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ABSTRACT

This paper analyzes problems and issues in making knowledge of teaching and learning visible and sharable online. It also describes some of the ongoing research and development efforts at the Carnegie Foundation's Knowledge Media Laboratory that advance this work through the use of emerging technologies. Implications for future research and development are also addressed. (Author)

Using Emerging Technologies to Develop and Share the Knowledge of Teaching and Learning Online

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Abstract: This paper analyzes problems and issues in making knowledge of teaching and learning visible and sharable online. It also describes some of the ongoing research and development efforts at the Carnegie Foundation's Knowledge Media Laboratory that advance this work through the use of emerging technologies. Implications for future research and development are also addressed.

Background and Rationale

The Carnegie Knowledge Media Laboratory (KML) uses some of the newest technologies to challenge one of the oldest problems in education—making the knowledge of teaching and learning visible and sharable through the use of multimedia and the Internet. Beyond increasing the quantity or availability of materials for teachers to use, the KML hopes to support the development of a qualitatively different approach to professional development: one which views faculty as critical producers of knowledge and the Internet as a new medium through which they can represent and exchange aspects of their practice and knowledge that often cannot be captured in conventional written texts.

In order to accomplish this mission, the work of KML addresses three critical issues. First, merely documenting what goes on in a classroom or course does not communicate what teachers have learned or the ideas and expertise they have developed. For example, if one were to film every hour of class time and put every document related to a class online, it would be extremely difficult to make sense of all that material or to figure out why the teacher had designed the course as they did or what they had learned in the process. It would be like looking at all the field notes that an anthropologist collected or all the data from an experiment without any of the rationale, context, or analysis that the anthropologist or scientist provides in a book or document. Second, even if many teachers do succeed in developing and producing books, videos, websites or other products that reflect the knowledge implicit in their teaching, there are few means for helping other educators or the wider public to find and take advantage of those that may be most useful for them. Third, even if faculty members can find a wide range of examples of the scholarship of teaching relatively easily, there is no guarantee that they will choose to do so. It may take considerable time before people discover how to take advantage of and build on the knowledge of teaching and learning that can be represented in multimedia and online materials.

Over the past three years, the KML has pursued a set of activities which address these problems. In particular, since few models or examples exist that can give faculty a chance to imagine how they can use the online environment to create new and more powerful representations of their practice, we have worked with accomplished faculty in both K-12 and higher education to create a small number of multimedia websites (Figure 1 & Figure 2).

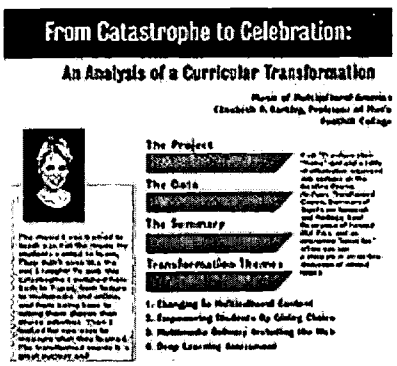

Figure1: Website Example 1

Figure 2: Website Example 2

These sites model how teachers can organize carefully selected materials, images, videos, and reflections that make the ideas and expertise that go into their teaching public and available for others to examine and build upon (Cambridge, et al., 2001). In order to make it easier for faculty to create these kinds of sites and CD-ROMs, DVDs, or videos in which they articulate their ideas and examine their practice, we have also developed a small set of resources and formed an online gallery and exhibition space for the display of their multimedia work. In addition, we have established a virtual workspace that now supports the review and exchange of work by over two hundred scholars who are participating in the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL).

At the KML, we are currently working with the groups and individuals affiliated with the Foundation's programs to expand this work by:

- Inventing new means for faculty to develop and represent the knowledge needed to design powerful learning experiences.
- Constructing the tools and resources that faculty can use to develop and represent their knowledge,
- Fostering the exchange and use of that knowledge in more effective educational programs.

Ultimately, we believe that these activities will help to ensure that the tremendous energy and resources that are being invested in putting courses and resources for both teachers and students online actually lead to significant improvements in teaching, learning, and professional development.

In education, with the development of the Internet and digital media in particular, the latest wave of changes in technology are making their way into the lives of teachers and students. While equity of access remains a constant concern, one can imagine a time in the not too distant future when students and teachers in many different communities can have computers and Internet hookups and communicate and exchange information and ideas with their peers; when they can use digital cameras and video to conduct research and record their work to present to others; and when they can design and take advantage of a wide range of online classes for their personal, academic and professional development. But how will they take advantage of the opportunities to use these new technologies to share ideas that can improve teaching and learning?

The impact of new technologies on the educational system depends on a host of factors outside the control of a single organization or initiative. At the same time, the Carnegie Knowledge Media Laboratory is poised to carry out the kind of research and development that can demonstrate how new technologies can transform key aspects of teachers' work and professional development. Through strategic initiatives and the national reach of the Carnegie Foundation, the KML can help educators to build the understanding, resources, and support needed to use emerging technologies in new ways to transform the development and dissemination of knowledge among teachers at all levels.

Making Teaching Visible

Already teachers can get access to lesson plans, standards, syllabi and other teaching resources through the Internet. In some cases, they can see the work of students in other schools and classrooms by

visiting recently created school websites. Nevertheless, while the possibility to place many of the artifacts and resources of teaching online seemed particularly promising initially, in our work at the KML we have seen that simply making a large number of teaching-related materials available through the Internet does not provide easy access to the ideas and expertise that went into the development of those documents.

For example, the Internet is often used primarily to present the same kinds of lesson plans or syllabi that one can receive in a paper format. Furthermore, although some sites link these lesson plans with related resources, student work, or, increasingly for K-12 work, lists of standards, relatively few integrate sites these materials with the reflections and examinations by faculty that can make visible the thought that went into the design of courses or lessons or what the faculty member learned in the process. As a result, many critical aspects of teaching and learning – classroom discussions and interactions, relationships among students and between teachers and students – remain invisible and unexamined and the culture and character of classroom activity remain undocumented. Under these circumstances, viewers cannot easily assess the value of many of the materials that exist online or learn much about how to build them into their own teaching practice.

In contrast, the websites that the KML has helped to develop over the past three years explore new ways of integrating teachers' reflections and conclusions about their teaching with extensive collections of their materials – including syllabi, assignments, student work, rubrics, images from the classroom, and videos of classroom discussions and presentations (Iiyoshi, Hatch, and Pointer, 2000). Over the next five years, we seek to expand this initiative on "making teaching visible" to develop new and even more succinct and accessible formats for organizing and displaying teachers' knowledge and to explore the possibilities for creating school websites that capture and convey the ideas and practices of particularly effective programs and institutions in K-12 and higher education.

Building Teachers' Knowledge

In addition to the growth of online teaching materials, numerous campuses and organizations are at work creating online courses and web-based learning platforms. Already, many universities have "virtual offerings" – for students, alumni and others -- and organizations like the "virtual high school" are creating online classes that give younger students across the country access to faculty and subjects that might not ordinarily be available to them. Web CT, Blackboard, and other companies are establishing online platforms that foster communication and the sharing of resources among students and faculty. But so far these courses and platforms are used primarily for the conventional delivery of information not the production of knowledge or the generation of new ideas. In order to create "knowledge-building systems" in which many faculty can share their ideas and build on the work of others, they need tools and resources that even those without extensive technical expertise can use to make their teaching visible.

The KML is currently developing a variety of tools and online portfolio templates that can be built into online learning platforms (Figure 3 & Figure 4). In conjunction with articles, presentations and online guides already in development, these tools and templates will provide faculty with the means to collect and organize their teaching materials and make what they have learned available to others. Furthermore, we will work with those who are developing these platforms to take advantage of the possibilities that these kinds of tools and others can offer to faculty. By prototyping tools and templates in this way, the KML will increase the chances that faculty across the country have relatively easy access both to the materials and expertise of their colleagues.

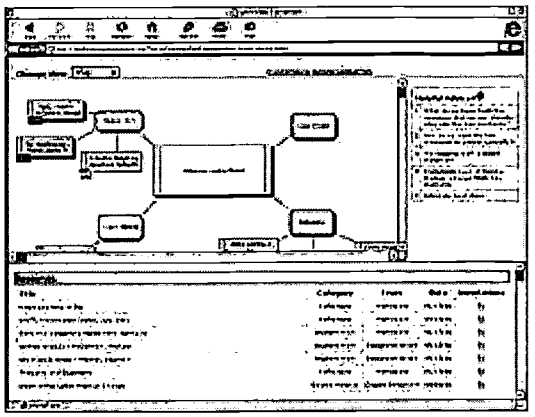

Figure 3: Tool Example

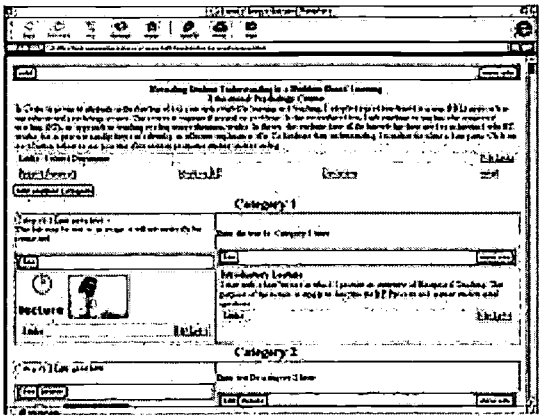

Figure 4: Portfolio Template Example

Creating a Professional Knowledge-Base

Along with the growth in the forums and platforms for sharing their examinations of classroom practice online, faculty at many levels are also encountering more online opportunities to discuss one another's work. Many schools, departments, disciplines, and professional organizations are already sponsoring listservs, discussion forums, "virtual chats," and online conferences. However, our experiences at the KML and our work with others in the field suggest that these resources remain underused; they remain the province of those who are most interested in technology, and they do not necessarily lead to the level of critique and discussion that can promote significant and widespread improvements in teaching practice.

In our own work at the KML, we have created a "gallery for the scholarship of teaching and learning" (http://www.carnegiefoundation.org/KML/) in which faculty can view some of the multimedia examples that we have developed in conjunction with CASTL faculty (Figure 5). Furthermore, we have pioneered the development of a virtual workspace that can support the review and exchange of many aspects of teaching including videos, images, student work, assignments, reflections, and articles and presentations (Figure 6). This workspace has grown into a rich resource with contributions from over 200 faculties from the K-12 and higher education programs of the Carnegie Academy of the Scholarship of Teaching and Learning (Iiyoshi, 2000). Yet, despite the possibilities of the virtual environment, the faculty who view these materials often respond in the same way that they do to materials they find in journals or hear about in workshops or presentations. While they refer to and draw on these materials, they seem to be more likely to use this material "offline" either in the development of their own work or in face-to-face discussions or private email exchanges.

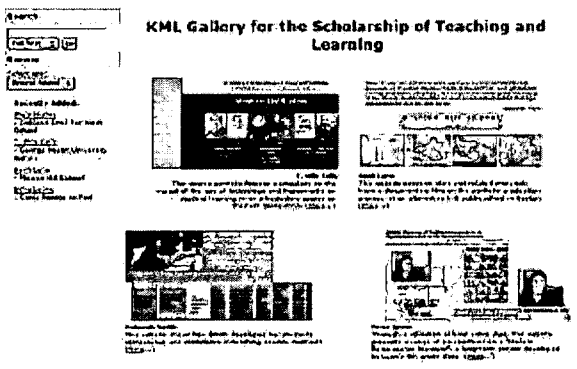

Figure 5: KML Gallery

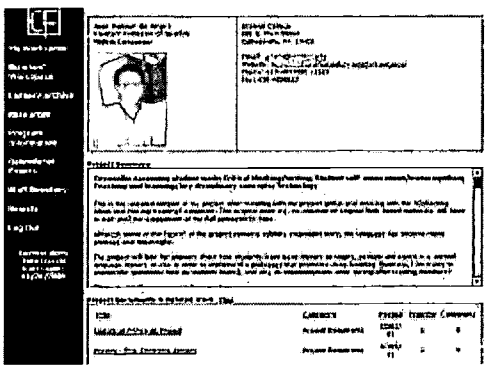

Figure 6: Carnegie Workspace

In order to better understand how to stimulate and support online opportunities for communication, exchange and peer review, in the next year we plan to examine the most effective sites and contexts for the exchange and development of knowledge of teaching. To follow-up on that research, in conjunction with our partners in other Carnegie programs, we plan to establish a small number of web forums, galleries and exhibition spaces that create a context to display representations of classroom practice, and more significantly, foster the critical examination and use of those representations. For example, as part of a major initiative on learning in the liberal arts carried out by Carnegie and the Hewlett Foundation, we expect to work with selected liberal arts colleges to create websites that capture their approach to learning and provide the materials and information that can be used to assess that approach. Ultimately, we expect that these sites could be accessed through a web-based gallery that facilitates comparisons and fosters exchanges across colleges. In this manner, we hope to contribute to the development of a professional knowledge-base that extends beyond the individuals and across institutions.

Imagining a Future that Demands High Quality Teaching

Together, these major initiatives of the KML are designed to contribute to a future in which many faculty members can be involved in very different kinds of activities than they engage in today:

> We imagine that faculty will begin planning learning activities by looking not only at related syllabi and lesson plans but also by examining the analyses, ideas and knowledge that have gone into the teaching of their colleagues. In the process, they will also be able to access student work and faculty comments and evaluations so that they can develop their own capacity to judge their students' learning and compare their students' performances to others.
>
> During their courses, faculty will put many of their assignments and resources online, and students will be able to submit some or all of their work in an electronic form. As a result, as the course proceeds or afterwards, with relatively little effort, faculty will be able to create web pages or "electronic portfolios" that illustrate significant findings and analyze key artifacts and resources.
>
> After the completion of a course, should they wish to, faculty could contribute their web pages or "portfolios" to archives and forums organized by their school, discipline, or professional organizations. These archives and forums could provide a platform for deep and rich discussions of the teaching taking place in many levels across the country. In turn, these models of teachers' work and the related discussions could inspire others to make changes in their own practice and document the results.

While these activities focus directly on using new media and emerging technologies to develop a high quality teaching force and create an accessible professional knowledgebase, they also create opportunities for many people to see what really goes on in classrooms. By making teaching public online, for the first time, administrators and policymakers will be able to see what really goes on inside schools and classrooms. Should faculty or schools and colleges wish to, they will have the materials and the means to help parents and other members of their school communities to see beyond grades and test scores, instead, they will get a glimpse of the kinds of classes and work in which students are involved. As some schools and colleges make the teaching that goes on inside them public, students and their parents may well begin to expect to be able to view the teaching that goes on in others and to demand the kind of high quality instruction they can see in some of the most advanced schools and institutions.

It is these kinds of demands to see, analyze, and understand teachers' work that require changes in priorities. Those changes in priorities, in turn, can create changes in the ways time is spent. With new demands to see what is really going on in classrooms, K-12 teachers may be able to shift some of their time so they can engage in the kind of reflection and professional development they need to teach effectively and efficiently. Similarly, this kind of demand can begin to influence the formal and informal reward systems and provide some new incentives for faculty in higher education to focus on their teaching and give teaching the attention it deserves.

References

Cambridge, B.L., Kahn, S., Tompkins, D.P., & Yancey, K.B. (Eds.). (2001). *Electronic portfolios: Emerging practices in student, faculty, and institutional learning.* American Association for Higher Education, Washington D.C.

Iiyoshi, T. (2000). *Fostering the Scholarship of Teaching and Learning Through the use of online collaboration technologies and multimedia*, Paper and poster presented at the Center for Innovative Learning Technologies 2000 meeting, McLean, VA, October 26-29.

Iiyoshi, T., Hatch, T., & Pointer, D. (2000). *The Carnegie Foundation's Scholarship of Teaching Mission: Building community through supporting teachers' reflective inquiry process*, Paper and poster presented at the annual meeting of the American Educational Research Association, New Orleans, LA, April 24-28.

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