54,000 viewers in the Chicago area viewed the town hall meeting when it was broadcast

(Nielsen, 2006). "The Great Divide: The Stem Cell Debate" was nominated for a 2005-2006 Midwest Emmy Award for outstanding achievement for information programs. Twenty faculty members directly participated in the learning community. Thirty broadcasters helped produce the town hall broadcast. Forty administrators and trustees approved the project, followed its progress, and heard a concluding report (Moore, 2007).

But while these measurements can be quantified and verified, how does all this counting count? How does one understand what occurred within the self, the soul, the heart, and the mind of the teacher? How does this case study further our understanding of learning or teaching? Through a constructivist lens, if all knowing is communal, it is up to the community itself to determine what was learned, what was gained, and what was achieved. Due to the videotaped product of this research inquiry, the participating faculty are able to speak for themselves.

Every mode of expression has its strengths and weaknesses. In the use of video segments, representative quotes edited from the thousands of minutes recorded at the various collaborative sessions represented similar thoughts expressed by other participants. These were first hand conclusions personally expressed by these participants in this edited video

Praise for Collaboration

The faculty participants expressed deep gratitude and feelings of enormous luck to have been chosen to be part of this project. It became, for them, one of those fortuitous experiences in life they say they will always remember as one of their best; where they were given the "great privilege" to collaborate with like-minded souls and complete some of the greatest work of their professional lives.

Graphic	Video	Audio
	Fade up from black	
Dr. Joo Lee Humanities Assistant Professor Wilbur Wright College	Close up of Lee in interview time.	Lee (interview): The possibility that faculty members as stubborn, sometimes as they are, as isolated as they definitely are, can come together and actually have a meaningful discourse between them, I think is refreshing, I mean, its reinvigorating in a lot of ways. It gives me hope for this type of model.

Graphic	Video	Audio
	Fade up from black	

Graphic	Video	Audio
Dr. Helen Rarick Biology Instructor Wilbur Wright College	Close up of Rarick as part of the discussion circle, with cut-away reaction shots from others.	Rarick: Collaboration was so fruitful in order to bring about new ideas, to be with other faculty from other disciplines as well, it would spark ideas in my mind. This collaboration, I just felt I was part of putting something together just as when I would work with other researchers. So that was my, that was exhilarating to me. That was exhilarating.

Broadcaster's Impact

The faculty participants of this study call this inter-disciplinary experience exhilarating and memorable. They believed the project positively impacted their practice, their students, and the community. They were surprised by the strong emotional impact that broadcasting added to the results. They expressed that the broadcast element deepened their sense of self-worth while being overwhelmed by an increased sense of personal responsibility.

SEGMENT # 1		
Graphic	Video	Audio
Joice Panakkal Associate Producer WYCC-TV Erasmo Rivera Videographer WYCC-TV	Broadcast team in a circle in the studio in discussion with one another, mixed with field footage of the same broadcasters performing their jobs as part of the collaboration. Other broadcasters, who are shooting the studio sequence, are visible in the background running camera or with headsets on to monitor audio.	Panakkal: I got really comfortable with the people here because this was not what I was expecting from the media. This is different. Rivera: Cause I was shooting somewhat behind the scenes most of the time, so I was shooting, but at the same time I was noticing how people reacted and if they wanted to do this or not, and the interaction, and more spoke than others. Stevens: In a way it helps me to see my insignificance but in another way; it helps me to see my significance. Its like the butterfly effect, I may be a butterfly but the effect I can have on the world is big. And I'm just one little part of a much bigger picture, but the bigger picture wouldn't be the same without me.
Phyllis Stevens Assistant Production Manager WYCC-TV		

Arthur Wood Station Manager WYCC-TV		Wood: It reinforced that you can't do great work alone, the safety net of collaboration actually allows you to try things because there is someone there to catch you. It's like after we had our preview party, more than one person came by and said thank you for the way that this turned out. They didn't exactly know what we were going to do with the videos and some of the "oo's" and the "ahh's" and the "well actually, that wasn't a factual statement," those things did not show up on the air, we were the, we performed our duty as collaborators in providing that bit of a safety net for the team. Stevens: They thought it was safe to be who they were and interact as they saw fit at that moment, that was a safety issue and I thought that was an interesting use of word, "safe."
SEGMENT#2		
Marina Muzychenko Production Assistant WYCC-TV Ricardo Islas Producer WYCC-TV	Close up of Muzychenko as part of the discussion circle, with cut-away reaction shots from others Close up of Islas as part of the discussion circle, with cut-away reaction shots from others	Muzychenko: Seeing how something like this, so big, come from very little pieces of people from different industries coming together, for me it was very inspiring. Islas: Broadcasting adds an emotional impact to every day activities for people who are usually not involved in it and to receive an emotional impact is what makes things be remembered forever. So I'm assuming that when you teachers are in your classrooms and you're talking sometimes about the same things year after year, maybe now through this broadcasting experience you can come to realize how much of an impact a word can have on a lifetime of a student.

Student Benefits

It is not surprising that many of the faculty's reflective comments and insights were on behalf of their students. Because of this collaborative project, the faculty believed that students were more inspired by the subjects they taught. They said that the project added another dimension to the in-class experiences because students were greatly impacted by the learning community experiences that were deeply memorable. By empowering students to share their views, they engaged in painful but transformative growth. And at the end of the semester, the participating faculty were delighted and surprised by strong student evaluations which communicated great value towards participating in the stem cell project. Universally, the collaborating faculty believed that their students benefited from this experience in ways they could not have accomplished in the classroom alone.

Two SEGMENTS		
Graphic	**Video**	**Audio**
	Fade up from black	
	Close up of Lehman in interview	Lehman (interview): The students get much more excited, and when the students get much more excited about the discipline, I mean that's really the bottom line if you like to teach, listening to a bunch of students who are totally disengaged from the class as opposed to totally engaged in the class, makes all the difference in the, in the world.

Two SEGMENTS		
Graphic	**Video**	**Audio**
Dr. Khalid Uddin, MD., MPH Professor of Biology Kennedy-King College	Close up of Uddin as part of the discussion circle, with cut-away reaction shots from others	Uddin: When we create knowledge, then it has no boundaries. So it is the flame of knowledge that we have sparked. That shows the strength of linking community with the classroom. Like our students can take the message from the classroom to the community and through TV our community is the whole Chicago, not just one small community.
	Close up of Rarick as part of the discussion circle, with cut-away reaction shots from others	Rarick: That shows me also that students really were impacted, and they also were affected and will, like you said, be able to carry this on and really remember, sort of a memorable experience.
	Close up of Uddin as part of the discussion circle, with cut-away reaction shots from others	Uddin: It empowered the student because we give them a chance to give their views, all the other times we are talking in the lecture, this is what it is, this is what it is but this was a time we were listening to them so it empowered them too.

Classroom Isolation

At the end of this collaboration, the faculty had moving insight when comparing their experience in the stem cell learning community to their other more traditional classroom practice. They spoke about the isolation of teaching solo and how, for some, it led them to feeling complacent and passive. The routine of the classroom had become a mindless habit and they felt they were sleepwalking through the days. They had reached a comfort zone where they did not need to teach individuality, interact with others, have any peer-to-peer discourse with others, share ideas, or be pushed forward. It was unsettling to pull out of safe and known environments into an experience that was risky and required real trust.

Graphic	Video	Audio
	Fade up from black	
	Close up of Lee in interview	Lee (interview): I think academics in general tend to be very isolated, and it's reinforced by being in a classroom where they are, as you put it, masters of their domain, and they don't really need to respond to anyone

Graphic	Video	Audio
	Close up of Harris in interview	Harris (interview): It all starts from imagination. And, the imagination is a strange sort of tool. It has to be fed. And if you take a person and they're in isolation, there's nothing to stimulate, you'll find that their creativity will just bottom out.
	Close up of Lehman in interview	Lehman (interview): By the nature of the beast, we don't interact with each other very much and when we do interact, that's only once or twice a year, is with people in our own discipline.

The Experience of Collaboration

When asked to speak about their personal experience as being a collaborator in this learning community they acknowledged that it was scary, risky, and brought out deep insecurities. However, by taking on the risk, the experience sparked new ideas for them about teaching and education. Some found the experience to be exhilarating. Some were inspired to create their own new collaborative projects. Others expressed that it elevated the work that they normally do. They started to believe that the work they were doing together was really important and had profound meaning. Working collaboratively required them to learn how to lower their competitiveness and to tame their ego. They truly learned to see the worth and value of their fellow collaborators and to trust the others with their personal success.

Graphic	Video	Audio
	Fade up from black	
	Close up of Harris in interview	Harris (interview): I like being part of people who bring different talents to the table, that bring different ideas, that bring, that have different visions. Because, you know, if you rely only on your vision, you're blind. If you rely only on your hands and your talents, you're handicapped. And until you realize, that you are a part of something bigger than yourself, you will not grow, the institution you are a part of will not grow, the department will not grow, your students will not grow, and academia as a whole will not grow.

Impact and Changes in Practice

The impact of this experience resulted in profound change in how these collaborators viewed their practice and themselves. Many said that this experience changed their interaction with students in the classroom, for they had experienced the far-reaching impact of their words. They now more firmly believed they have got to be right, more precise, to exercise more care and to recognize how deeply their words matter. They felt their responsibilities to their students and to their institutions had magnified greatly. They left the project with an increased sense of self worth and felt truly important to their colleges and to their colleagues. They stated that this would be an experience they would remember for a lifetime and that the impact would follow them through their lives as well. Many expressed that through this experience they have renewed hope in the importance of being a teacher and the kind of impact they can have to improve the lives of their students.

Graphic	Video	Audio
	Fade up from black	
Dr. Dennis Lehman Distinguished Professor & Special Projects Harold Washington College	Close up of Lehman as part of the discussion circle, with cut-away reaction shots from others	Lehman: You need to be much more precise in your language because it may not be being replayed in your mind, but it's being replayed in the student's mind, over and over again.
	Close up of Uddin	Uddin: Our responsibilities were magnified a million times.
	Close up of Harris	Harris: Television has given it a power that it did not have before.
	Side view of Rarick & group, cut to close up with cut-away reaction shots from others	Rarick: So much more a value to what I've been doing, what I've been doing as a teacher, as an educator and that time when I was a researcher, that when television is pointed at you, you just feel as if there is important meaning to your life and that you are, you have to be careful in your words, but it really empowers you in the sense of more self worth.

Summary

Graphic	Video	Audio
	Fade up from black	

Graphic	Video	Audio
	Layered video montage of slow-motion, color-screened footage from previous segments showing the collaboration, the town hall meeting, and the interview reflections with the broadcast team fully visible and participating	(Jazz comes up and underneath) What my co-conspirators and I discovered, is that the most profound knowledge, the most meaningful discoveries, are quiet ones, found together in communal discourse, when likeminded souls come together to engage in a project that is bigger than any one of us. When teachers are able to break out of their professional isolation in the classroom and instead enter the sacred space of community, great things can happen.

RECOMMENDATIONS FOR PRACTICAL REPLICATION

This case study confirmed long-standing and extensive existing research regarding the powerful and profound impact learning communities can have on the student experience and added to the rather narrow body of literature regarding the positive impact a learning community can have on the faculty experience. Several unique issues considered by this case study, however, are practical and replicable: a common topic across disciplines, a culminating event, and the inclusion of media.

While some of the specific circumstances of this case study are rare—seven community colleges organized into one district and ownership of a television station are not typical—the fundamental aspects of this case are universally generalizable to a wide multidisciplinary audience should institutions make a commitment of resources and empower faculty and staff to pursue this learning community/town hall event concept. There are generalizable opportunities and cautions gleaned from this case.

Opportunities

o *A common topic* can invite new coursework development in existing curriculum across disciplines, particularly if the topic can include multiple disciplines and is one that will excite students. In this case, stem cell research provided a profound and compelling topic for multiple disciplines.

o *A culminating project* can inspire all participants with a time-specific, focused opportunity for the collaborating students and faculty to express what they have learned and to have a concluding communal experience. In this case, the town hall meeting provided participants with an opportunity for discussion and presentation.

o *Adding an element of video or audio media production* elevates the importance of the experience for the participants. Many campuses have a student radio station, a media studies department, or video production units that could be included in a campus wide learning community project. In this case, the documenting of the learning community's experience by professional broadcasters and the production

of the town hall meeting for broadcast added an enormously compelling element to the overall experience for the participants.

Issues to Consider

o   *It is critical to have senior administrative buy-in* to the learning community concept and the topic pursued so that the time spent by faculty in and out of the classroom on the project receives prioritization and support. In this case, the chancellor and the college presidents were personally involved in topic selection and approval of participants.

o   *The commitment of resources* should not be underestimated. Some resource issues to consider are: time from faculty, staff, students and administrators; coursework development and materials; scheduling and use of facilities; scheduling and use of media equipment; meetings for collaboration and brainstorming; meetings for coordination and execution of plans; and the promotion and marketing of the culminating event. In this case, the project participants were occasionally surprised and challenged by the time and effort required..

o   *A project of this size requires a budget***.** Due to the length of some activities, participants may need to be fed. Sets may need to be constructed. Marketing materials may need to be produced. Some key staff may need released time from primary duties. Some facilities or equipment may need to be rented. Additional independent contractors may need to be hired. As the project takes shape, budget issues will become more defined but a need for a budget line should be anticipated from the start of the project commitment. In this case, a budget line was created and monitored by district administrators.

o   A collaboration involving teachers and students will reveal both human *strengths and weaknesses*. As experienced in this case, some participants will exhibit more personal responsibility towards the project than others. Some students or faculty will contribute more time and effort than others.

o   *Power issues are likely to be expressed* as some participants are selected and others are not; as some are asked to speak and others remain silent; as a topic is selected while others are rejected. In this case, power issues were acknowledged and discussed among the participants rather than being ignored. In particular, asking the faculty to critically reflect and discuss their perspectives and experiences about power seemed to deepen their understanding at project's end.

THE AUTHORS

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INFORMED CONSENT AND COPYRIGHT CLEARANCE

Inherent in videotaping research participants in a research study is the impossibility of maintaining participant anonymity. It was critical for this study to ensure informed consent and obtain explicit permission to use the videotaped sessions for research publication.

Application was made to the Institutional Research Review Board of National Louis University for this study and permission was granted. Each faculty, student, and video production participant signed consent/release documents giving permission to be videotaped with an understanding that segments could be used in a broadcast program that was made public and could also be used in open access web-published academic research. Implicit in this consent was an understanding that interviews and actions could not be treated with confidentiality and others would know the participant's identity. Participants had an opportunity to review the rough-cut edit of the program segments and had the right to withdraw participation in the project. The project's methodology was also presented to and approved by the Officers of the District of the City Colleges of Chicago as well as approved by the District's Board of Trustees.

The copyright for the video segments used in this Webtext is owned by WYCC-TV, a division of the City Colleges of Chicago. Written permission was obtained from the station to use video segments for this research study and to distribute any finished product through a web-based open access electronic journal. All video segments are used with permission from the copyright holder.

APPENDIX

Illustrative Question Set & Notes Used as Interview Guide in Faculty Individual and Group Semistructured Interviews

- Tell me a little about your school and how faculty typically work together—(probe regarding collaborative experiences) Is collaboration encouraged? In what ways? What have been some specific experiences?

- How did you feel about the invitation to get involved in this project? How do you think others perceived it? What did you expect before participation began?

- What have you experienced so far? How do you feel the group work has been? What have been the challenges? Any surprises? What has been frustrating? What have you enjoyed? Have you seen any real change in the way the team works together? What would you change about this team's collaboration?

- What does participation in this project mean for your students?

- What did you learn through collaborating with other faculty?

- What do you believe your students are learning from collaborating with other students?

- What role did the broadcast element play in your decision to participate? (Probe for both the good and bad elements)

- Have any issues of power on your campus come to light for you during your participation in this project?

- What's the best thing about this collaboration? What's the worst thing?

In addition to posing these pre-determined questions, follow-up questions were used to probe more deeply the issues of interest as expressed by the interviewees. Additionally in the group discussions, participants asked further questions of their peers and occasionally contributed additional answers to questions asked of others.

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Review of Smith, Michael B., Rebecca S. Nowacek, and Jeffrey L. Bernstein, eds. 2010.

Citizenship Across the Curriculum. Bloomington, IN: Indiana University Press.

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As I sit down to write this review of Michael Smith, Rebecca Nowacek and Jeffrey Bernstein's

Citizenship Across the Curriculum, the country is reeling from the recent shooting of congresswoman

Gabrielle Giffords in Tucson, Arizona. Although the details are still becoming clear, it seems that a

disgruntled young person named Jared L. Loughner entered a "meet the Congresswoman" event and

began shooting—eventually injuring 14, including the Congresswoman, and killing 6, including a federal

judge and a 9 year old girl.

As often happens in a tragedy of this magnitude, the country is searching for an explanation for

this despicable act and for right or wrong, the sorry state of our civic dialogue seems to be a leading

culprit for the shooting. This line of thinking suggests that our political rhetoric has gotten so caustic,

negative and violent that it has created a space where acts like this are more likely to occur.

In this excellent edited volume, Smith, Nowacek, Bernstein and their contributors foreshadow "the

crippling effects of living in a society dominated by the shrill talk radio of Limbaugh and Franken" (p. 92),

calling instead for "building bridges of empathy" (p. 7).   Writing before the shooting, the authors believe

that something has to change in the way we interact in the public sphere. They argue convincingly that

college classes are a natural place for this transformation to begin.

Smith, Nowacek, Bernstein and their contributors take on the call to create more active,

empathetic, and ethical citizenry, advocating a definition of citizenship that "encompasses both the

political and the personal" as "the very reasons for individuals to be politically informed and active are

inextricably linked with their sense of empathy, ethical consciousness, and capacity to engage in dialogue

with others" (p. 5). To achieve this model of citizenship, they argue for an approach mimicking the

"writing across the curriculum" models that universities have used for almost half a century. This model

advocates active learning approaches that can "teach basic concepts through real-world problem solving"

(p. xi). As the title suggests, the editors and contributors also argue for an explicitly cross-disciplinary approach. They believe, and recent events reinforce, that citizenship is too important a concept to be pigeonholed into Political Science classes alone. As much as it pains this political scientist to admit, political science majors can make no greater claim to citizenship than biology majors. Why, then, should citizenship training only apply to the former?

Apart from the introduction and conclusion, each chapter in this volume is a case study in how citizenship can be applied in a different discipline. The usual suspects (Political Science, History, English) are here, but so are disciplines like chemistry and mathematics that are less frequently associated with a citizenship approach. In an interesting and effective device, each chapter also ends with two reflections from authors in other disciplines. The cumulative effect of this volume is a clear and unequivocal demonstration of the power and efficacy of the citizenship across the curriculum model.

Most readers will be naturally drawn to the chapter most resembling their own discipline, but ending here would be a mistake. Indeed, the first thing I did when receiving my copy of the book was to read Jeffrey Bernstein's excellent discussion of active learning pedagogies in political science classes. Bernstein's writing, methodological approaches, and outlook on teaching and learning resonated immediately with me. If I had not been tasked to review this book, I would most likely have stopped here, and moved onto other things. If I had done this, however, the real power of this book would have been lost. As good as Bernstein's chapter is, I learned just as much, if not more, from Mathematician Michael Burke's chapter on innumeracy, Carmen Werder's essay on self-authorship and Rebecca Nowacek's description of her multidisciplinary senior capstone, to name just a few. The authors of this book advocate a cross-disciplinary approach to teaching citizenship—this requires a cross-disciplinary approach to reading this book.

At this point, it is customary in scholarly book reviews of edited volumes to review each chapter individually, but I am going to resist that temptation. The power of this book is in its cumulative contribution; individual chapter reviews would take away from that. Likewise, even in positive reviews, most self-respecting academics throw in a couple of paragraphs of critique, but I am going to resist that well-worn path as well. Teaching citizenship is too important to shoehorn what would only be minor critiques into a review such as this.

Citizenship Across the Curriculum is an important book. Our political climate has become more caustic and less productive. As professors and college-administrators, we need to take responsibility to educate the next generation of citizens. This book can help provide direction in that journey.