

Using Wikis to Promote Reflective Teaching and Collaboration among Higher Education Institutions

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Abstract

The purpose of this article is to describe how teacher educators from different higher education institutions used Web 2.0 technology to facilitate collaboration in a small pedagogy group. Faculty from three different institutions participated in monthly face-to-face group meetings. They used technology to facilitate reflection on practice and scholarship. In addition, they were engaged in interactive journaling and collaborative writing activities. Wikis provided useful supports, and enhanced their learning. The group used a hybrid format that allowed increased opportunities to meet group and individual goals and extend benefits to students. Some themes emerged from the qualitative analysis of reflections in response to prompts regarding the impact of using Wikis. These included co-ownership, communication, organization, sharing resources, accessibility, and community. The authors offered some suggestions for facilitating the successful use of this technology in collaborative efforts. Each member of a Wiki must clearly understand the purpose of his or her involvement. Wiki communities participate in social negotiation. This means that each individual should have a clear role, and a sense of belonging. The group used Wikis as extensions and supports that assist group members to reach shared goals. Wiki self-efficacy, or how capable members feel while using wikis, depend on perceived ease of use and decreased sense of user anxiety.

Keywords: web 2 technology, wiki, group collaboration, reflective teaching

Introduction

A group of five diverse faculty members formed a learning community in 2008, to discuss pedagogical practice related to teaching at the university level. Though we had met at a local university, we were at various points in our careers as college professors. Some of us were completing a doctoral program, some were just beginning their careers as professors, and others were junior faculty coming up for tenure. We came together from three different institutions, which used a mixture of online and face-to-face teaching methods. Each faculty member served a unique type of student population, preparing teachers to serve in different types of classrooms: special education, gifted

education, early childhood education, and literacy. In addition, some of us taught undergraduate students, some graduate students and others a combination. Our members also taught both traditional and nontraditional student populations.

We began our pedagogy group because it fit in with our commitments to both the discipline of education and our life-long dedication to learning. We all had a desire to learn more about teaching courses at the college level, but over time we came to explore other ideas as well. A year after forming our learning community one of our members introduced the use of a Web 2.0 technology, the wiki, to enhance our learning experience. The group quickly saw the value of this wiki and began to use it to deepen our collaboration. We found that it

provided a common place for reflection and a convenient place to collaborate on scholarship that has made us more productive. In short, a virtual home where we could nurture and grow our collaboration far beyond what we had been able to do in our monthly face-to-face meetings. In this paper, we will discuss the value of learning communities for college faculty and using a wiki to support such a learning community. We describe web 2.0 technology and our wiki in detail, explaining how we have used it for sharing, collaboration, and research.

Rationale for Our Learning Community

Learning communities are defined communities in which “all members of the group are learners and the group is organized to learn as a whole system” (Cox, 2004, p. 6). Teachers truly engage in learning communities when they work together to analyze teaching, discover how to improve their own classroom practice and ask ongoing questions that allow for “deep team learning” (Dufour, 2004, p. 9). Learning communities involve a shift in thinking about professional development from mere transmission without time to reflect, plan or implement, to collaborative inquiry through which participants can construct understandings together (Lock, 2006). Ladson-Billings (2002) asserted that teaching pedagogy must be developed in relational, social ways that encompass the inclusion of teacher, student, and society, incorporating educational ideas and methods that fit into the real world. Learning communities of college faculty have been proven effective. They provide opportunities for responsive reflection on pedagogy and are efficient ways to teach (Cox, 2004).

As professors of education, we found ourselves encouraging our students to form learning communities to complete

assignments and examine their teaching practice. We observed, as did Layne, Froyd, Morgan & Kenimer (2002), that learning communities offered our students what professionals need: an ongoing collaboration rather than a “one shot” workshop that does not support authentic reflection and change in practice. Our use of student learning communities also affirmed the benefits Wepner, Bowes, and Serotkin (2007) reported including: 1) enhanced democratic process, 2) increasing efficacy of group members as teaching professionals, and 3) creating continuous improvement of practice through reflection upon and experimentation with best practice.

As professionals, we sought ways to reap these same learning community benefits in our own practice. However, we were challenged to traverse the logistics of developing a supportive, collaborative community in a way that did not invoke institutional politics. We noted that the American Association for Higher Education (AAHE) found that new and future faculty identified the need to establish community in higher education institutions as a means to develop and support good pedagogical practice (Vaughn, 2004). Cox (2004) reported however, that this need is seldom acknowledged or addressed by higher education institutions, leaving faculty in what has been historically called “isolation.” We searched for some sort of forum that would lift us out of this isolation, which we all felt, while navigating the time demands on all faculty. Meeting once a month in our learning community provided this forum.

Web 2.0 Technology

Institutions of higher education are beginning to use new technologies that allow for collaboration among faculty. The Internet is an important tool that can help meet faculty time-life balance that is often at

a premium (Vaughan, 2004). Technology can also serve as a cultural tool, allowing for shared learning experiences and opportunities for ongoing professional growth (Lock, 2006). The effective use of online learning communities requires broadening one's view of community beyond individual institutions (Lock, 2006). Online learning communities can be large and global or small and local. In online communities, as with any community, it is important to have trust, shared goals, and a sense of belonging. Participants need a sense of ownership and investment in professional growth (Lock, 2006). Online learning communities need to be intentional and active.

Web 2.0 technology represents a movement away from individual computers being repositories for computer programs and files. In this new world of web 2.0, also known as "cloud technology," computer users purchase subscriptions to programs held on the web, and their files are uploaded for storage. One advantage of this "cloud" is that computer users will be protected from losing the contents of their hard drives if their individual computers crash. O'Reilly (2007, p. 17) noted that this technology also supports "the power of the web to harness collective intelligence." Our group's experience is a powerful example of Web 2.0's effectiveness in this area.

We began as a face-to-face learning community, however, as we set out to share resources, one member suggested using a wiki as a way to organize our materials and collaborate. Wikis are considered Web 2.0 technology. "Wiki" comes from the Hawaiian word *wiki*-meaning swift or quick. A wiki is a collaborative tool originally developed by Ward Cunningham in 1994. Wikis gained popularity in this century as editable websites that can be used for storage, collaboration for editing documents and interaction (Augar, Raitman, & Zhou,

2004; O'Reilly, 2007). A key aspect of a wiki is that anyone who is added as a participant can be given a status that allows him or her to edit all areas of the wiki. Any group or individual can set up a wiki. One member of our learning community had used a wiki with another collaborative group and volunteered to set up our wiki using the PBWorks site (<http://pbworks.com/>). While this site lacks some of the design appeal offered by other no-cost wiki sites, it did allow our group to work privately, blocking others from viewing our works-in-progress. We were able to collaborate among our group, while, preventing impingement by others into our safe space. This protection enhanced our sense of community as well as decreased any anxiety of others viewing personal reflections or works in progress. If needed, low cost upgrades give more options for designing the wiki space. One key benefit of wiki use is cost effectiveness (Schwartz, Clark, Cossarin & Rudolph, 2004). The members of our group found the wiki intuitive and quickly learned how to use the wiki pages. Soon, all members were taking responsibility for keeping the SWOhioPedaogyGroup Wiki current and organized.

The online wiki space improved our group as a whole. Our online learning community neither served as an add-on nor replaced our face-to-face learning community. The wiki functioned as a meeting space that served a variety of useful purposes to enhance our learning community. While we continued to meet face-to-face monthly, we found the wiki offered us an efficient, effective way to overcome many logistical problems for writing articles together, responding to books read by the group, and journaling. The wiki was an effective tool for both writing and reflective learning (Parker & Chao, 2007). Wiki technology provided

opportunities for collaboration and interaction, a place to store documents and share materials related to pedagogy. With one central working area, we could stay organized, communicate, and track our group progress. Anytime one member worked on a project or the page, the wiki automatically notified other members of their activity. These communications served to keep us all on track to meet deadlines and solve problems we encountered in our practice. As reported by Wepner, Bowes, and Serotkin (2007), our Wiki offered our learning community unique opportunities in that it:

- Allowed us to collaborate over long distances at convenient times
- Enabled us to share our research interests with people of like interests
- Allowed us to develop a shared understanding of the world.
- Modeled teaching techniques that in turn we used to support our high education students.

The wiki was an excellent place for members to record notes on their reflective practice. We decided to conduct a small research project on our reflections of the use of wikis. We created a page on our wiki for recording our experiences with using wikis for extending our practice with students and other groups. We asked members to write about how they had used wikis in other areas of their professional lives. Some had transferred their knowledge of wikis to create course sites for their university classes. Others had opportunities to use wikis with other groups or anticipated how they might use a wiki in the future. The questions we used to begin our reflections included, but were not limited to:

1. What affected your choice of technology?

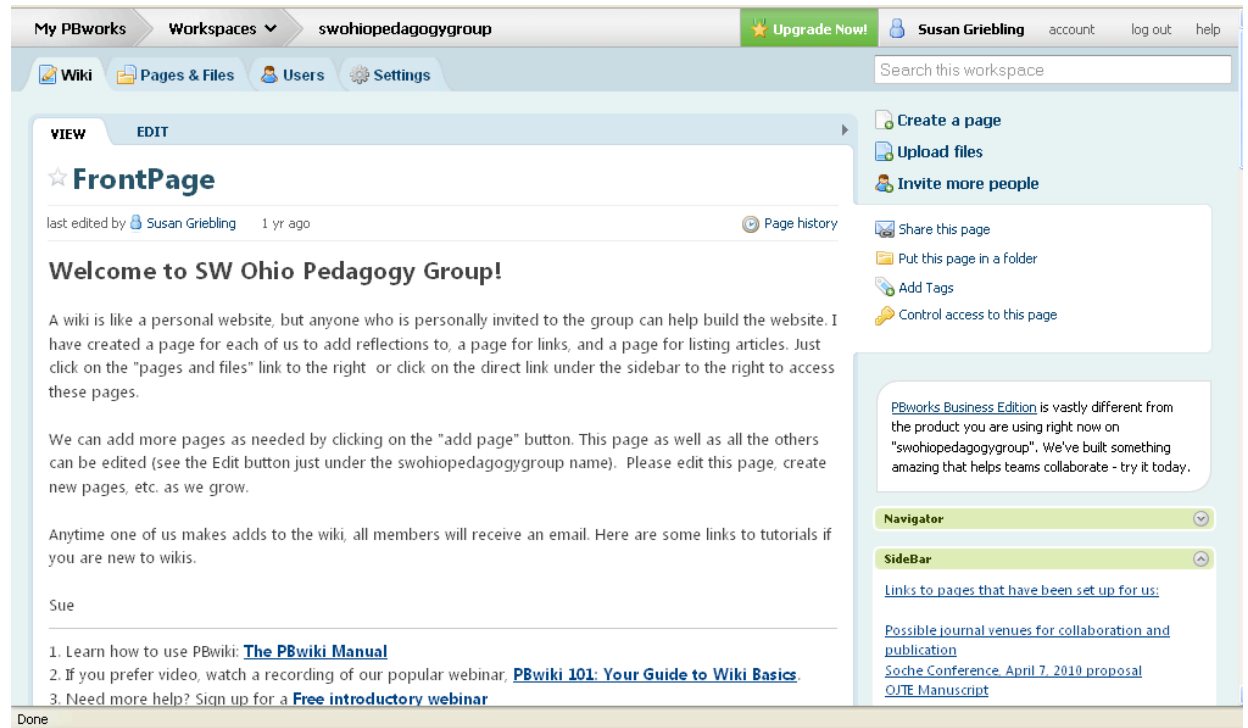
2. What were the choices of technology that you had to choose from?
3. How easy has this technology been to learn?
4. How do the students/others react to the wiki?
5. How has the wiki affected your teaching?
6. How do you anticipate this technology will affect your future teaching?
7. How do we keep our wikis dynamic?
8. How do student/others take ownership/leadership in the use of this technology?

The members' reflections were collected from the wiki page and analyzed for content using inductive analysis. The data was coded line by line and phrases were examined for various possibilities of significance (Strauss & Corbin, 1998). Constant comparative analysis meant continuously returning to the data to check for accuracy. Conceptual labels were developed by examining the language and the context. Related concepts were grouped into domains determined by semantic relationships (Hatch, 2002). Finally the data and domains were reviewed by two other members to check for agreement and accuracy.

Results of Our Reflections

We found that members had transferred their knowledge of wikis to their teaching practice in several ways. When universities lacked adequate course management software, wikis were introduced as an optional supplement to a face-to-face class, as a mandatory supplement to a campus course and as a mandatory component of a hybrid course where some of the class meetings were face-to-face and others were conducted online.

Figure 1: View of our SW Ohio Pedagogy Group Wiki



At first students seemed to suspect that the wiki was going to be one more way to make them work on class assignments. When our members used wikis for the courses they were teaching they found it helpful to bring the wiki up at the beginning of each class to show students the information that had been uploaded to the wiki during the week between classes. Eventually, students saw it as another resource for class information rather than another way of creating additional work. Students began to view the wiki as a source that reiterated information given in class verbally or as additional resource to assist them with class scheduling information. By the end of the semester they had come to depend on the wiki.

When universities already had viable course software, members found that wikis could be linked to the course site and offer a

supplemental mode of interaction. Wikis could provide a collaborative space for students to work on group projects throughout the semester. Instructors could review ongoing work, offer comments, and suggestions over time. With wikis, group projects could be managed more effectively and dynamically.

Our learning community has found with students and with each other that wikis provide support and extensions in the following areas:

1. Co-ownership
2. Communication
3. Organization
4. Sharing
5. Accessibility
6. Community

Co-ownership

One important aspect of a wiki is that it allows co-ownership. Wikis can be structured so that everyone contributes and everyone monitors the wiki. We created our pedagogy wiki so that all members have administrative rights. This means that any of our members can create a page, edit pages, delete pages, set up folders, and upload files. Editable pages can be created to work on projects such as writing an article together and shared journaling. Storage areas can be created to save conference proposals, articles to read, or links to other websites.

Increasingly we use the wiki's editable pages feature. Each group member can revise or contribute to an editable page. Editable pages are perfect for collaborative writing. The document is created as a wiki page and available at any time for members to work on. Comments can be left on the page, below the editable document, to bring up new ideas, give directions, keep us on track and organized.

When wikis were used as part of the instructional plan for courses it “allowed more student ownership in instruction.” As students found a supplement to the instructor’s resources that their classmates could use they posted them for everyone’s benefit. In traditional course software, like Blackboard, the instructor is the main author who creates and makes additions to the site. However, when using a wiki, everyone is an author, which makes the community more vital. It encourages students to be partners in the learning process with the instructor and with other students. For instructors, it is helpful to note that information regarding times, dates, and identities of members who change things is automatically available. This tracking helps keep members accountable for their actions when doing class work on the wiki.

Communication

Facilitating the feeling of co-ownership is the ability to communicate effectively, as there can sometimes be a struggle between the individual voices and the collective voice (Vratulis & Dobson, 2006). In our examination, wikis were found to support communication on several levels. First, individual users of a wiki could choose to have updates to the wiki automatically emailed to them. This was an efficient way to stay in touch with updates to the site. The emails also served as a reminder to go to the wiki and review recent activity. The email reminders allowed for reciprocal interactions. Notification that a colleague updated the wiki served as an invitation to respond in some way to this effort. Secondly, members of a wiki could leave comments on a certain page for others to read. For example, when working on a manuscript or paper a member can leave a comment about ideas for content on the page. When closing out of the wiki, these comments are included in the email update that is sent to members. In this way, updates to the wiki are not just posting of individual ideas; they are a contribution to a dialogue.

As the dialogue of the wiki develops, another communication advantage is that the wiki is “helpful in extending the interaction and contributions of the group.” The group discussion makes individual contributions richer, allowing time to construct a thoughtful response. Students said that they appreciated how they were able to think out their answers more clearly this way. Members appreciated that the level of input from these written discussions were “much higher level than the verbal, in class discussions than I had previously experienced.” Reflective discussions were richer on the Wiki.

For our pedagogy group, the wiki has become another meeting space where we come together to communicate ideas,

questions, concerns and suggestions. It has empowered us as educators. "Being in the pedagogy group has changed my teaching because it has forced me to be reflective... It has also made me feel competent and confident in that my contributions are respected and reflected in the group." The wiki, as both a tool and a meeting space for communication facilitates thoughtful and valuable discussions. One role of a facilitator of a faculty learning community is to promote effective communication (Petroni & Ortquist-Ahren, 2004). The wiki served as a tool to allow all participants to be facilitators of our learning community, sharing our insights and accessing those of others.

Organization

Members of our learning community found that the wiki is extremely helpful in keeping us and their students organized. Using a wiki for a course "... allowed me to be a whole lot more organized and explicit. Everything that was important from each class went up on the wiki. This allowed students to be able to really listen and participate in class without having to worry if they were getting the notes exactly because they knew they could find them later."

Our pedagogy group started out using our wiki to share materials about active learning, and course syllabi. We still use the wiki as a central storage area for our group. We have posted articles to use for literature reviews so that individuals can each select some to read and summarize. We post our summaries along with the articles so that they can be easily accessed when we are ready to begin writing. We also store final versions of conference proposals we have submitted or papers we have written.

An advantage to using a wiki is that other members can come along aside a posting and find a better way to organize the

material. For example, when a page was added to the pedagogy wiki by one member, another member created a link to the sidebar (the sidebar is an area that appears on every page and provides quick hyperlinks to all of the resources on our wiki) for it. People see different ways to organize materials. When a member making a post does not have additional time to organize the post, another member can help and add the extra organizational touches needed to keep the material alive and accessible.

Sharing Resources

While a wiki is useful to organize, archive and share materials, the real advantage to a wiki is its dynamism – materials and writing uploaded to a wiki can be reflected on, added to and shared with others. When using a wiki for a course, students can upload materials they have written or researched to share with classmates. Instead of just having their own written lesson plan, or strategy sheet, they now have a library of these that can be used as resources in the future.

Our SWOhioPedagogyGroup wiki has grown organically when it comes to sharing resources. With administrative status any member of our group can create a page on the wiki. We are adding new pages almost monthly as we work on new projects together. Our wiki is not only dynamic but it stores our thoughts and ideas in one place. We can go back to those ideas and see how we have changed, reflect on others ideas. As it expands, we expand as both teachers and scholars. As has often been proved the case, the work of the whole becomes greater than any of its individual parts.

Accessibility

One in eleven higher education students is identified as having a disability and this number is continuing to grow (Orr & Hammig, 2009). An answer for faculty

attempting to maximize instruction for higher education students is to adhere to the principles of universal design for learning (UDL).

UDL is an outgrowth of an architectural approach to building that allows all persons to have access regardless of different abilities. Later applied to learning principles that fit an ever diverse population of students in the classroom, two key concepts emerged: improved access to information and learning as well as flexible instruction that corresponds to multiple learning styles (Bernacchio & Mullen, 2007). As Edyburn (2010) asserted, technology is essential to implement UDL in classrooms. Classrooms that use wikis can exemplify UDL.

Wikis conform to UDL in that they have the benefit of being accessible. First, wikis are available for use without cost or subscription. While users have the ability to upgrade their wiki space for a fee, we have not found this to be necessary. There are many different wiki providers, and an internet search will easily provide a list of possibilities. In addition, wikis support different learning styles and needs. For instructors, this means that the wiki accommodates students' learning needs and instructional differentiation. The wiki is ideally suited for responding to individual user's needs. These same issues of use by diverse individuals apply to make the wiki a compatible tool for pedagogy groups.

The wiki for our pedagogy group includes an individual wiki page for each member. On these individual pages we record reflective thoughts about our face-to-face discussions or readings. While these were created as personal journal space, others can respond to our writings and offer alternative perspectives, suggestions or continue the conversation with questions and comments. This is certainly a different way to journal. These journals are alive and

active. In essence, these interactive journals provide opportunities for growth and depth that could not be reached through private journaling. While similar to a blog, access is limited to our members, ensuring a certain level of privacy. The interactive journals are meant to be supportive and at the same time offer challenges and new perspectives on issues around teaching at the collegiate level. In addition, while blogs are organized chronologically, our journaling could be structured in any format we desired.

Another matter typifying the individuality offered by wikis in our pedagogy group is through note keeping by individuals regarding group meetings and subsequent goals. In our pedagogy group wiki, one page is used to document our progress as a collaborative group. At each of our monthly face-to-face meetings someone is responsible for taking meeting notes. These meeting notes are typed into a page set aside in the wiki to record our discussions, progress, and plans for the future. This provides a record of our activity and decisions that can be easily accessed by all members of the group at any time. Essentially, the meeting notes on the wiki keep us all "on the same page." The difference between this and traditional meeting notes, is that anyone can add more details to the notes after they are posted. Thus the meeting notes are not just one person's perspective of our activity, but a conglomeration of all group member perspectives that are available as well as archived on the wiki. We are individuals coming together in the formation of a dynamic community process.

Building Community

The Wiki venue is an important support to our pedagogy group. With the wiki, everyone is an equal and we have found that each person is a true community member who can revise or contribute in a

variety of ways. Our use of the wiki keeps fresh ideas flowing. For us, the wiki expands our community, where everyone feels safe to contribute, participate, and support one another, in a wider, electronic platform. It is another meeting space, similar to face-to-face venues, with opportunities to access information, address challenging questions, interact with real world problems, and contribute in a variety of ways.

In our pedagogy wiki site we have set up pages for discussions and reflections around a particular topic. While similar, these pages on our wiki are also very different from our individual journal pages. Members record reflections on the topic and respond to each other's writings. For this purpose we use one topic page rather than multiple individual pages. When we are reading a book together, we post chapter reflections on the designated page and use this space to read and respond to each other's reflections. We read Bain's book, *What the Best College Teachers Do* (2004) together, and created an editable page on our wiki to post reflections on each chapter of the book. We assigned chapters to read each month, between our face-to-face meetings, and were responsible for posting our notes and reflections on the wiki page before the next meeting. Once we had completed the book we decided to use this information to revise a course we were teaching the next semester. We journaled about the process of revision, what we changed in the course, new perspectives we took from the book, and our responses from students. We placed these notes on the same wiki page as our chapter reflections. We then used the reflective data on this page to conduct a self-study of how our perceptions and beliefs were influenced or informed by Bain's book. This data was later analyzed for domains and themes for reporting to others.

In addition, new pages were created on our wiki to do collaborative writing such

as conference proposals and journal articles. When we write together we do this on the wiki. We create a new page for the article and hyperlink it to the Side Bar, a frame that is stable on every page. This allows the page to be easily accessed with just one click. While one member of our group is usually in charge of initiating the writing (the first author) the article is read and revised by all members through the wiki. This way we are sure that everyone is working on the most recent version of the article and that two members are not revising the same version at the same time. Collaborative writing is simplified when using the wiki. It eliminates confusion and miscommunication.

Conclusion

Our group's experience with the wiki has confirmed several items noted in the literature. Utilization of a wiki afforded collaborative learning within the framework of a community of practice (Parker & Chao, 2007). According to Schwartz, Clark, Cossarin, and Rudolph (2004), wikis contain elements key to creating successful communities of practice including individual and collective identity, interchange, egalitarian cooperation, and progression over time. Web 2.0 technology adds to the academy in general. Web 2.0 technology, such as wikis, enhanced collaboration and communication both within and across institutions. Wiki use reflects and models use of various learning paradigms espoused in higher education including cooperative learning and constructivism (Parker & Chao, 2007).

In addition, our group noted benefits as well. The wiki enhanced our research with purpose and accountability. Receipt of email notification that a colleague within our group had added to the wiki sparked excitement and an interest in reviewing and building on their work. The wiki served as a

catalyst as well as an environment for a research community. Our work evolved with individual contributions transforming into collective writing and research. An iterative process, the wiki maintained the active participation of all individuals.

We found that the wiki used both in our pedagogy group and with students in higher education classrooms created a vibrant research community. In terms of skill building, the wiki added to researching, writing, enhancing group momentum, and made research pertinent and alive to participant communities. Descriptively, we found that dynamic groups with dimension, color, depth, and texture exemplify our wiki communities.

Future Directions

Our group will continue to use and develop Web 2.0 technology to establish a community of learners as exemplified by pedagogy groups and higher education classrooms. As we have found, wikis are fundamental tools to be used for enhancing the use of technology within groups.

Recommendations for utilizing a wiki stem from our findings. It is useful to ensure co-ownership accessibility,

community, sharing, communication, and organization. Wiki use necessitates a clear purpose in order to be successful. As with any community there is social negotiation. Each individual should have a clear role and sense of belonging (Vratulis & Dobson, 2006). Individuals should view themselves as contributors. The wiki should be viewed as useful. Perceived usefulness may increase intent to use the wiki which in turn enhances the likelihood that it will actually be used (Liu, 2009). Use of the wiki should not be just another thing to do, but rather an extension and support to assist in reaching shared goals. In addition, some resource or support in use of the technology may be helpful. Wiki self-efficacy, or how capable one feels in utilization of the wiki, influences perceived ease of use which may in turn decrease any online posting anxiety (Liu, 2009). One group member, with extensive experience using wikis, served as our initial administrator and resource. As the initial administrator, in addition to creating the page, she included links to tutorials on the front page. Over time, as the overall comfort with the web tool increased for other group members, we all became administrators.

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