Exhibition Catalog

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Slideshow and Discussion
Commentaries

Organized by
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New teaching materials bring new teaching challenges for teacher education
Knowing the sites well enough to teach with them: The challenge of time

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Overview: Opening Classroom Doors

This exhibition highlights seven websites that use multimedia to document teaching and learning in classrooms in California, Philadelphia and New York City, from elementary and high school, and in math, language arts/English and social studies. These sites are designed to contribute to the development of new forms and genres of multimedia representation that can help to make teaching public.

Multimedia and new technologies offer unprecedented opportunities for practitioners, researchers and the general public to explore and examine teaching and learning in settings inside and outside the classroom. Many teachers already have their teaching materials and student work in electronic form and the technology exists to put papers, photographs and other materials online; many also are becoming accustomed to videotaping their own or other’s teaching; and new generations of faculty are growing up in an era in which creating web pages and surfing the World Wide Web are as commonplace as playing video games and changing channels on TV. But it takes much more than technology to document teaching and represent it in ways that will make it easily accessible to a wide audience (Hatch, Bass, Iiyoshi, & Pointer Mace, 2004).
In order to explore some of the key issues of documentation and representation that need to be addressed to take advantage of the promise of new technologies, we have organized an online exhibition that highlights key aspects of websites that focus on the work of seven teachers. These websites strive to bring together videos, interviews, written reflections, curriculum materials, student work and other resources that enable viewers to examine many aspects of teaching and learning in classrooms in pre-k-12 and higher education.

The work on these websites has been motivated by a number of concerns including the concern that for too long assumptions and decisions about teaching and learning have been made with relatively few opportunities for most people to see and consider what goes on in many different classrooms around the country. Consistent with these concerns, this exhibition seeks to contribute to the development of new forms and genres of multimedia representation that can help to make teaching public. In one vision of the future, these representations could be produced by many different people in relatively short periods of time (such as a few months or less) and shared freely over the internet. In the process, it may be possible to enable teachers, teacher education students, administrators and even parents and the general public to explore and develop their understanding of teaching and learning with many different kinds of students, in many different contexts including contexts close to their own. One can imagine for example collections of websites that strive to explore the kinds of teaching that goes on in particular schools or districts, in different disciplines, around specific issues or topics, or with different groups of students.

In this vision, what distinguishes these kinds of multimedia representations from others are the ideas that they could provide many people – those in research and in teaching; those inside schools and outside -- with some of the means to make teaching public, to examine it, and to learn from it; they may serve as freely-available vehicles that help to advance research, support learning among educators, and foster the development of a public demand for teaching and learning opportunities that meet the needs of all students. But whether or not this vision or some other vision of the development and uses of multimedia representations in education is

worth pursuing remains to be debated. We hope that this exhibition lays out some of the possibilities and raises some of the key questions and issues that can help to advance this conversation.

The websites

This exhibition highlights seven websites that have been produced since 2000. The sites reflect a variety of origins, purposes, and authors. The earliest sites (Hutchinson’s and Capitelli’s sites) are drawn from the Gallery of the Scholarship of Teaching and Learning on the Carnegie Foundation’s website (http://gallery.carnegiefoundation.org/) and were produced as part of the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL). CASTL was a program of the Carnegie Foundation for the Advancement of Teaching that provided accomplished teachers with a one-to-two year fellowship to document some aspect of their teaching and share it with a public audience. (For discussions of the evolution and work of CASTL and of the challenges and opportunities for making teaching public see Hatch et. al. 2005). The websites developed as part of CASTL were usually meant to complement teacher’s own inquiries, and, for the most part, they were created simply to explore whether and how multimedia and the web could be used to represent teaching in ways not already available in more conventional forms. In some cases, researchers at the Carnegie Knowledge Media Lab took the lead role in documentation, design, and development of the sites (as in Hutchinson’s website) and sometimes teachers themselves carried out the work largely on their own with some support from the Carnegie staff (as in Capitelli’s work).

Two sites (Pedraza and Andrews) were produced at the National Center for Restructuring, Education, Schools and Teaching (NCREST) at Teachers College as part of a project to create “images of practice” that document teaching and learning with diverse learners in the New York metropolitan area (http://www.tc.columbia.edu/ncrest/images.htm). These sites reflect collaborations between the teachers, researchers at NCREST, and, in some cases, mentors or teacher educators who worked with the teachers. For these sites, plans for documentation emerged from conversations among the collaborators and researchers carried out the documentation and designed the sites with regular feedback from the other participants.

Three sites (Lampkin, Myers, and Pincus) were developed as part of the Quest Project, an outgrowth of the CASTL Program, for the explicit purpose of exploring the use of these kinds of web-based representations of practice in teacher education (http://gallery.carnegiefoundation.org/insideteaching). For the most part, these sites reflect collaborations between the teachers, researchers from the Carnegie Foundation, and teacher educators who were interested in using these sites in their own courses. In some cases, these sites emerged from conversations among researchers and teacher educators who identified key issues for documentation; in other cases they began with conversations with teachers. In the three sites highlighted here, the researchers took the lead role in documentation and design, with regular feedback from both the teachers and teacher educators.

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Given the variety of these collaborations, the sites are produced in different styles and voices. Sometimes the sites are produced in the third person with quotes from the teachers; sometimes they are written in the first person in the teacher’s voice; sometimes they reflect a mix of both. In either case, exactly how to explain authorship for these works – and how to address related issues like intellectual property and the means of citing and referring to these sites – are questions that warrant wider consideration.

Although all seven of the sites focus for the most part on the work of a single teacher, usually in a single class, the different origins, purposes and perspectives of the sites also raise fundamental questions about exactly what aspects of teaching to highlight and how. In particular, as viewers like Anna Richert, Pam Grossman, and Kathy Schultz began to use sites like Hutchinson’s in their own teacher education classrooms, questions about whether or not all sites needed to have certain elements (such as particular information about the context, explanations of standards covered, examples of student work, documentation from the beginning of the year etc.), and about how “broad” and how “deep” they need to be came to the forefront. In addition, questions about how to navigate the occasional tensions between what teachers wanted to represent in their practice and what teacher educators wanted to see and explore emerged. In the process, both producers and viewers of these sites had to confront questions about the extent to which a particular site can serve the needs of teacher educators in multiple contexts, with diverse aims in multiple courses and how closely a website needs to “match” the context in which teachers and teacher educators work in order to be most useful.

It is worth noting that in addition to creating this exhibition, the organizers of this exhibit played some role in the development of all of these sites that have been produced through the Carnegie Foundation, NCREST and Quest work, and we know those sites that are highlighted here particularly well. These seven sites were selected to illustrate a range of subjects, ages, contexts, styles, and purposes. In particular, we wanted to include in the exhibition sites that focused on the central content areas of literacy/language arts and mathematics, that reflected work with diverse students, and that provided a substantial amount of material for viewers to explore. The sites selected reflect the fact that more sites that focus on language arts and the elementary years have been produced up to now.

To the extent possible, we tried to select sites that do not present technical problems, but we linked to these sites “as is”; we did not attempt to update older sites or check or fix all links. Therefore, different sites may present videos and other materials in different formats, and, particularly in the older sites like Hutchinson’s, videos may load more slowly than they do in others. This also will be the first time that these sites have been made widely available to large numbers of people at the same time, and we expect to make adjustments as we learn how well these sites do and do not respond to any increased demand. Our choice was to go public now, knowing that these sites might not work in all cases (over a modem, for older browsers etc.), but we are hopeful that they might be far enough along to show the potential of these kinds of

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representations and to help to contribute to conversations about their further development and wider use.

This exhibition

The exhibition is organized to give viewers several different entry points to the websites. On the home page of the exhibition, viewers can see some examples of the kinds of materials that they will find on the selected sites and explore the sites further on their own; they can launch a slide show that highlights key aspects of the sites and read a short discussion of some related issues of representation; or they can begin by viewing the comments of a number of reviewers who have been invited to respond to the exhibition.

The term “exhibition” has many different connotations, but it is used in this context to encourage the consideration of teaching and learning through forms of representation and presentation that are more likely to be used in artistic fields and other endeavors than in conventional forms of educational research. At the same time, it illustrates one of the chief assumptions (and problems with) efforts to develop web-based representations of teaching and learning: we do not yet know – and may not have imagined – how to use multimedia and the internet to represent and examine teaching and learning most effectively. In that sense, the proper analogy for this exhibition may be to shows of new works or collections of the work of emerging artists designed to provide a common place for producers, critics and consumers to think about where things are headed – not a juried show designed to bring recognition and reward in a “best of” collection.

In order to place the work in this exhibition in the larger context of the many other ongoing efforts that use multimedia and online technologies to learn about and from teaching and learning, we have invited a number of people to respond to the exhibition and the links it includes. We invited commentaries from people who have had some familiarity with the projects that spawned these websites (including some who have developed or used websites like these in their own work), and we also sought to include the perspectives of some of the people who have been engaged in their own efforts to use multimedia to document, examine, and learn from teaching.

We asked the commentators to use one or more of the three key questions about the multimedia representation of teaching and learning that are addressed in the slide show as a point of departure for their discussions. We invited them to make a few comments about aspects of the sites that are of particular interest to them and to make some connections to their own work or other work they might know about that can help to inform and advance these efforts and others like them. We suggested that commentators might want to produce a short essay, a set of annotations on material presented in the exhibition or elsewhere, and/or a web-based display of their own design. While running the risk of producing a set of disparate responses that are difficult to organize, navigate or comprehend, we sought to provide as much flexibility as pos-
sible precisely because we believe we have not yet imagined some of the most useful or inter-
esting ways to represent and respond to issues of teaching and learning in multimedia and on-
line forms.

Consistent with that view, in addition to contributing to a conversation about the uses of new
technologies and the power of new forms of representations for advancing knowledge of
teaching and learning, we hope that this exhibition will also serve as a stimulus for new forms
of online publication in education. Ideally, new publication opportunities will provide some of
the incentives and support that practitioners and researchers need to experiment with multi-
media representations and develop a new generation of educational scholarship that can in-
form both research and practice.
Multimedia and the internet could provide a new medium for the production, examination and exchange of ideas about teaching (Hiebert, Gallimore, & Stigler, 2002; Brophy, 2004; Goldman-Segal et. al., in press), but those who seek to develop that medium face a two-fold problem. First, teaching is an enormously complex human endeavor. (Lampert, 1985, 2001; McDonald, 1992; Shulman, 1983) The sources of that complexity include the fact that teaching is highly situated, requiring considerable contextual knowledge and access to the perceptions of a variety of participants in order to unpack and understand it. Teaching is also highly ambiguous with both the actions and the outcomes undetermined and open to interpretation (Eisner, 1998; Lampert & Ball, 1998). The incomplete and evolving nature of subject-matter knowledge, the multiple and shifting demands teachers face, and the ever-present need to respond to a wide range of students all contribute to the challenges of isolating and identifying “what works” (Ball, 1996).

In order to guide the development of new avenues for the documentation and representation of teaching, therefore, we need to address a number of questions. In particular, we need to consider the extent to which new media and the internet can capture the complexity of teaching in ways that traditional texts cannot. Furthermore, even if the complexity of teaching can be represented productively with multimedia, we still need to learn what kinds of representations might be most useful. Finally, as Ben-Peretz (1990) points out, we also need a strong conception of the curriculum potential of these representations and how teacher educators and others can use these representations to foster learning. This essay considers each of these questions as a means of exploring the websites that are a part of “Making Teaching Public”: A Digital Exhibition.
What aspects of teaching and learning can best be represented using multimedia?

Many aspects of teaching and learning can be captured through written texts, but multimedia offers opportunities to draw on the strengths of many different forms of representation at once. By bringing together moving and still images and sounds from the classroom, written descriptions, graphic illustrations, classroom materials, student work, and written and taped reflections, multimedia representations allow viewers to quickly see the size, arrangement, and style of classrooms; the way teachers carry themselves and interact with their students; the way the students’ approach their work in the classroom, their teachers, and one another; the tone and languages used; the plans and expectations of the teacher as well as what actually happens in the classroom; and the content, level and sophistication of the work that students carry out. As a consequence, the complexity, emotionality, and ambiguity of teaching and learning may begin to emerge.

For example, Yvonne Hutchinson’s website seeks to uncover many different issues and aspects of teaching that go into a group discussion conducted by an experienced teacher. Hutchinson is a highly-regarded teacher in South Central Los Angeles with over thirty-five years of teaching in middle and high schools. She has obtained her National Board Certification from the National Board for Professional Teaching Standards, and she is one of a number of exemplary...
teachers whom Mike Rose highlights in his book *Possible Lives* (Rose, 1995). Despite these accolades, however, for the most part, only those who have been to Hutchinson’s classroom have had a chance to see what she does. While she was visible, for the most part, her teaching was not.

In response to this problem, Hutchinson’s website was designed to enable many people to get a window into one key aspect of her practice: how she uses group discussions to support the development of what she calls “literate discourse” among her students in ninth grade English. To do so, the website focuses on a discussion that takes place during a single day in her classroom. While viewers cannot get a simple “lesson plan” for that day (Hutchinson doesn’t have one), they can see clips of the way that Hutchinson structures the day and sets up and supports the discussion. They can look at curriculum materials that reflect the strategies and activities she uses to support classroom discussions; and read and hear Hutchinson’s reflections on the background and approach that undergirds her work. By following the arrows on the left side of the website, viewers can also get a sense of the kinds of things that Hutchinson does at the very beginning of the year to create a culture that supports respectful and thoughtful conversation in her classroom. Through these representations, viewers can get a glimpse of the work that goes on both in and out of the classroom to prepare for group discussions and see that Hutchinson is not simply preparing for this class the night or the week before: she has been laying the groundwork since the beginning of the year. (It is worth noting, that the arrows to the pages on how Hutchinson establishes the classroom culture were added after initial viewers responded that the first draft of the site made it look like good group discussions could be created simply by using Hutchinson’s strategies on a given day.)

Those who want to delve even deeper into the intricacies of orchestrating group discussions can also get a glimpse of how teachers in a different part of the country and different points in their careers structure group conversations with students of different ages. For example, Melissa Pedraza’s site focuses on issues of “accountable talk” – how she and her co-

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teacher Nicole McCabe strive to enable her first grade students in Queens, New York to build on and respond to one another’s comments. In her fourth year when the site was produced, the site provides an overview of what happens over two days in Pedraza and McCabe’s classroom during their 90-minute literacy block. Like Hutchinson, they move back and forth between large-group group conversations, “pair-shares”, and other arrangements, allowing viewers to look for correspondences and differences between Hutchinson’s approach and the strategies and structures of the “balanced literacy” curriculum they use. Viewers can also look at the way the teachers in both classrooms strive to help their students make connections between different books that they have read and between what they are reading and experiences in their own lives.

For another perspective on group discussions, viewers can look at the work of Martha Andrews, a fifth grade teacher in the Bronx, New York in her eighth year of teaching. Andrews’ website provides video clips and reflections that illuminate the central role of whole group (“town”) meetings in a social studies project in which students take on the roles of people in Colonial New York. In addition to looking at how Andrews structures these discussions,

viewers can also get a glimpse of another issue: how Andrews uses these discussions to assess what the class as a whole is learning (and whether and how fast to move ahead). While neither Pedraza’s or Andrews’ sites capture footage from earlier in the year, viewing them in conjunction with Hutchinson’s site could

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raise a host of questions about the “culture” of conversation in these classrooms and what else these teachers (and their colleagues) might be doing to support it.

Sites like Sue Lampkin’s also illustrate the complexity of assessing and supporting the development of students’ understanding. Lampkin is a first grade teacher who along with colleagues in her school in a suburb half-way between San Francisco and San Jose California has been working to improve her mathematics instruction. While Hutchinson’s site focuses on students in general, viewers of Lampkin’s site can look specifically at how the understanding of three of her students develops in a series of four different lessons. Viewers can then explore the students’ work in written form and in videotapes as they solve problems, and viewers can explore what Lampkin or other teachers could do to help surface and address the many different levels of understanding that students in the class are likely to demonstrate.

Even as sites such as these focus on particular issues like group discussion and the development of understanding of problem solving, numerous other issues also come into view. Viewers can see how Hutchinson seeks to work across differences of race and gender and to foster connections among her largely African-American and Latino students; how her perspective on social justice infuses her work; how she engages her students in thinking and talking about what she calls “explosive language” and sensitive issues in literature and in their own lives. Pedraza’s site includes glimpses of her approach to “inclusion” and the strategies she uses to work with different students; raises questions about the implementation and adaptation of mandated curricula; and provides a look at some central topics in early language instruction. Andrew’s site touches on the way that she begins with a general plan and then uses informal and formal assessments to help her adjust and adapt; it provides examples of the way she strives to incorporate assessments that allow students to express their understanding in oral presentations, dramatic roles, cartoons, and other forms that are not entirely confined to text; and it offers a chance to consider how and to what extent prescribed state standards are addressed and met in an “emergent curriculum.”

Lampkin’s site

For better or for worse, these sites show problems as well as progress and leave room for differing opinions about what counts as “good” or “effective.”
provides a glimpse into the development of relationships among families and teachers by
documenting a part of one of the “family conferences” that she holds in her home and raises
issues of the coherence of math instruction across classes and grade levels by including clips
from meetings among teachers.

Viewers can also explore whether and how teachers attend to social and emotional issues as
they engage their students in central issues of instruction. For example, the passion and emo-
tion in Hutchinson’s work comes through in the way Hutchinson writes about her students; in
her body language; in the way she positions herself in the classroom; and in the ways she in-
vites her students to engage in the discussion and encourages a reticent student to participate.
Similarly, in Pedraza and Andrews’ sites, viewers can look at how close these teachers get to
their students, when and how they recognize how students are feeling, and how they respond.

At the same time, these sites present these classrooms as they are. The videos are ed-
ited and reviewed with issues of anonymity and privacy in mind, but, for the most part, these
sites provide a “slice of life” in these classrooms. For better or for worse, one can see into the
classrooms, see that some students may be invested and engaged while others are not; and see
that some students may be learning while others are falling behind. Viewers may see things
that teachers missed, forgot, or wished they had done differently. The sites provide some con-
text and interpretation of what is going on, but viewers may still bring widely differing opin-
ions on what they see and whether or not what they see is “good” or “effective.” In Pedraza’s
site, for example, viewers can look at a group discussion a week after Pedraza and McCabe
began the work on accountable talk and they can hear Pedraza’s reflections and concerns
about whether or not her students have gotten “far enough.” Among groups who have
looked at Pedraza’s site, some viewers see the careful structured way that Pedraza carries out
the curriculum and works with students at different levels as evidence of “good teaching,”
while others grow uncomfortable with what they see as an overly scripted and potentially
“limiting” approach. In her site, Lampkin reveals some of the challenges she has faced in de-
veloping her own understanding of mathematical content and shares her concerns about her
effectiveness with some of her students. Viewers of Andrews’ site can hear her impressions of
several classes and of the presentations students make at the end of their Colonial Perspectives
Project. But viewers themselves can see those same classes, review some examples of student
work, and listen to students’ presentations and draw their own conclusions. Even Hutchin-
son’s site, which many viewers cite as showing “high-quality” teaching, leaves open questions
about what and how much students have learned.

Thus, these sites reflect some of the ambiguity of teaching at the same time that they
capture some aspects of what “really” happens. In the process, they raise fundamental ques-
tions about representation and interpretation: is the ambiguity a function of the representation
or is it a reflection of the complexity of teaching and learning itself? For example, all of these
sites could benefit from more extensive documentation of student work before and after the
classes they represent; but would changing the representations – particularly making them

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more “complete” or “comprehensive” -- resolve the ambiguity? Or could representations that reflect that ambiguity provide a platform for the development of interpretations that help viewers to address and deal with the different perspectives that they bring to teaching and learning? Furthermore, what aspects of teaching and learning should remain private? How can we produce representations that both provide an adequate view of teaching and learning and protect and respect the rights and perspectives of those represented?

**How can aspects of teaching best be represented using multimedia?**

Ironically, the power of multimedia to capture some of the complexity, ambiguity and reality of teaching and learning also provides some of the greatest challenges for representing teaching. Even though these sites may not provide all of the material and information that viewers might want, they provide so much material that it can be very hard for viewers to grasp what materials and descriptions are available and where to find them. Thus, while multimedia representations of teaching and learning like these may enable viewers to revisit the same material at different times, for different purposes and from different perspectives (Spiro et al. 1992), they also come with their own constraints that affect the ability of viewers to understand that complexity (Hatch, Bass, Iiyoshi, and Pointer Mace 2004; Pointer Mace, Hatch & Iiyoshi in press). In particular, while the internet makes it possible to share vast amounts of information and other materials related to any episode of teaching and learning, simply providing access to more information does not make that information accessible to all viewers; similarly, more “complete” documentation of teaching and learning does not necessarily make it easier to comprehend. An overload of information and web-based materials can overwhelm viewers unless those viewers have clear guideposts and means of exploring the information or locating the resources and ideas that might be particularly relevant to them. The likelihood that viewers will quickly skim only a portion of the many materials that can be provided in a web-based environment also suggests that, whatever the possibilities, few people will spend the time it usually takes to develop robust understandings of such complex material (Krug 2000).

Compounding the challenges, viewers may bring very different conceptions of what teaching is or what it entails and some might not have developed the prior knowledge and conceptual structures needed to make sense of such a complex activity and such new and unconventional forms of representation (Bransford et al. 2000). In particular, experiences with the context, content, pedagogy and forms of web-based representation can affect viewers’ initial impressions of a site as well as their abilities to ask relevant questions and identify relevant materials and issues for deeper exploration.
The construction of some of the sites suggests some ways that web-based representations might take into account the likely differences in the levels of experience of viewers and the constraints of multimedia. Sites like Hutchinson’s, Pedraza’s, and Andrews, for example, reflect explicit efforts to “layer” information so that viewers can get a quick overall impression of the teaching and learning and the kinds of information and materials the site encompasses, print out some descriptions and materials that they can take with them to read “offline” or to pass on to others, and get access to other resources such as archives of student work or more extensive video footage from the classroom (either streaming on the web or on dvd) for further investigation.

The websites in this exhibition and others might also benefit from the establishment of different organizational formats that could serve as the basis for the development of distinct genres of web-based representation. Developing conventional forms for the representation of teaching and learning may make it possible to “compress” the large amounts of video, curriculum artifacts and other teaching materials needed to represent teaching into arrangements that viewers can make meaning out of relatively quickly and easily. This process of compression is central to many scholarly disciplines, where methods and genres have evolved to enable scholars to turn large amounts of data and information into forms that others can understand and examine (Hatch, Bass, Iiyoshi, & Pointer, 2004).

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For example, Hutchinson’s website, suggests one form of web-based representation – the “class anatomy” -- that could be used to document teaching in a wide range of different contexts. The “class anatomy” focuses on an analysis of a single class within a course, provides a series of videotapes that outline how the class unfolds, offer access to the materials used in the class, and share some evidence of the outcomes (Shulman 1998). Pedraza, Andrews, and Pincus’ sites also take advantage of the basic structure of the class anatomy by breaking down classroom activities into a small number of key parts -- although these “anatomies” are located in different parts of their sites, rather than serving as the “home page” as in Hutchinson’s site.

In part, these differences in location reflect the varying emphases of these sites and different choices about how to balance scope and granularity (Hatch, Bass, Iiyoshi, & Pointer 2004). Scope refers to the aspects and extent of teaching and learning that these representations seek to encompass – e.g. whether a representation tries to address aspects of teaching like a teacher’s philosophy and planning as well as their classroom activity, and whether it seeks to
“cover” a class, a course, a year, a career etc. Granularity refers to the extent and clarity with which sites focus on particular aspects of a teacher’s practice.

Like the relationship in filming between “zooming in” and “zooming out” to get a wide-angle view, scope and granularity are related. The more aspects of teaching one seeks to represent over longer periods of time, the more challenging it can be to organize the material to focus in on particular aspects. Conversely, the more deeply one seeks to explore a particular aspect of teaching, the more difficult it can be to keep other aspects “on the screen” and in focus. For example, Hutchinson and Pedraza’s sites focus on the activities that take place during a single day or two; but by privileging a single class, these websites provide relatively little information about other aspects of their teaching that might have come through on different days or in different activities. However, Andrews’s site also seeks to explore how a project unfolds over a period of a few weeks and the role of planning in that process. As a result, the classroom anatomies become embedded in a longer listing of the phases of the project. The site documenting a study of Macbeth led by Marsha Pincus, a high school teacher in Philadelphia (and 2005’s Teacher of the Year honoree) “zooms out” even further than Andrews’ site. This site discusses three different lessons within the eight-week study in her 11th grade English class and allows audiences to see a single clip from six different days. While illustrating the sequence of activities Pincus uses to introduce students to a work of literature like Shakespeare and ultimately to craft a literary analysis (a sequence we never get to see in Hutchinson’s site), Pincus’ site sacrifices the focused view that a one-day class anatomy affords.
The anatomy approach lends itself particularly well to the documentation of phenomena that unfold over time, but that approach may not work for all key aspects of teaching and learning. For example, Jennifer Myers’ site includes an overview of the sections of the readers and writers workshop she leads in her second grade classroom just outside San Jose, CA, but that overview does not capture how she strives to differentiate her instruction to meet the needs of each of her students. To document that aspect of her teaching, her website includes video of her working with four different students during the reader’s conference portion of the day. Similarly, by following Myers through five similarly-structured writers workshop conferences, audiences can see the ways in which she tailors the format to identify what each student needs to do to develop his or her writing capacity.

Beyond the “class anatomy”, one can imagine the development of numerous other forms of web-based representations, at least some of which may build on the conventions and methods of disciplines in both the humanities and the sciences, and, perhaps, the conventions of newspapers, documentaries, movie “trailers”, and other media. For example Sarah Capitelli’s site might serve as an example of a “Teacher Inquiry”, built on the traditions and conventions of teacher research. In this case, the evolution of Capitelli’s investigation into the development of her first and second grade students’ language development becomes the focus; in turn, the video clips she selects provide both context for understanding her inquiry and some evidence that allows viewers to explore some of her hypotheses about language use. However, the daily conduct and planning of her class are not represented as centrally or explicitly as they might be if she produced a class anatomy.

Other websites developed as part of the CASTL program suggest other forms of web-based representation that could be developed including those, like the website of Dennis Jacobs, a chemistry professor at the University of Notre Dame, that builds on the conventions of the experimental sciences or the site of Irma Lyons, a fifth grade teacher in Santa Monica California, whose site uses the juxtaposition of images in a kind of “video montage” to represent the di-
verse perspectives of students, staff and community members at a culminating event for a “museum” on the Harlem Renaissance.

The development of conventions around the representation of particular aspects of teaching could also facilitate the production and comprehension of these sites. For example, several other websites have used timelines to give an overview of the extent of a course or a unit. The development of some conventional forms for these temporal representations (and instructions or models that web-designers could follow) could have made it easier for Andrews’ site to take advantage of one of these representations and helped viewers of her site to grasp how (and when) the phases of her project unfolded. Similarly, all the sites could benefit from establishing conventions around the development of “archives of student work.” These conventions could provide guidance about what kinds of student work to sample (and how often), what other assessment information to include, and how to organize it so that it could be compared across sites. What to do about work that may be particularly problematic – that students or teachers might not be especially proud of or that could open either one up to sanctions and punishments – also deserves special attention.

For better or worse, the lack of established forms, conventions, and standards in this medium leaves producers of these representations to invent their own genres of representation. Given the constraints that conventions, formats and standards can create for the expression, represen-
tation and validation of ideas and “results,” this individuality may be a powerful positive force for these kinds of representation. At the same time, producers may find this approach much more time-consuming and suggests trade-offs between making this form for representation easier and simpler to produce and the ability to encourage large numbers of people (particularly teachers) to take advantage of it. Further, this individual approach leaves viewers to their own devices in order to figure out how to find related sites, locate comparable materials and identify the aspects of teaching and the issues that might cut across them.

Of course, the kinds of criteria and standards one adopts reflects different theories about the purposes, uses and value of these sites. For those who see potential in the development of large numbers of sites that provide a glimpse into teaching and learning in many different communities with diverse teachers and students, standards for representation that rely on expensive equipment, extensive time in production, and “broadcast quality” may be a significant problem; for those who see the value of focusing on the more extensive documentation and in-depth analysis of a more limited set of sites, high production standards may be essential.

**How can multimedia representations of teaching and learning be used to support teachers’ development?**

Web-based representations of teaching and learning can serve a variety of purposes, but they may provide particularly valuable opportunities to support the development of teachers in both teacher preparation and professional development (Grossman, Richert, Schultz, and Hatch, 2005). Yet different forms and varieties of these multimedia representations may afford different opportunities for learning. For example, Anna Richert, a Professor of Education at Mills College, teaches a “core course” for Master’s students that includes a focus on teacher inquiry. That course lends itself well to the examination of a wide range of websites of teachers like Sarah Capitelli and others who documented their investigations of their own practice. Pam Grossman, Professor of Education at Stanford University, focuses on helping her students explore Yvonne Hutchinson’s website because many of the other sites do not go as deeply into the issues of pedagogy and content that are central to her course on Curriculum and Instruction in High School English. However, with no websites at the time that focused on elementary literacy, Kathy Shultz, Associate Professor at the University of Pennsylvania, had to explore the use of Yvonne Hutchinson’s work with the students in her preservice elementary program before going on to collaborate with several elementary teachers in Philadelphia on the development of their own sites.
While these teacher educators have been able to find or create sites that reflect their pedagogical concerns and the kinds of contexts where their students might end up working, their experiences and those of other teacher educators using multimedia suggest that the development of these kinds of sites needs to go hand-in-hand with the development of pedagogical approaches that take advantage of those opportunities. For example, Lampert and Ball (1998) demonstrate the kind of preparation and support that has gone into one effort to enable pre-service teachers to learn from the in-depth documentation of teaching and learning in one classroom over the course of a year. Through this investigation, they highlight a host of key pedagogical concerns including how to help pre-service teachers to inquire into the materials, develop good questions for further exploration, and how to make connections between what they are learning from the study of teaching in one context to their own teaching contexts.

In addition to efforts to produce such detailed, comprehensive representations, developing a range of representations, at varying levels of depth, might also be useful. These might include efforts to document the work of particular teachers in different classes and at different points in their careers. Already, two different websites allow viewers to look at Marsha Pincus’ work from different perspectives. Her first site (completed in 2001) focuses on Pincus’ efforts to inquire into and make sense of some of the “moments of dissonance” she experienced in a drama and inquiry class she taught at that time. Her Shakespeare site (completed in 2005) draws on some of the ideas discussed in her earlier work, but provides a more explicit glimpse of her curriculum, the structure of her Shakespeare unit, and what she does during class periods throughout the unit.

Developing large numbers of representations might make it easier for teachers and pre-service teachers to see and explore teaching and learning in classrooms in their own community and by teachers close to their own level of experience who work on similar subjects and with similar age groups. For example, to support the development of her students’ abilities to teach a key topic in many high school English classes – Shakespeare – Grossman and colleagues at the Carnegie Foundation are developing a website that documents Hutchinson’s work on Romeo and Juliet in Los Angeles and that can serve as a complement and contrast to Pincus’ work in Philadelphia on Othello. Ideally, in the next few years, it will also be possible to document the work of teachers in the local Bay Area and in other communities who are teaching Shakespeare at earlier stages in their careers (in fact we are currently documenting teaching and learning in a class on Othello in New York City with a former student of Grossman’s). As a consequence, in the future, student teachers in Grossman’s class or those in teacher education programs in New York could look across the teaching and learning in at least three or four different sites, seeing both teaching that provides a “vision of the possible” and that reflects the immediate concerns and demands of the contexts similar to those where they are most likely to end up teaching.

Sorting out basic issues like when and to what extent to focus on in-depth exploration of the work of individual teachers and when to provide opportunities to look across contexts at the
work of different teachers, demands studies of the affordances for learning of different kinds of representations and their uses in different educational contexts. Of particular interest are questions like:

- How closely do representations of teaching need to mirror the concerns of teacher educators and their students in order to enhance learning?
- What steps can be taken to help viewers recognize the connections between the teaching and learning in multimedia sites and in their own experiences?
- When and under what circumstances does it make sense to study “accomplished” practice or to study practice that does not appear to be as effective or might be problematic?

Whether for in-depth exploration or comparison across contexts, focusing on the work of individual teachers on particular classes and topics (as most of these sites do) also has significant consequences for teacher education and professional development. Focusing on the work of individual teachers may ignore the extent to which teaching and learning is a shared responsibility that extends beyond the walls of a single classroom or the work of a single teacher. In contrast, those in teacher education and professional development programs might benefit from opportunities to look across the work of teachers in a particular school or to follow the work of students as they move from one classroom and teacher to the next. Although Lampkin’s site emphasizes math instruction in her classroom, it is one of a cluster of sites that represent the work of a group of teachers who are working together with Li Ping Ma, a researcher and mathematics educator who is helping them to develop their instruction in mathematics. As a result, viewers have opportunities to study how different teachers are applying some of the same mathematic and pedagogical ideas in different classrooms and to consider the kinds of connections and consistencies in mathematics instruction that students might experience as they proceed from grade to grade. In addition to the opportunity to look at mathematics instruction across classes, Lampkin’s site gives viewers the chance to see and reflect on how teachers work together, what they are learning in their planning and professional development experiences and how that may or may not impact their instruction. In order to facilitate these kinds of explorations that cut across classrooms, it may be useful to develop forms of representation that focus on different units of analysis – a students’ experience throughout a school; the teaching of a particular topic, unit or skill in different classrooms – and new tools that make it easier for those who seek to highlight and juxtapose elements and ideas from different sites in exhibitions and arrangements like this one.

Whatever the forms and uses of these representations, the development of new forums that foster the exchange, review, and critique of these representations and their uses can help to develop the terms and language that can describe new phenomena, the criteria that can be used for assessment, and the broader knowledge and understanding that can inform public debate (Hatch et. al. 2005). In particular, forums, like those that might be created at Teachers College Record and elsewhere could be designed to enable and encourage teacher educators to make
their work public. Of course, making teacher education public in an environment where the value and relevance of teacher education are often challenged can be a dangerous proposition; at the same time, it is hard to see how to make a case for the value of teaching and teacher education if the character, quality, and complexity of teaching and learning remain hidden in the classrooms of individual teacher educators and under-represented in public documents and conversations.

As with all developments on the internet, the proliferation of web-based representations of practice and associated commentaries and critiques demands the development of organizational and categorization schemes that allow viewers to find the ideas and information that may be most relevant to them. In our efforts to create collections of web-based representations of practice like this one, however, we have found it difficult to identify appropriate categorization schemes that facilitate the creation of sensible and easily navigable arrangements. Like the designers of many other collections of teaching materials on the internet and elsewhere, we have relied primarily on basic arrangements according to the grade level and the subject matter (English, mathematics etc.), and geographic location. Going further to organize web-based representations by topic, goal, or standards are other logical possibilities. While these schemes are sufficient for some purposes, they fail to provide viewers with much sense of the specific pedagogical problems, approaches, or strategies that they can encounter and explore in these sites, nor do they seem to help many teachers or teacher educators who have specific questions and concerns that are not reflected in such general descriptors.

Categorizing Hutchinson’s site, for example, as focusing on 9th grade English or on “group discussion” does not even hint at the wealth of issues that teacher educators have used this site to explore with their students. Furthermore, Hutchinson’s site may be particularly useful for what Megan Franke at UCLA and others are coming to call “high leverage strategies”; strategies like Hutchinson’s use of “stock phrases” and her “anticipation guide” that viewers, including many teacher education students, seem to be able to grasp relatively quickly and to apply in a variety of different contexts with some success. Yet until we find a way to highlight those strategies – without divorcing them from the contexts and the other issues of teaching and learning to which they are intimately connected – their potential value for others may not be realized; furthermore, only after identifying key elements like these will subsequent producers of web-based representations know what to pay attention to in order to begin to document practice in more common and less idiosyncratic ways.

Conclusion

Ideally, developing new forms of multimedia representations will foster a better understanding of the complexity of teaching and will help to establish a new medium for facilitating teachers’ learning that goes far beyond the dissemination of lessons plans and course descriptions that is so common today. However, answering these initial questions about the nature
and possible uses of multimedia representations of teaching naturally leads to more questions: If there are sufficient reasons to continue to develop multimedia representations, who will create these representations? What kinds of tools and resources will be developed to assist them? How will concerns about equity, issues of privacy and questions about intellectual property be resolved?

Furthermore, we have to come to terms with the “chicken or the egg” problem that it may remain difficult to categorize and organize web-based representations of practice without a common language to describe and highlight key aspects of teaching and learning in many different contexts; and it may remain hard to develop some shared language without wider opportunities to see and examine the teaching and learning that goes on in many different classrooms. Thus, in the end, we still have to confront basic questions about our conceptions of teaching and learning and what we envision as the “building-blocks” or the foundation for teachers’ development. Perhaps, if the development of new representations of the teaching in many different classrooms with many different students – with all the issues those efforts raise – stimulate further and deeper discussions of those basic conceptions, the efforts will be worthwhile.

References


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Exhibition Commentaries

Tim Boerst and Deborah Ball
Milton Chen
Marilyn Cochran-Smith
Elyse Eidman-Aadahl
Frederick Erickson
Pam Grossman
Marsha Pincus
Anna Richert
Lee Shulman
Flooding teachers’ inboxes these days is email from one clearinghouse or other that offers to support their work with web-based resources. Typical messages offer access to “(insert number here) sure fire lesson plans” and “customized projects that fit your (fill in the blank) state standards”. The abundance and increasing ease of access to such materials can be seen as an effort to connect professionals to flexible resources and to field tested ideas from a wider circle of peers in the field than ever before. This sort of interconnection and access could support professional learning and the improvement of practice. However, the content and construction of these materials, as well as their sheer scale, present serious challenges to the responsible and efficient use required to effectively support professional work. Responsible professional work requires warrants for instructional action, as well as insight into the inner workings of instruction that ready-to-use sequences of “standards-based” actions rarely facilitate. Furthermore, even though they are easy to locate, wading through the vast array of electronic lessons illustrates the ironic inefficiency of having so much at one’s fingertips.

Teachers may be able to wade through the electronic landscape to locate more comprehensive representations of practice, made available from commercial (e.g. Lesson Lab) and free access (e.g. the websites that are a part of this Teachers College Record digital exhibition) sources. These representations may provide opportunities for more in depth exploration of various fac-
ets of teaching and learning. On the surface these representations offer something different from what is conveyed about practice through electronic warehouses of sure-fire lessons, but there is a danger that they will be overwhelmed in the tidal wave of electronic material aimed at practitioners. There is also a risk that more comprehensive representations of practice may in and of themselves overwhelm learners, obscuring important aspects of what could be learned or done under well-intentioned “support” material. Aside from their scope, how are more comprehensive representations of practice distinguishable as a professional resource for supporting thought and action? Can more comprehensive multimedia representations of practice readily support teacher learning and action, while also establishing a professional alternative to the avalanche of ready-to-use electronic materials?

We asked the question, “How can multimedia representations of teaching and learning be used to support teachers’ development?” as a point of departure for considering the websites in this digital exhibition. This question is key, given the need for professional development of teachers on one hand and the potential of multimedia to reach mass audiences and situate teacher learning productively in practice (Wilson & Berne, 1999; Lampert & Ball, 1998). In what follows we explore what it might mean for a representation to support the professional development of individual teachers and also the profession in a larger sense.

Our perspective is based on our experience as teachers in public elementary schools (we have each taught for over 15 years), as well as researchers on our own teaching. We have also worked to convey what we have learned to others through text (e.g. Ball, 1993; Boerst, 2004) and multimedia (e.g. Lampert & Ball, 1998; Boerst, under review). In addition we have worked individually and jointly in different institutions and settings teaching preservice and inservice teachers about the teaching of mathematics. Consequently our research interests in the subject matter and pedagogical knowledge, skills, and learning of teachers are heavily influenced by our ongoing work with children and teachers. From this vantage point we will share what we noticed about possible opportunities for teachers to learn from the representations in this digital exhibit and the nature of support within those representation that could enhance professional learning and practice. We conclude by sharing ideas about ways in which multimedia representations could be enhanced through consideration of the roles assumed by organizations in the development, accumulation and dissemination of established genres of professional development/support materials.

What opportunities for teacher learning are supported by these multimedia representations?

Teaching entails skilled use of knowledge of content, students, and instruction; learning to improve one’s teaching may involve learning more about any one of these, or ways to use them, or it may involve learning more about the dynamic among them. For example, opportunities to study how students understand particular concepts can be of use, as can opportunities to explore and compare a variety of alternative representations of the content. Learning how
teachers think about their work can also make available for investigation the inner work of instructional practice. The multimedia representations of practice available here make it possible for teachers to probe others’ work, and to access different aspects of these dynamics and the teachers’ analysis of those. Unlike mere acquisition of knowledge, or mere observation, these materials make the work of teaching the direct focus of teachers’ study.

A more analytic take on the multimedia representations reveals other aspects of teachers’ opportunities to learn and improve practice. Our interpretation of opportunities to learn from these representations is not definitive. Rather, we were influenced by our own experience as teachers trying to improve our own knowledge and skills, as well as what we have noticed about resources developed to support the learning and practice of inservice and preservice teachers. Not surprisingly the opportunities to learn from the multimedia representations are multifaceted and more nuanced than many electronic resources. Most clearinghouse resources typically aim to support instructional action within a narrowly defined area of teaching (such as the teaching of a lesson targeted at a particular state curriculum objective). This is not to say that the sites in the TCR electronic exhibition neglect support for teaching action, as many tips, routines, and approaches are ripe for the picking. However, the focus of many of these representation reaches beyond ready to use instructional plans and tools toward content that would enhance the professional knowledge (e.g. different interpretations of addition and subtraction on Lampkins’ website), dispositions of users (e.g. Hutchinson’s insights into the connections between pedagogies and student strengths), and ways of improving practice (Capitelli’s use of action research to enhance her teaching and her school).

Because of their richer content, these multimedia representations of practice may support a wider variety of users/uses than collections of ready-to-use lessons and more traditional sources of professional information, such as research literature. The table below only touches the surface of this variety.
A few persistent ideas arose as we considered possible foci of the representations in this exhibition. Many of these websites would support professional learning about topics and practices that are currently “in play” in schools, professional literature and clearinghouse resources. Representations in this collection bridge theoretical and practical aspects of professional work in a variety of areas, such as helping second language learners (Capitelli), supporting student problem solving (Lampkin), and implementing multiple means of assessing student learning (Andrews). While the relevance of the topics will contribute to their utility, the topics also bear the mark of professional focus that could support more unique contributions to the learning and practices of teachers. Many focus topics are nested in integrated, and often qualified, sets of “teacherly” considerations that include standards, subject matter, students, strategies, contexts, and more.

Professional focus carries with it features that are in need of further consideration in order to enhance the capacity of multimedia representations to support learning and practice. The nesting of the focus within an integrated set of ideas embodies the way in which we ultimately hope teachers will use their knowledge in action. However this also means many ideas are folded into complex considerations that may obscure dimensions of professional knowledge or skill. This is cause for concern when aspects of professional work that are particularly difficult
for teachers to learn or that are rarely the focus professional learning are obscured. For example, subject matter insight is primarily conveyed in the representations through teacher reflections, curriculum materials, pedagogical strategies, or video footage of practice. It may be a challenge for users to pick up on embedded and often subtle insights into mathematics. More explicit attention to subject matter would require more extensive representation, as illustrated in an upcoming monograph of the Journal for Research in Mathematics Education (Ball, Lewis, & Thames, in press) where an event from Deborah’s classroom teaching is the object of very diverse mathematical treatment. We still have much to learn about using multimedia to disentangle integrated professional ideas and practices in ways that provide reasonable scaffolds and direction to users. Perhaps insights could be gleaned from recent versions of NSF funded elementary text materials. Investigations (TERC, 1998), Everyday Mathematics (UCSMP, 2001), and Mathematics Trailblazers (TIMS, 2002) highlight subject matter prominently in materials for teachers through front matter in unit guides, routine within-lesson content notes, and vignettes of rich mathematical interactions where the teacher’s work to focus discourse on important subject matter issues is made the explicit focus. Any or all of these techniques could be appropriated by multimedia representations to enhance opportunities to learn subject matter.

There are two other features of professional focus that we want to raise. First, many websites in this exhibition support professional control of practice in ways that elude traditional research and clearinghouse materials. To allow for professional control of practice, the websites utilize video and transcribed conversations to convey analysis, interpretation, and substantiation that are missing from clearinghouse materials. They also convey the routines and craft knowledge often missing in research literature. The challenge for these representations is to orchestrate the specificity needed to relay practices that are actionable with the overarching ideas that will support responsible enactment. Second, whereas the style of research literature tends to minimize uncertainty and clearinghouse slogans often entice teachers to have confidence in their ready-to-use content, the multimedia representations vary in the degree to which they embody self-assuredness about what is known about the topics of focus. Professionals often view ideas and practices as works in progress, a disposition that would make the focus of most representations of practice the subject for doubt and necessary improvement. Pedraza’s somewhat critical overview of practice and student progress, headings like “puzzling teaching situations” on Lampkins’ website, and the tone of Capitelli’s “next steps” are hints of this disposition toward ideas and practices. Given that most of these representations capture the work of individual teachers, it is fitting that the focus not be treated in a way that indicates definitive conclusions, but we wonder how this aspect of professional voice will impact the trust users place in the ideas and practices conveyed in these representations.

What is the nature of support available in these multimedia representations?

Just like sound instruction, it is important for the multimedia representations to be focused, but also designed to support participants in ways that are calculated to be of most help in
learning about the object(s) of focus. There are multiple layers of support in the multimedia representations that are a part of this exhibition. We noticed that both mass marketed electronic resources and the more substantive representations in this exhibition provide structural support for users. Collections of lessons are often presented in particular formats that can be learned and used in the examination of subsequent lessons. They are also commonly organized around particular categories of information that are well known to users (state curriculum expectations or national standards). While Hatch and Pointer Mace (2007) elaborate the differences in organizational schemes of the multimedia representations in this collection, we were struck by the commonality of their format and categories of information. In general the left hand vertical column of the websites feature:

- contextualizing elements that convey the physical, developmental, political, and conceptual/intellectual features that shaped the teaching conveyed in the website. These elements include descriptions of place, grade level, standards, and teaching philosophies.
- elements of practice that capture what was used or done. These elements include classroom materials, sets of questions, and the types of records of practice that are available on the website, but extricated from the integrated examination of topics in the top horizontal row.

These commonalities could support informed use across the websites, as users gain familiarity with what to look for and where to find it. The extent to which these commonalities would support professional learning and practice depend in part on how users recognize and employ them as tools in subsequent use of the representations. Commonalities are veiled to some extent in the homepage index by differences among the labels and sometimes by the practical meaning of labels that are commonly used. Although all “resources” labels lead users to bibliographies of resources related to the focus of the website, some also lead in various ways to standards that are addressed in the website, provide direct access to techniques used by the featured teacher, and one even contains the personal writings and presentations of the teacher featured on the website. While it would not be necessary or reasonable for all websites to have exactly the same collection of indices, the extent to which there is commonality of words and meaning is likely to better support users over time.

Another related dimension worth consideration is whether the indices that are commonly used in the left hand column provide strong professional support for users. By professional support we mean a purposeful ensemble of indices that address a holistic view of the territory of teaching; a collection that moves beyond a listing of artifacts and contexts. These categories need not be developed through trial and error or individual design considerations alone, but could also be drawn from research and standards that have already been developed (e.g. Danielson, 1996; INTASC, 1992; NBPTS, 1994). One framework that we have frequently used to support teachers work with representations of practice is the instructional triangle (Cohen & Ball, 1999).

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Through this framework participants are lead through a sequence of activities to focus on students, the work of the teacher, subject matter, and the instructional environment within the record that is the site for learning. This is one way of orienting participants toward more holistic consideration of central aspects of mathematical teaching. Of course just as in the framing of traditional forms of research, there are other ways to conceptualize the overarching dimensions of practice. The point is that the nature of individual indices and the package of indices are worth further deliberation in terms of how they capture practice, how they resonate with users, and how well they support users in professional consideration of practice and concepts.

Further consideration of the nature of support in the exhibition representations reveals multiple layers of support for users. One that we repeatedly noticed was the use of records of practice. Most representations use records in the form of teaching videos, plans, and student work samples to illustrate the use or results of focus ideas in highly contextualized forms. This stands in stark contrast to the sparse packaging of plans available from electronic clearing-houses. With multimedia representations users get the opportunity to see how a teacher might implement a particular practice with particular children and in many cases glean insights into how students will respond. Most representations provide an additional layer of technological support around these records. This layer provides explicit instruction on accessing the videos of practice and avails users to multiple portals through which to access the videos. In this way designers have supported users in navigating potential technological barriers, which are common in the online world and all too common for teachers in schools with dramatically different access to technology.

We suggest that another layer of support for learning from records of practice is essential, but not as widespread or highly developed across the representations in this exhibition. Important
aspects of what can be learned from records of practice are not self-evident or easily distilled. So a video clip of a readers workshop session, does not in and of itself convey something of importance, but instead depends upon the analysis and interpretation of designers and users. In our work we have come to rely less and less upon unstructured work with records of practice. There is so much to notice that it is often not clear how records connect with what we hope will be learned or what learners should focus on that will provide a useful lens through which to perceive the “content” of the record. The work of framing can feel unnatural because designers of instruction often choose records strategically to convey particular aspects of mathematics or teaching, a process which can make those aspects seem obvious. We have dealt with similar challenges when selecting records from our mathematics teaching to illustrate important aspects of the work to various audiences. Our challenge in both cases is in finding ways of making these aspects clear and accessible to learners, something that is even more difficult to do in writing than in face-to-face interaction. The developers of the multimedia representations that are a part of this exhibition are uniquely suited to be docents of their own practice, to point in clear and captivating ways to the important, the essential, the interesting, and the possible. The three-layered approach that Capitelli uses with her video clips is a novel example of employing text to fulfill this role. Given that these multimedia representations focus on topics that are embedded within professional practice, developing more robust ways of supporting learning from records of practice will be essential.

How might multimedia representations be further enhanced to support the professional development of individual teachers and also the profession in a larger sense?

In this commentary we have shared a few ways in which the representations in this exhibition differ from more widely available resources developed to support teacher learning and practice, such as electronic clearinghouse materials and research literature. Clearly, multimedia representations offer a different sort of support for professional learning and practice. We also explored some issues that complicate the use of multimedia representations of teaching for learning and/or improving practice. While we posed examples of ways in which particular complications might be addressed, there is a more systematic approach that holds long term potential for improving the development, accumulation, and dissemination of professionally useful multimedia representations of practice. To sketch the approach we will highlight the roles played by organizations in our field to make professional knowledge and practices more widely available to various audiences. Even though the widespread use of multimedia representations for learning and instructional improvement is relatively novel, this fact need not require that we start from scratch when working to improve and ensure the professional utility of materials.

Organizations play a central role in the availability of resources for professional learning. Organizations shepherd materials that align with their areas of expertise, philosophical/practical commitments, and at times commercial interests. Among many important roles, organizations:

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• promote the initial development of resources (in areas of high importance and also in areas that are perceived to be under represented)
• support the routine development of materials through multiple means
• create procedures and systematically marshal expertise to vet and improve resources before they are made available
• determine how materials will be organized
• disseminate materials, ideas, and practice through multiple means (e.g. journals, edited collections, websites, and conferences)

In sum organizations often orchestrate the caretaking of professional knowledge and practice by members of the profession and interested others. They systematize material development, enhance its quality, and work to assure its accumulation over time. While the particular ways in which organizations shepherd materials may differ, there are clearly broad commonalities in the roles that organizations play that enhance the utility of materials that in turn support work and learning in their respective fields.

In the exhibition at hand, multiple organizations are connected with the multimedia representations. The Carnegie Foundation for the Advancement of Teaching provided resources for “case development”, research collaboration, support for video access, and even mechanisms to collect and channel the website feedback. The National Center for Restructuring Education, Schools, and Teaching supported the development and dissemination of at least two of the websites. Each website illustrates differing, but tangible, impacts of organizations with which the focal teachers are affiliated, be they universities, professional networks, or various levels of school systems. Undoubtedly these organizations made impacts upon the contents of the representation and, judging from their commonalities, probably upon the design of the representations as well. However, it is less clear about the extent to which such a loose coalition of organizations could undertake the systematic and widespread support of multimedia representations that would be needed for these resources to become a substantial professional development option. Considering the list of roles that organizations play in relation to more traditional resources shared above, it is possible to think ahead about the infrastructure needed to move these representations along a developmental trajectory toward greater professional quality and usability. For example, how could groups of peers and experts be routinely convened to vet multimedia representations? What criteria could be productively used in what sort of review process? Organizations responsible for well-established materials make their criteria and processes public, so that contributors will know the ways in which their materials will be judged, so that users have an enhanced sense of credibility, and to establish baselines for what counts as professionally warranted knowledge. Even though the genre is still being developed, it is likely that groups involved in the development of representations like those in this exhibition will be able to articulate important features (e.g. Hatch and Pointer Mace’s (2007) ideas of “scope and granularity” related to the way in which representations orchestrate access into practice). Similarly, it is also plausible that organizational calls for collections of multimedia representations could stimulate the construction and dissemination

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of professional resources centered on particularly important topics or advance consideration of relatively under-addressed topics. This is akin to the function of calls for edited volumes of research literature. The representations in this electronic exhibition were organized to convey a multitude of possible strands of learning and action that could be traced across the websites, but Hatch and Pointer Mace (2007) may have already sketched categories that could be used to organize subsequent collections with narrower foci.

**Professional Destinations: From where to here and from here to where else?**

We close this commentary by taking a broader perspective on the professional implications of teacher generated multimedia representations and the impact of compiling such work. The act of creating well-considered, multidimensional representations of practice is an expression of responsible participation in a profession. This is a nontrivial act in a country where “what works” in education is being operationalized by some in ways that are likely to exclude teachers from participation in making claims about effective practice (e.g. IES, 2002). It is difficult to imagine that teachers will be able to support the learning of diverse populations at consistently high levels or in widespread fashion over time without sharing, accessing and routinely building upon the well honed practices of peers (see also Shulman, 1993; Shulman 1999). As we have already detailed in the discussion of organizational support, much will be entailed in establishing a credible and workable processes for sharing well-warranted ideas and practices through multimedia representations. However an equally difficult challenge will be to facilitate the work of teachers to convey ideas and practices and to convince a growing subset of teachers that the effort is worth the effort (Boerst, 2003). Just because a teacher is particularly skilled or knowledgeable does not insure that she or he will be adept at conveying this professional insight in ways useful to others. In fact those who are able to skillfully teach and also comprehensively convey salient aspects of that work are a celebrated few (e.g. Lampert, 2001). This collection of online representations is a hopeful sign that more teachers can and will shoulder this important work. It is also an indication that there are organizations pioneering new ways of conveying professional insight and willing to support teachers in that work. May we continue to expand this work so that more teachers can skillfully participate, as well as continue the improvement of this medium so that it can become a substantive part of the professional development landscape.

**References**


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Hatch, T., & Pointer Mace, D. (in press). *Key questions for representing teacher and learning using multimedia and the web: Text to accompany an online exhibition.* Available from (webaddress)


National Board for Professional Teaching Standards (1994). *What teachers should know and be able to do*. Southfield, MI: NBPTS.


Dr. Milton Chen is executive director of The George Lucas Educational Foundation located in the San Francisco Bay Area. GLEF produces a multimedia website (edutopia.org) showcasing 21st Century schools, as well as Edutopia magazine and documentary films. Dr. Chen was education director at KQED-San Francisco (PBS), research director at Sesame Workshop, and an assistant professor at the Harvard Graduate School of Education. In 2007-2008, he will be a Fulbright New Century Scholar at the University of Edinburgh.

Dr. Chen discusses how these multimedia exhibits enable a new form of discourse about teaching, valuing visual images and dialogue of teachers and students working in classrooms along with written commentary. These classroom case studies present a new form of instructional storytelling, as teachers reveal their efforts to make sense of and guide their students’ learning processes. Dr. Chen recommends improvements to the “information design” of the exhibits, and points out the irony of using multimedia technology and the Internet to produce these exhibits, while the classrooms profiled do not have access to these same tools.

My lens for viewing these exhibits is somewhat unusual. My work at The George Lucas Educational Foundation (GLEF; http://www.edutopia.org/) involves making media in many forms (documentaries, a multimedia website, edutopia.org, and a magazine, Edutopia: The New World of Learning) about innovative teaching and learning in our nation’s schools. GLEF’s media focus on themes such as project-based learning, cooperative learning, technology integration, and community-based schools. So I have a keen interest in how visual media, such as documentary film, and new Web-based technologies can help audiences “see” into interesting classrooms and better understand the complex issues of curriculum, instruction, assessment, and policy. However, on issues of pedagogy in literacy or subject matter specialties, I am a generalist, not an expert.

The experience of viewing these exhibits felt more like visiting a good museum than reading journal articles about teaching. Given a free Saturday afternoon, which would even the most dedicated educators and researchers choose? There is something compelling and powerfully communicative about seeing students and teachers in a classroom, struggling with the complex issues of how to teach and learn, up close and personal, with the teacher’s rationale, lesson plans, and reflections as supporting materials. By living on the Web, this exhibition does indeed “make teaching public” and marks an important step forward in educating the public, and educators, about public education.

This exhibition reminded me of a revealing anecdote told to me by Dr. Roger Nichols, then director of the Boston Museum of Science, more than 20 years ago. He left a tenured position at
the Harvard Medical School to devote the final chapter of his career to informal science education. I wish he were around today to weigh in on what’s needed to address the continuing crisis of science education in this country.

Nichols asked me to imagine parents at the dinner table asking their young son or daughter that frequently asked question, “What did you learn in school today?” The child shrugs, as they often do, and says, “We learned to play basketball.” The parents then ask, “How did you do that?” The child answers, “Well, we sat in the gym and the teacher passed out these books and we turned to chapter one, about passing the basketball, and we learned there are three types of passes—the bounce pass, the chest pass, and the one-handed pass.”

“OK,” parents would say, wanting to know more, “What happened next?” The child continues, “We read the next chapter about dribbling. And another chapter on shooting. We learned there’s the set shot, the bank shot, and the jump shot.” After a few minutes of this recitation, the parents, increasingly exasperated, would challenge: “But did the teacher ever give you a basketball and let you get on the court and play?” “No,” the child sighs. “We just read the book until the bell rang.”

Nichols said that no parent in America would stand to have sports taught through reading. Sports require performance, watching others perform, and observing oneself performing. Coaches and athletes routinely make use of videotape analysis of games to improve performance. Yet millions of parents settle for science, mathematics, history, and other subjects taught as rote memorization from textbooks, while students are denied the chance to actively do and “perform” real science or history.

This mentality of performance is now coming to the art of teaching. Teacher education has long suffered from the belief that the discourse of teaching should be conducted largely through text and words, often very long treatises in textbooks and journal articles. We are now acknowledging that teacher education should likewise involve less time in passive reading and listening to lectures and more time actually learning to perform in a classroom, together with opportunities to observe master teachers and oneself.

These exhibits demonstrate how the terms of that discourse can be dramatically changed and improved. They are a shot over the bow of the old school of thought, where only the word mattered. The exhibits show how images of teachers and students engaged in the daily business of teaching and learning can be very compelling, drawing the user in and inviting deeper analysis and reflection.

Consider the cases of two teachers of first- and second-graders on opposite coasts, Sarah Capitelli in Oakland and Melissa Pedraza in New York City. Their enthusiasm for teaching and commitment to constant improvement cannot be fully captured on the written page but are
resoundingly clear on film. We see it in their interactions with students, hear it in their voices, and read it in their reflections.

We see similarities in their approaches, for instance, in organizing their classes for small group work, and also perceive differences in their classroom contexts and students, such as Ms. Capitelli’s high percentage of English language learners. Taking a lesson from the case study method of research, there is value in cross-case analysis, which suggests a further level of development for these individual exhibits.

Ms. Capitelli’s short film excerpts of her classrooms, such as a pair of bilingual students engaged in a peer tutoring exercise, her session analyzing these excerpts with fellow teachers, and student readings of information gleaned from interviews with family members give complementary views of student performance and her interpretation of them. The exhibit invites the user to think along with her, for instance, on how her instruction might focus on students’ use of pronouns and verb tense.

http://gallery.carnegiefoundation.org/collections/castl_k12/scapitelli/index.html

Melissa Pedraza’s three-year relationship with teacher mentor Leslie Richmond, communicated thru film segments of their mentoring sessions, shows the benefits of a longer-term mentoring relationship. They plan and critique lessons together in friendly, trusting exchanges. Teacher mentoring is shown to be a two-way street, of obvious benefit to the newer teacher but also providing veteran teachers with a new avenue for reconsidering their own practice as well. (http://www.tc.edu/ncrest/teachers/pedraza/mentoring.htm)

Both of these cases are indeed acts of storytelling. Like a good mystery novel, they draw the audience in, into the mind of a teacher and a student. We witness Ms. Capitelli’s and Ms. Pedraza’s own thought processes, and their own determination, as they persist in improving their practice and helping their students succeed. There are other learnings, as well, such as the power of placing students in peer tutoring situations, and the enthusiasm and determination of ELL students for communicating about ideas and people that matter to them—their parents, relatives, even their pet dog.

These are moving images in many senses and ask us to use our many senses to interpret them. Film can capture the “big picture” as well as key instructional moments. It can also personalize teachers and their lives as they discuss their goals, their successes, and their attempts to improve their practice. Film is the most powerful medium for conveying human emotion, since learning involves matters of the heart—persistence, conflict, joy, disappointment— as well as matters of the head. But in addition to film, we now have a multimedia palette for painting numerous aspects of teaching and learning in greater detail and with greater impact. Text can serve to explain and amplify. Graphics and diagrams can organize concepts.

Purpose and Audience

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These exhibits currently seem to address educators as their primary audience, from pre-service to veterans, and appear intended for use within an education course, a professional development activity, or for research. Like many exemplary media products, these exhibits of teachers’ work can find a broader audience, including administrators, parents, and policymakers. If school board members or state and federal policymakers spent a few hours making these virtual visits to schools, the quality of policy discussions might well improve, closing the gap between most policy-level discussions and the reality of today’s classrooms.

The exhibits could make a greater contribution to the redesign of schools if these core exhibits could be “refracted” for expanded audiences of principals, district administrators, policymakers, and parents. A section for principals could discuss how principal leadership at each site enabled these teachers to work in a collaborative learning community and how time and resources for professional development were arranged. A section for superintendents and/or legislators could describe how district, state, and federal policies supported the kinds of teaching and learning seen in the exhibits. It could also discuss policies that restrict and inhibit powerful instruction. Could any policymaker advocating an English-only classroom for English-language learners fail to be persuaded by Sarah Capitelli’s fusion of both languages in her classroom? These user-specific sections would provide a deeper layer of “how-to” information, helping users understand the policies behind the practices and how more of these classrooms can be created.

Information Design

The exhibition prompted me to think in very basic terms about media and their uses: what are words good for? Written work from students vs. commentary by teachers and their mentors? What are pictures good for? Moving pictures vs. still images? What role does audio play? The ability to hear students’ and teachers’ voices? And, in more complex terms, how are these media best assembled to tell a story, in this case, the story of how a teacher organizes instruction in a classroom?

These issues of information design are actively discussed in the worlds of website development, multimedia, and graphic design. It would be very interesting, for example, to have a skilled information designer take these exhibits and redesign them for a cleaner, more intuitive interface, to select fonts, colors, layout and other elements to promote readability, ease of use, and, in common Internet parlance, a better user experience. To use a web developer’s term, there are many “assets” used to construct these exhibits, but they could be presented, edited, and sharpened, in the same manner that a good book editor takes a writer’s first draft and shapes it at many levels, from moving chapters around to specific line editing and word choice, to create a stronger product.

For instance, in Sarah Capitelli’s exhibit, the font for much of the text is thin and small, while the substantial white space could have been devoted to more readable text. Details such as line
length should be considered. The eye likes to scan shorter lines in longer columns; newspaper and magazine layouts are designed in columns for their scanability. The inclusion of a transcript accompanying the video conversation between students, is an excellent idea, to both clarify the words spoken when the audio was muffled and to enable review and analysis.

Edward Tufte, the Yale professor of statistics and graphic design, has written a provocative essay called “The Cognitive Style of PowerPoint.” He makes the point that most PowerPoint users rely excessively on filling their slides with text, literally reading their presentations off their slides. His point extends to websites, as well, where insufficient attention is given to using other media to communicate. As one colleague of mine is fond of saying, “E-learning should not be limited to e-reading.”

The technology itself can help with this task. There is a growing trend to create “electronic portfolios” using pre-designed templates to enable easier production of portfolios and exhibits such as these, without the need to master underlying programming code and the finer points of graphic design. These publishing platforms enable faculty and students to upload multimedia in the form of film segments, audio files of interviews, music, documentaries, photos, and slide shows, as well as text of papers and articles.

The Minnesota State Colleges and Universities is a leading consortium bringing such portfolios to scale statewide. Every Minnesota resident can use this system, called E-Folio, free of charge, to create “an electronic showcase” of their work. The site includes many other provocative examples of portfolios from university faculty and K-12 teachers, all created from the same design platform.

The Institute for Multimedia Literacy at the University of Southern California has also pioneered multimedia teaching and learning, in part led by the presence of its leading film school and support from the Annenberg Foundation. More than 100 faculty from various departments are using multimedia in their teaching. Their students are creating websites populated with products of their knowledge, including films, animations, music, and audio slide shows. The IML has also broken new ground in publishing a multimedia academic journal.

Using a 21st Century Medium to Showcase Good 20th Century Teaching

It is ironic that these teachers and their partners have produced these websites using computer hardware and software, digital cameras, and Web authoring tools, yet their students are seen with little or no access to these tools. Many districts are now creating 21st Century schools where innovations such as project-based learning, integration of technology, and involvement of experts from the community transform the 20th Century classroom. The George Lucas Educational Foundation chronicles these types of schools via our multimedia website at www.edutopia.org.
To fully realize the potential of the Web-based exhibits, future exhibits should document 21st Century teachers, students, and classrooms, where Internet access, laptop computers, and wireless connections enable a new paradigm. These technologies need not be prohibitively expensive. A teacher armed with one computer, an LCD projector, high-speed Internet access, a smartboard, and, for good measure, an inexpensive student response system (of the type now required at many universities) can change the Industrial Age classroom into an Information Age environment.

Jason Kamras, National Teacher of the Year, would make an excellent subject for an exhibit. He is a prime example of the new, younger digital educator. He has used the technology tools described above to teach mathematics to his middle-school class of largely African-American students in Washington, DC, with impressive results. He has raised math achievement from 20% of his students at grade-level to 60%.

http://www.edutopia.org/php/article.php?id=Art_1528

http://www.edutopia.org/php/article.php?id=Art_1529&key=238

http://www.edutopia.org/php/article.php?id=Art_1594

One key to his success in creating a positive and productive culture in his classroom is his emphasis on incentives for success rather than punishment for failure. He believes many teachers spend too much class time on sanctions for misbehavior rather than rewarding students who follow the rules, treat each other with respect, and turn in work on time. He gives the example of the everyday occurrence of students lining up to leave his classroom. Instead of focusing on those who are slow to get in line, he starts at the head of the line and thanks each student for being ready.

Kamras uses his cell phone to improve the classroom climate. Whenever one of his students does something well, whether a good test or a strong presentation, he whips out his cell phone and calls their parent to let them know. That brief call does wonders for that student, with the result that every student strives to have Mr. Kamras call their parent at some time that year. How many millions of teachers have a cell phone tucked in their purse or pocket and have yet to hit upon this idea? Capturing that moment on camera in an exhibit would help to spread this and other simple, yet powerful classroom practices.

From Individual Exhibits to a Shared Community of Exhibits

2006 has become known as the year in which “Web 2.0” became widely known as the term for the next version of the Internet. The Web is now morphing beyond a network of interconnected sites where users obtain information and make transactions. Its next revision, Web 2.0, involves an Internet where users not only extract information, products, and services, but con-
tribute their own content, as seen through the photo-sharing site Flickr or the video-sharing site YouTube.

These exhibits can benefit from this transformation of the Web and serve as models for others to create their own exhibits, share commentary, and improve each other’s work. Think about these exhibits as the beginnings of myteacherspace.com. What could happen if Sarah Capitelli, Melissa Pedraza, and many other first- and second-grade teachers could share their exhibits and communicate with each other?
These days, there is more talk about teachers and quality teaching than perhaps there has ever been before. In recent public opinion polls, for example, it’s clear that although the public wants educational reform that’s tied to accountability, they also equate educational improvement with quality teaching and are not willing to lower hiring standards to solve the teacher shortage problem. Along similar lines, even among those who are in favor of teacher education reforms that are quite different from one another, there appears to be consensus that teaching quality is a critical influence on how and what students learn. And, in a number of civil rights cases across the country, legal advocates have been asserting that access to excellent teachers is a birthright of all children. In short, everybody—researchers of all stripes, teacher educators, policy makers, and the public--agrees that teacher quality matters.

For better or for worse, however, there isn’t a clear agreed-upon definition of what quality teaching looks like or what excellent teachers do in today’s classrooms. And of course, teaching has changed dramatically in the last 30, 20 and even in the last 10 years. Unfortunately, it sometimes seems that some of those who have the most to say about how teaching and teachers’ preparation should be improved have the least knowledge about actual schools, classrooms, teachers, and students. Perhaps it’s even fair to wonder sometimes whether some politicians, critics, and researchers, have even been inside a classroom since their own school days. The challenges today’s teachers face are extremely different from the challenges that faced our mothers’ and fathers’ teachers—the global world in which we live is both smaller and larger than it used to be, the school population in many nations is increasingly diverse, the number of U.S. school students who speak a language other than English at home has skyrocketed, and the opportunities that technology makes possible have increased exponentially. At the same time, there are persistent achievement, opportunity, and graduation rate disparities among differing racial, cultural, and language groups; there are unprecedented new accountability mechanisms in place at the local, state and federal levels; and in some places, teacher shortages and/or teacher turnover are severe problems. So what’s teaching like in this era of globalization, accountability, and rapid change? What does quality teaching look like today? How are teachers dealing with the challenges and possibilities that face them?

“Making Teaching Public: A Digital Exhibition” is one answer to this question. This exhibition offers a multimedia avenue for revealing some of the most important aspects of quality teaching and learning. It gives viewers a chance to see inside classrooms, a chance to hear teachers’ own words about what they are trying to do with their students and what they are struggling with, and a chance to expand ideas about contemporary roles and responsibilities of teachers.

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I thoroughly enjoyed my tour of this innovative and quite unique exhibition about teaching and learning. As I sampled videos and students’ work products, I was struck by the fact that a multimedia exhibition like this is particularly good at representing certain aspects of teaching and learning. As I toured different classrooms and sat in on reflective conversations among teachers, I found myself wishing that many of those folks who have strong opinions about how to fix teachers and fix the schools would participate in this kind of virtual tour of quality teaching.

The connection between teachers’ learning and students’ learning is particularly clear in these snapshots and videos of classrooms. The juxtaposition of classroom discussions followed by teacher’s reflections, for example, reveals quite vividly that teachers are actors as well as analysts, doers as well as thinkers, and users as well as creators of knowledge. These exhibitions are especially good at demonstrating that teaching practice is a broad and expansive notion, not a narrow one. Contrary to the notion of “best practice,” which is sometimes very narrowly construed to mean the faithful application of proven teaching techniques to classroom situations, these exhibitions are very good at revealing the professional, intellectual, and relational aspects of teaching. It is clear that the teachers in these videos know their students and use their knowledge and their relationships with students as scaffolding for building new knowledge, teaching skills, connecting to students’ cultural and linguistic resources, and motivating students to want to come to school and learn. It is clear that quality teaching means teachers who are also learners who reflect on and inquire into their practice on an ongoing basis. It also means learners who are teachers—in that teachers learn from their students about how to create curriculum and instruction that is in keeping with varying needs, interests and backgrounds at the same time that it is connected to high expectations for all.

As I finished my virtual tour, I was struck by the fact that a digital exhibition like this—with the myriad possibilities that multimedia affords—is a powerful way to demonstrate the complexity of teaching and learning. In today’s accountability context, it seems easier and easier for those outside teaching to conclude that the proof of the teaching and learning pudding is in test scores, and test scores alone. This multimedia exhibit belies that too easy and too simple assumption. It is clear that the teachers and the students represented in these exhibits are learning, but it also clear that it takes much more than a single indicator to capture that learning.
As a teacher, one finds the opportunities to study teaching directly by studying the work of other teachers are surprisingly rare. A short apprenticeship as a student teacher, occasional observations of senior colleagues or team colleagues, that was about it for me until the summer I attended a National Writing Project summer institute. It was in that institute, where every morning for 20 mornings we looked in depth at a case study of teaching presented by the teacher herself, that I first experienced a profession-based induction into the study of teaching, an induction that opened the door to teacher-research, professional learning communities, and tremendous personal learning. Central to this process was that we worked as colleagues to prepare our own case, to look in depth at each other’s cases, and to reflect systematically across cases to build common knowledge, pose problems, and surface dilemmas. It was such a simple and powerful approach that it still surprises me that the experience of systematic study of practice by practitioners is so very rare in teachers’ lives.

The body of work which teachers are creating through the websites collected in this exhibition aim to advance teaching in just this way: by using new digital tools to expand access to the work of excellent practitioners. As a teacher-researcher and participant in teacher professional networks, I am interested in their potential for offering teachers more broadly the tools for their own study of practice. Can we use new technologies to expand opportunities for many educators to study teaching by directly studying the work of teachers, presented by teachers, shaped by teachers’ questions and arguing from teachers’ perceptions? These websites open up intriguing possibilities, but also raise fundamental questions.

Representing teaching as intellectual work

Teachers who study teaching all need to wrestle with a fundamental issue: the act of ‘teaching’ itself is ephemeral. Of course, teaching leaves traces, creates artifacts like curriculum materials and student work: it lives in our memories and fuels our teaching stories. But fundamentally, practitioners who want to study teaching reflectively and critically feel as if we are always
running after it, trying to capture it and hold it still so that it can be pondered awhile, taken
apart, put back together, and compared with other cases. It’s a dilemma shared with other
‘performance artists’ – dancers, musicians, actors – who rely on various note-taking, recording,
and representational schemes to capture performance and intention so that it can become an
object of study. But at the same time we worry about how the capture reduces the phenome-
non, even as it opens up the very possibility of understanding it in new ways.

These websites use new digital tools to tackle the problem of ‘capturing teaching’, incorporat-
ing digitized classroom and curriculum artifacts, audio and video, photography, and written
documentation of events. But the websites also say that these traces and recordings are insuf-
ficient without a sense of the teacher’s agency at work. Artifacts and recordings are juxta-
posed with reflection, commentary, and analysis in dense accumulations that honor the com-
plexities of teaching and of life in classrooms more generally.

In contrast to other forms for representing teaching, the websites offer intriguing advantages.
Unlike a workshop, they can be revisited again and again and studied at leisure. Unlike an ar-
ticle, they incorporate multiple media and allow the viewer to move through in non-linear
ways. By using new digital tools that allow for evermore complex and multilayered represen-
tations, these websites enable their practitioner-authors to “say” new things about practice.
The tools themselves enact theorizing about particular dimensions of teaching – the hybridity,
layeredness, and simultaneity of the experience of teaching -- dimensions teachers would
struggle to convey in forms like narrative, articles, workshops. And they allow the viewer to
construct his understanding actively and individually by the choices he makes as he navigates
through an extraordinarily thick, highly compressed soup of idea and image.

But when we look at these sites, we aren’t actually looking at teaching. We are looking at an
argument about teaching – or an argument for one vision of what teaching is: complex, multi-
faceted, multidirectional, individually achieved, driven by intentions that are rational and
knowable, evidenced in the specifics of curriculum and student work, more intellectual than
intuitive, more linguistic than physical, more theory-driven than tradition-bound. (As the say-
ing goes, “interesting, if true.”) This argument for teaching as intellectual work is embedded
as much in the tools and designs of the websites, in the genre itself, as anything else. These are
rhetorical forms appropriate to a kind of intellectual/professional vision that they are, at the
same time, attempting to create.

Representing a profession to itself

So what about the overall project of representing teaching as complex intellectual work – to the
profession itself? (An idea I am partial to.) Seeing these websites as part of such a project
raises three questions for me:
1) Does the collection of the websites stand alone, or is there something they don’t do by themselves, something that requires a different surround?

The websites don’t, actually, enable their own use. It is hard to imagine that large numbers of teachers will find and then interact with these complex and consuming websites on their own. They demand significant commitments of time from their viewers – they don’t give themselves up easily. Despite their 24/7 online accessibility, they run the risk of ‘sitting on a library shelf’ like many other resources for the teaching profession. Representations of teaching make teaching available for study, but don’t organize the study itself.

My guess is that teachers who find them will typically encounter them as part of other face-to-face or facilitated processes like “the professional development course”, “the graduate course,” or “the teacher network study group.” Much of what we do in teacher professional networks could be understood as managing social processes for engaging teachers in the study of teaching. Formal protocols, little traditions, small group processes for talking, writing, and reflecting on teaching come to define what it means to be in a network. Engaging colleagues in these activities is not easy work. We share a work environment that provides little time or space for reflection and may even treat it with suspicion, where the daily grind threatens to overwhelm teacher and student alike. In the face of this, active and engaging social processes are required to create the human space for study. The websites themselves don’t create social processes; they serve as resources to those who do.

2) Can these exhibitions serve as resources to these efforts?

Currently, most of the social processes that engage teachers in learning are face-to-face and performative. Even those conducted online are typically facilitated to support a community experience. How a complex digital representation fits within such social practices is an interesting question. For example: a teacher-viewer of one of these websites will effectively exploit the potential of the medium by following her own interests through the threads of the site. How does a process that repays individual interest so effectively play in a larger group setting? How do groups collectively decide how to interrogate something that as complex as these representations? Are the digital tools and the learning environment well matched, or should one drive the other? If someone – say a professional development facilitator -- chooses to take a piece out of the representation and lead a group through it in some way, has the representation been reduced? Do we lose the simultaneity/hybridity that the medium can express when we dismantle its complexity? Or, should the collection itself be enhanced or re-designed based on the assumption that most people encounter it through some process of social mediation? Should the collection be indexed and curated according to the uses these outside actors envision? How should the collection manage the purposes and intentions of these mediators relative to the purposes of the teacher-creators themselves?
In studying this exhibition in relation to the argument for teaching as an intellectual, professional activity, I am caught between two powerful images: 1) the museum exhibit, where each website is an individual work of art and where the mediator is a docent who helps the appreciative visitor understand the richness and depth of the collection, and 2) the supplemental resource or textbook which finds its greatest utility in how it is shaped to fit its context of use. The latter will help the work of these teacher-creators circulate, but will also take it away from them. Which is more important in the professionalization project?

3) Who should be archived in this way?

Finally, if our interest is in using new digital tools to enable professional learning for teachers, we must consider who gets the opportunity to represent their practice in these ways. Is the collection intended to portray images of ‘elite’ practice by ‘exemplary’ practitioners? Or is the aspiration more democratic: strong practice by garden-variety good teachers? This is a critical issue for the teacher community which has an ambivalent relationship to forms of individual recognition. The ambivalence is exacerbated by the paucity of representations of teaching overall (opportunities are so few, and teachers are so many) and by the significant investment of time and resource needed to support representations as complex as these. How does one get noticed? Invited? Supported? With greater investment come more care in selection and review and perhaps more authority for the representation, and a harder decision about who and what to invest in.

The other alternative is to follow the lead of, say, Wikipedia. Perhaps creating a website about one’s practice represents a learning opportunity that should be widely distributed? If so, we will need new, improved, easy to use tools that dramatically reduce the investment in creation. The KEEP project (http://www.cfkeep.org) is investing in building and distributing these tools more broadly, and in the world at large teachers are as able as anyone else to take up tools like blogs, podcasts, and websites to put their teaching lives online.

Every teacher potentially a creator – a blogosphere of teaching? Of course, this won’t ensure the work will be viewed or read or understood. It won’t surround the creator with critical friends on the way to production. It won’t ensure that sense is made or that quality surfaces. For that we will need to turn our attention away from the representations, impressive as they are, and work on the very different challenges of keeping and creating teacher professional community.
These comments begin by applauding the "Making Teaching Public" effort and then go on to consider some of the difficulties in organizing multimedia to portray teaching and learning practice in ways that do justice to its complexity and multidimensionality. Issues and tradeoffs in the initial shooting of video footage that adequately captures the complexity of teaching and learning are also discussed as well as the importance of taking into account in website design the prior knowledge and viewpoints of website users.

Showing the “how” of teaching by means of a multimedia array of different kinds of information is more difficult than it might seem at first glance. The new website “Making Teaching Public” is a groundbreaking effort, going much further than anything like it that I have seen. Yet teaching is so elusive, so complex, that as one visits this website one realizes how little we still know about teaching—and therefore about how to represent it in multimedia. Thus “Making Teaching Public” is at once a significant achievement and a challenge to further achievement. It’s a bit as if we were able to watch the first flight of the Wright brothers’ bi-plane—the very success of so daring an attempt inspires us to imagine still more.

It ought to be easy to use multimedia to make teaching public. Teaching is complex, and multimedia affords a wide array of means of representing that complexity, as well as the possibility to store and retrieve theoretically unlimited amounts of information on any of the various representation modes that multimedia supports—video clips, still photographs, written commentary, oral “voice-over” commentary, analytic charts, frequency tables, links to information on other sites on the web.

Yet it took years for this website to be launched. Some of the reasons why are reviewed in an overview essay by Tom Hatch and Desiree Pointer-Mace, titled “Key Questions for Representing Teaching and Learning Using Multimedia and the Web.” On the website homepage the link to this essay is found at the very bottom of the page, labeled (perhaps too modestly) DISCUSSION. I suggest that any visitor to the website click on that link, skim the essay, and then work back and forth between it and the rest of the website. Just as the website presents the most extensive multimedia portrayal of teaching practice that is now available, so the essay is
the most complete discussion I have yet seen of the complexities of producing multimedia representations of teaching that actually achieves the aim of making teaching public.

The essay makes four main points: (1) multimedia as presented in a website permits “layering” of information, and this is appropriate because of the complexity of teaching, (2) the various teachers in the array of cases presented in the website emphasize differing aspects of the complexity of practice—there is a question of whether a certain set of aspects may be common to all teaching and whether in the future those aspects might usefully provide a common organizing grid—common categories of practice and common “layering” organization—across cases such as the metaphor that appears in Hutchinson’s site, “class anatomy,” (3) the tension between “scope and granularity” in the various cases—representation to make the visitor “forest-wise” about broad issues and aims in teaching or “tree-wise” about fine details of teaching/learning tactics, or both, (4) the autonomy of visitors in constructing their own sense as they use the website—they bring to their viewing of teaching practice their own viewpoints about teaching practice, and they can at will skim the material in the website or engage it in a more thoroughgoing way—with the consequence that what the creator of the website thought the “meaning” of it was may not be what the visitor ends up seeing in it.

Let me comment on the first two of these points and then on the latter two. As for “layering,” that is one way a website deals with the presentation of complexity—embedded layers of generality, in class-inclusion taxonomy. Another way to think of complexity and to deal with it presentationally is to think of distinctions of kind across multiple dimensions of practice, as if “teaching practice” were a multidimensional space and various dimensions were analogous to microtome slices through a three dimensional object—each slice, coming at a different angle, reveals some aspects of the organization of the three dimensional space as a whole, and each slice also conceals some aspects of organization. Class-inclusion “layering” by itself may not clarify anything—indeed a recent comment on the web by Edward Tufte makes a strong case against overuse of the hierarchical embedding by which PowerPoint presentations are conventionally organized (see E. Tufte “PowerPoint Does Rocket Science” at www.edwardtufte.com/bboard/). But figuring out which combinations of dimensions of contrast can adequately capture the complexity of teaching—that’s an issue of basic importance, which the essay by Hatch and Pointer Mace emphasizes. One can see in the website as a whole how important is this matter of organizing a particular portrayal by adopting a particular way of slicing through the complexity of teaching. I will discuss this in some detail in the remarks that follow.

One of the things I find most interesting in the set of cases in the “Making Teaching Public” website is that each teacher who prepared a website case sliced the complexity of teaching somewhat differently. Yvonne Hutchinson’s website presented video and other detailed information about a single day’s high school English lesson. She locates that lesson in the overall history of teaching for that year—there is a link for “how they got here” (what things looked like at the beginning of the year, and a link for “where they went next” (showing stu-
dent work and comment from the following year). Under the heading “Content and Reflections” there are links for “Thinking with text” (a crucial set of skills to be taught), “Project Snapshot,” “Teaching context” (school and students), and “Video comments” (Hutchinson discussing her approach overall). There is also a heading for “Materials and Strategies,” with links for “Strategies for promoting literate discourse question-answer relationships,” and “Anticipation Guide” (for reading), and a “Reading Response Prompt” (with a sample of student response writing).

In contrast, Marsha Pincus presented her teaching of an entire unit in high school English—a study of the play “Macbeth.” On the horizontal axis, across the top of her home page appear the following three headings: / Whose English?: Getting students into the language of Shakespeare / Shakespeare’s Blues: Making personal connections to Shakespeare / Interrogating Macbeth: Crafting a literary analysis. On the vertical axis, along the left margin, appear the following items (listed from the top down) Content, Context, Teaching Practice / Student Work, Reflections, Resources, Standards / Archive.

The home page assembled by Jennifer Myers used the same list of headings at the left margin, on the vertical axis as had the home page done by Marsha Pincus. (This may indicated a move within the whole website toward this array of links as a standard set of categories for organizing the presentation of each new case.) Myers is portraying an overall approach to literacy instruction in early grades—“Reader and Writer Workshop” (this is neither the portrayal of a single day of instruction, nor of a single unit of subject matter, but of an approach used across the course of a school year). On the horizontal axis, across the top of her home page Myers presents three main headings as links: /Setting Norms: Rituals and routines to support the workshop approach / Readers and Writers Workshop / Touchstone Texts: Revisiting favorite books for new lessons.

Melissa Pedraza’s home page was organized without the standard categories on the vertical axis. Her site was organized to illustrate two primary foci of teaching for literacy in the first grade: “text to text connections” and “accountable talk”. Pedraza placed at the left margin the following links, in top to bottom order: Curriculum: reading, Focus: text to text connections and accountable talk, Reflections: on team teaching, inclusion, and teacher mentorship, and Resources: Melissa’s materials. Links that appeared on the horizontal axis at the top of the home page were: /First Grade Literacy / Accountable Talk / Reading Block / Inclusion / Teacher Mentoring.

The various sites also differed in the amounts of student work they presented and in the prominence with which student work was presented. They differed as well in how much emphasis was placed on various “backstage” aspects of teaching, including planning—sequencing topics and devising special learning activities—and the assessment of student work to guide next steps in instruction. Further, they differed in the length of the strip of instruction
that they portrayed—a single, crucially exemplary lesson, a connected series of lessons in a whole unit, a set of strategies employed across an entire school year.

This diversity of organizing approaches across the cases certainly shows the complexity of teaching (and the difficulty that is inherent in portraying that complexity). To my mind, looking across the cases underscores the complexity of teaching even more than does close examination of one case at a time—my hunch is that visitors will get smarter about teaching by viewing a number of the cases comparatively rather than by concentrating on a single case. (The latter approach also risks treating a given case as if it showed practice that was directly imitable by the viewer—it seems to me that the cases are best considered as evocative portrayals to stimulate reflection and possible adaptation of new approaches into one’s own practice, not as models that are exactly imitable point by point.) The diversity of organizing approaches that is apparent across the cases also suggests that at this early stage of development in multimedia portrayals of teaching practice (recall my Wright brothers analogy) there is no “one best way” to organize all cases. To underscore this point let me describe an approach to website organization that my colleagues and I—classroom teachers in collaboration with university faculty, all involved in authoring—are taking in a project sponsored by the National Science Foundation. We are building a website to show early grades science instruction for deep conceptual understanding. The website is not yet operational—we are assembling and field testing it this year and may have a beta version available in winter 2008.

The instructional approach is much influenced by that found at the pre-school at Reggio Emilia (Edwards, et al 1998), with an emphasis on key concepts that manifest in firsthand sensory experience by students and on multiple means used by students to represent their understanding of the information and concepts they are learning. In alternating years the students study physical science (the physics of matter, energy, and motion) or life science (the life cycle of plants and their ecological relations with pollinators). No textbooks are used for this study, although plenty of ‘real books’ are employed, as well as information accessed by students on the Internet. The school site is the laboratory school at UCLA, Corinne A Seeds University Elementary School—for further information on the school and its general approach to pedagogy as well as further information on our NSF professional development website project go to the school’s website (www.ues.gseis.ucla.edu), view the information on the school overall and then click on the link for “Research” (or go to the website for the research center [www.connect.gseis.ucla.edu], click “Connect”, and navigate from there back to the school.

We are organizing the new website on science instruction according to the following dimensions or aspects of teaching practice. They appear as a “navigation menu” in a block at the left margin, on the vertical axis of each page in the website: Planning (formal, flexible, project including content standards), Environment (physical-including instructional materials, social-including interactional routines), Experiences (firsthand, secondhand, thirdhand), and Representation (students showing their understanding through multiple semiotic media-talking, writing, analytic drawing, artistic drawing, modeling with found materials, preparing charts...
and tables that show contrast and frequency distribution, dancing). The overall organizing image is that of a “Classroom Ecosystem” in which all the aspects are present at all times and are integrated through relations of continuous and simultaneous mutual influence. (N.B. this is a different set of “microtome slices” through the multidimensional space of teaching practice from any of those in the cases found at the “Making Teaching Public” website, and the point here is not to present our UES website prototype’s set of slices as somehow “better” in a general sense than the differing combinations of slices presented by the various teachers at the Carnegie website. Rather I want to say that, for any given portrayal, one presents a set of slices, and the patterns of salience that your particular set affords is a matter of choice of presentational rhetoric—of reinforcing the main emphases you want to foreground in a representation of a particular kind of teaching practice, given what you as the portrayer think are the most fundamental aspects of that practice.)

At any moment in the practice of teaching all of the UES website prototype dimensions are in play at the same time—Planning, Environment, Experiences (for students), and Representation (by students). It is this very multidimensionality of complex teaching practice that makes really good teaching so hard to think, to do, and to portray. For example, in the teaching of the physics of matter, if a teacher has arranged for a child a firsthand experience of qualities of matter in its solid state (rough, smooth, heavy, light) there needed to be planning of those experiences (related to content standards, with a particular experience sequenced in relation to prior and successive experiences of the students). The physical environment needs to be arranged so as to accommodate students’ having such firsthand experiences of qualities of matter—physically there must be places on tables or on the floor for children to gather and handle smooth stones and rough ones, smoothly sanded blocks and rough pieces of wood, etc.) Socially, the environment needs to provide arrangements for the experiencing—individually, or in pairs of students alternating turns at observing and handling objects, or in small groups in which the turn taking patterns are more complex. At the same time there must be multiple symbolic/semiotic ways provided for children to represent their understanding of differing qualities of matter—talking, writing, drawing, modeling in clay, and the like. Let me repeat—at any given moment all these aspects of practice are in play at the same time. The interconnections across different dimensions of teaching practice are a bit like what’s shown in the nursery rhyme “This is the house that Jack built”—many parts constructed in sequences, all the parts together making up a whole. How do you show this to someone who has never seen such practice before—or attempted to try it for herself? Representing complex teaching practice seems to be a daunting task indeed, even with the affordances provided by multimedia.

To summarize, in the whole of good teaching one doesn’t ever find instructional materials without there having been planning for their use. The materials are used in some particular student workplace physical environment, and use of the materials always happens within certain social arrangements for the conjoint actions of users. Student representations of their understanding as they engage the materials sensorially are continuously being assessed by teachers, and such “proximally formative” assessment of student work during the course of its pro-
duction informs mid-course correction (i.e. for immediate reteaching) as well as informing planning for future years. Given these multidimensional fundamentals, a website that emphasizes teaching as the construction and maintenance of an ecosystem of learning opportunity needs both to emphasize and provide informational detail on the various dimensions separately and also to continually point to the interconnectedness of the dimensions within the conduct of actual teaching practice.

And then after all that, there are the issues of what visitors do with a website. First, most visitors bring their own points of view about teaching practice. These “schemata”—sets of story-like expectations for what they will see—can drive what they actually see, especially in viewing relatively unedited video clips. I have written about this elsewhere (Erickson, in press.) One of the things the organizers of the “Making Teaching Public” website discovered was that video is not veritas in any simple way. Viewers are interpretive—they construct what they see—there are no “immaculate perceptions.” But website designers cannot anticipate all the presuppositions and patterns of inference that viewers will bring to minimally edited footage. By contrast, in art cinema and in much documentary film, heavy editing guides the viewer to the perspective taken by the filmmaker. However, in a minimally edited video clip the audio-visual document itself does not lead the viewer by the nose to “see” what the maker of the video wanted the viewer to “see.” A website also cannot control the browsing of a visitor—ironically the open, non-linear access to information that the website provides cedes to visitors ultimate control over how much of the website they will actually see, in what series position, and how reflective or not their seeing may be at any given point in the website. In other words the website allows the visitor to be a very shallow tourist, or a deep-delving and critically reflective ethnographer—but the maker of the website cannot control (or fully anticipate) which kind of visiting engagement the visitor undertakes.

Let me add a last observation. Another feature that varies across the individual cases in this array is the quality of the video portrayal of classroom practice. Some of the shooting was done in a way that looks semi-professional while in other cases the videotaping was done in a much less fluid way. Regardless of the “smoothness” of the audiovisual record, however, there was a tendency for the camera to follow the source of talk (the speaker of the moment) rather slavishly from one moment to the next. This is done by zooming (in for a close up, out for a wide shot) and panning (from side to side as people walk across the room, or as speakers and listeners alternate). It is what amateur camera operators usually do in making “home movie” style video footage. But it is wiser to err on the side of holding the camera more still, shooting in a way that intuitively feels slightly too wide so as to leave space for those in the frame to move out to the edges without leaving the frame, and showing as much as possible of the bodies and faces of those engaged with each other in face to face interaction. Groups of persons engaged in interaction have the character of a single highly magnified amoeba on a microscope slide—as the group moves through space the camera follows them, keeping the whole “amoeba” in frame as much as possible. This approach is especially hard to stay with in videoing whole class discussions—the temptation for the camera operator is to let the cam-

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era flit from one talking head to the next. However that way of filming fails to show the integrity of the interactional event as a whole—with the consequence that a viewer’s understanding of the organization of the videoed event can only be fragmentary and incoherent. Camera people who are learning to document classroom interaction for coherence and cogency in the audiovisual record need to keep this in mind—stay with the continuity of interaction as you see it, resisting the temptation to zoom in on attractive faces as that face is speaking. Keep your shots a little wider than feels intuitively comfortable, and don’t move the camera much. In other words, try as much as possible, and as continually as possible, to show what the listeners are doing while the primary speakers are talking.

That approach to shooting drives professional videographers crazy—it violates their aesthetic sensibilities as film-makers. It does not produce dramatic close-ups of interesting—and cute—faces (something professional film production people seem to think that viewers need in order to watch classroom footage with interest.) But humbler, more continuous shooting produces video records with minimal “camera editing” (zooming and panning), and such video records work better as a source for clips in cases of the kind we see in this website. (For example, shooting over the teacher’s shoulder so you can see the facial reactions of a set of students as the teacher talks can be very illuminating, or shooting from the side so that you always see some of the listeners and their reactions while a speaker is speaking to them. Those are technically simple ways to produce a more audiovisually coherent video account of the interaction you want others to see and to think about.) Sound is another story, and space constraints prevent me from elaborating here. But a couple of good quality wireless microphones, to be placed on students or the teacher, and a camera-mounted shotgun (directional) microphone can produce sound that, while not of professional quality, allows you to record talk clearly while shooting at some distance from those who are speaking.

To conclude, if you should be trying to build a website yourself, by all means emulate the various ways these materials that portray teaching were organized as multimedia arrays in “Making Teaching Public”—and don’t push too soon for a “one frame fits all” scheme for different home pages. There are distinctly differing kinds of teaching, within and across subject matters, classrooms, and schools. We can well afford at this exploratory stage to let a thousand flowers bloom in ways of organizing the disparate kinds of information that are collected in a website case. The individual teachers who contributed audiovisual portfolios of their practice to this website and the organizers of the website overall are to be commended for a wonderful contribution to what Lee Shulman has called “the scholarship of teaching.” It advances significantly our capacity to make teaching more public, even as we are aware that these efforts are only a beginning. Thanks and laurels to all those contributors and to the Carnegie Foundation for the Advancement of Teaching, which has supported this effort in so many ways.

My closing admonition is—as interesting as the video clips may be to you, don’t imitate the way the video footage was shot here, for the most part. Be more holistic and less fragmentary
in your shooting—keep a frame around the whole amoeba—the full set of persons who are interacting in a teaching/learning exchange, listeners and speakers together in the frame—and once you have found your amoeba keep the camera on it, as a long default shot, zooming in only very occasionally to capture some detail, such as writing on the board or on a student’s paper. If you should need to do that momentarily don’t stay there—zoom right back out. (And remember also that it is easy now to make digital still photos and edit them into your video clip—that is another way to avoid zooming in too much during the real time of shooting.) In the long run such continuity in audiovisual documentation makes for footage that is especially useful and appropriate for portraying the complexity of teaching.

References


One of the challenges facing teacher educators is that teaching is complex work that can look easy. It is also work that is deeply familiar to people who have spent much of their lives in schools. How, then, do teacher educators cultivate the perception of novice teachers, enabling them to see the elements that make up this complex work we call teaching? A second challenge facing teacher educators is that our students do not necessarily have opportunities to see or experience the kinds of practices we are trying to teach them. For example, as someone who teaches prospective English teachers, I often worry about my students’ opportunities to experience rich, student-centered, text-based discussions of literature. As the research suggests, such discussions are rare, more often resembling “gentle inquisitions” than lively conversations. If one of the distinctive pedagogies of the English/Language Arts classrooms involves discussion, how can I provide opportunities—virtual or otherwise—for students to develop richer images of practice?

Representations of teaching, including multimedia representations such as the Exhibition websites, provide unique opportunities for novice teachers to learn from practice. Such representations have the potential of capturing at least some of the complexity of classroom life and provide sites for investigations into practice. Representations of practice vary in important ways, from comprehensive records of a full year of instruction in a single teacher’s classroom, as represented by Magdalene Lampert and Deborah Ball’s work on multimedia records of the teaching of mathematics (Lampert & Ball, 1998) to websites that capture a single unit of instruction. Decisions about what aspects of practice to represent and how to represent them are consequential for what novices are able to learn. What do different representations enable novices to see? What is made explicit? What remains implicit? How do we help novices makes sense of the videos and student work available on such sites?

After encountering an early version of the website of Yvonne Divans Hutchinson as part of a small group of teacher educators who wanted to experiment with using these sites in preservice teacher education, I realized the potential these kinds of websites hold for teaching novice
teachers. I initially focused on Yvonne Divans Hutchinson’s site in large part because it contained examples of the kind of rich discussions I wanted my students to see. However, the original site contained a single video of a two-hour class late in the year, when students had already internalized many of the norms and practices regarding discussion that Yvonne had taught them. She made it look easy, when I knew that such discussions are incredibly difficult to orchestrate. I worried that my students would miss the scaffolding that I knew must have preceded this discussion.

One thing that novices have to learn is the relative difficulty of different practices. In his work on veterinary medicine, Pinch and his colleagues (Pinch, Collins, & Carbone, 1997) call this a “second order skill” of learning practice. For novices, most aspects of complex practice can be equally challenging. How do they learn to distinguish between aspects of practice that will become more routine, and less difficult, with time and those that will always demand a high level of skill? Part of what I wanted my students to learn from Yvonne is the complexity of preparing for rich discussions of text, and the kinds of scaffolding that the teacher needs to provide prior to discussions. The original website did not include images of the earlier scaffolding; all that was visible was the finished product.

In response to my concerns, Yvonne Hutchinson and Desiree Pointer Mace worked together to document some of the earlier scaffolding, by returning to Yvonne’s classroom the following fall to videotape lessons on annotating text and learning to ask questions of text. These additional materials provided my students with a much deeper sense of the kinds of work Yvonne did to prepare her students for the successful end-of-year discussion. Through both videos and hand-outs, my students were able to see how Yvonne taught her students to annotate text and to generate questions about text, a necessary precursor a text-based discussion.

Learning to See

However, even if these representations include multiple dimensions of practice, the materials do not teach themselves. Teacher educators need to find ways of helping novices navigate and learn from the materials. Having these multimedia records of practice represents a huge re-
source for teacher learning, but like any other resource, it can be used more or less productively. From the outset, I wanted students not to engage actively with the website, to derive principles of leading discussions from this example. Inspired by the work of Deborah Ball and Magdalene Lampert on their hypermedia materials, my colleague Christa Compton and I developed an assignment that asked students to investigate the site in pairs looking at question such as:

- What norms does Yvonne establish for discussion? How does she reinforce them throughout the class period?
- How does Yvonne monitor participation in the whole class discussion? Pay attention to who speaks and for how long. What does Yvonne do to encourage everyone’s participation? Identify several strategies she uses and how they work.
- How does Yvonne respond to student interpretations about the text? Identify interpretations students generate about the story. Which interpretations seem on target, and which seem less substantiated by the text?
- What strategies for reading literature is Yvonne teaching? How do these appear in the discussion? How are these strategies introduced early in the year?

(This assignment and several related assignments are documented in the website we created to share our practice: http://gallery.carnegiefoundation.org/collections/quest/collections/sites/grossman_pam/)

Such questions focus students’ attention on particular facets of practice, helping them develop a richer sense of the different elements that go into leading discussions. The questions also direct students to look at what happens earlier in the school year that might help account for what they see in spring. The assignment tried as well to maintain an inquiry stance towards teaching, providing a model of how novices might learn from the practice of more experienced practitioners. After investigating these questions, they then lead a discussion with their peers, using clips from Yvonne’s site to illustrate points or provoke response.

Student Teachers Lead Discussions in My Course

These investigations depend upon the nature of the representations available to novices. Without materials from early in the year, my students would not be able to look at the nature of scaffolding across the year. But the question of how much of the earlier classroom work must be represented to support the learning of novice teachers remains, as do questions related to the form of representation. Do novice teachers need actual classroom video of Yvonne teaching students to annotate text? Would detailed narratives of her practice, along with supporting examples of classroom work suffice? What are they able to learn from watching

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Yvonne in actual classroom footage that they could not learn from narrative descriptions of her classroom? Given the amount of time required to navigate these sites and watch the videos, what must be give up in the existing curriculum? While my students learn a tremendous amount from these extended observations of Yvonne, they are still only seeing a single example; what might they learn from investigating multiple, but less extensive, representations of teaching? These are questions that require further research of a comparative nature.

Learning to Do

To learn to teach, novices need more than representations of practice, no matter how detailed and generative. They also need opportunities to enact new practices in the context of the classroom and then to debrief and learn from their efforts. For this reason, we developed a second part of the assignment around Yvonne’s materials, in which we asked our students to try out something they had learned from Yvonne in their own classrooms and to use their own practice as a site for learning. It is only through these cycles of experimentation that students truly learn what it means to establish or reinforce norms for discussion, for example, or to use an anticipation guide. While the experience was sobering for students, they also learned some important lessons, both about themselves and their students. As the following clips suggest, they developed both a new appreciation for the complexity and difficulty of what seemed initially to be so straightforward, as well as a new appreciation of their students’ capacities (the clips are online at http://quest.carnegiefoundation.org/~pgrossman/jared_debrief_web.mov and http://quest.carnegiefoundation.org/~pgrossman/emily_debrief_web.mov).

While teacher educators have been using videos of classrooms for many years, these multimedia websites represent the power of richer portrayals of teaching, through the inclusion of interviews with teachers, examples of student work, and classroom artifacts. Novices have access not only to what teachers do in classrooms, but the thinking behind the action. Websites that capture practice over time enable novices to track the development of student thinking.
not only in classroom interactions but through archives of student work. The documentation of a unit of instruction, such as Marsha Pincus’s website on the teaching of Macbeth, offers novices a chance to see what holds the disparate components of the language arts together, as well as to develop strategies for using performance in the teaching of Shakespeare. As we develop more such sites, we will need to get smarter both about how to archive such sites, to make them easily accessible to teachers and teacher educators, among others, and also about what makes sites particularly generative for learning from practice. But we also need to think carefully about pedagogy accompanying these representations. Investigating such multi-layered sites takes time, a commodity in extremely short supply among preservice teachers. Teacher educators face their own pedagogical challenges in selecting and using multi-media materials in their classrooms. Despite the enormous potential of such sites as resources for teacher learning, simply asking novices to explore these sites on their own may be akin to sending novices off to observe in classrooms; they will undoubtedly learn something along the way, but the experience may be as likely to prove miseducative, to use Dewey’s term, as educative. The hope is that as more teachers and teacher educators collaborate around the development and use of such sites, we will develop a deeper understanding of how to make the use of these materials a powerful resource for learning to teach.

References


As one of the teachers in the first cohort of K-12 teacher scholar participants of CASTL in the summer of 1999, I can still remember my surprise and discomfort when Tom Hatch and Desiree Pointer Mace approached me and asked me if I would consider documenting my scholarship of teaching on a web-site. At the time, I had been planning to write an extended narrative essay about my experiences teaching Drama and English at an urban magnet high school in Philadelphia. I wanted to tell the story of my own growth as a teacher and the ways in which inquiry into my own teaching enabled me to create an inquiry based Drama class at my high school. Tom and Desiree sat me down and began talking about their vision of using the World Wide Web and technology for capturing images of teaching for the whole world to see. They spun out the powerful possibilities for these sites to expand the knowledge of teaching by creating a complex community of educators who could learn from each other’s work.

At that time, it was impossible for me to imagine what such a site might look like, let alone imagine the depth, range and diversity represented by the sites collected here. I still am not sure why I said yes. I had many reservations. I worried that the sites would be construed as models for others to follow without consideration of specific students or diverse contexts or that novice teachers would see the sites and be intimidated by the apparent ease with which experienced teachers could do this work. I was also afraid that the teachers documented on these web-sites would be seen as “exceptions,” and that as such reinforce the public’s conception that the only thing wrong with public schools today are the teachers, thereby releasing society at large from any responsibility for the funding and opportunity gaps that exist between the schools in our richer and poorer communities.

Maybe it was Tom’s enthusiasm and compelling argument that I would be joining a group of pioneers in the field, getting on board at the beginning of an exciting journey with limitless possibilities to make contributions to the field. Or maybe it was Desiree’s brilliant mock up for my web-site that she created right before my eyes as we discussed my philosophy of education and the way that philosophy played out in my Drama classroom. She was able to show me how the web-site could illustrate the relationships between and among theory, practice, teacher inquiry, student learning and school reform in a more complex and dynamic manner.
than the linear text I was then in the process of writing. Whatever the reason, I committed to documenting my scholarship of teaching as a web-site.

I entitled the site “Playing with the Possible: Teaching, Learning and Drama on the Second Stage,” the title I was planning to use for my narrative. I wanted the entire site to embody a “second stage,” a space for the development of new often non traditional teaching practices that weren’t commonly employed in academic classrooms. This site as well as the Drama and Inquiry class it documents, were meant to be “second stages” alternative places where teaching and learning looked different from more traditional models.

From the start, it was important to me that the site be constructed as an inquiry into my practice. Indeed, one entire section of the site is devoted to illustrating and explaining the ways in which that process of inquiry can sustain teacher learning over the course of a lifetime.

To tell the story of one particular inquiry, I began with a moment of dissonance from my teaching that past year: the unexpected virulent disdain some of my students expressed for feminism after reading a play by Paula Vogel. The site opens with an inciting incident of dissonance that sparked my inquiry, exemplified by the videos of the two opposing monologues written and performed by my students for their final “exam” in Drama and Inquiry class.

From here, I was able to go back in time and tell the story of the creation of the Drama and Inquiry Class, describe the curriculum and pedagogy of the class, and share my preliminary insights and new knowledge I developed through the course of looking very closely at my students’ responses to the question of feminism.
Additionally, it was important for me to include my students in the construction of this website. During the summer and throughout the following year, I routinely emailed them (they had all since graduated and were attending college) and elicited their responses to the overall construction of the site and to the inquiry into their conflicted feelings about feminism particularly the attitudes of the young men.

Two years ago, I was once again asked if I would be interested in documenting another aspect of my work on a new web-site as part of the Goldman-Carnegie Quest Project. This time I didn’t hesitate to say yes. Ann Lieberman explained to me that these new sites would be part of a larger project about capturing images of practice by exemplary teachers, in essence, opening up the classroom doors and revealing to prospective and experienced teachers as well as the general public the often hidden scenes of real learning that happen on a daily basis in our schools. She also explained that the sites would be used as texts in teacher education classes and that selected teacher educators would also be making web-sites documenting their use of the teacher sites in their classes. One teacher educator, Pam Grossman, had specifically requested web-sites devoted to engaging and rigorous instruction of Shakespeare’s plays, an activity that her prospective teachers needed help to envision. The result is a new site entitled “Double Double Toil and Trouble: Engaging Urban High School Students in the Study of Shakespeare”. This site situates the teaching of Macbeth within the framework of my English III curriculum. In addition to documenting the actual classroom activities through video, the site includes samples of student work and some of the projects I assigned before, during and after the actual reading and studying of the play. What I like best about this particular web-site and all of the other web-sites that were developed as part of the Quest project is that the video, the assignments and the student work are surrounded by commentary, in which the teacher explains her thinking about what is happening in each segment of the unit. Here, more than in the videos themselves, the viewer of these sites can see the teachers’ knowledge-in-action. As each teacher reflects upon what is happening in each classroom scene, the act of teaching can be seen for what it is – a thoughtful, deliberate intellectual, process that involves systematic long-term planning as well as countless in-the-moment decisions made in response to the immediate needs of the particular students in that classroom. Unlike the first multimedia website of my practice, which was organized around the process of inquiry and explicitly investigated a dilemma of practice, this time around the site emphasized my teaching of a particular text: Macbeth. The emphasis was on the enactment of my teaching in my English classroom and it was designed to represent exemplary practice. While I am pleased that the website represents my teaching and my students well (after all, we all brought our best selves to the process, knowing we were being videotaped), I worry that in-service teachers and pre-service teachers in particular might view this site and assume that there were no moments of dissonance or conflict.

This aspect of teaching, the responsive reflection-in-action is even more important to present at this particular time when public school students and teachers are being bombarded by standardized objective tests to measure our performance developed by those who have not spent
significant time in real classrooms Teacher knowledge is not being considered in the development of teacher-proof scripted programs that are being foisted upon many public school teachers in urban settings. In a recent commentary, published on October 11, 2006, in *Education Week*, Mike Rose decries the absence of the details of the lived experience of daily classroom life from the national conversation about schools. He writes, “The details of classroom life convey, in a specific and physical way, the intellectual work being done day to day across the nation – the feel and clatter of teaching and learning.” He goes on to describe such details, sharing images of students examining glass test tubes in a chemistry, making sure they were clean before they added salt or hydrochloric acid to determine the polarity of different materials. In this scene, he notes that the students are learning a particular scientific concept – polarity – but they are also learning so much more. They are learning to inquire, to collaborate, to experiment, to ask questions and to grow intellectually and it is the teacher who is deftly fostering this learning environment through creating and shaping the experience.

These moments, like the ones documented on these web-sites, should not be imitated. After all, teaching happens in particular contexts with particular students and each action taken by a teacher in a classroom represents only one of an endless number of possible actions that teacher can take, drawing upon her knowledge of her content, her curriculum and her students. And like theater, teaching is performative; it is a lived through experience that occurs in a specific time and place that cannot be replicated. While these moments can serve as inspiration and visions of the possible, they can also serve as rich and complex case studies, ripe for in-depth analysis. In particular, teacher educators using these sites as occasions for teacher learning must be encouraged to use them as places of inquiry and invite their students to question what they see happening in these classrooms, uncover the teachers’ beliefs and assumptions about teaching and learning, and look for the tensions between theory and practice. Through thoughtful inquiry, interpretation and analysis, viewers of these sites can make meaning for themselves.

Rose goes on to connect such moments of real learning in the public sphere of the school classroom to the very health of our democracy – “Such a mass public endeavor creates a citizenry.” With the public availability of these sites on the very democratic World Wide Web, one will not have to travel the country visiting classrooms all across America as Rose did in the mid-1990’s for his book *Possible Lives* (1995) to gain a “lived felt sense of what public education means in a democracy.” It is here, now, in all of its living breathing complexity, waiting to be critiqued, expanded and built upon.

References

http://www.edweek.org/

Anna Ershler Richert is a Professor of Education at Mills College in Oakland, CA. Her research focuses on preparing teachers for urban school teaching, which provides the context within which the teacher education website she created as part of the QUEST project cited here is based. She is interested in coming to better understand what teachers need to know to teach well in urban schools and how university-based teacher education can help prepare novice teachers to begin to acquire this critical knowledge and skill base.

This commentary describes Richert’s (or Richert’s commentary describes her) use of the web-based representations of practice highlighted in this exhibition, as well as what she learned from doing so. She presents briefly some of her key pedagogical decisions in using the sites and reviews connected outcomes. Her commentary provides a brief overview of the benefits and challenges involved in “curricularizing” these vibrant web-based representations of teaching practice for teacher education purposes.

My response to this exhibition grows out of my participation in the Carnegie Academy for the Scholarship of Teaching and Learning where I worked with a number of K-12 teachers who produced some of the first websites like those displayed here. Several years ago, I began incorporating some of the sites into my teacher education classes at Mills College in Oakland California because they were filled with examples of “real life” teaching, and I was intrigued to see if drawing on them would help my students learn to learn from the practice of more experienced teachers.

Like many of my teacher education colleagues at Mills and elsewhere, the practice of K-12 teachers has figured heavily in my classes. Early in my students’ credential year we talk about sources of teacher knowledge and sites for teacher learning. “Experience” is always at the top of our list. In our thinking about learning from experience we distinguish between having or observing an experience and learning from it. We also distinguish between learning from our own experience, and learning from the experiences of others (Ball and Cohen, 1999). The K-12 websites such as those displayed here provide a rich source of records of teaching experience, but stepping back from my work to view this “Making Teaching Visible” exhibition, I ask myself whether or not (and how) these mate-
rials are different from others I’ve used in my teaching up to this point. What are some of the opportunities for learning these sites create and what is it about the sites that make this so?

The class where my work has been most carefully documented is my Adolescent Development class where I drew on a small collection of sites (including that of Yvonne Hutchinson that is included in the exhibition) to help me teach my secondary teacher education candidates about learner responsive practice. What drove me to consider drawing on the K-12 sites for this class in particular was a dilemma I face in teaching the Adolescent Development content: the challenge of helping my students recognize the importance of knowing their learners well. As a relatively new teacher of Adolescent Development, I noticed early on that I had a good number of students who entered this class with a clear idea that knowing their subject matters would be important to good secondary school teaching, but a less-clear understanding of how vital it would be to know their adolescent learners as well. Additionally, I saw the challenge of knowing one’s adolescent learners heightened by the fact that in most instances, the learners my students were preparing to teach – poor children of color in underserved urban schools – would have different life experiences and perhaps different learning needs from their own. I had the idea that if my students could see teachers successfully teaching rigorous subject matter content to adolescents in poor urban schools, we could investigate together what informed that practice, including the knowledge base held by those teachers. In turn, this would begin to reveal the importance of Adolescent Development to one’s professional preparation.

To begin, I selected five different K-12 sites representing practice in the different subject areas my students were preparing to teach. In addition to Hutchinson, I drew on the work of: Claire Bove, a middle school science teacher; Joanne DaLuz, a high school math teacher; Vanessa Brown, a 9th grade special ed. humanities teacher; and Marsha Pincus, a secondary school English teacher whose first website focused on an inquiry into her teaching in a drama class.

<table>
<thead>
<tr>
<th>Yvonne Hutchinson</th>
<th>Claire Bove</th>
<th>Joanne DaLuz</th>
<th>Vanessa Brown</th>
<th>Marsha Pincus</th>
</tr>
</thead>
</table>

I framed our work with these sites as a class investigation guided by three questions:

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• What do these teachers know about their learners?
• How did they come to know what they know? and,
• How do the teachers use what they know in their teaching?

Looking over this Exhibition and reflecting on the past three years of using these websites in my Adolescent Development class raises a number of issues that I summarize here.

Many ways to enter in

One of the first things I noted as I studied these sites is that they are multilayered in form and thus contain images of many different aspects of teaching and learning. As a consequence, they offer multiple entry points. Depending on the purpose for studying the sites students can focus on teaching practice; student learning (by watching students engage with the work or studying the “products” of their learning efforts); teacher learning (by listening or reading the teachers’ reflections about their practice); and issues of context (by observing the classrooms represented and/or hearing the teachers speak about the context of their work). The sites allow for studying these parts of teaching and learning separately; but they can also be studied in their importantly connected ways. The connection between teaching decisions and context, for example, is easily explored on the sites as is the connection between opportunities for student learning and the teaching practices that create them.

The connection between learning opportunities and student outcomes are available for consideration as well. For example, I use Sarah Capitelli’s site in my Inquiry into Teaching class, which is a second year MA class (Richert, 2005). We begin our investigation of Sarah’s site by considering the urban context, which she carefully describes on her site and the relationship between that context and the inquiry questions that emerge from it. I ask students to study Sarah’s site and think about a number of questions: What does Sarah tell us about her context and why she might choose those things to report? What is it about her context that “matters” from her point of view? Why does context matter for teaching? How does context help frame our teaching questions?

Another entry point for my students to study Sarah’s teaching is to consider student learning in the various forms it’s represented on her site. We can think as a class about what questions she has about her students’ learning. We can also consider what evidence of student learning she draws on as she tries to understand what her students know and how they learn. After considering what Sarah thinks her students know, we can look at the student work ourselves and analyze it to determine what we think they know, and so forth.

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Studying the sites alone and together: New opportunities

In addition to being multi-layered with many possible ways to “enter,” these complex representations of teaching lend themselves to sharing by students in a variety of different ways that also open new opportunities for teaching and students’ learning. Before working with these websites, the primary context for learning from experience for my students was their student teaching placements. While this continues to be my students’ “favorite” learning location – and clearly an important part of their preservice work – there are drawbacks or limitations that present predictable challenges with this as the primary context for the work of learning to teach. For one, every student’s experience in the student teaching setting is his or hers alone. Unless students videotape their or their cooperating teacher’s teaching and bring it to the teacher education class, we are not able to explore that teaching text together other than to work from the student teacher’s explanation of what occurred. Websites like those in this exhibition give us the opportunity to all watch the same classroom events and study them collaboratively. In the past I’ve used videotapes for this purpose, but this, too, is limited in ways these websites open up. With in-class videos students cannot return to view the teaching on their own (very easily). Not being able to return to the teaching limits how students can pursue on their own the thinking behind the teaching or the learning they view on the clip. With the web-based representations of practice, on the other hand, students can take the time they need to review the materials and investigate what they see. By drawing on the site’s multiple representations of teaching and learning, students can ask question of what they see and pursue answers as well. This work can be done alone or with colleagues and take as much time as the student has – or wants – to give.

Images of reflective practice and teacher learning

Another feature of the websites that has been particularly helpful to me is that along with the multiple images of practice there are multiple images of teachers learning from their practice. Whereas the websites are not constructed to present “best practices,” they do provide images of teachers committed to learning in and from their teaching, which leads to better practice all the time. This learning stance towards the work is critically important to the kind of teachers I hope to prepare---and/but it is a stance that I’ve found is challenging to teach. Because the sites include various forms of teacher reflection (writing, interviews, conversations with colleagues, etc.) student teachers see veteran teachers actively engaged in their own professional learning. For example, on Claire’s site she talks with her student teacher about what she’s learning. Vanessa’s video is filled with comments about her learning---also sources of her learning such as her own journal writing, her reflections on conversations with colleagues, her reading of professional literature, etc. Yvonne reflects on her practice on video, and Sarah uses reflection cards with her students. Marsha has many different places where she demonstrates the reflection part of learning. These sites are incredibly rich in this way. Recently the group of

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former students of mine whose work is displayed on the site describing my Adolescent Development class was surveyed by a group of Carnegie researchers during their first year of teaching. They were asked about what they remembered about the teachers represented in the websites and what role the investigation of their practice had in their teaching. One of them remembered in particular what she learned about the role of learning in teaching. She said:

I particularly liked listening to the veteran teachers reflect on their own teaching practice. It reminded me how important it is in this profession to be thoughtful practitioners and constantly reflect on the strengths and areas of improvement in our own practice. As a beginning teacher, observing the Carnegie teachers was inspiring and motivating. It allowed me to see what successful outcomes can occur when teachers ask questions, take risks, and openly share and reflect on their own practice.

Multiple images of practice allow for multiple teacher ed. pedagogies to teach them

In addition to providing multiple entry points into practice, the sites also create opportunities to use different pedagogical strategies and arrangements for teaching with them. For example, in the Adolescent Development class, in addition to investigating what the teachers know about their learners, we were able to investigate whether or not they used that knowledge in their teaching. To answer these questions the students studied the sites on their own and with partners. We looked at the sites in class and they followed up by studying them out of class as well. Some students downloaded the work of the adolescent learners available on the sites to explore what the teacher could learn about their students from what they produced in their written work. Others identified questions about the teaching they saw on the site and/or the learning, which they brought to class to share with their peers as you can see in this clip where my students are sharing their impressions of Vanessa Brown’s site. One step in the process of using the sites in my class had the Mills students exploring the sites with high school partners. This opened up a conversation about teaching and learning from the adolescent learner’s point of view. On another occasion the Adolescent Development students shared in cross-disciplinary groups their findings about learner-responsive practice, which generated a rich conversation about learning in the different disciplines and an exploration about of learning “in general” and learning “in particular.”

New teaching materials bring new teaching challenges for teacher education

Knowing the sites well enough to teach with them: The challenge of time

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While using these websites has been extremely generative in my classes in these ways, there are also challenges to working with them that warrant mentioning as well. The first challenge is the beginning task of studying the K-12 sites to determine their potential use in one’s teaching. As I’ve just described, the sites are rich, multi-layered records of practice. They go a long way in representing some of the vast complexity of teaching, which is why they are such a powerful resource for teacher education. At the same time, this very richness heightens the challenge of knowing them well. Studying the sites and then preparing a curriculum to teach them both take a considerable amount of time. Part of that time comes in identifying for oneself the purpose for which the website will be used in the first place. When I first started using the sites I found myself pondering the fact that I was drawing on them for my teacher education purpose, which was undoubtedly different from the purpose the teacher had when teaching as she did. Yvonne, for example, uses the strategy of the anticipation guide to help her students connect with the text. In my class we studied the anticipation guide as a means for getting “to know one’s learners.” Whether one is thinking about the teacher’s purpose or one’s own purpose for teaching with the site, how to focus the students’ investigation or, how to assess what students learn from the sites, etc. the teacher education work is labor-intensive. The process involves studying the site thoroughly and then stepping back to consider the teacher’s practice as illustrative of the teacher education principle one hopes to teach. As we become more familiar with the sites and as they become indexed in various ways, perhaps this time commitment will be lessened some. At the same time, in order to use these texts well, one has to know them well. We can be certain that this will not change.

**Guiding the students’ investigations**

Another difficulty in using the sites at first was finding a way to help my students engage with them productively. For example, I found it challenging to balance between my guiding students to engage with the sites and allowing them to explore on their own—something I had not anticipated when I began this work. As my site shows, I developed an early stage in the process to help my students “learn to learn” from the websites. I developed this step in the process after having assigned the first website as homework and noting that students had vastly different experiences in doing the work. A few—those who didn’t have computers and had to use the computers at school—were overwhelmed by what was there on the sites and frustrated by the assignment that required computer time they did not have. A number of others immediately saw the sites as examples of “best practice,” the purpose for which was to borrow strategies with no analysis of what or why. Neither of these responses to the websites was what I was after. I learned to back up and take class time to carefully establish with my students the goals for studying the sites as well as procedures and norms for doing so. We spent several class periods investigating the sites as a collective as the “Learning to learn from the practice of others” link above illustrates. Once students had an idea about how the websites were organized and what a focused investigation might reveal, we were then able to
branch out and conduct both student and faculty initiated investigations depending on the goal for which we were studying them at any given time.

Learning to tailor the practices of others for one’s own classroom

An additional instructional challenge that I faced when I began working with these websites concerned the “enactment” piece of the “pedagogy of investigation and enactment” that my teacher education colleagues and I used to frame our use of these sites. My first attempt at the enactment piece is represented as Step IV on my website. I asked the students to choose one of the strategies they saw on the site they studied for getting to know their learners, tailor that strategy for their own teaching context, and try it out in their own student teaching classroom. When they presented their work to their Mills colleagues I realized that I had not scaffolded the enactment step of the process adequately. It became clear to me that there are a number of steps between the processes involved in studying the practice of someone else and then tailoring that practice appropriately for one’s own classroom. Because I was documenting my own practice at the same time, I was able to note the difficulties my students encountered in doing this work. When I repeated this enactment step the following year, I was able to build in the steps students needed to take between their selection of the strategy they wanted to tailor for their classroom and their trying it out. It was clear from this second go-around that these tailoring processes can be learned—-and these web-based materials offer a powerful opportunity for that learning to occur. The challenge for the teacher educator is to guide the students in this aspect of learning from the practice of others.

The opportunity these websites offered for my learning about my teaching is perhaps a good note on which to close this commentary. I find that because I am able to bring the practice of veteran teachers into my classroom in the way that the websites allow, I am able to observe closely my students “sense-making” of the practice of others. In doing this work over the past several years it has not been uncommon for me to be surprised by my students’ ideas and responses, which provided much new insight about the challenges I face in teaching them well. In truth, as I examine the sites displayed in the “Making Teaching Visible” exhibition, my mind races with ideas about how to draw on this work in new ways next year. The possibilities seem endless to me. Even with all of these various foci I developed for studying the sites in my Adolescent Development class where I drew on the work of Yvonne Hutchinson and four others, for example, and those I developed for the Inquiry class where I drew on Sarah Capitelli’s work, I feel like I’ve just begun to mine this resource that these websites provide. At this point I look forward to beginning my planning for next fall and deciding where in my classes I’ll draw on these sites to help me accomplish my many far-ranging goals. I also look forward to the new insights I will undoubtedly have about my teaching and my students’ learning as I continue this work.
Lee Shulman looks through the lenses of his own scholarly history and sees Making Teaching Public as an exhibition of cases. He reflects on some of his initial ideas about the development of a case literature in teaching and teacher education and looks ahead to what this kind of digital collection suggests for the future.

When an exhibition begins to remind you of something you wrote more than twenty years ago, it’s pretty solid evidence that (a) you’re getting old, but (b) your memory hasn’t failed you entirely. So when I tour this digital exhibition, I find myself thinking back more than twenty years, to my AERA presidential address of 1984 in which I first imagined what a case literature in teaching and teacher education might look like, and looking ahead to what this kind of collection might portend for the future of teacher education and professional development.

When examining the gallery of websites we have before us, I look at them through the lenses of my own scholarly history, and I see them as an exhibition of cases. When I proceed sequentially through the sites following the order of the slideshow, I am reminded of the variety of ways in which cases can be organized, sequenced and commented upon. These kinds of arrangements become case books in fields like Law and Business. I know that websites are not cases in some simple sort of equivalence. But they are rich records of practice, of the practical wisdom and strategic errors that teachers perform regularly, along with critical reviews and reflections the likes of which have not been available in the past. We traditionally think of cases as forms of narrative with a plot that unfolds from beginning to middle to end; these websites typically have narratives embedded in them—explicitly or implicitly—but they are potentially far more than that.

A number of years ago (Shulman, 1986), I argued that we would reach a point in the development of teacher education when case-based knowledge would be as important as principled knowledge. But the concept of a “case” was not simple. There were several genres of case, each with a particular set of functions and properties. There were also hybrids of function, genres of cases through which multiple functions were performed. How well does that set of categories map on to the sites we have before us?

I then proposed several types of cases. Precedents are cases that capture and communicate concrete examples of practice. They offer detailed accounts of how certain kinds of teaching performances can be undertaken. Prototypes exemplify theoretical principles. These are cases
that represent clear instances of conceptual or theoretical constructs. Parables convey norms or values. They exemplify the enactment of values like social justice, high expectations, or equality of opportunity. They can be “visions of the possible” that overcome beliefs about what can or cannot be accomplished with students in certain types of settings. Naturally, a given case can accomplish more than a single function; it can, for example, serve as both prototype of a concept like, say, “accountable talk” in a language arts classroom, as well as a precedent that presents in some detail the practical procedures and strategies applied by one or more teachers to accomplish accountable talk in their classrooms. We can explore what we mean by each of these types, and how they might apply to the websites displayed in our gallery.

We are probably most accustomed to thinking of cases as precedents, as narratives or demonstrations of practice. Thus, a site becomes a place to study how to engage in a particular kind of teaching. Knowledge of how an exemplary teacher taught a particular lesson, or the way a teacher brought a classroom of misbehaving youngsters under control sticks in our minds. These remembrances of teachings past are valuable in guiding the work of teachers, both as a source for specific ideas and as a heuristic to stimulate new thinking.

As an example, a few months ago a senior teacher in an international school in Asia wrote to Desiree Pointer Mace after discovering the site documenting and analyzing Jennifer Myers’ work on readers’ workshop. She had been looking for vivid examples of readers’ workshop to use with her own faculty and had despaired of finding any until she encountered Jennifer’s site. Here is a clear instance of the site as a representation of practice, and the kind of use to which it could be put. Someone can study Jennifer Myers’ site and use it as a basis for developing a set of procedures for implementing a readers and writers workshop curriculum.

But other kinds of cases exemplify, illustrate, and bring alive the theoretical propositions that are potentially the most powerful tools teachers can have. These are the prototypes within case knowledge. We have many theoretical principles that pepper our ed-talk, but often may have quite unclear analogues in the practical experience of teachers. For example, we constantly speak of teachers’ need to “scaffold” student learning. What does scaffolding look like? We can comb through the variety of examples in the exhibition and index many instructive instances of scaffolding (the Yvonne Divans Hutchinson site alone is replete with examples of scaffolding, from the formal use of reading guides to informal strategies of engagement she uses in the classroom). In this manner we use the cases as prototypes of key principles, concepts or theories.

Parallel to the theoretical use of prototype cases and the practical use of precedents, we also encounter the moral or normative value of parables. A parable is a case whose value lies in the communication of values and norms, propositions that occupy the very heart of teaching as profession and as craft. A number of the sites in this gallery carry powerful normative messages about how teachers ought to deal with their students. They convey images of the vast capabilities of students to learn, interact and perform when teachers hold high expectations, engage in carefully designed, actively enacted and carefully critiqued instruction. Some of

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these cases are so memorable, I believe, that they will become canonical in our field, just as others have become canonical in law, medicine or business.

Moreover, if we look at the literature on effective organizations and what keeps them working well and their members collaborating enthusiastically, we discover the importance of myths in organizations—tales about heroic figures or memorable events that somehow capture the values of those organizations and communicate them to everyone working within them. Those myths, I would argue, or their case equivalents—pedagogical parables—would be equally important in the socialization of teachers into their general professional obligations as well as into the special ethos of particular schools or districts as organizations. Indeed, truly powerful cases become canonical, when they are used by many educators across many settings to illustrate principles, maxims and norms.

In the world of mathematics education, the now-famous 15 minutes of Deborah Ball’s teaching that we call “the Shea Numbers case” has earned the status of a pedagogical myth. The Shea Numbers vignette is an example of a case record that can play all three functions of cases. As a prototype, it is a case of several central concepts of teaching and learning, as well as of discussion of central ideas in elementary arithmetic. It can also be studied as a precedent for practice, illustrating Ball’s techniques of engaging students actively in mathematical conversations around big ideas. It’s also a parable, a moral narrative and a vision of the possible.

This three-way distinction which I introduced (but rarely elaborated) so many years ago has recently reappeared in some of the work that we at the Carnegie Foundation have been undertaking in the area of professional educational more broadly. As we study the education of lawyers, clergy, engineers, nurses and physicians, we have concluded that there are three kinds of apprenticeship that must interact in the education of a professional: a cognitive apprenticeship for the learning of facts, concepts, principles and strategies; a practical apprenticeship for the learning of skills, techniques, practices, and protocols; and a moral apprenticeship for the learning of values and norms, and for the development of a proper professional identity.

The “slide show” feature illustrates how any number of individual sites can be organized and sequenced into a program or curriculum. They also remind us of the flexibility of these kinds of representation, and the many ways we can order, compare and contrast cases of practice. The multiplicity of representations serves as a vaccine against the most dangerous versions of “best practice,” those that imply that there exists a single best way to achieve specific educational ends. At the same time, this array can remind us that there are certainly “better practices” and that they may share some common distinctive features.

It certainly is not the case that only case records of practice can be effective pedagogical tools for supporting the development of teachers. Indeed, we must crisply articulate and define the theoretical, practical and moral principles that our apprenticeships, direct experiences, and the vicarious experiences provided by cases and websites afford. Articulated principles have an economy and clarity that other forms of discourse or demonstration rarely provide. Neverthe-
less, while principles are powerful, cases are memorable. They can combine the vividness of narrative with the impressiveness of observation and thus join with principles to provide particularly resilient and adaptive forms of professional learning.

So what might exhibitions like this one, and the underlying multimedia forms of case record it represents, portend for the future of our field? In my 1984 AERA address, I shared the following fantasies with my colleagues:

I envision the use of case method in teacher education, whether in our classrooms or in special laboratories with simulations, videodisks and annotated scripts, as a means for developing strategic understanding, for extending capacities toward professional judgment and decision making. …

I envision the design of research-based programs of teacher education that grow to accommodate our conceptions of both process and content. These programs will articulate with and build upon instruction in the liberal arts and sciences as well as the specialty content areas of each candidate. Instruction in the liberal arts and content areas will have to improve dramatically to meet the standards of understanding required for teaching. If these are special sections of such courses for teachers, they will entail evaluation of subject-matter treatment, not watering down. Such programs will draw upon the growing research on the pedagogical structure of student conceptions and misconceptions, on those features that make particular topics easy or difficult to learn. They will extensively employ a growing body of case literature, both to represent a far wider and more diverse range of teaching contexts than can possibly be experienced within any one teacher education program, and to provide teachers with a rich body of prototypes, precedents, and parables from which to reason.

The fact that we do not possess such a case literature at this time suggests new agendas for research in teacher education. In addition to the obvious tack of encouraging the continued growth of disciplined case studies of teaching by scholars, another alternative suggests itself. Frederick Erickson has noted that one of the exciting features of case studies is that you don’t necessarily have to be a PhD social scientist or educator to learn to prepare useful case materials. Given proper preparation and support, teachers and teacher educators can contribute to the case literature themselves. As they do so, they will begin to feel even more membership in the broader academic guild of professional teachers. (Shulman, 1986)

In 2006, as I review sites like these, along with the broader body of work of the Carnegie Foundation’s Knowledge Media Lab and the potential of other groups like Teachsage, Lesson Lab, their collaborators and competitors, I am confident that the era I envisioned is now upon us. It’s an exciting time, and this is an exciting set of representations.

References