LAUNCHING THE NEXT GENERATION
OF NEW TEACHERS

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Bob Chase

Marilyn Cochran-Smith

Linda Darling-Hammond

Lily Wong Fillmore

Enid Lee

Lee Shulman

with an introduction by
Ellen Moir, Executive Director

NEW TEACHER CENTER AT THE UNIVERSITY OF CALIFORNIA, SANTA CRUZ
Forgive and Remember:
The Challenges and Opportunities of Learning from Experience

By Lee S. Shulman
The Carnegie Foundation for the Advancement of Teaching

Recently, I was in Washington D.C. to meet with a group from the National Academy of Engineering (NAE). They plan to create a national center for research on how people learn to be engineers.* I was helping them think about ways we can study how people learn a profession, in this case, engineering. How can you get people—in this case, faculty members—to move from the findings of research to actually applying it in practice? They said, “You know, professors of engineering don’t have a lot of time to read educational research. They think they know how to teach engineering—the way they were taught. How can we get them to do something different?” This may sound familiar to those of us who work in teacher education or teacher professional development.

Three things struck me while I was working with the NAE, and these three are relevant to today’s topic. First, what engineers do is design and create artifacts like bridges or tall buildings. All of us are sitting very comfortably in this room because we have implicit faith in the engineers who designed this hotel. We trust that this ceiling will not fall on us, and that the floor will bear our weight. And you can hear me because other engineers designed sound systems to make it possible for me to speak very softly and still be heard. All these are artifacts, tools, instruments designed by engineers.

Second, I saw that the National Academy of Engineering is concerned with a problem common to all professional training: how can we teach engineering students how to engage in engineering practice without subjecting clients to undue risks? If a student engineer had the last word in designing this ceiling, would you feel just as comfortable sitting there as you do now? And what is your feeling about having a first-year surgical resident be the person who will make the incision during your surgery? But how else can they learn? This is a dilemma common to all the professions.

My third insight has to do with realizing how much more complicated the job of a teacher is than the job of an engineer. All that an aeronautical engineer has to do is design a plane. Other people test it, yet others pilot it, and still others repair it and are responsible for its upkeep. In teaching, we are responsible for preparing people who must not only design the plane but also fly it, serve the drinks, land it, and be prepared to evaluate how well the plane performed. Teaching is much more complex, and it is also more lonely. You close the door, and you’re the only one. In engineering, there is a great deal of modeling that goes on and then collaborative review of the models. It’s very rare for an engineer doing complex design to ever be truly flying solo.

* The Center for the Advancement of Scholarship on Engineering Education (CASEE) has since been established.
I mention these three things because my topic this morning is the universal use by the professions of a somewhat protected experience for novices. Whether it is teacher induction, medical residencies, clinical experiences for lawyers, or engineering internships, this strategy is part of the system of educating professionals, and it gives rise to a couple of important questions. The first question is: How is learning from experience possible? If you think about it for a moment, it’s a miracle; odds are that only a tiny minority of experiences are really learned from. Therefore, what is the essence of learning from experience? The second question relates to the problem I just alluded to: How do we deal with the fundamental ethical and moral question of what entitles us to expose children, hospital patients, or clients to the services of someone who is, by definition, not yet ready to practice? How do we justify that? Do we simply say, “Well, it’s the only way they can learn.” That may be part of it, but it is a little more complicated than that.

I should also say that in this talk I’m drawing quite consciously on some things we are now doing at The Carnegie Foundation for the Advancement of Teaching. We are studying how people are prepared for a variety of professions—as lawyers, engineers, teachers, and members of the clergy. There are some fascinating parallels and some delicious contrasts among these fields. This work continues to remind me of what an extraordinary challenge it is to help new teachers learn to teach. It also shows me that we are not alone; in every one of the learned and service professions, similar problems are encountered.

This brings me to the title of this morning’s talk, “Forgive and Remember.” *Forgive and Remember* is the title of a book written about twenty years ago by a sociologist named Charles Bosk. Bosk’s book is a study of the surgical residency, and its focus is on the management of error in that residency. He begins with the observation and recognition that in a residency (which can include any form of professional residency) errors, surprises, and mistakes are inevitable. He doesn’t actually go so far as to make the assertion—which I would make—that if you structured the experience during the residency period so tightly that there are no errors, you also structured the experience to guarantee that there will be little or no learning.

This is the dilemma. How do you manage the inevitability, and even the necessity, of error in the surgical residency—or in any other protected professional learning experience? One of the questions Bosk asks is what kinds of errors can be forgiven. He has the basic insight that errors due to gaps in knowledge are forgivable—if you don’t forgive and forget, but rather you forgive and remember. His rationale is that in this situation you concurrently serve clients and serve society by educating the next generation of those who will be able to provide professional service. And, since error is inevitable, its expiation rests in being able to learn from the experience. I’m going to propose the general argument that learning from experience is justifiable, if what accompanies it is real memory, real learning, real understanding, and real commitment.
Consider the character of the induction experience, whether you think of it as part of student teaching, in a traditional sense, or as a residency or induction year. Think about not only the inevitability, but also the necessity, for error—and also for surprises, some of which may be pleasant. In this light, what kinds of experiences are most likely to be learning opportunities?

One reason why error is so critical for us to understand is that it relates to the broader notion of surprise—the unexpected or the unpredicted. While predictability may be a highly desirable condition in which to operate, learning begins with accidents. It’s fascinating to think about how in our earliest days of life surprise is one of the developmental challenges we learn to deal with. Think about playing peek-a-boo with a four-month-old baby. What happens? You do your initial peek-a-boo, and the baby cries. The baby is frightened, but nevertheless signals through the tears, “Do it again!” You do it again, and the baby cries some more. By the third or fourth time, however, the baby is inducing surprise, and you notice that the tears are punctuated with little giggles. Talk about the management of surprise! The baby has started doing what we as a species do when we are working at our best—to seek surprise, to seek uncertainty, to seek complexity, and even though it is initially terrifying, to figure out a way to manage it. We don’t do away with the surprise; we learn how to deal with it, and we develop a variety of strategies. What better description can there be of learning to teach?

I will lay odds that the overwhelming majority of teachers in this room probably prefer forms of discovery learning, project-based learning, and problem solving by groups over a highly structured, highly scripted curriculum. Novice teachers do the same thing; they want to do the most complex, group-based, problem-solving discovery learning, and they want to do it right away. Teachers who teach in that manner are guaranteed surprise. If you want to teach in ways that ensure you will know where the kids will be and what they will know at the end of the day or week, you teach a highly-controlled curriculum. It’s often a good idea, but if you want to ensure that life will be filled with surprises, keep teaching open-ended kinds of curricula in rather unstructured ways.

The quest for surprise, the valorization of surprise over the predictable, is really central to what we do as professional teachers and teacher educators. And we do it in large measure because we intuitively understand that this is a fine way for the kids and for us to grow. We know that growing in understanding entails becoming ever more capable of dealing not with the predictable—we can design machines to deal with predictables—but of dealing with uncertainty and the unexpected. It’s also why jokes are one of our favorite forms of communication because a joke is a peek-a-boo with words. Funny stories delight us because they contain surprises.

One indicator of your teaching going well is that you surprise the students and they surprise you. And the delight in each of your surprises is what propels the learning forward. Good research always has some form of surprise in it; nothing is duller than a study that confirms what everybody already believed. Good research, good jokes, and good learning experiences have the unpredictable at their centers.
Artifacts Support Learning from Experience

Let's keep that in mind as we consider what makes learning from experience difficult. One thing that makes learning from experience terribly difficult is that experience is like dry ice: it evaporates at room temperature. As soon as you have it, it's gone. So, one of the big problems in learning from experience is that we need to be able to examine, to analyze, and to reflect on experiences—but experiences fade. And they not only fade, they get distorted. How many times have you been in a situation where you were absolutely sure you did something, and it turned out you didn't? Why don't we think that happens when we are learning from experience as we learn how to teach? Even if we know what we did, it's very hard to know what the consequences were for the students. But learning from experience implies that we not only have a way of looking at what we did, but also at what the students learned. Too often what the students experience and learn is more invisible to us than our own ability to recount what we did.

My question to you is how we can be reflective practitioners if the experience from which we're supposed to be learning disappears from view as soon as it happens. I think an answer to this question is contained in a word that engineers use all the time. The word is "artifacts." Artifacts are things—objects, tools, instruments—that human beings construct because they are needed but don't exist in nature. Constructing an artifact is by definition an unnatural act. And yet, I would argue that artifacts are the key to learning from experience.

One of the most vivid demonstrations of the importance of artifacts was a study by Anna Richert of Mills College in Oakland. Anna explored the conditions under which the reflections of people learning to teach become most vivid, most powerful, and most fruitful. She found two conditions were important, if not necessary, for good reflection to happen. The first condition is that the richer the set of artifacts that represented the practice or experience undertaken, the more powerful the reflection, and the second condition is that having a partner to reflect with you significantly increases the efficacy of reflection. These two conditions are related, because if all the partner has to work with is the dry ice of memory—and it's your memory, not the partner's—it's a much less powerful experience than if you were sitting there with a video of the class, with samples of student work, or with a piece of the journal you wrote immediately after the class. Suddenly reflection becomes not grasping for the fading wisps of memory, but instead working together on the shared artifacts available to all members of the conversation. And I guess I would argue that these principles can be generalized, that learning from experience almost always entails learning from, with, and through the artifacts that are generated to capture, display, and preserve the experience. If you do artifact construction self-consciously, learning is much more likely to occur in the conversations that follow. And if the reflection is conducted collaboratively, the process if further amplified, clarified, and sustained.
Second-Order Artifacts: Beyond Reflection and Conversation

But I am not prepared to stop there, because we still have to address the moral or ethical question of professional training that I raised earlier. Let's say the artifacts capture a really messy bit of teaching in which you engaged. Is the fact that you can learn from those artifacts sufficient moral justification for your students and you to have undergone that experience? I would argue, "Not quite." There is one more piece of the puzzle that must be filled in, and it rests on the notion that learning from reflection on your own practice cannot possibly be the major source of professional learning.

Think about it for a moment. You are one teacher, and you teach one classroom at a time to a particular group of students. If your professional development were wholly dependent on what you learned from your individual experience, who would ever be prepared to trust your professional wisdom? Would you like to go to a physician who only knew what he was able to learn from his own experience, or to a surgeon who only knew what he knew from the mistakes she had made? Don't you have to go further? I would say, "yes." For us to justify learning from experience as an explicit strategy of professional education, those experiences not only must be educative through reflective analysis and conversation; they also must be transformed into a second-order artifact, an artifact of scholarship.

What is scholarship? Scholarship is what human beings do in order to create organized ways to learn from one another. Scholarship is a communal activity that rests on the fundamental premise that what we can learn as individuals is only a tiny sliver of what we need to understand as a community. Therefore, we must create new artifacts that represent, explain, and project what we have learned in ways from which others can learn. In the sciences, there are research papers, and in teaching, those could be cases, teacher portfolios, or videos. If our experience begins as a benign surprise or an embarrassing error, whatever we come to understand through looking at first-order artifacts can, in turn, be transformed into second-order artifacts. Only then are we in the realm of "forgiving and remembering."

People make fun of the practice of scholars who pepper their manuscripts with footnotes and references, but each footnote and reference reminds us that our piece of individual writing or learning could not have happened were it not for the efforts of others. Madelyn Grumet has reminded us that the word "acknowledgment," which so often goes in the beginning of the book, is a pun because to "acknowledge" is in effect to remind the reader that the knowledge in this book could not have occurred without the knowledge of others, that we stand on the shoulders of a community of giants whenever we do our work. It means that we need this coral reef of small contributions in which others—teachers and teachers educators—decided not to keep their mistakes private,
not to keep their surprises to themselves but to make them public, to subject them to peer review and evaluation, and to display and communicate them in ways that make them building material for others in the profession.

Then and only then are we moving from what is fundamentally a selfish act of using our own experience and sometimes the sad experiences of our clients so that we might learn, to the point of making a contribution that is indispensable in our profession—making our work public so that others don’t have to undergo one of those experiences in order to learn. All the professions do that, and we in teaching are finally beginning to do it, but we’ve got to do it more.

Judy Shulman’s work with teachers writing cases and producing casebooks exemplifies this principle. Every one of those teacher-writers not only learned from having reflective conversations about his or her practice, but the very doing of the case produced an artifact that others learn from. That’s an example of forgive and remember. (A group of teachers from the New Teacher Center in Santa Cruz came together to write the casebook Using Assessments to Teach for Understanding.)

One thing that creating an artifact does is force us to interrupt our work; that’s why it’s so annoying at times. Nurses are often utterly annoyed by the necessity of entering all that stuff into a patient’s chart, but wouldn’t you love it if all the teachers who served the children you are teaching entered onto a common chart what they had done and what they observed during their time with the students? But it’s annoying; you have to interrupt your “real work” to do it.

The anthropologist Elinor Ochs at UCLA studied a group of experimental physicists, and what surprised her was how annoyed these physicists were to have to “stop doing physics” because it was time to prepare a paper for the next national meeting. In order to make their presentations, they had to stop and review and ask themselves what they had really learnt, and how to represent what they learned in a more compressed, elegant and economical fashion? They almost always had to invent new artifacts—slides that compared things they had done, figures that summarized what they had learned. Ochs reports a fascinating finding—they don’t stop doing physics in order to prepare their paper, they stop doing one kind of physics in order to do an absolutely necessary other kind of physics. They start asking themselves, “What have I really learned, and how can I talk about it in ways that will educate the rest of my community?” By stopping and creating new artifacts that didn’t naturally emerge from what they were doing, they ratcheted up their understanding an order of magnitude. Simultaneously, they learned, and thus their community learned. But again, this happens only if they’re prepared to stop. So, in a very paradoxical sense, you can only make progress by interrupting your progress.

Visual Metaphors for Building “Pedagogical Capital”

At The Carnegie Foundation, we think about what teachers learn from their own practice. We have been working with elementary and secondary school teachers, as well as with teacher educators, but by far the largest number of teachers with whom we’ve worked are university and college professors. This may seem like an unlikely group of
folks to engage in a study of their own practice, but they are increasingly doing it with excitement. Over 200 postsecondary institutions nationwide have now developed forms of teaching academies so their faculty can get support in studying their own practice. I was at Illinois State University just a couple of months ago to help in the endowment of a chair, based on a $2.5 million gift to appoint a professor of the scholarship of teaching in one of the disciplines. People are now being recruited to other universities because they have the capacity to study their own practice!

In order to talk about this work, we at Carnegie have been using a set of visual metaphors: mirrors, lenses, windows, and projectors. The mirror is often used as a metaphor for reflection on one's own practice. Simply holding up a mirror is in and of itself an obstruction that initiates new kinds of analyses that would otherwise not occur. The variety of ways in which we can hold up a mirror to practice makes it a powerful tool. Think about those three-way mirrors that you look at in the department store; they give you the chance to see what you look like as you walk out of the room, as well as how you appear when you walk in, and that's a good analogy for using artifacts that can be more powerful than simply jogging our memory. And recall how indispensable the mirrored wall becomes for serious dancers. Artifacts can present angles of vision that aren't normally available to us.

But that is still not enough. The instrumentation that adds to what the mirror can do is the lens. The lens is what we add by having our conversation partners apply analysis to what we see in the mirror. This makes it possible for us to see things we wouldn't otherwise see. Who can forget the first time they looked at their own teaching after they learned about Mary Budd Rowe's concept of "wait time"? Wait time is a conceptual lens—suddenly, you see things you didn't see before. I would argue that one of the most important things we do in the educational research community is to offer lenses, both analytic and perceptual, which make the invisible visible, which make the hidden apparent.

So we need mirrors, and we need lenses, but so far we're still engaging in a solitary act. We also need windows to look through. We need windows into our neighbors' classrooms to see what they are doing, to learn what they are learning. They, in turn, must be able to look at us. This means that in order to see, we have to be prepared to be seen.

And finally, we need projectors. I don't think it's enough to peek into our neighbors' windows. We've got to figure out ways to project those visions, those artifacts, those analyses, in ways that can educate the larger community—people we have never met or may never meet.

We need to confront the inevitability of this technical and moral challenge. We have to learn from experience, which means we have to self-consciously construct artifacts that make learning from experience possible and to have the professional conversations that make them powerful. We have to build what I'll call "pedagogical capital" in the form of such artifacts of learning. Only then will we be able to say in good conscience that in educating teachers we forgive and remember.
References


