

**The Tensions of Transformation in Three Cross-Institutional Wikibook Projects:
Looking Back Twenty Years to Today**

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The Tensions of Transformation in Cross-Institutional Wikibook Creation, Critique, and Collaboration: Looking Back Twenty Years to Today

Imagine a Web page that anyone with access to the Internet can edit, not just read (Evans, 2006). Now imagine if that editing process extended well beyond that page to an entire chapter or book. If successful, you have envisioned the birth of the wikibook. A wikibook is one of many so-called Web 2.0 technologies that are now finding their ways into K-12 and college classrooms. Wikis are collaborative writing spaces wherein a learner can perpetually tinker with ideas as well as remold and share them.

The use of wikis, and in particular, wikibooks, is highly linked to the educational climate of today. It is a culture of participatory learning that has been building for the past two decades. In addition to learning participation, Wiki-related projects provide opportunities for learning transformation when they expose learners to new points of view or perspectives as well as opportunities for critical reflection and examination of one's assumptions (About.com, 2008; Mezirow, 1991). While not all wiki-related activities in the classroom are transformational experiences, many of them are. In this paper, we discuss the tensions and issues surrounding cross-institutional collaboration in a wikibook project. Our experiences stem from three separate attempts to build wikibooks in cross-institutional settings. The tensions and issues we discuss relate to instructional decisions, collaboration considerations, technology factors, knowledge construction and sense of community, and the overall processes and procedures related to the wikibook project. We also provide some advice and guidelines for other instructors who might be grappling with one or more of these tensions in a wikibook project in higher education or other settings. When these various issues are resolved and proper instructional scaffolds are in place, transformational change such as new perspectives or understandings might result. However, the success may depend on the type of students, the design of the wikibook project, the level of course, the number of participants, and many other factors.

The Climate of 2008

This year, 2008, though just begun, is already a year marked by myriad politicians and their followers arguing for change. The word change can be seen repeatedly on televised debates and then replayed on CNN.com and discussed in political blogs, online forums, and newspapers and magazines. In most cases, these calls for change are not just for a simple changing of the guard from one president or administration to another, but for deep and lasting transformative change in how political campaigns are run, the issues that are addressed, and the requirements for an effective leader of this country.

Such calls for transformative change, however, are not restricted to legislative offices and government agencies. Across educational settings, too, transformation is in the air. It seems that everyone is focused on it; almost as if it is a necessity for schools and institutions of higher learning. Much of these pleas and pronouncements arise from concerns that youth are dropping out of schools and colleges due to dull curricula and a lack of meaningful and engaging activities (Cassner-Lotto & Wright Benner, 2006). From such perspectives, there is a deep disconnect between what learners prefer in terms of tasks assigned, resources to accomplish those tasks, and the assessment of that work.

Unfortunately, this concern is arising at a time when the skills and competencies needed to be successful in the working world of adults are rising. Students desperately need critical thinking, collaboration, leadership, evaluation, creativity, and problem solving skills (Cassner-Lotto & Wright Benner, 2006). From such reports, it is clear that students are not workforce ready.

Such criticisms are not entirely unfounded. There are numerous reports on how schools and universities do not accommodate the experiences and preferences of different generations of students (Dede, 2005; Dziuban, Moskal, & Hartman 2005; Oblinger, 2003; Oblinger & Oblinger, 2005). Timely studies from the Pew Internet & American Life Report indicate that today learners arrive on college campuses with more technology savviness and expectations than preceding generations (Lenhart & Fox 2006; Lenhart, Madden, & Hitlin, 2005). In response, technologies such as those brought about by the Web 2.0 are often seen as transformational in shifting learning situations from passive to more interactive and engaging learning climates. Those promoting the Web 2.0 and other online learning technologies argue that they can foster new ways to collaborate and share ideas with peers and instructors (Bryan, 2007; Downes, 2005). Further fueling this learning environment transformation, mobile technologies such as the iPhone, the iPod, text messaging, and Twitter bring a new sense of connectedness to learners and learning (Dye, 2006; Young, 2008a, 2008b). As a result, instructors are repeatedly asked to embed technology in their instruction, foster student collaboration and knowledge building, and provide more options, choice, and autonomy for their learners. In a word, they are being asked to transform their teaching practices.

Reflections Twenty Years Back

This intensity in which schools and institutions of higher learning have been asked to transform has been inching upward each year for the past two decades. Think back a couple of decades to the late 1980s for a moment. It was a time of change in educational research from cognitive views of learning to those espousing situated learning and social constructivism. A technical report in 1988, "*Cognitive apprenticeship, situated cognition, and social interaction*" from Brown, Collins, and Duguid (1988) issued through the offices of Bolt, Beranek, and Newman, got the rumbling started. That was exactly twenty years ago. The following year, the stir hit a more fevered pitch when John Seely Brown gave a keynote talk at the American Educational Research Association Conference in San Francisco entitled "Situated Cognition—A View of Learning" (Brown, 1989) to a packed audience and published a paper in the prestigious *Educational Researcher* (Brown, Collins, & Duguid, 1989). The first author of this paper was among the hundreds of attendees at this session who later received a copy of the paper.

Many educational researchers have yet to recover from the sea change in educational research and practices brought about by that one article and associated speech. Of course, they were also citing Vygotsky (1978, 1986) in every study or report no matter how related his work was or not. While the work by Brown and his colleagues, some twenty years back, was definitely not the only such effort in the area at that time (see also Brown & Palincsar, 1989; Langer & Applebee, 1987; Scardamalia & Bereiter, 1986, and many others), it was central to a focusing of educational researchers on the importance of

context in education as well as the apprenticeship process for learning new skills or competencies.

That same year, these ideas related to cognitive apprenticeship were widely read and accepted in a landmark edited book by Lauren Resnick (1989) on "Knowing, Thinking, and Instruction." In the chapter from Collins, Brown, and Newman (1989), they pointed to the craft of reading, writing, and mathematics. Such work fostered new programs and ideas wherein the teacher lectured less and students assumed more prominent roles in the instruction. Effective teachers were the ones who worked alongside the students and collaborated with them. Among their examples, students might work on problems in mathematics before fully understanding them, while teachers break the problems into parts and provide challenges as well as supports. In reading, they might assume the role of teacher modeling how to ask good questions, make relevant and powerful summaries, and predict what might come next, as in reciprocal teaching. In writing, these same students might negotiate ideas with peers in a collaborative team, produce a product for an audience beyond the instructor, and gradually internalize the scaffolded assistance provided by instructors, peers, think sheets, and computer prompts.

In a cognitive apprenticeship, one joins the learning process as a novice on the periphery of the task and then gradually gains more skills and competency to come inside the actual practice. As Collins et al. (1989) noted, apprenticeships were common for painting, business, sculpting, medicine, and law. Instructional methods were not didactic teaching, but coaching, observation, and pushing learners to try out a skill and to continue to explore. They further point out that prominent educational scholars such as John Dewey, Seymour Papert, and others advocated learning from projects that force students to work from a set of goals and internal driving forces. This approach asks students to work on tasks that have intrinsic value and, therefore, are highly interesting to them.

As part of their efforts, Collins, Brown, and Newman (1989) detail six teaching methods in an ideal cognitive apprenticeship; (1) modeling, (2) coaching, (3) scaffolding and fading, (4) articulation, (5) reflection, and (6) exploration. They noted that these six techniques were more apparent in informal than in formal environments such as ski instruction (Burton, Brown, & Fischer, 1984), automobile repair, grocery store decision making (Lave, Murtaugh, & de la Rocha, 1984), and alcohol anonymous meetings (Lave, 1991). While such techniques are often found in graduate student mentoring (Audi, 1994), they were particularly lacking in K-12 and most higher education instruction at that time. In effect, there was an inherent tension between informal learning practices and more formal ones.

At about the same time, Roland Tharp and Ronald Gallimore authored a book called "Rousing minds to life" (Tharp & Gallimore, 1988) which outlined ways in which instructors could assist in the learning process instead of simply assessing it. An effective instructor is aware of the task and activities and forms of instruction available that can be employed to push or scaffold learners to new cognitive heights (Gallimore & Tharp, 1990). The seven dependable techniques for assisting in learning that they outlined were similar to Collins et al. (1990) but also argued for feedback, contingency management,

instructing, questioning, cognitive structuring, and task structuring (Bonk & Kim, 1998; Tharp, 1993).

Since the 1988 report of Brown et al., there have been much other scholarships that added dimensions to the importance of context and building a culture of learning. Work from Lave and Wenger (1991) outlined what a legitimate peripheral participation process looked like while Wenger and his colleagues more richly described communities of practice (Wenger, 1998a, 1998b; Wenger, McDermott, & Snyder, 2002). For twenty years there have been inroads into understanding the social aspects of learning. We know more about the role of dialogue in providing scaffolded instruction (Palincsar, 1986), informal learning (Cross, 2007), how learning communities as well as communities of practice are formed, the various ways in which apprenticeship learning might unfold, and the types of tasks that better engage learners in meaningful instruction.

Back to Reality Again

Since his work in the late 1980s, John Seely Brown has weaved his way through a plethora of fields including ubiquitous computing, artificial intelligence, knowledge management, mathematics, and organization behavior (Brown, 2005). Fortunately, his journey has placed him, once again, at the center of emerging learning theory. In early 2008, Brown and his colleague, Richard Adler, published an article in *EDUCAUSE Review*, "Minds on Fire" (Brown & Adler, 2008), related to participatory learning. As Brown noted in his December 2006 invited address at MIT, we have entered a participatory learning culture wherein the emphasis is on engaging learners in building, tinkering, remixing, and sharing. Students can now create, remix, and share information. So, too, can their instructors. Brown and Adler contend that in our flatter learning world filled with multiple careers and job skill changes, such learning opportunities are vital. In the Web 2.0, we are in a continual apprenticeship! But the myriad learning demands of this century can no longer be met with the building of more physical campuses. Digital learning participation is now a key factor for learning of anyone at any age.

A few weeks after Brown's invited address, *Time Magazine* recognized this trend and in 2006 named "You" as the person of the year (*Time Magazine*, 2006/2007). Yes YOU! Such an announcement signaled the trend toward empowering technology users with Web 2.0 technologies that allow users to generate ideas online instead of just reading and browsing through someone else's (Grossman, 2006/2007a, 2006/2007b). We have entered the age of the read-write web, not just a Web from which one passively consumes or reads information. Technologies that contribute to this read-write Web or the Web 2.0 include wikis, online video sharing, learner generated podcasts and blogs, online photo albums, and virtual worlds such as second life. Web 2.0 tools and resources bring people together to share, collaborate, and interact.

A recently popular video on YouTube (2007) from Kansas State Professor Michael Wesch illustrates Web 2.0 technology in less than 5 minutes. This particular video helps demonstrate that with a world filled with wikis for online collaboration as well as a new blog every second, we are the Web. The newly released Horizon report (Horizon, 2008) from *EDUCAUSE* continues this emphasis on the Web 2.0 such as "grassroots video" for

creative expression while also adding “collaboration webs” as a trend that will be adopted within one year or less. As the report points out, instructors and students need only access to the Internet to take advantage of most of these trends; therefore, the bar to participatory and empowering learning is continually lowered. Platforms such as Wikibooks not only permit joint editing, they also allow for easy monitoring of progress, expert modeling, and peer critiques. Wikis, when effectively created, provide the apprenticeship and situated learning possibilities that Brown et al. discussed two decades ago.

While all the focus on learner-centered instruction is akin to the work of Brown and his colleagues twenty years prior, with the Web 2.0 there is the smell of a fresh coat of paint. In effect, ideas related to situated cognition, cognitive apprenticeships, and cultures of learning have pushed beyond theoretical ideals to practical reality. Not only is such a new learning climate is now possible, many of the tools and resources which make it so are free and highly accessible. For instance, as Brown (2006) notes, blogs and wikis are similar to studio learning since an authentic audience is immediately present to review and give feedback on the work. Learning can now actually become a production and participation process, not mere consumption and absorption.

For Brown and Adler, a key ingredient of these changing learning times is the opportunities for online sharing and collaboration. Today, anyone with an Internet connection can share resources, ideas, and conversations about learning. Anyone can participate in learning. Perhaps the project is a wiki how-to manual. In such a situation, learners can add their time, expertise, and research quests to a knowledge base that the rest of world can access and learn from. Collaborators on this how-to manual can come from learners at other institutions and geographic regions as well as from those who long ago completed their formal learning. Such learners are engaged by their project quests and by feedback from each other. When learners’ minds are truly on fire, they are consumed by passion-based learning which is more self-directed, resourceful, personalized, reflective, collaborative, and virtual. As prominently noted in the Brown et al. (1988) report, informal learning is emphasized over formal.

With this shift, it is time for schools and universities to come out of twentieth century teaching practices and into the new millennium (Wallis & Steptoe, 2006). In a January 2007 interview with Brown, Steve Hargadon (2007) asked him about the skills he valued for the School 2.0. His response was telling. According to Brown, in the twenty-first century, there is pressing needs for creative expression, communication, interpreting information found online, collaborating with others one has never met, and becoming sensitive to cultural and language differences, including exposure to languages such as Spanish, Mandarin, and Korean. Learners can build such skills through real-world projects and activities.

While many emerging technologies do this, wiki technology, in particular, is important since it is designed for quick knowledge construction and collaboration for either a private or a world audience. When learning is exposed to a world audience, it can become an apprenticeship into a community such as seen in Wikipedia (Bryant, Forte, & Bruckman, 2005), open source software (Pan & Bonk, 2007), and online science

communities and portals. In such communities, learners can gradually learn to be an expert. They may move from a reader or browser to one of active contributor. Passive reception learning which Brown saw as on the way out in 1988, has perhaps finally started a slow chug to leave the station some twenty years later. Formal learning is still important, but the opportunities for student-initiated ones are more evident and accepted today. Anyone participating in the MySpace, Facebook, or, if Korean, CyWorld, phenomenon, will realize that Vygotsky (1978, 1986) was on the mark when suggesting that learning begins as a social process.

Brown and Adler are not alone. Most adult learning theorists (e.g., Knowles, 1984; Rogers, 1981) and distance learning experts (e.g., Moore, 1989; Wedemeyer, 1981) argue that the more choices and self-directed learning opportunities you provide to learners, especially adult learners, the greater the chance for learning-related success. From their vantage point, learning must be meaningful, interactive, and reflective. Activities chosen should foster higher self-esteem, internal motivation, and goal driven opportunities. In addition, learning should be open, genuine, inviting, respectful, active, collaborative, and student driven. At the heart, learning should be problem-centered with immediate application of learning skills. Such is the case of Wikibooks. In a word, learning needs to be transformed!

Wikis and Wikibooks in the College Classroom

As indicated, the use of wikis can lead to transformative experiences in learning environments. In terms of formal classroom situations, an instructor might use a wiki to have a class create a community product. One such product might be a class glossary that can be updated by future classes. Another possibility is for a class or group of students to create a report or white paper. You might assign a class essay, joint chapter summary, or project outline. Or perhaps the class task might be to design students' papers into chapters of a book on a particular topic as shown in recent examples of wikibooks. They might also critique existing wikibooks on a topic related to the course; such books would cost nothing and would likely be more current than standard textbooks. Other possibilities for a wiki project include debating course topics and readings, maintaining group progress journals, and sharing resources (e.g., conference information, Websites, and writing samples). And, of course, an instructor might have his students edit pages of Wikipedia or some other wiki resources.

As an example of wikibooks in a college classroom, Richard Watson at the University of Georgia had the students in his XML class create a wikibook textbook. In this project, he attempted to teach collaboration, trust, creativity, and negotiation skills since those were the skills his students needed when they entered the business world (Evans, 2006). Each student was in charge with drafting one chapter of the book. However, anyone could edit or modify it in the wiki. In such a project, the role of the instructor shifts from a focus on the transmission of the content to planning for students to experience and interact with such course. While the project started off slowly with various technology glitches and text errors, the project was ultimately a success.

In a similar project, de Pedro, Rieradevall, López, Sant, Piñol, Núñez, and Llobera (2006a, 2006b) explored wiki-related projects over a two-year period using both qualitative and quantitative measures. They conducted eight wiki projects in areas such as biology, environmental sciences, and nursery involving information gathering, group synthesis, critical thinking, and writing class summary reports. While these projects also experienced some initial technology problems, the instructors found many positive aspects of the wiki environments such as ease of use, speedy access, version control, and a history of those who made changes in the document. Students seemed to prefer wiki activities over traditional ones, though they also were hesitant to allow others to view and modify their work-in-progress. Across their study, de Pedro et al. found that using an “Editor-in-Chief” role was vital for higher quality work; in effect, someone must oversee the quality of the final wiki product.

Not everything went as planned in that study, however. As de Pedro and his colleagues found that across eight wiki projects at the University of Barcelona (de Pedro, 2006a, 2006b), students were extremely hesitant to share messy or incomplete ideas. In addition, they might need a greater sense of familiarity and previous exposure to a wikibook project before becoming involved and committing to it.

Method

Jointly, we have coordinated three wikibook projects. The first one was in the spring of 2006. During that semester, graduate students from the University of Houston (UH) and Indiana University (IU) collaborated on an instructional technology book in Wikispaces related to the uses of instructional technology for sociocultural purposes (see link at end of paper). This wikibook project was an optional assignment. Students were partnered across institutions to provide review and feedback on each other’s final products as critical friends. Students could correspond via email or within Wikispaces. There were introductory and ending meetings using videoconferencing across the sites. Each student, as a writer, was given the option of writing one chapter in the Wikibook and editing a chapter written by someone else, or completing one of several alternative tasks. This project had limited participation, in part, due to the optional nature of the assignment, but also, in part, due to other factors including assignment novelty, instructor modeling, the part-time nature of the Houston students, and lack of clear directions and scaffolding.

The second project was in the fall of 2007 across the same two institutions; however, this time the courses were related to learning theories and instruction. Many changes from the first project were put in place in the second wikibook project. First of all, the assignment was required not optional. Second, students received job aids for their wikibook activities which helped to scaffold their instruction.

The third key difference from the first wikibook project was that the wikibook project was presented in layers of increasing difficulty. Such layers were provided to bring them into the wikibook process from novices to eventual wikibookian status. The first task was to critique an existing wikibook created by a class on “*Emerging Perspectives on Learning, Teaching, and Technology*” at the University of Georgia by Professor Michael Orey. Students from IU and UH each picked one of more than 30 chapters from this book

to read and critique. The critiques were peer reviewed by critical friends at the other institution. When done, the critiques were posted by the graduate assistant on this project in Wikispaces as a set of critiques named Wikibook Online Work (WOW).

Once done with their critiques, the second step was to edit an existing wikibook on "*Learning Theories*" or "*Learning Theorists*" found on the Wikibooks Website. Both books were originally created by Dale Fowler's class at Indiana Wesleyan. Whereas this was an optional assignment for UH students, for Bloomington students, it was required. Bloomington students edited during class time in a computer lab. The IU instructor demonstrated how to edit a wiki and joined students in the wikibook editing task in the computer lab.

The third phase or layer of this particular wikibook activity involved students creating their own wikibook. To emphasize theory into practice, the title of the wikibook was "*The Practice of Learning Theories*" (i.e., The POLT). A graphic artist was hired to create a digital image for the book cover (see Figure 1). Students decided on their own chapter topics and content for the POLT. Their initial topic selections were posted to Wikispaces by the graduate assistant for review. All chapters were drafted individually. Students at IU had a critical friend within their own institution who provided feedback on their respective chapter. Once their chapters were completed, they were submitted in Word format to their instructors. The instructors gave feedback on the Word document. Once revised, these documents were posted to the Wikibooks Website by the student or the graduate assistant. Once again, IU students spent class time in a computer lab editing each other's chapters. Houston students had the option of editing the wikibook chapters that were posted. All IU students submitted a final chapter to the POLT, while a couple of UH students opted out. Students wrote 23 chapters for 9 different sections of the POLT. Names were on the critiques but no names appeared on the final POLT chapters.

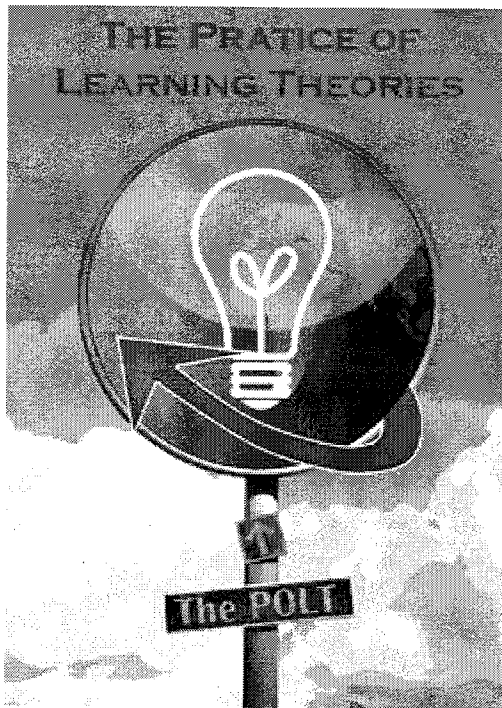


Figure 1. Digital book cover for the second wikibook project, “The Practice of Learning Theories” (The POLT).

In effect, the second wikibook project, The POLT, was more scripted and supported than the first one had been. Students were gradually exposed to the idea of a wikibook. It is likely that this was the first group of students to ever critique a wikibook on their class topic, then edit a different one, and finally create their own. This is a prime example of a transformative learning experience since it places students in the role of critic, reviewer, editor, and designer of ideas or content creator. Feedback for wikibook work changed in the middle of the semester from cross-institutional to within each respective institution. About twenty chapters were written for the POLT including two short ones by the instructors. On the final day of class, students received certificates as Wikibookians. To create a community feel, a joint videoconference between the two sites was conducted for the final class wherein students briefly summarized their respective chapters. In addition, the students from each site who were most involved in the project were recognized with an autographed book from one of the instructors.

The third wikibook also took place in the fall of 2007. In this instance, the collaboration extended to five institutions in four countries including IU, Indiana State University (ISU), Beijing Normal University (BNU) in China, the Open University of Malaysia (OUM), and National Chiao Tung University in Hsinchu, Taiwan. Like the second wikibook project, students were given job aids for wikibook creation and editing. They also received demonstrations of sample wikibooks and shown how to edit a wiki. Their wikibook project, “*The Web 2.0 and Emerging Learning Technologies*” (The WELT), related to their course topics. Once again, a graphic artist created a digital image that acted as a book cover (see Figure 2).

Students brainstormed the wikibook topics for the WELT at their respective institutions. Once a master list was created across all sites, students and instructors nominated the wikibook chapter sections and chapter titles. Students wrote chapter proposals which were reviewed and edited by their instructors. Students then wrote their chapters for the wikibook. Students from IU and ISU posted their chapters right in their wikibook Website. As with most wikibooks, none of the chapters had a name attached to them. In contrast to the POLT, the IU instructor made chapter edits for his students directly in the wikibook. In addition, critical friend pairs also edited directly in the WELT.

Students from China and Taiwan received more extensive feedback and support from their instructor prior to posting to the wikibook Website. For instance, the Taiwanese instructor helped with translation of many student chapters from Chinese to English. Students were encouraged to give feedback on chapters outside of their own class. IU students had some designated time in a lab to do that. On the final day of class, students received certificates as Wikibookians. In addition, one or two students from each site who were most involved in the project were recognized with the same book as in the second project. In the end, students across the five universities contributed 29 chapters for the six sections of this book.

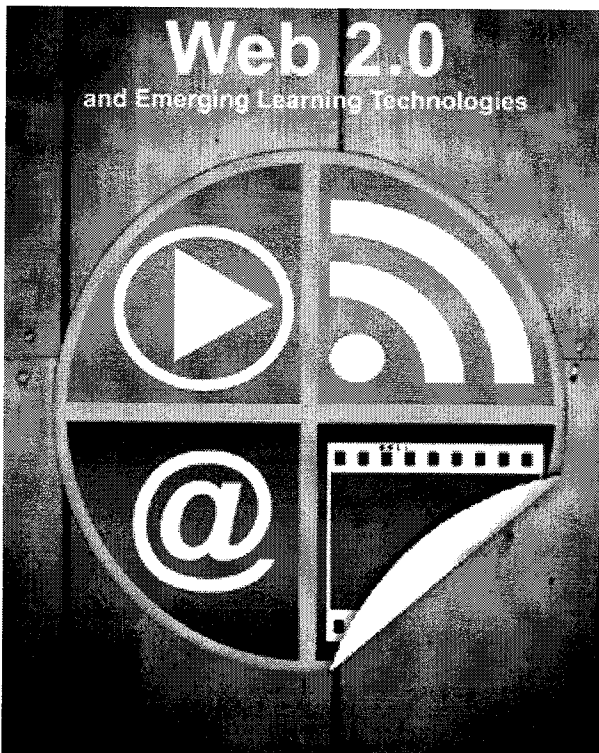


Figure 2. Digital book cover for the third wikibook project, “The Web 2.0 and Emerging Learning Technologies.

In effect, the third project had more participating students and institutions than the other two projects. This wikibook also extended the research into global collaboration. In some

ways, it was the most chaotic yet also the most student-centered. Interestingly, it had the highest success in terms of number of chapters completed, the amount of peer editing, the perspectives shared across sites, and the sheer energy of the project. It was the most challenging wikibook project in terms of coordination and collaboration. Nevertheless, preliminary student and instructor feedback indicates that was the most transformative experience for many of the participants.

Surveys related to the first wikibook project were collected from 13 participants. An additional 4 participants were interviewed. A total of 22 students in the second wikibook project (i.e., the POLT) completed a different wikibook survey, while 41 participants in the third project (i.e., the WELT) completed the same survey as POLT students. Interviews and transcript analysis from the second and third projects are still underway.

Results

While the degree of success within each wikibook project varied tremendously, from minimal student participation in the first one to the completion of various wikibook tasks and activities in the POLT to cross-cultural collaboration and student-centered learning in the WELT. While students in the second project perhaps had the best understanding of potential uses of wikis in the future, students in the third one experienced perhaps the most transformative experience. Across all three projects, there were challenges and problems in terms of peer-to-peer collaboration and instructor-to-instructor collaboration. There were also concerns related to instructors-student interaction. Cross-institutional collaboration, in particular, proved to be difficult, though not impossible. Based on interview and survey data, personal observations, and student and instructor feedback across the three experiences, we outline the tensions and issues related to such collaborative efforts.

As indicated, the cross-institutional collaboration understandably brought out some issues regarding the wikibook development. We organize these in the following five themes or sets of issues: (1) instruction; (2) collaboration; (3) technology; (4) constructivism and sense of community; and (5) wikibook. Each issue also manifested certain tensions. In the next section, we will identify and elaborate on these issues and tensions.

1. Instructional Issues

The reason for implementing the Wikis as cross-institutional collaboration was to provide the students with opportunities to experience the Wikis as a new platform and reflect on the open knowledge sharing. One of the questions we were interested in answering were “How might ideas and actions from partners from other institutions facilitate the personal growth of both the students and the instructor?” Of course, class creation of a wikibook involves a plethora of instructional decisions impacted by the answer to that question. Such instructional issues include: (a) the status, backgrounds, and expectations of students (e.g., fulltime or part-time); (b) student control over posting within the wikibook activities; (c) coordinating cross-institutional peer interaction; (d) the degree of structure or scaffolding built into the system; (e) the timing of collaboration, feedback, and interaction within the wikibook; (f) coordinating schedules across institutions; (g)

decisions about what is learning and how to assess it; (h) control over learning and instructor experimentation and risk taking; (i) the reusability of the wikibook; (j) meta-reflection about wikibook principles; and (k) motivational techniques.

In a nutshell, issues concerning instruction were related to the design of the course coordination across institutions, motivations for students to engage in such a project, and actual facilitation by the instructors. Many of the key instructional decisions and issues we encountered are detailed below.

a. Student Status, Backgrounds, and Expectations (e.g., part-time or fulltime). In the case of the first two wikibook projects, while all the students from both institutions seemed interested in the initial introduction to the Wiki project idea, some real constraints started to appear as each project proceeded. First of all, the fact that the collaborating institutions served quite different populations of graduate students posed a challenge: fulltime doctoral students versus practitioner-based part-time graduate students. The part-time doctoral students, who usually worked fulltime, seemed to prefer fewer platforms for the course, usually not seeing the real need for the collaboration space in a wiki. Considering these students usually had to deal with more than one email account (i.e. school, work, etc.) as well as other electronic platforms (i.e., in-house online discussion forum and WebCT), adding wiki-related activities was often like just one more place to manage and, worse still, perhaps unnecessary in a face-to-face classroom. Most students in the third wikibook, in contrast, were fulltime students who were in an educational technology or Web 2.0 course which lent itself well to experimentation with emerging learning technology.

b. Student Control over Wikibook Posting. In addition to the teaching assistant's work regarding setting up the wikibook, the students in the first two projects did not participate in the management or maintenance of the wikibook. In contrast, students in the third project directly posted their wikibook chapters, edits, and peer feedback. This fact actually provides an interesting difference between the people who are self-motivated to work on a wiki as compared to the students who are "required" to create or modify a wikibook for their class assignment and why there was more success in the third wikibook than the other two. At the same time, while the third wikibook was a required activity, there was greater student-centered learning.

c. Coordinating Cross-Institutional Peer Interaction. The strength of voluntary participation, as a wiki should be, was not fully realized within a classroom setting. If the students in other classes did not want to participate or collaborate in the middle of a semester, there were few options other than for the discontinuation of the collaboration. In this regard, managing the Wikibook project as a cross-institutional or class activity turned out to be an extremely difficult task. In the third project, there were no assigned cross-institutional partners. Instead, students received feedback primarily from peers from their own respective institutions. While this approach worked more smoothly, there are likely many benefits from cross-institutional collaboration if effective scaffolds, timelines, and interaction structures are created. Familiarity with wikis would also help reduce tension and increase self-competence.

d. Degree of Structure and Task Scaffolding. In terms of providing scaffolding and task structuring for the Wikibook and associated chapters within it, it was difficult to know how much structure the students needed for completing a wikibook successfully. Efforts were made with job aids, emails, and course announcements. Too much structure could stifle student creativity and idea generation while too little scaffolding might force them to give up on using the wikibook tools and resort to more traditional writing approaches instead of the collaborative and public technologies of the wiki. The first wikibook project had the least scaffolding and basically fell apart because of that. To tell students that they can work together and then demonstrate a tool for doing so is not enough. The second wikibook project likely layered too much structure in this process. Still, it seems that students need due dates, how-to aids, reflection sheets, grading criteria, prior examples, and encouragement and modeling from instructors. Given the minimal research in this area, it is unclear which of these are essential.

When asked about the guidelines and instructional supports provided, 77% of students in the POLT project agreed or strongly agreed that the guidelines and instructional supports helped them think about their wikibook project (see Figure 3). Only 23% percent disagreed or strongly disagreed. It is possible, then, that job aids, reminders, demonstrations, and other wikibook-related information were effective supports.

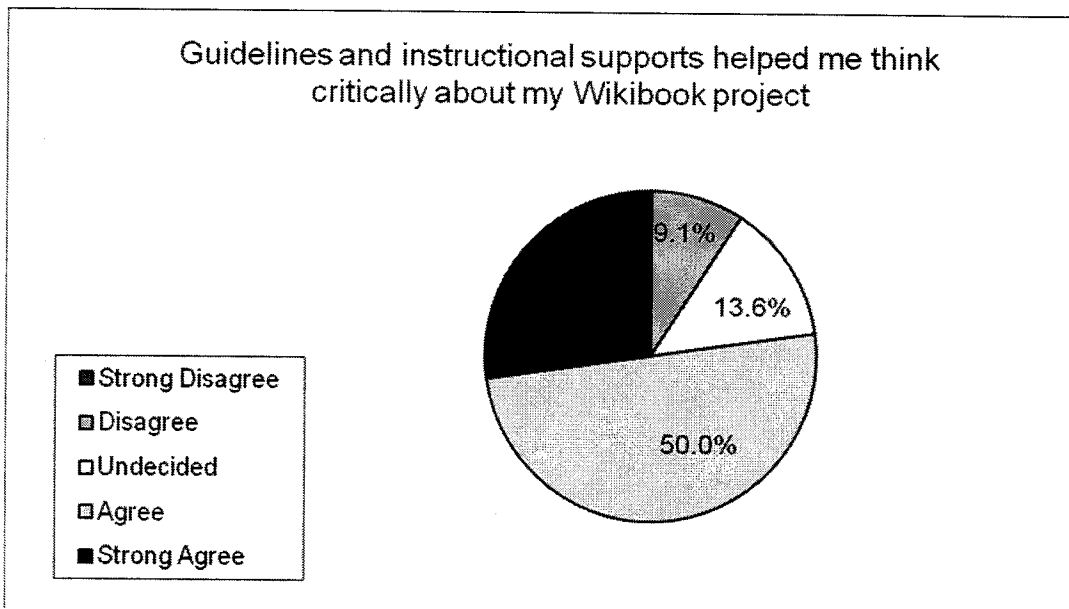


Figure 3. Sense that guidelines and instructional supports fostered student critical thinking (POLT/Wikibook #2 students).

e. Timing of Collaboration, Feedback, and Interaction. Making decisions on the timing of collaboration, feedback, and interaction was also a major component of the Wikibook project. In the second case, forced feedback on the wikibook chapter critiques increased tension across sites since students did not know each other. Instead of an ice breaker type of activity, it served to stunt further cross-institutional collaboration. In the

first case, the videoconferences at the beginning and end helped students to form some shared knowledge and were bridges for later chapter collaboration and feedback. The ending videoconference in the second project was highly engaging and interactive while helpful in providing a sense of closure to the project. However, it came too late to help in the wikibook collaboration and community building efforts.

f. Cross-Institutional Scheduling. The timing of the collaboration was also interesting. In the second wikibook project, simple administrative issues such as two institutions having different academic calendars called for special course design consideration. Such conditions also suggested that the instructors work together to set up their syllabi and assignments before starting a wikibook project. While the instructors in the second wikibook project rearranged their schedules to accommodate minor differences in when their semesters started and ended (including one instructor meeting his students a week before classes started), the third wikibook project suffered from different university calendars; a problem which was not recognized until it was late in the semester. Classes in the three Asian countries ended at least a couple of weeks after American ones. The Asian students, therefore, did not post their work when American students did. The lack of synced schedules caused Asian students to not to receive as much feedback from American students as might have been possible with additional forethought and preplanning.

g. Decisions about Learning, When designing wikibook classes, instructors must grapple with issues of the actual impact on learning and attempts to measure such learning. Is learning in the collaboration and feedback process, in editing the work of other people, in the generation of a chapter, in the new perspectives one takes on, or in the creation of the wikibook as a whole corpus? Is learning reflected in concepts displayed in one's chapter when others may have contributed to it? Do students receive credits for the quantity and quality of their edits and additions to someone else's work? And just what is someone else's work when such works are continually refined and added to? Students in the first wikibook project talked to their collaborative partners across UH and IU but only a few provided direct feedback to each other on their final course projects. In the second and third projects, students received feedback from peers in their respective classes. In this case, how learning was identified also brought up interesting questions. Do the students see the involvement in the process of a wikibook project as learning? Is the wikibook the main or only part of the course or is it treated more lightly as a course add on? Is a wikibook seen as just a platform and not part of the content of the course?

h. Control Over Learning and Risk Taking. How much are instructors willing to experiment or take instructional risks in a project such as a wikibook is also a key consideration. If instructors have not attempted project-based learning or product-based learning, they might be more hesitant and resistant to ideas related to empowering students and giving them more control over the direction of the class. In the first wikibook project, the instructors did not give up much from their respective courses, but, instead, made the wikibook an optional assignment. The same decisions were made by one of the instructors in the third wikibook project where only a few students contributed.

One of the instructors in the third made the wikibook required but an extra activity beyond her syllabus which meant the students had to work harder. She noted, “Students had very good attitudes towards the wikibook chapter activity. They participated, discussed, and liked this extra work. Most of them spent a lot of time on this activity.” Still the boundary waters between the degree of instructional risk falling into course chaos and feeling safe in knowing you could accomplish the course tasks was constantly changing. In fact, eight graduate students from Afghanistan in a class in the second wikibook project became so nervous about completing their wikibook chapters, that they were transferred to another course.

Wikibooks are different! As shown in Figure 4, a vast majority of POLT survey respondents (82%) indicated that they felt that wikibooks were a significant departure from traditional lecture-based teaching approaches. Clearly, instructors who adopt wikibooks in their courses are willing to experience some risk and uncertainty in their teaching.

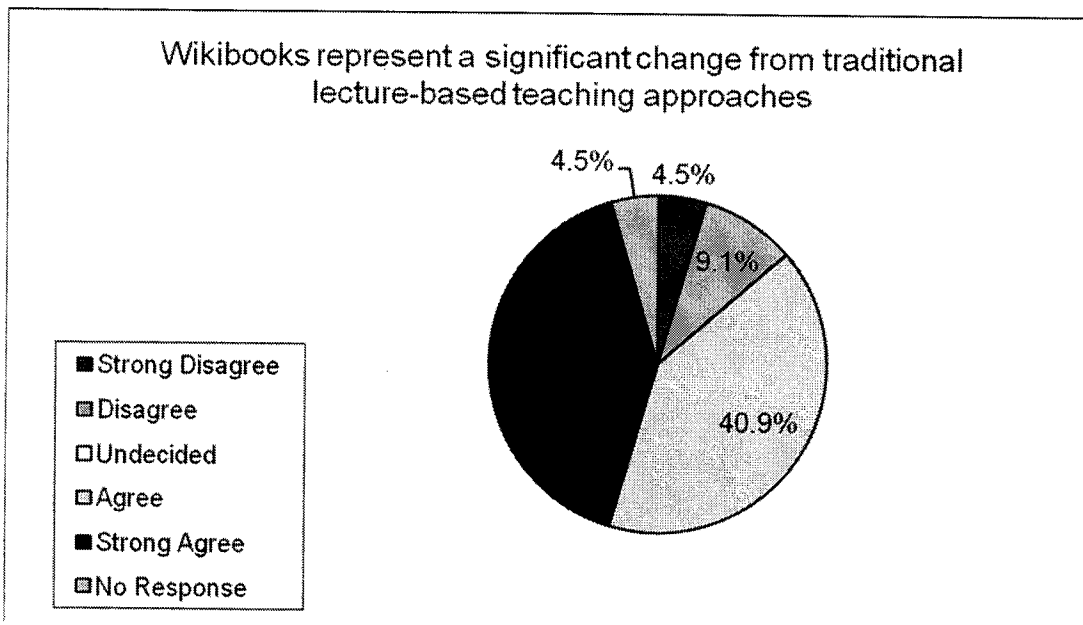


Figure 4. Sense that wikibooks represent a significant change from traditional instructional approaches.

As displayed in Figure 5, this sense of change was even higher in the WELT (wikibook #3) project at 94% agreeing or strongly agreeing with that statement. In fact, a mere 3% disagreed with that statement and another 3% were undecided. Apparently, global wikibook collaboration is a significant departure from regular instruction for most of these graduate students. Perhaps in a decade it will be more common.

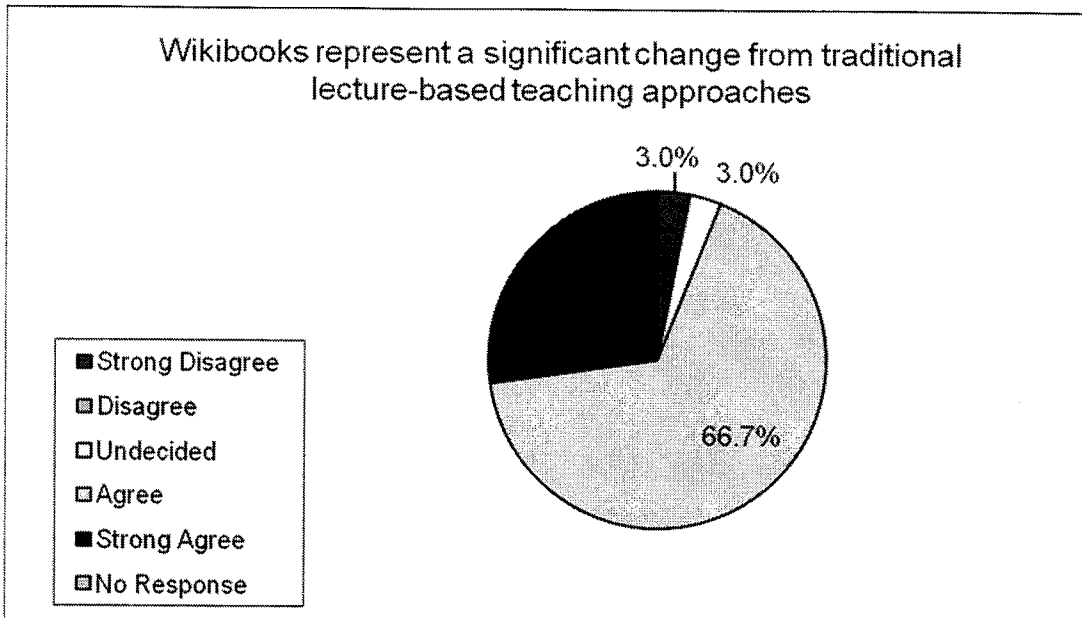


Figure 5. Sense that guidelines and instructional supports fostered student critical thinking (The WELT/Wikibook #3 students).

i. Wikibook Reusability. Wikibook instructors must also consider the payoff from experimentation. Will the resulting wikibook be reusable in ensuing semesters of the course? What does the instructor sacrifice or change when deciding to incorporate a wiki in his class? Might new collaborative partners at other institutions lead to new lines of research, innovative teaching ideas, insights into the use of wiki technology, grants, or conference presentations? In the case of the first wikibook project, it was a trial. When it ended, so did considerations related to reusing or extending it. In the case of the other two, however, there are myriad possibilities for students in later semesters to continue to add to and reshape them.

j. Meta-Reflection about Wikibook Principles (i.e., transfer of wikibook ideas). An even more subtle result of such a project is the long-term transfer effects and impact in other settings. Do learners or instructors reflect on the power of a wikibook during or after the completion of a wikibook? Some instructors in the third project mentioned wanting to try it again though perhaps in their native language. One student in the second wikibook project who worked with Native American youth in New Mexico and Arizona was excited to try it there. Several students noted that they could see the benefits in terms of empowering learning. Such transfer is the ultimate goal but something that too often is forgotten when coordinating a wikibook project. If a set of guidelines and principles for creating wikibook can be developed, than as wikibooks and similar student-centered tasks become more common, the chance for hitting a tipping point for transforming learning is increased. Instructors, too, might transfer ideas and principles from one wikibook activity to another.

k. Motivation: Another issue to wrestle with is motivation. We had extrinsic incentives such as grades, certificates, and books in the latter two projects and just grades in the first

one. We also made wikibook chapter contributions a requirement but not collaboration. The lack of contributions in the first wikibook project pushed us perhaps to add additional extrinsic incentives to the following ones without perhaps thinking through possible intrinsically motivating reasons for contributing. Students in the third wikibook project displayed more excitement for their activities and final product. This energy, though not pervasive, was perhaps due to the international collaboration within the book and the greater numbers of people making substantive contributions. In effect, one could feel part of something bigger than themselves. Upon reflection, it is possible that more effectively designed interactions and collaborations as well as goals for a wikibook project would raise the level of intrinsic motivating and internal locus of control over the project. In effect, a better balance among formal class requirements, associated instructor rewards, and involvement in a project with real world collaborators and meaning might position such an activity more strongly within a transformational experience. Ideas related to motivation and structure might be keys to how Web 2.0 technologies such as a wikibook can transform learning.

2. Collaboration Issues

Cross-institutional collaboration was a key aspect of all three wikibook projects. There were many tensions and issues here as well, however. In fact, in many ways, resolving collaboration issues is central to creating a transformative learning experience. The issues related to collaboration were: (a) students' perception of cross-institutional collaboration; (b) perspective taking; (c) instructor collaboration and feedback; (d) language skills; and (e) other constraints (e.g., time, partner selection, etc.).

a. Student Perceptions of Cross-Institutional Collaboration. While collaboration was viewed positively by the students, their views on cross-institutional collaboration seemed somewhat mixed. Some students indicated that an internal critique partner (one from her own class) seemed more plausible to an external one (from another institution). Additionally, the fact that the needs of practitioner-based part-time doctoral students could be extremely different from those of full-time students also posed a significant issue. Survey data in the second wikibook project indicated that 68 percent of the students felt that the wikibook project promoted communication within and across institutions, with 18 percent disagreeing with that statement and the remaining 14 percent undecided (see Figure 6). It is clear that the wikibook did not meet the needs of all students in terms of collaboration, yet many still perceived a benefit. Of course, while they may see a wikibook as a way to share papers and ideas across institutions, it does not mean that they found success in their own chapters or found the wikibook project and the extra collaboration requirements valuable.

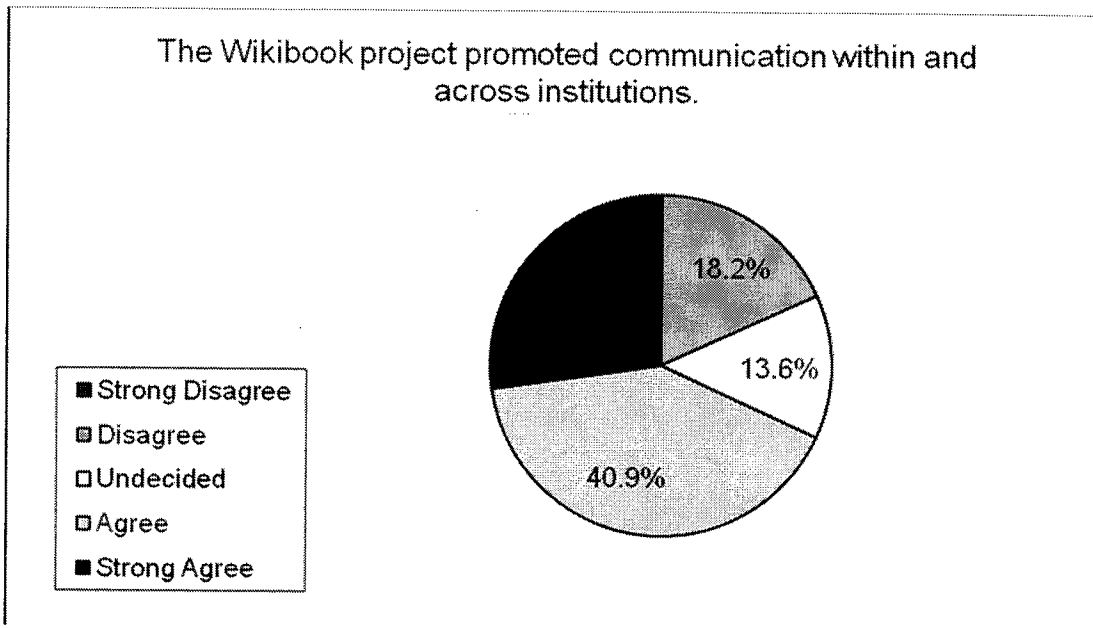


Figure 6. Sense that the wikibook project promoted communication across institutions (The POLT/Wikibook #2).

b. Perspective Taking. The ability to take the perspectives of others is perhaps among the most important for the human race in the 21st century. Transformative learning, in fact, entails becoming more aware of other perspectives and ideas. Wikibooks are one technology for fostering such thinking and dispositions. We were interested in bringing together students with varied backgrounds and perspectives to not only create a book but to appreciate each other's diversity. Part of the benefits of collaboration on a wikibook chapter or a critique of a wikibook chapter is the ability to see multiple perspectives.

The survey data from the second wikibook indicates that this was a benefit of the project. In fact, 77 percent of students agreed or strongly agreed with that statement and roughly 18 percent disagreed or strongly disagreed with it (see Figure 7). Still, there was minimal collaboration across institutions explicitly designed or displayed in all three projects. While there were few new friendships formed as a result of the wikibook, the videoconferencing in the first two projects did bring a degree of friendship and camaraderie not witnessed in the third one. Still, it remains uncertain the degree to which cross-institutional friendships foster more (or less) successful wikibook projects.

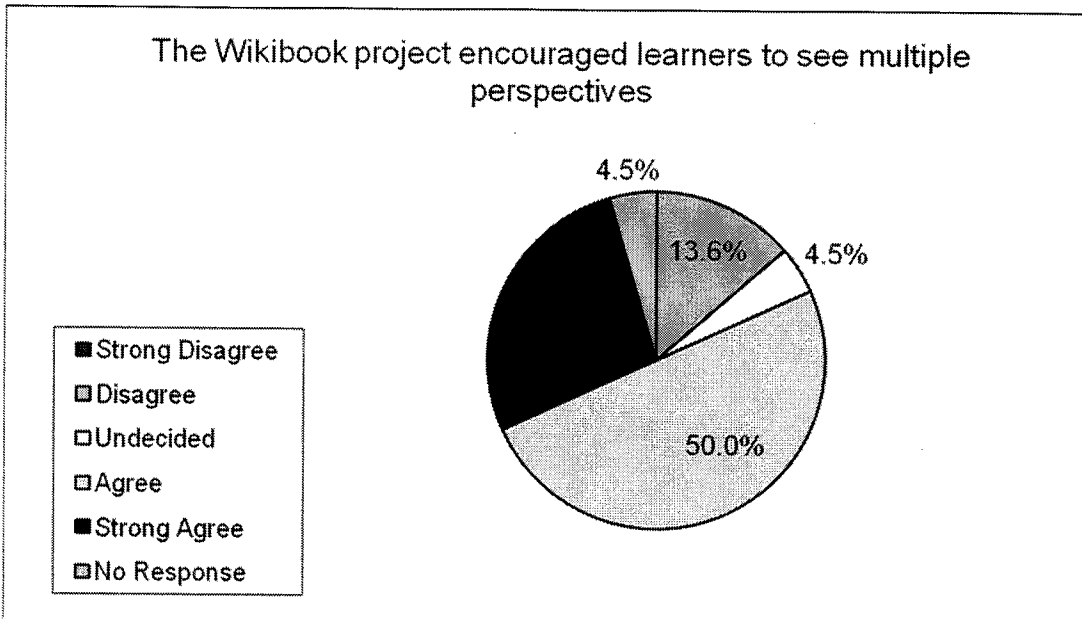


Figure 7. Sense that the wikibook project encouraged the taking of multiple perspectives (The POLT/Wikibook #2).

A slightly higher percent of students in the WELT wikibook project (80%) found that is encouraged them to take multiple perspectives. Once again, roughly 18 percent did not, while the remaining 2% were undecided.

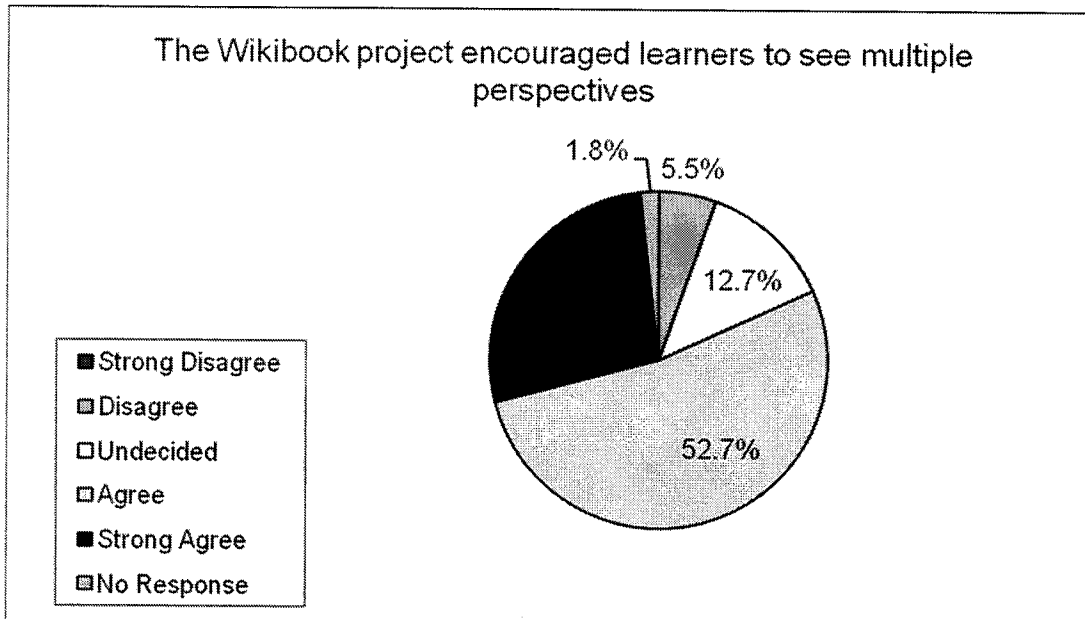


Figure 8. Sense that the wikibook project encouraged the taking of multiple perspectives (The WELT/Wikibook #3).

c. Instructor Collaboration and Feedback. Students need for immediate feedback was often better met in the interaction with their instructors than with partners from other institutions. So while this was a student empowering and collaborative experience, feedback from instructors in all three instances was still deemed essential. In effect, transformation at the highest level, wherein students become a collaborative community generating and evaluating each other's ideas and altering their own perspectives or viewpoints, typically did not occur. Instead, there was more of a guided learning experience with some instructor control and some student control which impacted on the forms and types of collaboration experienced. In the second and third wikibook, some of the instructors became collaborators with the students; however, the type and form of collaboration and feedback was not prescribed ahead of time. As a result, each instructor selected a different collaboration and feedback style that best fit with their instructional approach and course. For instance, the IU instructor wrote brief introductions and endings for the POLT as well as an introduction for the WELT. It was his way of collaborating on the project. While he provided feedback on their chapter proposals in their respective Word documents, he provided feedback directly in student chapters within the WELT. The instructors for the Chinese and Taiwanese students both were much more involved in helping students create, polish, and share their chapters. They become collaborative co-partners in the experience. The IU and UH instructors in the first and second wikibook projects provided detailed feedback on student chapters so that they could improve them before posting to the Web. The ISU instructor also provided feedback on student chapters in the third Wikibook project. In effect, the ways in which instructors collaborated with students in the wikibook projects varied a great deal.

d. Language Skills. Collaboration across sites in the third wikibook project was, at least in part, constrained by language. Instructors in Taiwan and China needed to translate much for the student. In the end, they were quite excited and pleased with the results, but they were unable to provide much feedback across cultures as had been hoped. Students were so focused on perfecting their own chapters that time for peer feedback was limited.

e. Other Constraints (partner selection, time, etc.). As is clear, there were many factors that impacted collaboration in the three wikibook projects. There were many more. For example, student's experience of the collaboration depended heavily on who their partner was. Unfortunately, sophisticated tools for matching students were not available for these projects. Moreover, the limited time available did not allow them to become familiar with someone over a few months and then decide to pick that student as a partner. Decisions must come more quickly. In effect, the length of semester proved to be too short for a Wiki project to develop fully between the two groups of students with no prior interaction. More interactive and engaging experiences would likely have occurred had students picked their own partners based on some type of activity or event. Again, this raised questions of whether a community of learning could be created in the wikibook project in a bounded course. Perhaps a wikibook created over a series of semesters would overcome some of these concerns as prior students could serve as mentors and an existing wikibook would have a framework from which to start collaboration in the new semester.

3. Wikibook Issues

When you design a wikibook, especially for the first time in a class, many issues are important to consider including: (a) rules and procedures (e.g., logging in); (b) copyright clearance; (c) chapter topic selection; and (d) chapter editing control.

a. Rules and Procedures. Working in a wikibook environment, one needs to learn new rules and procedures specific to the wiki. For example, if one does not log in first before editing, it is not easy to track students' contributions. Such requirements and policies sometimes posed challenges to the instructors in terms of keeping track of students' contributions. Several students lost images or tables uploaded in the wikibooks website because they were not familiar with wikibook tools, rules, and procedures. Sometimes they received warnings about having the wrong book chapter format. However, it is difficult for students to understand all rules and regulations about wikis in a short time because they were not fully involved in the community as real Wikibookians.

b. Copyright. Issues regarding copyright and intellectual capital also came up. Any image, picture, figure, diagram, chart, or other potentially copyrighted item requires the person to indicate copyright status. Some students simply wanted to place an image, picture, model, or diagram within their article, but they forget to note the copyright clearance that Wikibooks required. Soon, that image was taken down. Students and instructors developing a wikibook must follow the copyright procedures at the Wikibooks Website. Unlike writing a traditional paper for a class and turning it in to the instructor, a wikibook chapter requires a few more steps. Familiarity with wiki regulations would help in completing such steps.

c. Choice of Topics. One of the more surprising issues was the choice of topics. There was some tension regarding whether the choice of wikibook topics should be predetermined by the instructors or open to student brainstorming and polling. In the first wikibook project, students had extensive freedom of choice. In the second one, they also had much choice; however, the students at IU were largely language education master's students and the UH class was primarily returning adult students. As a result, many chapters in the POLT related to language learning and adult education and it was difficult to foster collaboration or critique across their respective work. Students' diverse interests made it difficult to match them up by common interest. In the third wikibook, initially the American students brainstormed topics and ranked them. Students participating from Asia also participated, but not to the same degree. Not surprisingly, the American students wrote more than the students in Asia—many of the topics had been chosen by them.

d. Editing Control. The issue of ownership was also an issue for discussion. Some students did not particularly like their works being edited, which fostered discussion of the topic of the ownership and editorial control. In a transformative learning environment like a wiki, students need to give up ownership of ideas as much as instructors. In a high end transformed environment, it is knowledge and ideas which these classes are extending, modifying, and recombining, not just editing. Comments from students at two of the universities indicated that students were disappointed when someone changed their

ideas. Not surprisingly, we did not experience a great deal of high end transformation when it came to peer editing of each other's chapters. Some students were appreciative of it while others definitely were not.

4. Knowledge Construction and Sense of Community Issues

Wikibooks can involve knowledge construction and negotiation by many individuals. The hope is that they lead to a sense of community wherein people help each other out. The three main knowledge construction and sense of community issues were (a) acceptance of the knowledge construction and negotiation process; (b) the difficulty of developing a community in a bounded course; and (c) community building tactics.

a. Acceptance of Knowledge Construction. The issues of collaboration are closely tied to the students' understanding of knowledge construction and a sense of community. The unique openness of a wiki that anyone can edit or change your posts were received as problematic by some students. Such students were often confused and disappointed when they realized that their writing had been suddenly changed. They wanted to know why their contributions had been changed or deleted without permission. Not all students complained about this, but there were enough to raise it as a significant issue. For wikis to be an ideal environment for social construction of knowledge, and hence the transformation of teaching from lecture-based to learner-generated, there must be acceptance as well as understanding of how to build knowledge as a collaborative community. While many eyes were opened in these three projects, it will likely take some time to overcome such tensions; especially, in higher education environments which emphasize publishing or perishing of one's own ideas as well as in courses wherein students are held individually accountable for their grades.

b. Communities in Bounded Courses. The previous issue related to the acceptance of knowledge construction raises serious questions for wikis as transformational tools. For instance, "can a community of learning can be created in a wikibook?" And, if so, can a community develop in a bounded university course? A length of semester was proven to be too short for a wiki project to develop fully between the two groups of students with no prior interaction (see Wilson et al., 2004, for additional discussions related to bounded learning communities).

c. Community Building Tactics. While there was no sense of community in the first or second wikibook projects, Wikispaces was used as a place for sharing Web links and other ideas in the first wikibook project. The phrase "put it in the wiki" became a common refrain when students found a useful online resource or website. In the second project, the WOW space within Wikispaces provided a place for everyone to read each other's wikibook critiques and final project proposals. There were also links to the wikibooks sites for the critiques and final projects. The final videoconference between IU and UH sites and celebrations to end the semester which followed did impact the creation of community within the second wikibook project in a positive way.

In the third wikibook, students from BNU in China and National Chiao Tung University in Taiwan treated the Wikibook activity as a team or class project, not simply

contributing as individuals. To some degree the ISU class was also producing, sharing, and celebrating their contributions as a class. Students at ISU presented both their topic ideas and final chapters to each other. At IU, students had a final celebration of their success. In these three cases, there was a sense of community though it was more local and not cross-institutional. If there was any sense of overriding community within any of these projects, it was fleeting at best. And it must be mentioned that while people from the wikibooks website knew of our projects and provided support for them, the general public did not help. Unlike Wikipedia wherein millions of people come each day and lend their assistance, there was no such support for our book projects. Our community, therefore, was a classroom-based one and not a rich and vibrant one.

As revealed in Figure 9, half of the respondents to POLT indicated that they strongly agreed that they enjoyed being a member of the wikibook learning community and another 32% agreed with that statement. Only 18% disagreed. Apparently, the three-phase approach for wikibook critique, editing, and creation helped promote a sense of community.

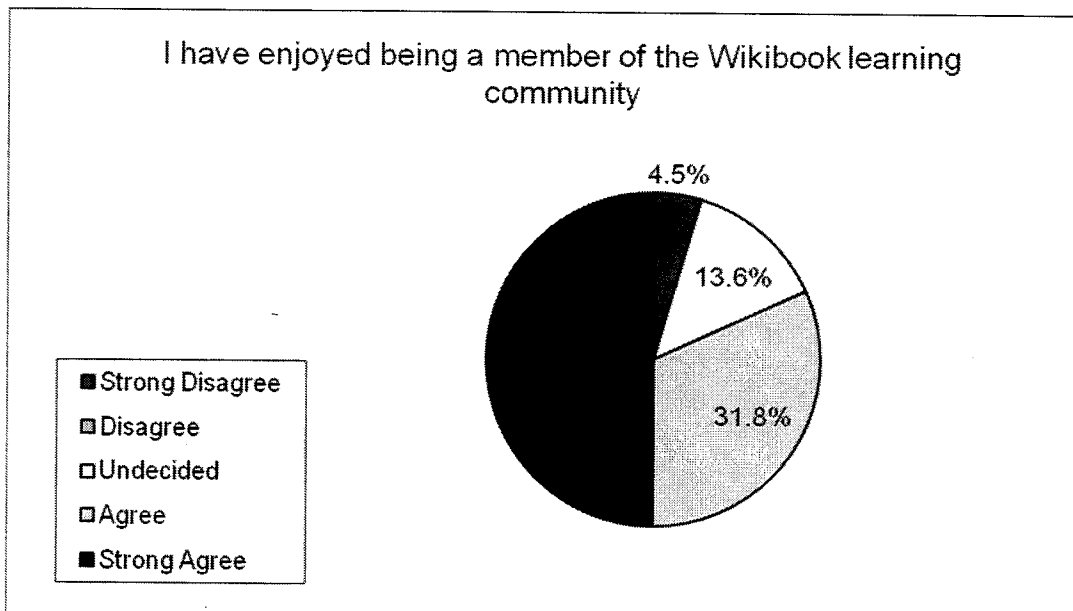


Figure 9. Sense that the learners felt they were part of the Wikibook learning community (The POLT/Wikibook #2).

5. Technology Issues

While decisions related to instruction, collaboration, and the wikibook process were critical, at times, it was technology problems or obstacles which caused the most challenges and tensions. Two main technology issues were apparent in our experience: (a) the use of multiple technologies for one product; and (b) the digital divide.

a. **Use of Multiple Technologies.** Students in all three wikibook projects were using many technologies during the semester including online discussion forums, assignment drop boxes, email, web browsers, and wikis. They often had to use multiple technologies

and platforms to create one collaborative product. The number of technologies that some instructors used in addition to wikibooks, could overwhelm and perhaps frustrate students. Job aids, while helpful, did not physically show students what to do when stuck. Students and instructors who had basic HTML and other basic technology skills (e.g., file uploading) seemed to have a distinct advantage over those who did not.

b. The Digital Divide. The problem of digital divide is also apparent at time; especially in the third wikibook project wherein Chinese students could not access the wikibooks website, but, instead, had to use a proxy server. In all three projects, there was some divide in terms of having the knowledge and skills to quickly ramp up and effectively use the wiki.

Twenty Tensions of Cross-Institutional Wikibook Projects

In addition to the above issues, there were many tensions felt when developing a cross-institutional wikibook. Listed below is a summary of some of these tensions along with ideas and suggestions related to resolving or addressing each of them.

Cross-Institutional Wikibook Issues	Wikibook Tensions	Wikibook Collaboration Ideas and Suggestions
I. Instructional Issues	1. Experimentation and risk versus actual impact of learning and requirements related to change.	<ul style="list-style-type: none"> • Modeling from others. • Archive prior wikibook projects.
	2. Global education deemed important versus time and effort to coordinate.	<ul style="list-style-type: none"> • Designate contacts and coordinator. • Plan schedules. • Check calendars.
	3. Technologies offer new benefits versus frustrating to learn nuances of the technology.	<ul style="list-style-type: none"> • Test the technologies. • Write to other instructors who have been successful in their wikibook projects about what they use. • Ask what students already use.
	4. Open ended learning versus instructor or designer guided.	<ul style="list-style-type: none"> • Guided learning probably better for first exposure. • The larger the number of participants, the more open-ended the design might be.

	<p>5. Inclusiveness of anyone who wants to be involved versus the reality of coordinating schedules.</p>	<ul style="list-style-type: none"> • Check schedules. • Get written commitment from other instructors, not just verbal.
	<p>6. Intrinsically valued experience versus valuing external rewards.</p>	<ul style="list-style-type: none"> • Experiment with reward structures. • When more participants, use peer interaction and peer learning as the primary incentive. • Ask current and former wikibook students what motivates them.
	<p>7. How learning is assessed versus the excitement of building a product that has no identifiable learning markers.</p>	<ul style="list-style-type: none"> • Be clear on assessment policies. • Identify exemplary work. • Consider grading reflection papers and group processes.
	<p>8. Factual knowledge versus spontaneous learning and unexpected outcomes.</p>	<ul style="list-style-type: none"> • Showcase former students who have sent email or other notices that they have attempted a wikibook in their own classes. • Evaluate the wikibook project after the semester or project ends.
	<p>9. The facilitation skills and activities required versus time available and prior experience.</p>	<ul style="list-style-type: none"> • Create instructor guides on facilitating a wikibook. • Create wikibook checklists for instructors. • Teach instructors skills in e-moderation.

		<ul style="list-style-type: none"> • Embed peer and expert feedback.
II. Collaboration Issues	10. Collaboration deemed beneficial versus additional requirements, time, stress, etc.	<ul style="list-style-type: none"> • Find balance—perhaps experiment with wikibook collaborations one or two times and determine what works and what does not work. • Start with a small project and just two classes or institutions.
	11. Intentions of project inclusiveness versus the stress or hesitancy of writing in a second or nonnative language.	<ul style="list-style-type: none"> • Give non-native speakers wikibook guide sheets. • Provide special help sessions for non-native speakers. • Provide student testimonials. • Be flexible in terms of time. • Allow to write chapter in native tongue; experiment with that.
III. Technology Issues	12. Experimenting with new technologies versus overwhelming students and instructors.	<ul style="list-style-type: none"> • Try out just 1 or 2 new technologies at most each semester. • Have a training or demonstration session on wikis and wikibooks. • Create online resources with help text or job aids. • Perhaps have students experiment with editing a wikibook.
	13. Use latest emerging tools for sharing versus using what one has access to or	<ul style="list-style-type: none"> • Make sure all classes and instructors can

	familiarity with (which is always changing) i.e., international participants will not all have the same technologies available.	<p>implement the technologies used in the wikibook project.</p> <ul style="list-style-type: none"> • Gain commitment and confirmation early from other instructors and participants.
IV. Knowledge Construction/ Sense of Community Issues	14. Constructivist ideals versus previous life experiences of reception learning.	<ul style="list-style-type: none"> • Scaffold students through editing or critiquing a wikibook before building their own. • Assign peer editing activities of wikibook content early in the course. • Have students discuss and reflect on their learning during the wikibook project.
	15. Learning community goals versus the reality of a 15 week class.	<ul style="list-style-type: none"> • Consider extending the wikibook project over more than one semester. • Assign some wikibook tasks early in the semester. • Invite students back in later semesters as mentors and experts.
	16. Transformative learning versus bounded course with grades.	<ul style="list-style-type: none"> • Have a class discussion on this vary topic. • Assign individual or group reflection activities or debates on wikibook chapters or content. • Reflect on principles and strategies that you

		used when it is more effective or transformative.
IV. Wikibook Issues	17. Getting paper done versus abiding by academic and wikibook rules.	<ul style="list-style-type: none"> • Set up deadlines and structure for the wikibook. • Require peer feedback on multiple drafts of wikibook chapters and assign points for it. • Test out procedures in a computer lab.
	18. Individual ownership versus group or no ownership.	<ul style="list-style-type: none"> • Hold group discussion on this topic. • Read articles on wikibooks. • Assign students to edit a Wikipedia page.
	19. Instructor control versus student control.	<ul style="list-style-type: none"> • Maintain reflection journal or blog on such issues. • Discuss what worked in prior semesters with students. • Find happy medium.
	20. Permanently available online to share versus just doing this for a grade and do not want work up there forever unless it is high quality.	<ul style="list-style-type: none"> • Give students options of not posting their wikibook chapter when they are done. • Make wikibook password protected or restrict access in some way. • Celebrate success.

In this paper, we outline the tensions and issues we experienced in three separate wikibook projects that emerged from cross-institutional collaboration. As is apparent, there are a range of issues to consider in the design of a wikibook. For success to occur,

one must not only carefully plan how to integrate wikibooks in one's instruction, but also be sure that students understand the wikibook process and the technologies that they will be using. In addition, they must be able to accept that any ideas they post may change, either modestly or significantly, by others at any time. Finally, and perhaps most importantly, when wikibooks extend beyond the wall of a classroom, there are a plethora of factors to monitor and track.

There are many possible next steps for us. The most obvious is to work on extending and improving the quality of the existing wikibooks—The POLT and the WELT. We welcome collaborative partners and interested parties who wish to enhance one or both books. We may also attempt a wikibook with earlier due dates so that more interaction and knowledge negotiation can occur around the wikibook which is produced, rather than having the wikibook due at the end of the semester with little time for reflection, discussion, and extension. A simple issue such as deciding on the date the task is due will significantly impact the transformational potential of a wikibook project.

Conclusion

As shown in our discussion above, this paper serves as a preliminary analysis to many issues involved in instructional uses of wikibooks. The platform is relatively new and the researchers and educators are still exploring ways to optimally utilize this mode of social technology. We have identified five critical issues and challenges in the implementation of wiki-related activities in the cross-institutional settings: (1) instruction, (2) collaboration, (3) wikibook, (4) knowledge construction and sense of community, and (5) technology. We are well aware of the fact that these five issues are extremely interrelated and it is only for the sake of our discussion that we have separated them. While we provided some suggestions as to how the challenges could be addressed in planning the wiki projects, more research is needed to further refine the implementation in specific educational contexts and continue to critically examine the validity of using the wiki as an instructional tool.

In these days of increasing focus on achievement test scores, the educational opportunities made possible by transformative and participatory technologies like wikis are not always apparent. However, transformed learning has been a goal of many educators for decades. John Seely Brown's (1989) invited address on situation at AERA nearly two decades ago in San Francisco that recognized the importance of situated cognition and creating cultures of learning has enormous implications for the world of wikis, blogs, social networking, and virtual worlds. Learners can now participate more readily in their own learning process. Still, as we found in our three wikibook projects, participatory, and hence, transformational, learning is not easy. One must overcome many obstacles and tensions.

We remain optimistic. As shown in the three-phase wikibook-related work of the second project and the final product of the third project, students do engage in significant knowledge construction in well designed and thought out wikibook projects. It takes much scaffolding, monitoring, modeling, and planning. Of course, students also need sufficient time for rich and engaging interactions to occur within a wikibook. To just say,

you can do a wikibook, as in the first project, will likely result in failure. We hope that our experiences can shed light on what works and does not tend to work, so as to spring to life wikibooks at other educational institutions or settings which transform the learning process by empowering and engaging learners. Perhaps the next step for those exploring emerging technologies in the Web 2.0 will be to better understand the steps, phases, and procedures leading to transformative learning experiences.

Wikibook Resources used in this research project:

1. Emerging Perspectives on Learning, Teaching, and Technology: http://projects.coe.uga.edu/epltt/index.php?title=Main_Page
2. Learning Theories: http://en.wikibooks.org/wiki/Learning_Theories
3. Learning Theorists: http://en.wikibooks.org/wiki/Learning_Theorists
4. The POLT (The Practice of Learning Theories): http://en.wikibooks.org/wiki/The_Practice_of_Learning_Theories
5. The WELT (The Web 2.0 and Emerging Technologies): http://en.wikibooks.org/wiki/Web_2.0_and_Emerging_Learning_Technologies
6. Wikibook Online Work (WOW): <http://wow-iu-uh.wikispaces.com/>
7. Wikibooks Website: http://en.wikibooks.org/wiki/Main_Page

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