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Building Learning Communities with Wikis

As more and more students have access to technology and wireless networks, opportunities to collaborate, participate, and define how knowledge is organized are opening up at a dramatic pace. These opportunities make it possible for learning communities to engage more students, to operate in new ways, and to sustain collaboration over longer periods of time. To better comprehend these developments, this chapter introduces a framework for understanding how wikis can support the creation and maintenance of learning communities. This framework can be used by instructors to determine whether a wiki is right for their courses, as well as to troubleshoot and iterate new practices to gain more value from a wiki. Our framework has its basis in four case studies in which the authors analyzed the ways wikis were used in different classes at Stanford University—classes that included traditional undergraduate and graduate courses and also shorter workshops and special courses. Much of this information was first presented at the Educause Learning Initiative (ELI) conference in January 2006, and this chapter serves to expand upon and extend those initial findings.

Online experiences can supplement face-to-face encounters, and in many instances learning may extend well past traditional time frames such as the academic quarter or semester. In this new learning environment, wikis stand out as natural tools for facilitating and supporting the activities of a learning community, both during the official course period and afterward. The critical affordance of a wiki that fosters these activities is its versatility: the content, the navigation, and the interface of a wiki can be customized and updated to reflect the needs of a specific group of learners. Nevertheless, their chameleon-like features also pose a challenge: if wikis are able to be adapted to so many different tasks—tasks that other tools were designed to accom-
plish—how can we find out what wikis are ideally suited for? What are the chief virtues of wikis, and when are they most useful for achieving the goals of a particular learning community?

Background

Representing the perspectives of instructor, researcher, and academic technologist at the Stanford Center for Innovations in Learning (SCIL) and the Center for Teaching and Learning (CTL), the authors identified learning goals and pedagogical practices supported by wikis and designed a model for assessing how wikis can contribute to the development of a community of practice. Wenger describes a community of practice along three dimensions—what it is about, how it functions, and what capability it has produced. Wikis are uniquely suited to address these dimensions because (1) they possess the flexibility to support the joint enterprise of the community as it evolves and changes (what it is about); (2) the wiki environment fosters the social aspect of engagement among the community’s members (how it functions); and (3) wikis support the documentation of communal resources that represent the collective work and memory of the community over time (what capability it has produced).

SCIL conducts scholarly research to advance the science, technology, and practice of learning and teaching. Through one of its programs, SCIL manages five experimental advanced resource classrooms at Wallenberg Hall, where Stanford faculty and students work together to create innovative learning experiences for undergraduate and graduate courses from across the campus. An increase in the usage of wikis and other participatory technologies sparked the interest of SCIL staff and researchers in how these tools are being used to support learning communities inside and outside of the classroom. As a diverse collection of instructors and courses began to use these tools, patterns began to emerge that extended beyond any disciplinary boundaries.

At Stanford’s CTL, wikis are introduced to faculty and instructors through faculty workshops on teaching and technology and through one-on-one consultations. CTL encourages faculty and instructors to use wikis in the classroom primarily as a means of supporting student learning in the context of a
single course. Instructors use wikis as repositories of student-generated work or information; they also use them to foster more equitable communication among members of the course. This is especially the case in project-based courses or in courses that use student teams in some way. In addition to providing pedagogical support, CTL manages and maintains many wikis that are used in courses at Stanford.

Case Studies

Throughout this chapter we will refer to the cases outlined in table 1 to illustrate the different components of the framework. Observations, interviews, reflections on teaching, and analyses of the wikis themselves informed the development of the framework described in this chapter in each of these cases. It should be noted also that all of these classes took place at Stanford University and that the participants had access to laptop computers during most of the course meetings. In each case, there were fewer than thirty participants in the course.

Deciding which wiki technology to use for a particular learning community can be quite difficult. As of December 2006, Wikipedia identified at least sixty different kinds of wiki technologies. In the cases that we studied for this chapter, four different wiki technologies were used: PmWiki, Swiki, TikiWiki, and ProjectForum wiki. Each had its own technical configurations regarding levels of participation and details of hosting. In all of these cases, the wikis were hosted locally on Stanford servers. Because the wikis were intended to benefit a specific community of learners who had come together for a course or institute, most of the wikis also used log-ins and passwords to manage the community. The only exception was the SCIL Summer Institute, which was open to anyone in the world. The rationale for having a completely open wiki in this particular instance was twofold. First, because exploring the technology was itself one of the pedagogical goals, the instructor felt that all parties should understand the risks and rewards of having an open community. Second, implementing a log-in/password system was simply too much work for a weeklong session that was not intended to create new proprietary content.
TABLE 1. Case Studies

<table>
<thead>
<tr>
<th>Course and Wiki Tool</th>
<th>Description of Learning Community</th>
<th>Wiki Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCIL Summer Institute: Designing Learning Spaces (Swiki)</td>
<td>A one-week intensive workshop for architects, academics, nonprofit staff, and graduate students to integrate learning theory into the design of physical spaces</td>
<td>Establish a Web presence for individual reflection and create a knowledge base for attendees to reference after course completion</td>
</tr>
<tr>
<td>Designing the Human Experience (TikiWiki, PmWiki)</td>
<td>A project-based introductory freshman seminar on design engineering experimenting with blogs and wiki environments</td>
<td>Facilitate student integration and synthesis of learning through increasing student awareness of learning and articulating connections between learning and the design process</td>
</tr>
<tr>
<td>Philosophical Stages Summer Program (ProjectForum wiki)</td>
<td>A three-week program for high school students that integrates ancient philosophy, drama, and interactive technologies</td>
<td>Create a forum for individual reflection and create a knowledge base for attendees to reference after course completion</td>
</tr>
<tr>
<td>Institute on Scholarship for Engineering Education (ISEE) Workshop (PmWiki)</td>
<td>A one-week workshop designed to build a community among twenty research fellows from five institutions, centering on doing scholarship with direct institutional impact</td>
<td>Give participants a place to document sources of learning, inspiration, and strategic planning during the institute, including links, documents, photos, insights, questions, and reflections</td>
</tr>
</tbody>
</table>

Cutting-Edge Technology Meets Preschool Board Game

The case study analyses revealed patterns that demonstrated how wikis could be employed to support emerging learning communities across disciplines, courses, contexts, and audiences. We have used these patterns to develop a framework for examining how wikis actually function in learning communities and determining whether a wiki is the right match for their courses. This framework will be useful in helping instructors decide whether a wiki is appropriate for the specific learning aims of their courses and in helping instructors make sense of how the wiki changes as their course progresses.
After identifying the elements of the wiki in relation to learning communities, we searched for a metaphor that would help explain how these different steps fit together. Initially, we explored ideas that related to the life cycle of a wiki and thought that the sequential stages in cell biology or water cycles might help explain how wikis develop, thrive, and die in academic settings. Retaining the idea of stages but noting that wikis often leap ahead or fall back into earlier phases, we eventually settled on the metaphor of a board game to illuminate the phases of designing, implementing, and sustaining a wiki. We used the classic Hasbro board game “Chutes and Ladders” as a metaphor for understanding the actions within a course that can accelerate the adoption of a wiki as a community of practice (ladders) or restrict or even set back the expansion of the community (chutes).

How the Framework Is Used

This framework can be used either by instructors who are considering a wiki for their courses or by larger communities of instructors, researchers, and pedagogy advisers who are examining the impact of wikis on learning. In each case, the participants imagine playing a game in which they advance by one square every time they answer one of the specific questions that is addressed to them. The first question, for example, asks them to determine what learning goals the wiki should support. After making these goals explicit, participants “move forward” to the next square, which involves developing a technology plan, and so on (fig. 1). When a faculty member is actively engaged with the wiki and makes it a central part of the practices of the course, this engagement acts as a ladder or a catalyst, which enables the learning community to become more robust in a shorter period of time. On the opposite end of the spectrum, if a faculty member tells students to “just put that on the wiki” but never responds or actively uses the wiki herself, then the community will fall into a chute and return to the beginning of the process. Both learners and instructor will thus be no closer than they were at the outset to achieving a full community of practice.

The key advantage of this particular game metaphor is that it enables instructors to understand quickly just how powerful their roles are in activating their learning communities. It acknowledges that, even though all partici-
pants are peers from a technical perspective, the instructor retains a special status as someone who can create incentives for students to use the wiki. In the best cases, this special status can push the community forward when it might otherwise have stalled. One of the key disadvantages of the game metaphor, on the other hand, is that it implies the possibility of “losing”—that anything less than winning or reaching the end is not worthwhile. However, our experience suggests that this is rarely the case: communities of learners and instructors still gain value from wikis that help document a stage of their learning, even if that wiki is ultimately not active enough to sustain the community in the long term. For example, there is a value in having a static Web page emerge midway through a course; it is by no means a waste of effort or time. In our model, however, because “Static Web Page” is
identified as only the fifth of fifteen distinct steps to building a community of practice, reaching that level might be considered a failure.

The game metaphor also reinforces the role of the instructor as the person who controls the action in the community. While the entire community of learners progresses through the various stages and is ultimately responsible for sustaining itself as a community, it is the instructor who leads the community and sets the tone for what the community values. The instructor is the “player,” the person who made the initial decision to try the game in the first place and the one player who can choose to leave the game at any stage.

The following sections of this chapter narrate each step of the development of a wiki in more detail and offer concrete examples drawn from our case studies (fig. 2).

The power of collaborative technologies depends on their users’ contributions. In the courses we observed, learners had a wide range of abilities and technical confidence. To get the most value out of their experience, all of the instructors first determined the learning goals for their course. How the course leader set the tone for the experience distinguished these cases from one another. As Elfving and Menchen-Trevino’s case study amply demonstrates later in this volume, the structure of the learning community and the relative importance of the role of the wiki in that community are crucial for participation. The more the context of the learning community resembles a traditional class format, with lectures and individual assignments, the less the wiki can contribute to establishing and supporting community. However, that same case study points to the fact that the role of the wiki may be completely organic and cannot be decided upon in advance by a professor or other learning community leaders. Before deciding to use any kind of technology for learning, it is critical for the instructor to determine learning goals for their students. If those goals include collaboration, discovery, sharing,
reflection, and a combination of face-to-face and virtual activities, then a wiki may be the right tool for accomplishing this kind of work. If the instructor’s goals, however, focus more on individual research and writing, then a wiki may add no real value to the course. Lakeman stresses in his chapter, “Content and Commentary: Parallel Structures of Organization and Interaction on Wikis,” that decisions about how to structure a wiki have both social and technical implications for the administration of the wiki and that these implications are interrelated. Users must actively shape the conventions that determine how they will participate and collaborate together.

A clear articulation of these goals should help decide the next step, which involves developing a technology plan. Building a technology plan requires answering several key questions:

- In what kinds of activities will students engage as a part of this course—collaborating, writing, researching, creating, and so forth?
- What technologies are available, supported, or supportable at my institution?
- How much training will learners need to use the wiki? While Net Generation learners are generally more familiar and comfortable with Web-based technologies, this does not imply that all students will master all technologies at the same speed.

After developing a technology plan, the instructors move from designing the activities that the wiki will support to designing the interactions themselves. To advance wiki usage and encourage class participation, the instructor needs to make the expectations and rationale clear to the learners. As with any activity, learners must see how they themselves will benefit from using the tool. In the cases that we examined, learners benefited from wikis by

- learning new processes and tools for collaboration;
- creating team archives and electronic portfolios to serve them in future courses; and
- developing a comprehensive view of their contributions to a project for evaluation during the current term.

In each of these cases, making the rationale explicit to learners proved invaluable to the basic use of the wiki itself. In the case of the SCIL Summer In-
stitute, students were the most excited about using the wiki when it became clear to them that the resources and reflections that the entire community was assembling would be valuable throughout the remainder of the course. Their work on the wiki on days one and two would serve them on days four and five, so they had an incentive to participate in the wiki from the outset. One challenge, however, was that the perceived benefits seemed to disappear once the face-to-face community dispersed at the end of the course.

Before introducing the wiki itself, the instructor should design a basic structure for organizing its content, a structure that is typically seen by the learner as the front page. Creating a framework for the wiki not only seeds the community with some basic information and means for navigation but also helps set expectations concerning the kinds of tasks the wiki will support. In the SCIL Summer Institute, the framework simply consisted of the titles of the pages that were found in the wiki: course schedule, participant bios, useful links, images, and specific discussions. In contrast, in the Institute on Scholarship for Engineering Education (ISEE) Workshop, establishing the framework meant creating workspaces in the wiki for individual and small group work.

One of the more interesting things we found was that learners rarely changed the initial framework of the wiki. The wiki environment is unique in that any learner can change the navigation or reorganize the nature of the environment itself. This, however, rarely happened in the cases we studied (table 2). (See the online version of this chapter at www.digitalculture.org for additional figures.) In the ISEE Workshop wiki, while users were active in editing and creating pages, they were notably reluctant to edit the framework of the wiki shown in the right-hand column. We can speculate as to why this was the case. First, any tool that is introduced by an instructor is initially received as the property of the instructor and not necessarily a tool of the community. Because learners did not feel a sense of ownership over the wiki, they may have been reluctant to edit the pieces that they saw as fundamental to the environment itself. Second, users may have had a difficult time understanding that any changes made to the wiki could be easily reversed. Although this potential for “rollback” is central to the technology and philosophy of wikis as a tool, it is conceptually counterintuitive to the uninitiated. There may also have been some reluctance to change something that could affect every member of the community—in general, users were much more willing to add text rather than edit or delete existing text.
Even with an implemented framework, a clear rationale, and a technology plan in place with specified learning goals, the wiki may never solicit much collaboration among learners. In this case, the end result is a static Web page to show for the instructor’s effort. In terms of efficiency, this result does not always benefit the students or the instructor. It is important to emphasize, though, that a static Web page in fact possesses several specific benefits. For one thing, it can still be valuable to students after the course is over, as a resource for future learning. Creating a static Web page can also be a community-building experience in which multiple people contribute to a process—building a class Web site—that has traditionally been the sole domain and responsibility of the teaching staff.

From the learners’ perspective, the technological differences between a wiki and a static Web page are insignificant. Both are accessed through a Web browser from any computer in the world and therefore do not require any special installation or technical knowledge of computers. However, the two vary greatly in terms of the demands they make on learners as well as the potential range of practices they enable and encourage. In the case of a static Web page or traditional course Web site, learners are usually asked to simply read or otherwise passively participate in the Web site. In the case of a wiki,

<table>
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<tr>
<th>Case</th>
<th>Goal</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Philosophical Stages</td>
<td>Empower high school students to see themselves as cocreators of learning experience</td>
<td>Used sleek, modern design to appeal to younger users Planned course in classroom equipped with laptops so that students and instructors could contribute simultaneously</td>
</tr>
<tr>
<td>Institute on Scholarship for Engineering Education (ISEE) Workshop</td>
<td>Encourage collaboration among small groups from each participating school Provide a continuous environment for brainstorming, project planning, project updates and reports, and document repository</td>
<td>Provided technical support by university staff Designated institute members to “seed” the wiki with content on a daily basis Sent daily reminders to post products of work sessions</td>
</tr>
</tbody>
</table>
learners are challenged to shape the content, the context, and the nature of the collaboration in the online setting.

A wiki offers much more functionality for supporting collaborations, such as creating documents with multiple authors or working on projects that require groups to coordinate and integrate their individual tasks. Yet, in order for these activities to get off the ground, instructors need to dedicate specific time to introducing the wiki in class (fig. 3). Devoting class time to this introduction sends a signal to the learners that participating in the wiki is a critical component of the course, and it offers instructors an opportunity to give students simple tasks that demonstrate the functionalities of the wiki. For example, in the SCIL Summer Institute the instructor asked students to find a useful site and post it to the wiki. During the first meeting, students searched, copied, and pasted URLs into the wiki in real time, clicked “save,” and collectively created a single Web page with everyone’s contributions.

These kinds of activities depend, of course, on having easy access to computers in the classroom. While it might not be necessary to have a one-to-one computer-to-person ratio, it is important that students have the experience of contributing to the wiki in the presence of others in the virtual community. In several cases, learners often made comments to each other, which reinforced the role of the wiki by instructing others in the class not to send content via e-mail but rather “to just post it in the wiki.” These comments encouraged the learners to interact with the wiki on a regular basis and established it as the center of the community’s interactions.

Having students make their first posts together in real time also provides them with a chance to connect with other learners in their community both physically and virtually. In the case of the Philosophical Stages course, the instructors invested a significant amount of energy in building connections among learners in person. Building on those face-to-face relationships, the

![Fig. 3. Squares 6–10: Implementing wikis to build learning communities](image-url)
instructors set the expectation that learners would participate in the wiki with the same commitment that they brought to their course meetings.

The implementation of any new practice in a classroom benefits greatly from the support and validation of the instructor. In the cases that we examined, the instructor modeled wiki use in class to demonstrate its value within the larger context of the course learning goals. In classrooms where the instructor’s computer was projected onto a large screen, the instructor was able to make explicit to students the process and the rationale for using the wiki. In the case of the Designing the Human Experience course, the professor kept the wiki projected on one of the in-room computers so that it was a constant presence in the room. The constant presence of the wiki allowed the instructor to comment on specific wiki posts in a face-to-face setting. We suspect that the expectation that they would receive feedback from the instructor during class also motivated students to continue to post. Likewise, in the Philosophical Stages course the instructors often recognized and discussed student contributions during class time. In both of these courses, regardless of the activity, recognition from the instructor encouraged higher levels of participation in the wiki. The instructor’s modeling of the tool set some baseline expectations for how students would use the wiki throughout the term.

Modeling the wiki use in class is critical to motivating learners to adopt wiki practices as a regular part of their study practices (table 3). Specifically, instructors need to encourage posting, editing, and commenting among their students. In each of the cases that we observed, instructors were able to motivate students in a face-to-face setting to post to the wiki. In Designing the Human Experience, three weekly assignments were created to encourage regular posting to the class wiki. With the “input capture” assignment, students were encouraged to post a relevant Web link, a sketch, or a photo of a project still in the design phase. The “immediate reflections” assignment asked students to share their thoughts on a class speaker, team meeting, or other activity by posting to the wiki in class or immediately following class. Finally, students were expected to distill materials from both their input captures and immediate reflections in the “epilogue” assignment, a well-founded reflection at the end of each design cycle that would highlight what they learned not only to themselves but also to their peers and to the teaching team.7

As the wiki fills up with posts, reflections, and edits, it becomes a knowl-
edge base for the course and for the discipline. As more learners post a diverse set of resources and reflections to the wiki, the online space is where learners go first when they have questions about the subject matter. During the SCIL Summer Institute the course wiki was the primary resource for information on designing learning spaces. As soon as the course ended, however, the wiki lost its importance in the community. Without the face-to-face community to keep the practices alive, this wiki slid backward from an active and growing knowledge base to a static Web resource that was only used occasionally by former students in the class. A follow-up e-mail from the instructor aimed at encouraging future posts generated only a few e-mail replies and no posts. In the instructor’s opinion, generating content on the wiki would require bringing the learners back for a face-to-face meeting in order to create enough motivation to participate in a virtual community. In his chapter in this volume, Morgan describes a strategy of refactoring wiki pages for the purpose of synthesis and reorganization into a format that would be more suitable and accessible in a knowledge base.

In the best-case scenario, a wiki becomes part of a thriving and sustainable learning community. In such a community, learners must move from just adopting the practices to adapting the tools (fig. 4). In this stage, the com-

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</tr>
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<tbody>
<tr>
<td>SCIL Summer Institute</td>
<td>Strengthen relationships between learners</td>
<td>This wiki was a tool that learners used for the week they were in class; after class ended, so did their close connections with fellow learners.</td>
</tr>
<tr>
<td>Designing the Human Experience</td>
<td>Encourage students to develop habits of capture, documentation, and reflection about the design process and learning</td>
<td>Using templates and creating a structure for the wiki were extremely important in introducing the wiki to the students and getting them to use it. There was limited success with requiring weekly comments on other students’ postings.</td>
</tr>
</tbody>
</table>
munity moves from a centralized top-down structure to an organic structure where all contributors feel ownership over the intellectual framework, the site navigation, and the wiki content. As a community, learners and the instructor collaboratively decide what information or media to include and how it should be organized. As the needs of the students evolve, they feel empowered to modify the tool to meet those needs. The community is also in a position to speculate what it might need for future work and can change the tools and work practices to support expected needs. In the case of the ISEE Workshop, two of four participant universities continued to actively use the wiki after the workshop was completed, and each of these universities evolved separate navigation and use practices, arising out of the specific needs of the groups at each of the universities. While one group continued to use the wiki as a project management tool, another used it more as an internal blog, sharing periodic updates both with group members and with other interested parties at the university. Significantly, the two groups with the most long-term wiki activity were also the most active wiki users during the workshop; these groups also had more structural support for sustained use, including designated roles for wiki use.

After developing a collective sense of ownership over the wiki, the tool is primed for learners, instructors, and even outsiders to collaborate actively on projects. To sustain the community, users revisit changes in versions of projects and comments and gain value from being able to compare processes as well as products. In this stage, complementary tools like electronic portfolios and blogs are valuable in helping learners reflect on their understanding of how the subject matter has evolved as well as to what degree the wiki has supported their learning. This active collaboration is not limited to specific projects that are a part of the course. Learners collaborate on a larger scale...
just by contributing to the development of the online community that the wiki represents. In the cases of the SCIL Summer Institute and the Philosophical Stages course, participants worked on projects as teams while also building the entire Web community that organized the experience of being in that class. In the SCIL Summer Institute this meant that all participants created a resource that was useful to the entire community, even if its organization was somewhat haphazard. Comments from both instructors and students demonstrated that the act of creating the wiki was in itself as important as any information that ultimately was available there.

In the best case, active collaboration on specific projects and across the site fosters feedback loops that keep the community engaged. Quality feedback from peers as well as instructors encourages greater use of the wiki and a higher level of acceptance and credibility. Participation in the online community becomes as valuable as participation in the face-to-face community in a course. The feedback must be provocative and engaging enough for community members to feel that their work is being read and taken seriously. For example, in Philosophical Stages the instructors posted their reactions to student posts on the Web and then analyzed their feedback with students during class. When students realized that their comments were being used as an assessment tool by the instructors as well as a means for structuring the nature of the class, they were extremely motivated to participate even further.

In the courses we observed, the final step to a community of practice was to evaluate the wiki’s usefulness over the long term (table 4). Essentially, the learners and the instructor need to continually ask themselves, “Is using the wiki worth it?” The benefits have to be clear. In order for the community to be sustained, the benefits of efficiency, community building, and learning gains must outweigh the costs of time and energy expended into using a wiki. In most of our cases, the community could not consistently overcome this last hurdle, as users found that the wiki was much more useful in supporting existing practices by a community as opposed to building a new community of practice. In other words, learners had figured out how to utilize the wiki to support the activities already established by the community, but they never quite came to see the wiki as the core component of a community larger than themselves, a community that might produce new activities and practices. The wiki was a useful tool for collaborating, but learners did not recognize
TABLE 4. Examples from Practice: Sustaining a Community of Practice

<table>
<thead>
<tr>
<th>Case</th>
<th>Goal</th>
<th>What Happened</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philosophical Stages</td>
<td>Keep high school students engaged with drama, classics, and each other beyond class</td>
<td>Most successful example of community enduring beyond limits of the course; students contributed to the wiki for months after course ended; students also contributed to the design of future courses</td>
</tr>
<tr>
<td>SCIL Summer Institute</td>
<td>Sustain community to generate enough interest in future workshops and build SCIL brand as center node of network interested in learning spaces</td>
<td>Strong feedback cycle existed through last day of class and even for several weeks beyond, but wiki was not a strong enough pull to keep community together after face-to-face community stopped meeting</td>
</tr>
<tr>
<td>Institute on Scholarship for Engineering Education (ISEE) Workshop</td>
<td>Sustain community in order to carry research project to conclusion and create impact at local university</td>
<td>Mixed results of community enduring beyond institute; some groups continued to use the wiki, while others stopped immediately when the workshop was complete; wiki activity not necessarily commensurate with completion of research project</td>
</tr>
<tr>
<td>Designing the Human Experience</td>
<td>Build a knowledge base of experiences for future students to reference and draw upon</td>
<td>Although previous years’ wikis have been quite useful to the teaching team in improving upon curricula materials, the value to future students needs further exploration; issues of privacy, intellectual ownership, etc., need to be addressed.</td>
</tr>
</tbody>
</table>
the wiki as a cornerstone for establishing a new kind of learning community, nor did having the wiki available to them radically transform their thinking and their commitment to the learning community. Learners’ commitments to the community and to the wiki were influenced most by the expectations set by the instructor.

Conclusion/Implications

The framework elaborated in this chapter can help instructors to better understand the practice of wikis in a variety of course environments. It offers strategies for determining whether a wiki is the right tool for meeting instructors’ specific learning goals and for integrating the tool successfully in the life of the course. This framework may also help instructors to diagnose difficulties, stagnancies, or mismatches between course goals and participant activities. In his chapter in this volume, Phillipson proposes five models for wikis based on how they are used in learning communities. Our approach complements Phillipson’s emphasis on the tools with reflective questions that push faculty to consider their pedagogical goals for the course. Used together, Phillipson’s taxonomy and our framework could help faculty, students, and designers use a common language to describe their teaching and learning activities and make better decisions about learning activities and the role that wikis can play in accomplishing those goals.

Several additional insights about wikis and learning communities emerged from our research. First, wikis are by design participatory, collaborative, and engaging, and therefore they have great potential for community building. However, in practice, wiki activity must still be encouraged or driven by an instructor, a leader, or a group of advocates within a community. In the case of a class, that role is usually played by the instructor or teaching team, who can require wiki participation as part of the student grade. In learning communities that are not bound by a credit-bearing course framework, the leader or advocate role is all the more essential particularly for long-term sustainability. As with all Web 2.0 technologies, users need a reason to contribute and participate. In the cases examined in this chapter, where many of the participants were students, it was often explicit recognition—or fear of retribution—that encouraged community members to con-
tribute during the course. In their chapter, Bossewitch, Frankfurt, and Sherman point to the importance of understanding the rules embedded within wiki software to understand the potential that this collaborative tool offers. The technical rules that govern the way wiki technologies operate are static for most users—we suspect that it is unlikely that students will make changes to the code of the tool itself in the context of a class. The social rules, however, are dynamic; they change as the term of the class goes on and groups form and instructors gain or lose interest in sustaining the wiki community. Sustaining the best social practices in creating communities (giving feedback, building on each other’s ideas, encouraging reflection, etc.) is just as important, if not more so, as sustaining the work processes (posting regularly, linking to others’ work, etc.) of using the wiki in a course. Our observations identify an opportunity to design creative and innovative approaches that demonstrate to participants the benefits of continued involvement after the completion of the formal course experience, both in terms of actual practices as well as new wiki features.

Second, in evaluating the value of wikis for educational environments, it is important not to overstate the leap in innovation they represent. Learning communities have thrived, formally and informally, long before wikis or virtual collaborative spaces existed. The cases studied here emphasize the importance of the face-to-face element of a community for the successful evolution of a wiki, particularly when the community extends beyond the time frame of the face-to-face experience. The virtual relationships that a wiki supports and represents are strongest when they are founded on social relationships that take root initially in a shared physical space. This is most important when considering the role of the instructor or advocate, who encourages others to use the wiki and models wiki practice in the early stages of the community’s adoption of the wiki.

Finally, careful examination of how wikis and learning communities bolster or detract from the learning process will help elucidate what distinguishes wikis from other tools and practices, thus making their implementation more specific and focused. We believe this framework for analyzing wikis in learning communities is important in this regard, because it centers on the general activities of a successful learning community and situates the wiki as a tool to support that community. The wiki can maintain the life and
activity of a learning community, but it can only do so if the wiki itself is sustained by the community.

NOTES

5. More information on Wallenberg Hall can be found at http://wallenberg.stanford.edu.