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Introduction: Making Learning Visible to Whom?

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Introduction

Making Learning Visible *to Whom*?

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As an experienced teacher, I am accustomed to saying many things to my classes and having only a few of my well-chosen remarks hit home. Much of what we say in class seems not to register. Yet, when we say something that does connect, we know it – we can tell from the body language of our students that something we have said has penetrated. And it feels good!

I had such an experience in September of 2007, on the first day of facilitating my university's Faculty Development Seminar on the Scholarship of Teaching and Learning. Ten of my faculty colleagues came to our first meeting, not necessarily sure what they were getting themselves into. After introductions and some ice-breaking, we began to talk in general about the scholarship of teaching and learning (for some nice introductions to this movement, see Bass 1999; Glassick, Maeroff and Huber 1997; Huber and Hutchings 2005; Hutchings and Shulman 1999; McKinney 2004; Weimer 2002). I took the lead in introducing the field – its history, central tenets, examples of good work, etc. I said a lot in that meeting; more, perhaps, than a good facilitator should. My faculty colleagues responded with appropriate, polite interest and engagement – but it certainly didn't seem that anything really hit home.

Then I used the phrase "Making Learning Visible." I suggested, as others before me have, that good scholarship of teaching and learning does not merely assert that our students (or, for that matter, that we ourselves) have learned; instead, we attempt to show that this learning has taken place. This may involve qualitative analysis of student written work, or quantitative comparisons of student exam answers, or systematic observations of changes in student behavior, or analysis of journals or videotapes of our teaching, or pre- and post-class surveys of student affect toward the subject, etc. This notion of making learning visible is a key element in the evidence-based culture of the scholarship of teaching and learning.

This phrase hit home – I could see my colleagues reaching for their pens to write this down. Moreover, I could see their eyes and minds engaged by the question of how they could make visible what their students were learning in the class. This phrase sparked some thought-provoking discussion in the seminar; following the meeting, Karen Busch (Director of the Faculty Development Center) and I quickly agreed that we would use "Making Learning Visible" as the title of our edited volume this year. It seemed to capture something very critical in scholarship of teaching and learning work – we must strive, wherever possible, to take what happens in the classroom and expose it to the light of day.

Why We Need to Make Learning Visible

The aim of making learning visible is certainly not new in the scholarship of teaching and learning. Boyer's (1990) *Scholarship Reconsidered* introduced the notion of the scholarship of teaching as one of four scholarships (scholarships of discovery, integration, application and teaching), suggesting that scholarly work on teaching needs to be made public the way other forms of scholarship (particularly the traditional scholarship of discovery) are. In fact, we are not even original in using this phrase as our title – a similar edited volume produced at the University of Wisconsin-Milwaukee used this title (Schroeder and Ciccone 2005), and Randy Bass at Georgetown has used the name "Visible Knowledge Project" for his web-based project that "aims to improve the quality of college and university teaching by focusing on both student learning and faculty development in technology-enhanced environments" (http://crossroads.georgetown.edu/vkp/about/index.htm, accessed on July 20, 2008).

Importantly, the visibility of our work affects how it is perceived – Lee Shulman (1993) has argued that we tend to value that which we can see and touch. Traditional disciplinary scholarly work does not "count" until it is disseminated in public forums, perhaps in conference papers, but ideally in published books and articles. This forces scholars to produce artifacts, and through them engage each other's work in print and in the informal networks that connect scholars of various disciplines and subfields to one another. Shulman (1993) is correct to note that while we often paint a picture of the solitary scholar alone in the library's stacks, in reality, traditional "research" (the scholarship of discovery) does build communities of scholars interested in asking and answering similar questions, aided by the tangible products of their work.

According to Shulman, true solitude often exists not in research, but rather in teaching. For many academics, discussions of research are more commonplace than are discussions of teaching. In part, this may reflect the different nature of problems in teaching and research. Randy Bass (1999; see also Coppola 2007) argues that having a "problem" in one's research creates fertile ground for conversation and collaboration – cutting-edge research is expected to lead to problems that the scholar must address. "Problems" in teaching, however, are much different – acknowledging a problem in one's teaching is often regarded as showing weakness, and suggesting that a colleague has a problem in his or her teaching is viewed as an accusation. Since it is the problematization of scholarly questions that fosters intellectual community-building, the hidden nature of teaching problems is not conducive to forging scholarly communities around teaching.

Academia's reluctance to problematize teaching, then, manifests itself in an undervaluing of teaching in two ways. First, we do not do enough to share what we as teachers do in the classroom. Many (though certainly not all) good pedagogical ideas that we successfully use in the classroom are not documented or shared with others who teach similar topics (or teach using similar methods). This point should not be drawn too starkly – every discipline has some journal or journals that publish on innovative pedagogy, and water cooler conversations do occur in many departments in which teaching ideas are exchanged. Still, it seems fair to argue that more of this could occur; as Huber and Hutchings (2005) would suggest, we need to do more to nurture the growth of a teaching commons and trading zone in higher education.

The bigger problem that surrounds the culture of higher education is the lack of an evidence-based approach. Few of us learn to teach by familiarizing ourselves with the literature on teaching and learning – most of the time, we teach the way we were taught. Even when we innovate, we rarely collect any systematic data about the results of our innovations; instead we rely on impressionistic evidence (i.e., "They looked engaged" or "It seemed like it was working"). In my case, when I had settled in as a teacher and began to try ambitious new approaches in the classroom, it was a senior colleague who urged me to do some surveys and document student learning. Without that push to begin gathering data, doing so never would have occurred to me. Why would it? It was not done often enough in academia to make doing so obvious.

Making learning visible became somewhat of a mantra for our scholarship of teaching and learning seminar this past year. And, since gathering evidence – multifaceted evidence – is a critical aspect of this, the members of the seminar came together to guide each other in pedagogical innovation and in figuring out how to make visible what was happening in our classrooms. Like the seminar group last year, this group became a dynamic teaching commons, writ small (Huber and Hutchings 2005); the seminar worked within the Faculty Development Center to contribute to a culture that encourages the problematization of teaching issues and the use of evidence to address these problems (Bernstein and Ginsberg, n.d.).

Visible ***to Whom?***

If a central goal of the scholarship of teaching and learning becomes making learning visible, the next question that arises is "visible to whom?" This question, in many forms, led to some rich discussions during the faculty development seminar this year. Based on our discussions, and on my own observations, I would suggest there are four main audiences to whom learning can be made visible: the instructor himself or herself, our students, our discipline, and finally the higher education community extending beyond the discipline, both inside and outside our own institutions.

Clearly, these categories are not mutually exclusive; to cite just one example, when their own learning is made visible to our students, the instructor is certainly going to see how learning occurs. In offering examples of making learning visible across these different categories, I use chapters from this volume as examples, noting explicitly that all the chapters cross the lines that separate the different categories. Still, I believe these categories provide a useful typology by which we can examine the potential impact of scholarship of teaching and learning work.

Making Learning Visible to the Professor

A first category of making learning visible occurs when student learning is made visible to the professor. One of the best examples of this in this volume is Barb Leapard's work (Chapter 5). Like most of us, Barb had previously examined student learning by looking at the work her students handed in as part of their mathematics education class. This completed work was relatively "sanitized"; most students tend to hand in work on which they have spent time ensuring its quality. Yet, when Barb had her students perform "think-alouds" – verbally solving new problems aloud as they were audiotaped or videotaped – numerous other mistakes in how students approached the problem became visible. By providing her students an opportunity to make visible the learning they had done, they would showcase for her the places in which their learning was not all she had hoped it would be. By categorizing these errors, Barb is then able to reflect on how she might teach this material differently in the future so she can make clearer to her students these common misunderstandings. This could not happen if Barb's research had not created the opportunity to very closely examine her students' learning.

A second example of making learning visible to the professor is found in Dibya Choudhuri's chapter (Chapter 8). The graduate-level class Dibya teaches, on multicultural counseling, requires students to explore their own identities in order to enable themselves to effectively counsel people who may be of different races, religions, sexual orientations, etc., than they are. The class requires students to confront their own beliefs, assumptions and biases, assimilate new information, and develop a new understanding of these issues. In short, it often calls for students to undergo transformative moments in their education. Dibya's chapter focuses on the conditions that can give rise to these moments of transformation. One of Dibya's strengths is her ability to self-reflect and examine her own behaviors and practices (this certainly is a good trait for a counselor to possess!). By keeping careful journals of her own work, and looking at the journals her students were simultaneously producing, Dibya could clearly see her students' learning in sharper relief than most of us experience.

For Barb and for Dibya, carefully examining student learning is not easy. Looking closely at student work lays bare one's teaching soul. I can speak from personal experience about how uncomfortable it is to closely examine what my students didn't learn, or ways in which my course didn't quite change them as much as I would have hoped. But such activity is necessary – closely examining our students' learning is a key part of the problematization of teaching of which Randy Bass (1999) speaks. Barb and Dibya will be better instructors for their work to make their students' learning visible to themselves.

Making Learning Visible to Our Students

In addition to making student learning visible to instructors, a critical audience for whom we wish to make learning visible is the students themselves. Of all the chapters in this book, I think Jenny Kindred's work, and the collaborative effort by Solange Simões and Suzanne Gray, are two of the best examples of this. In both cases, the courses attempted to help students not only learn, but to be self-aware of what, and how, they were learning.

Jenny's chapter (Chapter 1) examines group assignments in a small group communication class, evaluating the impact of giving individual-only grades (no group grade) on student satisfaction with assignments, and on the work the students did. Jenny's students wrote frequent journal entries in her attempt to get students to make connection between the theory they were learning in class and the work they did within their small group in the class. As one example, she asked students to videotape a group meeting and analyze the meeting according to what they learned in class. Rather than being discouraged by students' inability to do this consistently, Jenny has determined that in future classes, she will be even more explicit in helping them see these connections. I've long been a fan of attempts to bring our students inside our work, and Jenny is engaging this task with particular relish.

Similar to Jenny Kindred's class, Solange Simões and Suzanne Gray (Chapter 6) strive to help students connect the different elements of their courses. Solange and Suzanne have the students engage in academic service learning as well as in information literacy-building assignments in Solange's Introduction to Women's and Gender Studies course. One of their aims is epistemological; they want students to move beyond understanding these issues based on anecdote and impressionistic evidence and begin to use scholarly sources and arguments in developing their understanding of the topic. Through all course activities, students had plenty of opportunities to reflect on their learning; they were forced to make connections between their fieldwork and more traditional in-class learning as they constructing a richer understanding of the course material.

In my own experience in this work, I remember being pushed by Pat Hutchings, Vice President of the Carnegie Foundation for the Advancement of Teaching, about how I would involve students in my work. For many, including myself, this involves utilizing students as research assistants or as sounding boards for our theorizing. But for all of us, involving students in our work means we should be encouraged to break down the wall separating our students from ourselves and let them in on the secret of what we want them to learn and how we will help them learn it. We must help our students make their own learning visible to themselves. These two chapters provide useful examples of how this can be done.

Making Learning Visible to Our Discipline

A third category of making learning visible involves one's discipline. This will be a theme in almost all scholarship of teaching and learning work, since a central tenet of the movement is that teaching and learning are different across disciplines (see Huber and Morreale 2002 on how the scholarship of teaching and learning has developed differently across disciplines). Good teaching in chemistry certainly shares factors in common with good teaching in literature and with good teaching in economics, but also differs in critical ways. Nobody would mistake the "signature pedagogy" of the Socratic law school classroom with the teaching that takes place during rounds at a medical school (on signature pedagogies, see Shulman 2005). Thus, one potential audience for our work is people in our disciplines, who can learn from our own work how they can best effect significant learning in their own courses.

Almost all of the chapters in this book have this as a theme. One of the best examples is Xiaoxu Han's work (Chapter 7) using Matlab® (a computational software package) in teaching a linear algebra course. This project speaks directly to mathematicians: the linear algebra course is an important gateway to higher-level mathematics courses, and thus it is vital for mathematicians to develop and disseminate best practices in teaching this course. Xiaoxu discovers some interesting patterns in who finds using this software to be useful and who does not; this will inform how he approaches future sections of his class. Within his disciplinary community, many people talk about how linear algebra should best be taught, and I look forward to seeing Xiaoxu add his voice to this choir.

Likewise, Jiang Lu (Chapter 3), who teaches interior design, tackles a critical design issue in her piece – what are the benefits and drawbacks of learning to do architectural designs using (1) paper-and-pencil and (2) computer-assisted technology? By learning the circumstances under which each works best, colleagues in her discipline can learn how to structure the teaching of these important skills. Jiang's literature review reveals a significant discussion going on in her discipline around these issues – her work will ultimately make a significant contribution to this discussion. Like Xiaoxu's chapter, Jiang's work reveals how good scholarship on teaching and learning can speak to important disciplinary controversies.

Making Learning Visible Across Higher Education

Without a doubt, work that addresses disciplinary questions plays a critical role within the scholarship of teaching and learning movement. However, it is unclear what the long-term future will be for the movement if some of its practice does not ultimately transcend this category. To date, inside most academic disciplines and sub-disciplines, the scholarship of teaching and learning is a cottage industry, with a small number of people doing work that is of interest to a small number of people within that narrow field. There is no doubt in my mind that it can continue profitably this way for a long time – the work is often very good and relevant, and there will always be some scholars with interest in exploring student learning in innovative ways.

But for the scholarship of teaching and learning to really take off and grow, it must ask the big questions that people want answered, across disciplinary lines and across the whole breadth of higher education. When people begin to actively look toward scholars of teaching and learning for answers to their higher education questions – such as about student retention, online education, assessment, learning communities, or any similar matters – this will be a significant sign that the work has staying power within the academy. Right now, these discussions do not yet involve scholars of teaching and learning as much as they should, despite the fact that the issues addressed by this scholarship go to the heart of many of the pressing issues facing higher education today.

So, where does this work come from? I would suggest that much of it comes from traditional SOTL-based classroom inquiry. In this instance, emergent findings may connect up with the important questions being asked on high. For example, as I read Mark Higbee's piece in this volume (Chapter 2), I see a historian who wanted to find a better way to teach history to his mostly introductory students while also seeking effective ways to address problems of undergraduate (dis)engagement much broader than history instruction. Mark is making use of the Reacting to the Past (RTTP) pedagogy of role-playing games, first developed at Barnard College, to enliven his introductory history classes. Students are transported back to critical events in history – to the Montgomery Bus Boycott of 1955 and 1956, or to debates about women's suffrage in Greenwich Village in the 1910s – as they take on the roles of characters in those events. Mark felt, and I agree wholeheartedly, that this would be a more interesting way to learn history than the traditional lecture format; his focus on student engagement, however, transcends disciplinary lines as he discusses the unique applications of this pedagogy to students at a regional comprehensive university.

Similarly, Management professor Jean Bush-Bacelis' (Chapter 4) work shows great potential to speak to a larger audience in higher education, although sadly she has not yet had the opportunity to implement her project due to difficulties with obtaining the funding to run the course. Jean intends to take teams of students into the Boundary Waters near Ely, Minnesota, and send them out on canoe trips. I know many of us have wanted to send some of our students on long boat trips; what makes Jean an exemplary educator is that she wants to bring them back home and study how these trips have helped them build skills related to her discipline – have they gained more skills at teamwork or leadership, for example?

These are just a couple of examples of how work in the scholarship of teaching and learning may speak to larger concerns within higher education. I hope that in years to come, scholarship on teaching and learning begins to inform more discussions we have within academia – in the above examples, about engagement of first-year students (many of them at-risk students) or about using innovative pedagogy that leaves behind the traditional four walls of the classroom. For the scholarship of teaching and learning to do this, it will require scholars (such as those in this volume) to publish their work in more wide-ranging outlets; it will also require efforts to aid higher education administrators in seeing the value this research can add to deliberations on these large issues.

Conclusion

The notion of making learning visible is one of the most critical aspects of work in the scholarship of teaching and learning. This Introduction has explored how this phrase takes on different meaning when we consider the different audiences to whom learning ideally is made visible. The papers in this volume certainly cut across the categories used here – virtually all the papers provide useful examples of making learning visible across multiple categories. The attentive reader will find learning made visible in the chapters in ways not noted in this Introduction.

Still, for the emerging scholar of teaching and learning, I hope that these categories may provide a useful model for how to frame one's work. In retrospect, I find that I asked myself versions of the following questions about my own developing scholarship of teaching and learning research agenda on teaching for civic competence in introductory government classes (e.g., Bernstein 2008). These questions include:

- How can I get a window into what my students are learning,

such that I can use this information to teach this course better the next time out?
- How I can help my students see what they are learning so that they now have confidence in their ability to understand politics (or read poetry, or take the first derivative of a mathematical function)?
- How can what I do in this course speak to others in my discipline who might be teaching this course or similar courses?
- How can what I do in this course speak to my university colleagues outside my discipline – how do I make this relevant to others who share my interest in studying teaching and learning?

To me these questions are worth asking as I begin any inquiry, and are worth returning to as my work proceeds. It is critical that scholars of teaching and learning always keep in mind the multiple audiences who read our work and attempt to learn from it. I invite the reader to enjoy the chapters that follow and to use them as prisms through which we can see the potential of our own work in this area.

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Documentation Heuristic for "Making Learning Visible" in LCs

Jack Mino, Holyoke Community College

1. Asking Questions – *The Pedagogy of Inquiry:* What do you want to know about student/faculty learning in LCs?

- Select a guiding question - what questions do you have about student/faculty learning worth documenting?
- What kind of student/faculty learning do you want to make visible: integrative learning/teaching, adaptive expertise – disciplinary grounding, embodied learning (i.e., affective, identity, body), socially situated learning – collaborative and/or communal?
- Why do you want to make this learning visible – what is the purpose of the documentation?

2. Capturing Learning – *The Pedagogy of Listening:* How might you capture student/faculty learning and make it visible?

- What technology might you use to capture student/faculty learning: observation and note-taking, audio-recording, video-recording, a combination of technologies?
- What might be the context of your documentation: individual student/faculty learning, an assignment, the course, or the program?
- How might you engage students/faculty as co-creators or co-documentarians?

3. Perceiving Patterns - The Pedagogy of Discovery: What student/faculty learning is visible now that wasn't before?

- What did you experience while engaged in listening/observing your students/faculty? What did you expect to hear/see? What did you actually hear/see? For example, did your students/faculty bring in additional experiences or make unexpected connections?
- What seems to be documented? What interpretations can you draw – what concrete components of documentation support what you're seeing?
- What else might have been documented if you had chosen to do so?

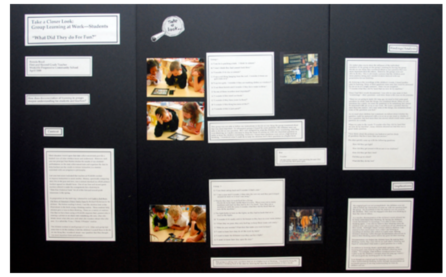
4. Going Public – *The Pedagogy of Collaboration:* What story might you tell as you represent, report, and share your documentation?

- What media might be useful for "going public" with your documentation?
- Who is your audience (e.g., students, faculty, administrators) and how might you elicit feedback from them?
- What artefacts can you assemble to present a more complete representation of student/faculty learning?

*"**Documentation** is the process of gathering evidence and artifacts of what happens in the classroom. Documentation is not only the process of gathering evidence and artifacts, but also a physical collection of evidence and artifacts, the reflection on and analysis of the collection, and the presentation of that collection, or part of it, in a way that makes learning visible to the [students] and the teachers."*

[Carla Rinaldi, 1994]

Documentation: When Does It Make Learning Visible?



Documentation serves different purposes during different stages of learning. The criteria for what counts as quality documentation depend on the context. What seems to remain constant is that quality documentation focuses on some aspect of learning—not just "what we did"—and it prompts questions and promotes conversations among children and adults that deepen and extend learning.

Here are some questions to ask when creating or examining documentation that tries to make learning visible. These questions may change depending on your purpose or context.

For collecting documentation to aid your own reflection:

- Am I documenting my own words and actions as well as the students'?
- Does the documentation help me re-examine things I did not initially notice or understand?
- Does the documentation help me identify key moments of learning or aspects of the learning context?
- Does the documentation suggest next steps for teaching or learning?
- Does the documentation raise questions I can discuss with my colleagues or students?
- What other documentation might I collect to extend this inquiry? Would my documentation be strengthened by using more than one medium?

For using documentation in the class with your students and colleagues:

- Does the documentation focus on *learning*, not just something we *did*?
- Does the documentation promote conversation or deepen understanding about some aspect of learning?
- Does the documentation help me to address a particular question I have about learning?
- When is an appropriate time to share the documentation with my students?

For documentation that is to be shared more widely:

- Does the documentation provide enough context for the viewer to understand the piece?
- Does the documentation focus on learning, not just on what was done?
- Does the documentation focus on the process as well as the product(s) of learning?
- Does the documentation clearly communicate the aspects of learning I consider most important?
- Does the documentation include an interpretation by teachers and/or students?
- Does the documentation include more than one medium?
- Does the documentation have a title?
- Is the documentation presented in a way that draws the viewer in?
- Does the documentation add to our collective body of knowledge and promote conversations about learning?

DOCUMENTATION FEATURES IN PRACTICE

1. **Documentation involves a specific question that guides the process, often with an epistemological focus (focus on questions of learning).**
   - Articulating a question--usually with a focus on how children build knowledge--can guide how and what to document and keep it connected to student learning.
   - Formulating a question helps to focus and limit data collection and sharpens the analysis.
   - Identifying hypotheses (forecasts), as well as questions, can be very helpful in advancing teachers' thinking and structuring observations around a particular question.

2. **Documentation involves collectively analyzing, interpreting, and evaluating individual and group observations; it is strengthened by multiple perspectives.**
   - Documentation does not stop with the photograph or tape recording or written notes. The next and critical step is analyzing and interpreting this documentation.
   - Collaborating with a partner or partners reduces the subjectivity of a single person's analysis and interpretation.
   - Collective analysis deepens understanding of a learning experience.

3. **Documentation makes use of multiple languages (different ways of representing and expressing thinking in various media and symbol systems).**
   - Using multiple forms of documentation (e.g, words and pictures) deepens the understanding of a learning experience.
   - Photographs are especially effective for capturing emotional or social dimensions.
   - Student reflections and adult analysis of key moments of learning add new meaning.

4. **Documentation makes learning visible; it is not private. Documentation becomes public when it is shared with learners, whether children, parents, or teachers.**
   - Publicly sharing documentation allows children and adults to reflect on, evaluate, and build on their previous work and ideas.
   - Sharing documentation with learners can take many forms: a photocopied sheet of paper, words repeated back to students, work brought back to a small group or put up on a wall, a carefully arranged panel, or a formal presentation.
   - Protocols can be useful for structuring conversations about documentation that promote deeper understanding.
   - Documentation is an act of communication; it makes public a conversation about what we value.

5. **Documentation is not only retrospective, it is also prospective. It shapes the design of future contexts for learning.**
   - Analyzing and interpreting documentation leads teachers to compare what they thought they would observe to what really went on; it informs decisions about where to go next.
   - Documentation helps teachers stay close to students' learning and interests as they think about next steps in the learning process.
   - Reviewing documentation influences curriculum in terms of the amount of time a group spends on a topic and the level of student involvement in shaping an activity or unit.