

**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.

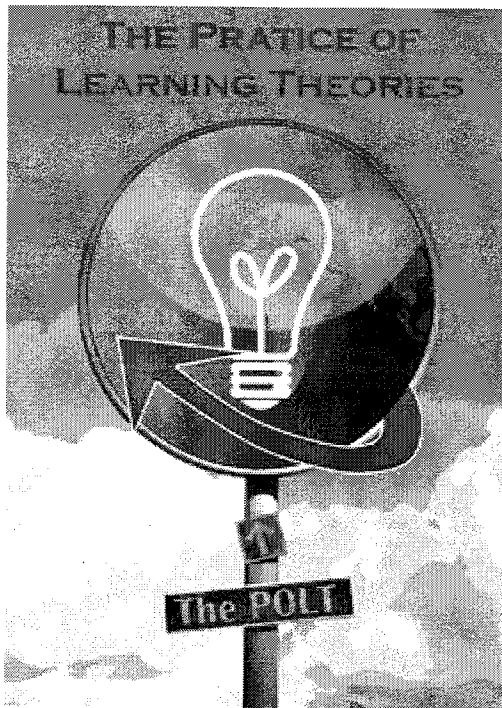


Figure 1. Digital book cover for the second wikibook project, “The Practice of Learning Theories” (The POLT).

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).

