

How and what teachers learn: a shifting perspective

LEE S. SHULMAN and JUDITH H. SHULMAN

We explore our efforts to create a conceptual framework to describe and analyse the challenges around preparing teachers to create, sustain, and educate in a 'community of learners'. In particular, we offer a new frame for conceptualizing teacher learning and development within communities and contexts. This conception allows us to understand the variety of ways in which teachers respond in the process of learning to teach in the manner described by the 'Fostering a Community of Learners' (FCL) programme. The model illustrates the ongoing interaction among individual student and teacher learning, institutional or programme learning, and the characteristics of the policy environment critical to the success of theory-intensive reform efforts such as FCL.

Models and theories emerge in many ways. The model that is the subject of this paper was first born during a period when we were working with a group at Stanford and Vanderbilt universities and the University of California-Berkeley to 'reinvent' and scale up Brown and Campione's (1992, 1996) 'Fostering a Community of Learners' (FCL) model. Our particular challenge was to create a teacher-education experience that would prepare teachers to create, sustain, and educate in a 'community of learners' as envisioned and defined by the FCL conception. The work was quite daunting, and we were reminded constantly of how enormously different from one another were the teachers with whom we worked, and especially how much they varied in the ease or difficulty with which these novel ideas were accepted and applied in their work. The papers by Mintrop (2004), Rico and Shulman (2004), Sherin *et al.* (2004), and Whitcomb (2004) in this issue of *JCS* offer an account of one aspect of that work: how preparing teachers to work in such settings varied as a consequence of the subject matter they taught. This paper is an account not of that project *per se*, but of the conceptual work we engaged in to make sense of that work.

Lee S. Shulman is President of The Carnegie Foundation for the Advancement of Teaching, 51 Vista Lane, Stanford, CA 94305, USA; e-mail: pres@carnegiefoundation.org. He is the Charles E. Ducommun Professor of Education Emeritus at Stanford University and is a past-president of both the American Educational Research Association and the National Academy of Education. He was co-principal investigator (with Judy Shulman) of the 'Fostering Communities of Teachers as Learners' programme. His theory of pedagogical content knowledge has stimulated substantial research on the domain-specificity of teaching and learning.

Judith H. Shulman directs both the Institute for Case Development and the National Board for Professional Teaching Standards Support Network at WestEd, San Francisco, CA. Her research interests focus on the development of cases and their impact on teacher learning, on the professional development of teachers, and on approaches to engaging in the scholarship of teaching on one's own practice.

As often happens, this theoretical work was stimulated by a specific set of puzzling experiences. The initial stimulus began with classroom visits lasting several days in classrooms. As we observed in those settings, we were impressed by two highly contrasting teachers who were working as a Grade 8 team as part of the 'Schools for Thought' (SFT) programme, an initiative closely connected to FCL. One was a relatively inexperienced mathematics and science teacher who appeared to have deep disciplinary knowledge of science. She also held deeply constructivist beliefs about the teaching and learning of that domain, fairly clear visions of how SFT teaching could serve to integrate her disparate cognitive understandings of teaching and learning—as well as a belief system about why such learning was preferable to more passive forms of learning—and a high level of motivation to create such settings in her own classroom. In those terms she appeared to be an ideal candidate for FCL/SFT teaching. However, because of her inexperience, she lacked the practical skills of instructional planning and design—even in her own content area—that she needed to design the curriculum materials and activities needed to fulfil her visions. She also seemed to need much better classroom organization and management expertise. In our thinking, she became a significant case.

Her colleague was quite different. Here was a veteran classroom teacher in the same school who appeared to have the classroom organizational skills to manage the complexity of SFT teaching, but was still developing her vision and understanding of how (and why) such classrooms should run. Unlike her younger counterpart, constructivist conceptions of teaching and learning were new to her. She thus had the practical pedagogical and management skills to create an FCL/SFT-like learning environment, but her visions of such teaching and her theoretical understanding of the grounds for this kind of pedagogy were superficial. Like her less experienced colleague, however, she appeared quite highly motivated to create and sustain a SFT classroom.

Theory begins in wonder. How and why, we wondered, were these two teachers different? We felt the need to develop a theoretical language to describe the differences between such teachers, and to unpack their capabilities. We wanted such a theory to be couched in the language of teacher learning because our role in the larger project was to examine how teachers learned to teach in such settings. A theoretical formulation was needed to identify the components of teachers' capabilities for teaching (and to suggest how these functions related to one another) as well as the conditions under which they might change and develop.

In our earlier studies of teacher learning, one of us (LSS) employed constructs that were strictly cognitive and individual, such as *pedagogical content knowledge* and *pedagogical reasoning and action*, and was content to distinguish among different kinds of teacher knowledge (Shulman 1986, 1987). These were conceptions that fit well with the centrality of subject matter and the subject-specific differences in teaching and learning that are the topic of the previous papers in this issue of *JCS*.

In earlier work on case-based reasoning, the other member of the team (JHS) employed theoretical models that described how teachers learned via disciplined critical reflections on their own practice, as exemplified by case

writing (Shulman 2002, 2003). This work paid much less attention to the importance of subject-specificity, and focused more directly on the manner in which teachers could transform their individual experiences into more generalizable conceptions via individual and collective reflection and case-writing.

But neither of these conceptions seemed comprehensive enough to account for what we were encountering. Rather than attempt to repair our older models, we approached the challenge of developing a new conceptual scheme from a fresh starting point. For our work on 'Fostering Communities of Teachers as Learners' (FCTL), as we dubbed our part of the larger initiative, we recognized the need to frame a more comprehensive conception of teacher learning and development within communities and contexts.

Teacher learning communities: a new model

How can we analyse the features of teacher learning in ways that can describe, explain, and ultimately guide the development of teachers attempting to teach in theory-rich, open-ended, content-intensive classrooms of the sort envisaged by FCL? We would now stipulate that an accomplished teacher has developed along the following dimensions: *An accomplished teacher is a member of a professional community who is ready, willing, and able to teach and to learn from his or her teaching experiences.* Thus, the elements of the theory are: Ready (*possessing vision*), Willing (*having motivation*), Able (*both knowing and being able 'to do'*), Reflective (*learning from experience*), and Communal (*acting as a member of a professional community*). Each of the dimensions entails an aspect of personal/professional development, and can connect with portions of a curriculum of teacher preparation or professional development. We can think of teachers becoming:

- ready to pursue a vision of classrooms or schools that constitute, for example, communities of learning;
- more willing to expend the energy and persistence to sustain such teaching;
- more understanding of the concepts and principles needed for such teaching;
- more able to engage in the complex forms of pedagogical and organizational practice needed to transform their visions, motives and understandings into a functioning, pragmatic reality;
- more capable of learning from their own and others' experiences through active reflection in and on their actions and their consequences; and
- more capable and experienced in working as members of functioning learning communities and/or of forming such communities in the settings where they work.

In list form, the new model argues that the features of accomplished teacher development, and thus of teacher learning, are: *Vision, Motivation, Understanding, Practice, Reflection, and Community.*

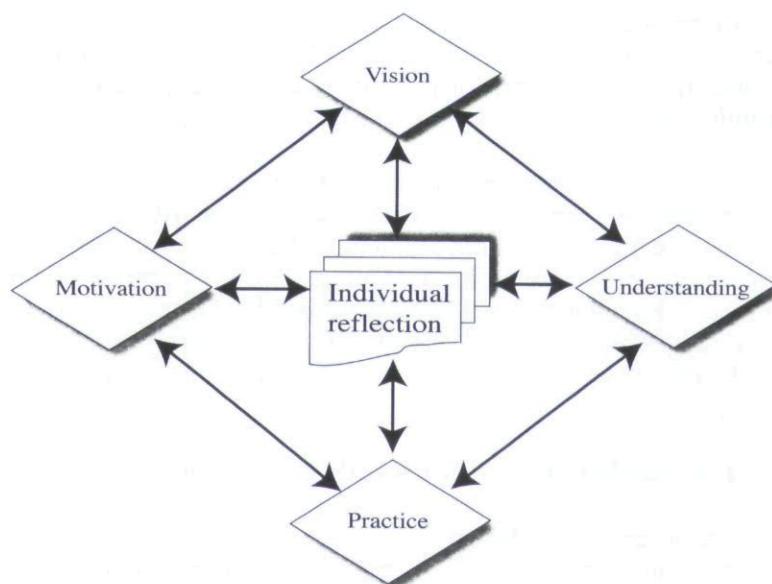


Figure 1. Individual level of analysis.

By permuting these features, we can more precisely characterize teachers, such as those we encountered in the SFT we observed and in our other work, at different stages or positions in the process of learning to teach in this manner. We can describe teachers who are ready to engage in constructivist (or other forms of highly engaged) teaching, but lack the will, the knowledge, and the skill to do so. We worked with teachers who possess the understanding of the principles, but lack the will to pursue them or the skill to implement them. We can even imagine teachers who have the requisite skills, but lack an understanding of their purpose or rationale, are unwilling to apply them, and are uninspired by a vision of education in which they are central. We can certainly conceive of those who possess all the individual capacities, but lack membership in the kind of teacher community that makes possible the transformation of intention into accomplishment.

We now take each of the first five of these constructs in turn and examine them as part of a broader model (see figure 1). What are the features (thoughts, actions, dispositions, values, commitments, passions, understandings, skills, etc.) of an accomplished teacher?¹ Following this, we will return to a discussion of the sixth feature of teacher learning, that of community.

Ready: the development of Vision

A teacher must be ready to teach. For example, in the FCL programme, an accomplished teacher has developed a vision of a particular kind of student learning and understanding; of an (active, constructive, metacognitive)

process of learning in deep disciplinary and interdisciplinary terms; of a classroom in which a range of individual and group activities that are consistent with FCL principles are engaged in a meaningful way. He or she is disposed to think of teaching as a process other than telling, and of learning as a process other than repeating or restating. An FCL teacher is, in ideological terms, deeply dissatisfied with the status quo. A highly developed and articulated vision serves as a goal toward which teacher development is directed, as well as a standard against which one's own and others' thoughts and actions are evaluated. Discrepancies between one's vision and one's performance can create the motivation to learn, or—if too great—can discourage learning and replace hope with despair (Hamerness in press).

With regard to the development of visions of teaching and learning that determine teachers' readiness to learn FCL approaches, we might ask: What kinds of teacher education experiences enhance readiness? How can vision be guided, enhanced, differentiated, and deepened? Are there stages, or levels, or categories of readiness? If so, how can we assess them, measure them, recognize them? Are there important differences between transitional states, dangerous states, and mature states? How can teachers themselves recognize their own readiness and reflect individually and collectively on their own visions of the desirable and the possible?

Willing and motivated

A teacher can develop a new vision of teaching based on encountering role models, reading cases, viewing tapes, holding discussions with peers, reading theoretical accounts, etc., and be quite displeased with the status quo. Nevertheless, he or she can be unwilling to change in that direction, insufficiently motivated to change, inadequately supported by his or her context or peers to take the risks of forgoing extant practices, or exert the efforts needed to change, and the like. We draw an analogy to a person with a vision of no longer smoking, or of eating more healthily, or of exercising regularly, but lacking the will or the supportive environment to enact the vision. This picture contrasts, for example, with Cohen's (1990) classic case of 'Mrs Oublier', who appears to be willing to teach mathematics for understanding but apparently lacks a sufficiently well-developed vision of the desired practices and their rationales to make intelligent and effective changes.

We can ask the same kinds of questions for this category of *willing* as we offered for the first conceptual category. Are there stages, levels, or categories of motivation, commitment, or disposition? What kinds of teacher education, through courses, workshops, research groups, case-writing and the like, teacher-community development, school restructuring, professional networking, administrative support, cognitive disequilibria, etc., will be useful in fostering such motivational development? Where does the will to change come from? To what extent is '*willing*' an internal category, and to what extent is it the result of the management of external incentives, rewards, and pressures?

Able

An accomplished teacher must understand what must be taught, as well as how to teach it. In the language of the National Board for Professional Teaching Standards (1992), teachers must know *and* be able to do. Thus, to teach in an FCL-compatible way, a teacher must understand both the first principles of the problems, topics, and issues of the curriculum, and also the principles of FCL, their rationale, their relationships to one another, and the characteristics of their successful instantiation. And in addition to knowing, he or she must be capable of performing, of engaging in the practices necessary to transform the vision and the conception into action.

This 'Understanding' category is quite large. It includes much of what we have studied over the past 20 years in our examinations of teacher knowledge and understanding. Indeed, within this 'Understanding' category we may find many of the elements that are now commonly found in standards for the knowledge base for teaching. Examples of the domain include:

- Disciplinary/content/interdisciplinary knowledge;
- Curriculum understanding (includes *Where are the joints in disciplinary and interdisciplinary topics along which jigsawable divisions may be drawn?*);
- Pedagogical content knowledge for FCL (and case-knowledge of multiple instances and instantiations);
- Classroom management and organization (both proactive and reactive, with a special focus on understanding principles of multiple forms of group-work);
- Classroom assessment;
- Accomplishing community: *micro*—in the classroom; *midi*—in the department or school; *mini*—in the local community; *macro*—in the profession or within larger reform efforts;
- Understanding learners intellectually, socially, culturally, and personally in a developmental perspective.

Understanding for FCL-compatible teaching can be further unpacked into four constituent processes:

- Understanding the subject matter of the curriculum in a deep, flexible, and generative way;
- Comprehending the pedagogical principles and being capable of designing and implementing instruction consistent with them;
- Discerning useful instantiations of FCL-compatible teaching from incomplete applications, non-implementations, and lethal mutations, that is, knowing it when you see it; and
- Assessing variations in student learning, interaction and development that result (or *should* result) from FCL teaching.

Taken together, these are expectations for the development of *pedagogical content knowledge* for this kind of teaching. In the preceding papers, the authors examined the extent to which these kinds of subject-specific understandings and capabilities can account for variations in teacher performance.

All these elements of understanding can be examined in terms of pedagogical and learning processes, characteristics of disciplinary conceptualizations and performances, and the appropriate fusion of the pedagogical with the substantive dimensions. That is, one can understand the principles and practices of FCL but implement them in the service of impoverished disciplinary conceptions; and one can have deep conceptual understandings unaccompanied by a comprehension of the pedagogical and learning principles of FCL. One can understand the principles of student performance or portfolio assessment for authentic learning, but lack the disciplinary insights needed to enact effectively (or evaluate the results of) the assessments for a particular subject matter or interdiscipline. One can engage in intended FCL teaching and not discern the significant differences between what one's students are doing or learning and the kinds of interactions intended by FCL.

As with the earlier dimensions, we need to ask how to identify different stages or levels or paths toward understanding among teachers. We need to also ask what kinds of teacher-development activities will foster the right kinds of learning.

Able to engage in appropriate performances in Practice

Having discussed both vision and understanding, we now move to the heart of teaching, the capacity for intelligent and adaptive *action*. An accomplished FCL teacher is not only ready, willing, and understanding of FCL teaching. He or she is also able to perform this kind of teaching, which is enormously complex in its practice. An accomplished professional is not only someone who is inspired, enlightened, and motivated; he or she must also be skilled in the varieties of practice. FCL teaching makes great demands on the performance of teachers in the design and adaptation of curriculum, the management of multiple rotations occurring simultaneously in classrooms, the formal and informal assessment of complex understandings and processes among diverse students, the integration of deep disciplinary understanding with sustained motivation and interactions among students, the uses of technology in the everyday life of the classroom, etc. Such skill will develop slowly over time. Teacher educators and professional developers need to analyse how such skill development can be identified, fostered, measured, repaired, and sustained.

All teaching makes extraordinary performance demands on teachers. FCL teaching involves additional performance demands because of the complexity of simultaneous rotations, the demanding character of any one rotation taken at a time, the challenge of monitoring and responding to individually diverse student performances in classrooms that promote distributed expertise, majoring, and the like.

The complexity of such teaching makes its outcomes far more uncertain and unpredictable than more structured kinds of direct teaching. For that reason, the need to adapt and learn from experience is paramount. Thus critical analysis of one's own practice and critical examination of how well

students have responded are central elements of any teaching model. At the heart of that learning is the process of critical *reflection*.

Learning from experience through Reflecting

If the accomplished teacher were merely capable of vision, motivation, understanding, and practice, he or she would still lack the capacity for learning from experience and, thus, the capacity for purposeful change. Just as the first principles of FCL emphasize the importance for FCL pupils of metacognitive processes as the key to comprehension-monitoring and transfer, so the first principles of FCL teaching stress the centrality of metacognitive reflection among teachers. Much of our work with both veteran and novice teachers supports their efforts to become more conscious of their own understandings, performances, and dispositions. Through discussing their work—from curriculum design to classroom teaching and assessment—as well as developing teaching portfolios, writing cases and engaging in regular discussions of practice, we aim to enhance teachers' capacities to learn from their own and one another's experience. A central conjecture of our model is that reflection is the key to teacher learning and development.

During the four years of this project's work, one of us (JHS) gathered together both pre-service and experienced teachers with whom we worked to reflect together on their experiences, to develop cases from their practice, and to explore what could be learned from their experience and cases. Regular meetings were held with the teachers to promote and sustain such critical analyses of their work (Shulman *et al.* 1997). This approach also bears interesting family resemblance to Sherin's (2001, Sherin and Han in press) studies of the workings of video clubs to support teacher learning from their own practice. In nearly every profession we have studied, the centrality of forms of structured critical reflection and analysis is crucial.

We may summarize the structural model (see figure 1) by stating that the accomplished teacher smoothly integrates vision, motivation, understanding, and practice into the enactment of FCL teaching, and learns to improve that teaching through active reflection. Performing or practising FCL-compatible teaching demands thoughtful, reflective, and purposeful action. We might also use the term *praxis* to denote a form of practice that is critical, rooted in both vision and ideological beliefs (about interdependence, respect for diversity, and the like), and self-conscious.

Overall, we can imagine five clusters of attributes around which accomplished teaching develops:

- a *cognitive* cluster that includes discerning, understanding, and analyzing;
- a *dispositional* cluster that includes envisioning, believing, and respecting;
- a *motivational* cluster that includes willing, changing, and persisting;
- a *performance* cluster that includes enacting, co-ordinating, articulating, and initiating;

- a *reflective* cluster that includes evaluating, reviewing, self-criticizing, and learning from experience.

In the next section, we discuss the sixth feature of accomplished teacher development, that of community. In doing so, we argue for the importance of a *communal* cluster that includes deliberation, collaboration, reciprocal scaffolding, and distributing expertise. Taken together, these are the dimensions of accomplished teaching in a theory-rich reform environment, of which FCL is a prime example. They also serve to define the focal points of any efforts in teacher education or development dedicated to preparing teachers to work effectively in the uncertain, complex, and often unpredictable settings of schools.

Unit of analysis: the individual and the community

Robert Merton, the distinguished sociologist, observed that people shape their organizations, and those organizations, in turn, shape them (Merton 1967). In our deliberations over the past years, we have struggled to discern how best to conceptualize our efforts. We have been particularly caught between conceptions of the individual teacher and his or her learning on the one hand, and the community of teachers on the other hand, as our fundamental unit of analysis. That is, to what extent are we coming to understand how individual teachers learn to engage in the teaching and curriculum development essential for this kind of teaching, and to what extent are we investigating learning and change in teacher communities?

Merton's maxim, however, reminds us that the dichotomy is misleading. The two dimensions are in continuing interaction and are mutually determining. All the teachers with whom we worked are members of one or more groups ('community' may be a misnomer in many cases) that influence their beliefs and their practices. However, especially in the case of the pre-service teachers, their learning communities while in training are eventually replaced by new teaching communities when they enter their first professional roles. How much of the learning that was fostered in their past learning communities will transfer to their new settings? If professional learning is situated within particular communities, what happens when those contexts change?

To represent the continuing interaction of the individual and the community levels of analysis, we represent the structural model in several ways, each intended to highlight different aspects of their relationships. Figure 2 thus presents a communal version of figure 1, and figure 3 portrays the two levels of analysis together, that of the individual and of the community. In figure 3 we can see how each teacher holds his or her own visions, motivations, understandings, and capacities to perform in practice and reflect. At the same time, we can conceive of teacher communities in which shared visions (often called myths or religious images in other contexts), community commitments, a shared knowledge base (which may be common or a form of distributed expertise), a community of practice and established rituals or ceremonies for joint reflection and review either serve

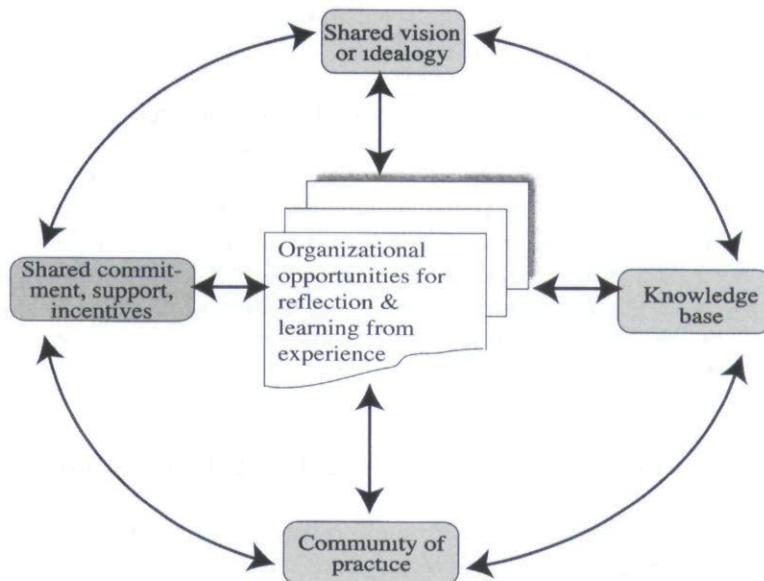


Figure 2. Community level of analysis.

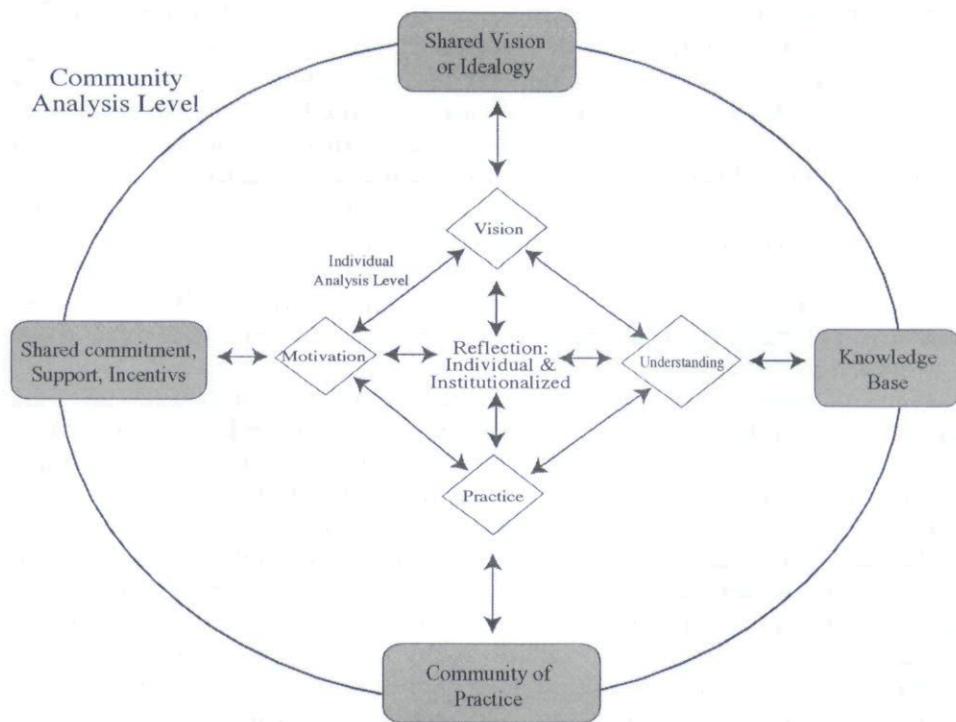


Figure 3. Learning communities at the individual and institutional levels.

to enhance the development of particular accomplishments, actively inhibit their development, or are neutral with respect to them. As Merton intimated, the individuals contribute to the formation of the community norms, incentives, and practices even as the community exercises its influences on the participating individuals.

We can thus view teaching and teacher learning in terms of a set of nested polygons, in which our model of Vision, Motivation, Understanding, Practice, and Reflection is represented in some form in each layer of a multi-layered conception. The inner layer (not depicted here) is a model of all learning, beginning with that expected of the students in one's classes. Learners at any level need to develop a vision of the possible understandings and learning they can accomplish, the motivation to initiate and persist in that learning, the understanding to pursue such learning (as both impetus and outcome), and the skill at negotiating the complex participant structures of any serious and organized approach to instruction that are *all* necessary for accomplished learning. The learning proceeds most effectively if it is accompanied by metacognitive awareness and analysis of one's own learning processes, and is supported by membership in a learning community. Indeed, this model may well apply to the learning processes of students as well as it does to the learning processes of teachers.

Another layer is a model of teaching and learning-to-teach within communities of teachers as learners. In both teacher education and school settings, educators must create environments that support, sustain, and 'tune' the visions, understandings, performances, motivations, and reflections of all its members. Thus, as Merton taught, the individual and community levels are both independent and interactive.

The outermost layer is the domain of policy. Therein we find the allocation of resources (see figure 4). Accomplished learning and teaching depend on the provision of adequate resources such as mentoring, staff development, curriculum and associated materials, instruments and models of assessment, additional personnel, computers, physical space for groupings and rotations, etc. The nature of curriculum resources was of particular interest to FCTL, because the teacher as curriculum interpreter and adapter as well as curriculum user was central to our efforts. The absence of adequate curriculum materials, faithful both to standards of learning and to our conceptions of student understanding and classroom practice, was a fatal stumbling block to the success of the FCL reform. The layer of resources is likely to be an indispensable element of all efforts at reform that depend heavily on teachers' understandings and skills. We have elected to use the metaphor of 'capital' in defining these resources, and have distinguished among *venture capital*, which represents the provision of financial incentives and supplies, *curricular capital*, *cultural* or *moral capital*, and *technical capital*. We employ these constructs as a reminder that these are nested communities or contexts, and that the policy world is both the sustainer and the executioner of the innovations in teaching and learning that occupy our attention.

In conclusion, the analysis of teacher learning in our efforts has moved from a concern with individual teachers and their learning to a conception of teachers learning and developing within a broader context of community,

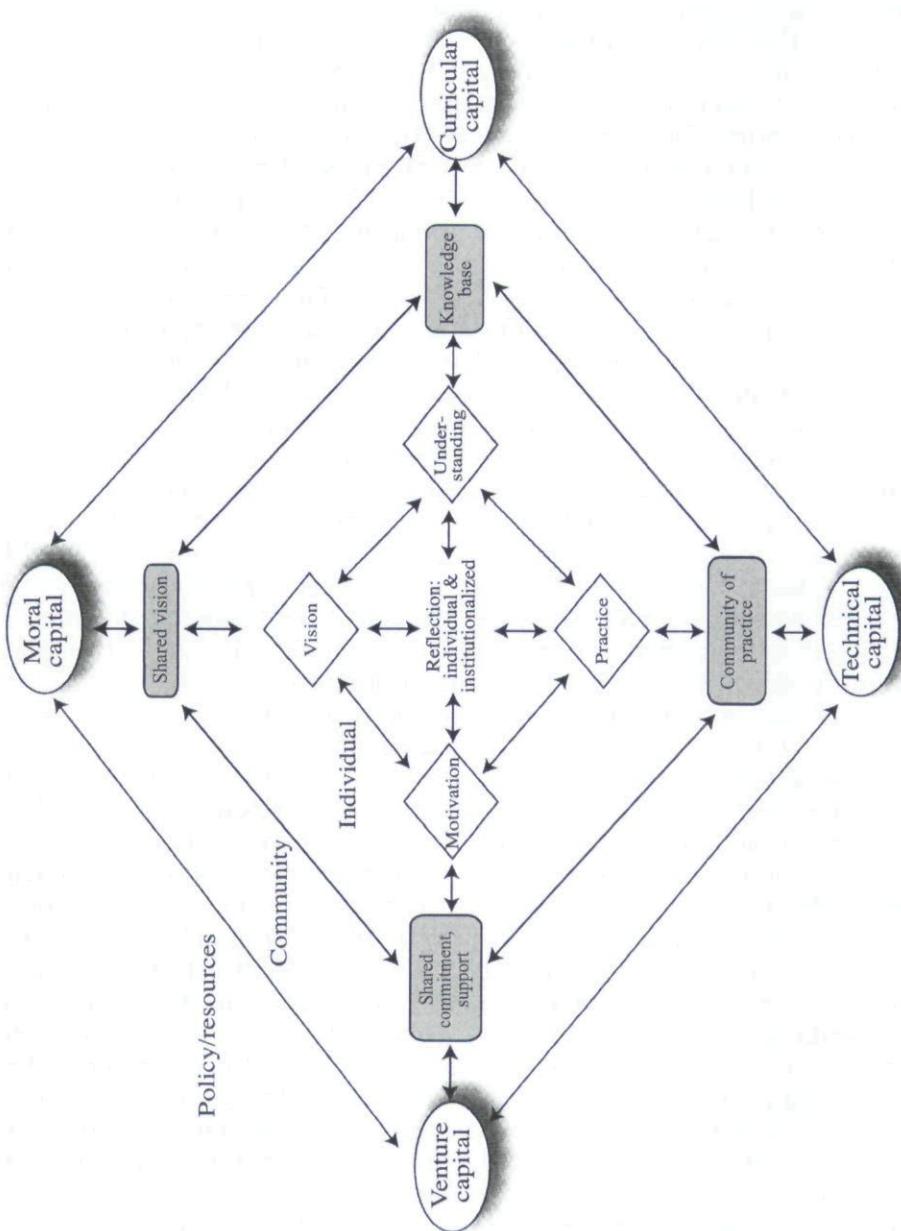


Figure 4. Levels of analysis: individual, community, and policy.

institution, polity, and profession. This, in turn, has laid the foundation for more recent thinking about the goals of learning more generally, for students in a variety of settings, and for those learning professions as well.

Now we can return to the specifics of the FCTL project and ask: what have we learned? As recounted in the preceding papers and in the associated commentaries by Gardner (2004) and Schoenfeld (2004), this programme of work brought with it quite mixed results. From the perspective of teaching and teacher learning, we became far more conscious of the complexity of learning to teach in a theory-intensive reform context than we had been earlier. While 'the subject matters' in these settings, there is so much more going on simultaneously that at times the ever-important content differences can be swamped by other critical features of the context. Yet, in coming to recognize the limitations of both content and community as determinants of teacher performance and impact, we have been given an important opportunity to develop new analytic models for exploring and analysing teacher learning in such circumstances.

We hope that these models of teacher learning, in both their constituent parts and in their structures, can be of value to our colleagues in teacher education and school reform as they explore the conditions under which the improvement of educational programmes can occur. We offer these models as attempts to answer the question of why ambitious reforms appear to work successfully in one setting only to fail, in whole or in part, in others.

Several years ago, the US economist Victor Fuchs described himself as the kind of social scientist who finds something that works in practice and then tries to find out if he can get it to work in theory. These models were triggered by somewhat less consoling circumstances. We have confronted phenomena that do not quite work as designed in practice, and we have asked if we can get them to work in theory. And if not work, then at least to generate some theoretical models that can enlighten our colleagues in the future who might design, diagnose, or explain efforts at teacher learning in a more self-consciously effective manner.

Summa

There were many ways in which this project was the most challenging, frustrating, and yet enlightening programme of action and research that either of the co-principal investigators has ever conducted. We cannot claim that through this work we demonstrated how to prepare teachers to teach in an FCL-compatible environment. In that sense, we fell short. However, we have learned a great deal that we have been able to apply fruitfully in other settings, perhaps contexts whose expectations for teachers are somewhat less daunting than those posed by FCL.

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Note

1. In the text that follows, we repeatedly refer to 'an FCL teacher' because the programme on 'Fostering Communities of Learners' (FCL) is the context in which we pursued this work. However, we contend that the dimensions themselves are universal features of accomplished teaching and its development.

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