Instructional Activities as a Tool for Teachers' and Teacher Educators' Learning

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Abstract

To understand how teacher education might build the knowledge it needs, the editors of this issue investigate how organizations outside of education create and maintain "self-improving" systems that enable them to learn how to get better at what they do. To learn about knowledge building in teacher education, the research reported here also looks outside—outside of mathematics teacher education and outside the structure of professional preparation for teaching as it occurs in universities and colleges. This article explores features of a system of collective knowledge building in and for teaching and teacher education that are in place in an international, school-based program for teachers of Italian as a foreign language. We use our study of this unusual teacher education program to investigate how a carefully chosen set of instructional activities, built out of the essential social and intellectual routines of ambitious teaching, can make it possible for novices to teach ambitiously and for teacher educators to build knowledge.

Teaching and teacher education in the United States have been largely private enterprises. In universities and in K–12 schools, "closing the classroom door" is both a descriptive phrase and a metaphor for the kind of practitioner independence that values each individual's learning from his or her own experience and concurrently disregards the collective accumulation of knowledge. In this article, we provide a contrast to this autonomous approach to improvement by exploring the features of a system of collective knowledge building for teaching and teacher education that are in place in an international, school-based program for teachers of Italian as a foreign language. We chose to do research on this program

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not because of its subject matter or international orientation, but because the program enabled us to examine what it might require to develop the kind of teacher education that has been a challenge to teacher preparation and professional development in all subjects at all grade levels, namely, preparing teachers to do "ambitious teaching." Ambitious teaching is teaching that deliberately aims to get all kinds of students—across ethnic, racial, class, and gender categories—not only to acquire, but also to understand and use knowledge, and to use it to solve authentic problems (Newmann & Associates, 1996). This kind of teaching is embraced by educational reformers, but it is not easy to make it happen on a regular basis in classrooms (Kennedy, 2005). Even most experienced teachers can be considered "novices" when it comes to learning to practice ambitious teaching.

The Paradox of Teacher Education for Ambitious Teaching

Working with students on authentic problems seems to require teachers to constantly vary what and how they teach in response to what their students are saying and doing. For example, Stein, Engle, Smith, and Hughes (2008) review several studies of expert mathematics teachers who "make rapid online diagnoses of students' understandings compare them with disciplinary understandings, and then fashion a response" (p. 302). They highlight the challenges of this kind of teaching, and question whether it is reasonable to expect novices to do such sophisticated improvisation. But other mathematics education research has established that teachers who can adjust both content and methods to what they observe in student performance are more likely to enable all kinds of learners to succeed at high-quality academic work (Fennema, Franke, Carpenter, & Carey, 1993; Hill, Rowan, & Ball, 2005; Smith, Lee, & Newmann, 2001). Lee (2007) argues that ambitious teachers of literacy promote suc-

cessful academic learning among students whose race, ethnicity, class, or language has placed them among historically underserved populations by designing tasks that elicit representations of students' thinking and then construct "disciplinary representations of students' responses" to those tasks and do it on the "performance floor of the classroom" (p. 153).

How can novices be prepared for the interactively challenging work of ambitious teaching if it constantly needs to be invented from scratch and tailored to particular students? If professional education for teaching is to make ambitious teaching more common, it seems that we would need to make several assumptions that contradict the idea that this kind of teaching is entirely context bound and independently constructed. First, we would need to assume that this kind of teaching involves stable and learnable practices and that we could specify the kind of skills and knowledge needed to perform these practices (Stein et al., 2008). Second, we would need to assume that teacher educators could teach these skills and knowledge, and that novices could learn them. We need to confront this seeming contradiction between flexibility and stability in order to figure out how to build knowledge for teacher education if the goal is ambitious teaching.

Researchers and professional educators in organizational learning have also faced the seeming contradiction between flexibility and stability. They have tried to understand how managers can learn to be innovative "in the moment" in response to unanticipated problems that arise in various kinds of work settings. To push beyond the not-very-useful platitudes of "spontaneity," "creativity," and "intuition" as explanations, they have investigated how improvisation is taught in theater and music (Weick, 1998). A consideration of this work provides us with various conceptual tools for understanding what teacher educators would need to know and do in order to make ambitious teaching more common.

Based on her study of a course on theatrical improvisation, organizational researcher Dvora Yanow (2001, p. 54) observes:

> Possibly the most egregious misunderstanding about improvisation—whether in a theatre setting or in an organization—is the notion that improvised activities are invented on the spot, from scratch, as if in a void, without any preparation and without context. What became clear to me in both the improv and the scene classes is the extent to which improv teams practice together, and observe one another extensively, over time. Improvised activity, invented "in the moment" in response to some provocation . . . builds on extended, prior conjoint experience and mutual, collective, inter-knowing. . . . There is extended preparation (training or apprenticeship) in the rules of engagement, the rules of practice.

This leads us to ask how novices at the work of ambitious teaching could "practice together" to prepare for being intellectually and socially responsive to student performance on the classroom floor. What would it mean for them to have training in the "rules of engagement" of this kind of teaching? What would be meant by "inter-knowing" if it were to refer to preparing teachers for work like teaching through mathematical discussions?

To draw lessons for management training from the improvisational theater, Mary Crossan (1998) also studied what goes on when improv teams practice together to prepare for performances. She observed that the problem of practice that improv teams need to be prepared to solve is how to make the skit they are practicing flow together while at the same time responding to unpredictable inputs. In order to do this, Crossan notes that they need to learn to observe carefully what other actors are doing, show with a responsive move that they understand it ("yes . . ."), and then add something sensible to what has gone before ("yes, and . . ."). Improv actors-in-training engage in a mixture of practicing routine responsive moves while they are coached to do the work of "yes-anding" in a way that both makes sense of and builds on unpredictable input from another actor or the audience. Ambitious teachers need to act in ways that show they understand student thinking (the "yes" move) and then add something that pushes that thinking toward more sophisticated disciplinary understanding (the "yes, and . . ." move). The content of the latter move requires knowledge and professional judgment, to be sure, but perhaps a stable set of "rules of engagement" could moderate what novices need to learn to do in response to particular student moves. Could novice teachers learn ambitious teaching from a kind of rehearsal similar to what is seen in preparing for improv?

Our conception of the possibility that they could learn from an improv-like exercise was developed in the context of a study of a teacher education program that deliberately prepares teachers for ambitious teaching. We were attracted to study this program because we found that it was able to successfully prepare teachers from a wide range of backgrounds to teach the Italian language to foreigners in ambitious ways (Lampert, Boerst, & Graziani, 2008). In this program, we saw teacher educators structuring their work around a carefully chosen set of "instructional activities" that novices were taught to use. These activities embodied the rules of engagement of ambitious teaching by structuring instructional relationships around routines of interaction.[1] The instructional activities specified how teacher, content, and diverse students would interact within work on authentic problems, how materials of instruction would be used, how the space would be arranged, and how the teacher would move around the room. These specifications served as a stable and rehearsable backdrop for the dynamic work of responding to student thinking. In terms of social dynamics, the instructional activities enabled both teachers and students to take

the kinds of risks associated with working on authentic problems because they carefully specified the kinds of student performances that students would be expected to produce. These activities also helped to manage the intellectual dynamics as they constrained the range of content that would need to be engaged to extend student performance toward ambitious learning goals. Novice teachers could thus get started with doing and learning from ambitious teaching on somewhat safer and more manageable ground. At the same time, teacher educators could use the routine structure of instructional activities as a focus for building knowledge about how to improve their practice because it enabled them to negotiate a common understanding of what their students—novices at ambitious teaching—needed to know and be able to do.

In this article, we will illustrate the use of instructional activities for teacher and teacher educator learning in the program we studied as a foundation for speculating about whether such activities, supported by the unusual features of the program in which they were used, could be a source of ideas about improving teacher education in the United States and building collective knowledge about how to do that. As it is currently structured, teacher education in the United States is not, by and large, about the work of teaching (Ball, Sleep, Boerst, & Bass, 2009, in this issue). By identifying a spare but comprehensive set of essential instructional activities for doing ambitious teaching and focusing teacher education on these activities, we could make it be about the work of teaching and prepare novices to accomplish ambitious learning goals. We could also begin to address two enduring problems of professional education: the lack of a common technical vocabulary for defining the work of teaching and the generation of practices and programmatic features that would improve teacher education (Grossman & McDonald, 2008). Well chosen and carefully specified instructional activities could give teacher educators the

kind of jointly constructed tangible product or visible process that enables the kind of knowledge generation for steady improvement that the editors of this issue found in systems outside of education (Morris & Hiebert, 2009, in this issue).

Instructional Activities for Learning Ambitious Teaching

To illustrate what could be meant by an ambitious instructional activity and to examine how such activities could be used for teacher and teacher educator learning, we will look in on a group of prospective teachers who are being taught to use one such activity to enact ambitious foreign language instruction. What we will see, in the first day of the month that this class will spend together, is how an instructional activity can be used by teacher educators to prepare novices to do the work of ambitious teaching, infusing that work with knowledge of content and students. We will then situate what happens on the first day in a description of the unusual features of the program we studied to enable us to examine how those features afford opportunities for teacher educators to build knowledge collectively for the improvement of practice.

Research Setting and Data Collection

The teacher education program that was the focus of our research is located at Dilit–International House in Rome. As it describes itself, Dilit is fundamentally a school for language learners, though it also provides teacher education (see Dilit International House, 2008b, for a description of the organization). The teacher education programs at Dilit have been operating for more than 25 years. In 2004, they received an additional accreditation from the Italian Ministry of Public Instruction to offer in-service courses in schools and districts for public school teachers who are currently facing the problem of educating large numbers of non-Italian-speaking immigrants. In

addition to its work on teacher preparation, the Department of Teacher Formation and Research at Dilit organizes an annual program of teacher research in the language school, for purposes of both professional development and program improvement. This program involves every teacher in the school in a coordinated investigation of problems of instructional practice around a relevant theme. The results of these investigations are presented in the form of workshops at a biannual international seminar attended by Italian teachers and teacher educators from around the world, many of whom are alumni of one of Dilit's teacher education programs.

Our research focused on the novice teacher education program called "Basic Formation." Since we began collecting data at Dilit in 2003, the faculty of this program has had six members. According to the school's Web site, they are "carefully selected from among the best teachers in the school . . . [and] all have lengthy experience both with language teaching and action research. They are all authors of numerous articles on language teaching and some of them are authors of language textbooks" (Dilit International House, 2008a, translated from Italian by the authors). The Basic Formation Program is offered six times each year. It meets 8 hours per day, 5 days a week, for 4 weeks. Each time the program is offered, it is taught by a team of two of the six faculty members. The Basic Formation Program enrolls both beginning teachers who apply either directly from various university majors or from other careers, and experienced teachers who are new to using the "communicative approach" in language teaching. Applicants to the program are interviewed and selected for participation by faculty members.

The first author observed and audio-recorded several sessions in one offering of the program (20–25 hours per week for 4 weeks) while the second author, a teacher of Italian, enrolled in the program and acted as a participant observer (40 hours per week for 4 weeks). He collected all of the artifacts that were distributed to participants and compiled his own notes on each class. We observed occasionally in several more iterations of the month-long program, which enabled us to watch four of the six teacher educators who comprise the faculty. After identifying the centrality of instructional activities to the program, we returned 4 years later for another formal round of data collection focused specifically on video-recording the cycles of presentation, demonstration, planning, rehearsal, enactment, and debriefing that occurred around two out of 13 instructional activities included in the syllabus.

Over the course of our data collection on the Basic Formation Program, the first author also observed 10 sessions in which pairs of faculty members watched (and commented on) the teaching of novice teachers on a closed-circuit television network as well as three of the daily review sessions in which faculty planned their subsequent classes. The first author interviewed the head of the Department of Teacher Education and Research several times before, during, and after observing different iterations of the course. These interviews covered the overall planning for the Basic Formation Program, the construction and revision of the month-long syllabus for the program that was followed by all faculty who taught the program, the source and choice of the instructional activities around which the program was organized, and the participation structure and content of particular daily cycles of presentation, demonstration, planning, rehearsal, enactment, and debriefing of those activities.

Our data pointed to several features of the Dilit Basic Formation Program that seemed unusual and worthy of analysis: teacher educators in teams of two working with groups of novice teachers; teacher educators with rich experience in doing what they are teaching novices to do; novice teachers teaching daily lessons to groups of

students without a "cooperating teacher" in the room; videotaping and daily viewing of those lessons on a closed-circuit television network by the teacher educators; and a daily cycle of presentation, demonstration, scaffolded planning, coached rehearsal, teaching, and debriefing. We describe these features and center our examination of them around the feature we consider to be key to both teacher and teacher educator knowledge building for ambitious teaching: instructional activities.

An Instructional Activity in Action

On the first day of the Basic Formation Program, the activity that novice teachers of Italian start to learn is called "Conversation Rebuilding."[2] In two iterations of the program that we observed, 3 years apart, we saw the same beginning session we will describe here enacted with minor variations. Interviews confirmed that each of the 12 iterations of the program that was offered between our observations began in a similar fashion. In fact, Conversation Rebuilding is one of 14 activities that have remained the focus of the program for over 10 years. Printed materials and interviews with teacher educators enabled us to document small revisions over time in the way the activity is to be performed and the way in which teacher educators prepare novices to do it.

In the instructional activity of Conversation Rebuilding, the teacher begins by presenting a four-part conversation to the class by miming, drawing, and describing—but never actually saying—what was actually spoken in a particular context by two native speakers of the target language. After each move in the conversation is presented, the teacher prompts students to make hypotheses about what the speaker would have said, saying what he or she would have said in Italian, and thereby expressing their understanding of the language and how it functions. In response, the teacher leads them toward the words

and intonation the speaker used in the actual conversation by having students focus on the grammatical, sociolinguistic, and phonetic problems in what they say and by giving little pieces of new information. Students are helped to revise bit by bit until they reach the actual words and grammatical structures that the native speakers used. Through this interactive process, the teacher teaches the particular linguistic and sociolinguistic content that a particular conversation engages.

The point of Conversation Rebuilding is not for students to learn to reproduce particular conversations, but for them to focus on linguistic forms in a context of use by building from what they know to construct new knowledge. In the teachers' guide to one of the textbooks published by Dilit, the design of the activity is explained as follows: "The students reason in this way: 'Given that the speaker has this intention [which they are to understand from the mime or drawing or description], what could he or she have said without violating the constraints of the way the language works? (What grammatically correct phrase could work here? What could make sense?)'" (Catizone, Humphris, & Micarelli, 2003, p. 29, translated from Italian by the authors). The new information that the teacher gives after each hypothesis should lead students to a new hypothesis not because the old one did not make sense, but because a new one could fit better in the context that has been set up by miming or drawing or describing the problem the speakers are trying to solve in their conversation (D'Angelo & Zafarana, 2005). The structure of the activity deliberately respects student thinking and builds from it toward new knowledge.

Conversation Rebuilding sets challenging work for beginning teachers, requiring them to elicit students' hypotheses, to investigate these hypotheses to have a clear idea of students' ways of thinking about the linguistic structures they need to learn, and then to respond to students' thinking

and lead them to change their hypotheses by giving them a piece of information through which they can formulate a new hypothesis. But while the activity has all of the complexity of ambitious teaching, it also limits what is required of novices in the way of interactive use of skills and knowledge. The conversation determines what content will come up, and thus it limits what teacher and students might need to work on together, making it more possible for novices to prepare adequately for the lesson and for the teacher educator to engage in content-rich coaching while they practice the skills involved in performing it. The social structure in which students make hypotheses and the teacher responds is highly specified, further reducing the complexity and risk for novices and their students.

On the first day of their program, the novice teachers are set to work on developing the skills necessary to mime a four-part conversation between two people and practicing the moves they can use to solicit observers' interpretations of the miming. Two days hence, they will put those skills together with others and begin to teach lessons to learners of Italian using a simplified version of the Conversation Rebuilding activity. Over the following 2 weeks, additional skills and teaching moves will be demonstrated by the teacher educators and rehearsed by the novices until they are executing the full version of the activity. They will also be taught a dozen or so other activities. The novices will try out what they are learning to do in actual classrooms every day and debrief their experiences with teacher educators who have watched what they were doing on a closed-circuit television network.

Solving Linguistic Problems to Develop Skills for Teaching

As we enter the room a few hours into the first day of the program, we see the novice participants sitting at student desks

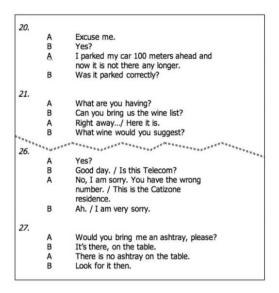| 20.		
	A	Excuse me.
	B	Yes?
	A	I parked my car 100 meters ahead and now it is not there any longer.
	B	Was it parked correctly?
21.		
	A	What are you having?
	B	Can you bring us the wine list?
	A	Right away.../ Here it is.
	B	What wine would you suggest?
26.		
	A	Yes?
	B	Good day. / Is this Telecom?
	A	No, I am sorry. You have the wrong number. / This is the Catizone residence.
	B	Ah. / I am very sorry.
27.		
	A	Would you bring me an ashtray, please?
	B	It's there, on the table.
	A	There is no ashtray on the table.
	B	Look for it then.

FIG. 1.—Authentic material for restricting the content in an instructional activity (translated from Italian by the authors).

around three walls of a small classroom. The teacher educator has just passed out a sheet listing transcriptions of eight four-part conversations that were spoken by native Italian speakers (see Fig. 1). Earlier, the teacher educator had explained that, in any conversation, speakers solve problems using the tools of the language that are available to them, making choices of words and grammatical structures as they construct "speech acts."[3] He pointed out that each speech act is intended to solve a communicative problem. For example, in dialogue 20, the first speaker's problem is to figure out the appropriate phrase to use to get a policeman's attention. By making choices of words and grammatical structures, each of the speakers in each of these conversations solves a particular problem in a particular social setting. For about an hour, the novice teachers work on identifying the communicative goals of each act in each conversation on the page.

In the next session, the novice teachers are set to work on creating mimes of four-turn conversations they have not seen before. Each of them is given a different con-

versation and a few minutes to prepare to mime it in front of the teacher educator and their peers. Their assignment is to create a mime for each linguistic act in the conversation to clearly express who is talking (young, old, male, female, workers, friends); where they are talking (home, restaurant, office, sidewalk); and what they are trying to accomplish. If the mimed performances are not successful in enabling fellow participants to know who was talking, where, and for what purpose, the person miming is instructed by the teacher educator in techniques to improve movements, gestures, facial expressions, and the use of simple props.

Rehearsing a Routine That Supports the Responsive Nature of Ambitious Teaching

One of the routine steps in Conversation Rebuilding is to make public the hypotheses that students form by having the class repeat them, regardless of whether they are technically correct or not. This teaching move bases teaching squarely on being responsive to students' performance. Following common instincts, teachers are more likely to correct a student who makes a faulty hypothesis, to ignore the mistake, or to "repeat" the hypothesis in a way that it is inadvertently corrected (Kennedy, 2005; Schleppenbach, Flevares, Sims, & Perry, 2007). This is traditionally what one does with a "wrong answer," however, it is antithetical to having students do the intellectual work required to accomplish ambitious learning goals.

There are many interesting aspects to this complex activity. Here we illustrate one of the ways it is used to teach novices to put theory into action by zooming in on a moment when the teacher educator announces that he is going to change the focus from simply rehearsing the skill of miming and checking for viewers' understanding to having the novice teachers get the first hypothesis that is offered by a stu-

dent to be repeated by others in the class. This seems like a simple move, yet learning to do it is essential to accomplishing the ambitious learning goals that the activity is intended to support. It is an instantiation of the rules of engagement of ambitious teaching, a routine that provides the stable groundwork within which rich responses to student performances can be improvised. It is a signal to students that "yes," their thinking has been heard and taken account of, and, at the same time, it makes the work on any particular hypothesis into the public work of the class. On this stable and routine basis, the next move—the "yes, and . . ." that is intended to push student thinking one step further—will be created. The move the novices are now learning will contribute to making the new content that the teacher teaches with the next move available to the whole class. It is essential that having the hypothesis repeated becomes automatic in order to give the teacher information about what students know and are able to do as well as make student thinking public so the class is working on the same hypothesis together. Ambitious teaching needs to be done in a whole class of students, not during one-on-one tutoring. We will see, in the description that follows, how the teacher educator coaches participants to perform the move that is intended to accept and build on student thinking as they rehearse the activity over and over, and we will see participants themselves picking up the move and coaching their peers to do it with confidence.

During the rehearsal on the first day, the teacher educator starts working on teaching the novices to do this step in the activity by randomly choosing one of them, Floriano, to perform a mime of one of the dialogues on the handout they had been working with earlier in the day (see Fig. 1). Next, the teacher educator announces that he is going to make the activity a little more complicated by adding two new steps: after miming each linguistic act, the novice teacher is to ask for hypotheses about what

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is being said, pick the first hypothesis given, and then have that hypothesis repeated by the speaker. If it is conceptually acceptable, the teacher-participant is to continue miming, otherwise, after the hypothesis is repeated, the teacher-participant is to say he or she is sorry and mime the act again. By emphasizing this part of the structure of the activity, the teacher educator is able to teach the novices to treat students as sense-makers.

The teacher educator stands in front of the group and demonstrates the activity with this new part added. He then chooses randomly another participant, Elena, to perform the activity. She is assigned to mime conversation number 27 (see Fig. 1). She moves some furniture and makes some objects into props to set the scene for the mime; then she mimes the first act, steps out of the scene, and asks what the speaker says. Someone suggests, "Can I have an ashtray?" and Elena immediately goes on with the next part of the mime. The teacher educator intervenes to remind her she must have the "student" repeat the hypothesis he gave. Elena asks the student to repeat his hypothesis and goes on, miming the second act in the dialogue. A student played by another participant proposes: "The ashtray is on the table." Elena goes on to set up the next act of the mime. The teacher educator intervenes to remind Elena again to have the student repeat the hypothesis. Elena goes on miming the third and the fourth speech acts, now having the "student" repeat each new hypothesis according to the routine.

The teacher educator chooses randomly yet another participant, Marietta, to perform the activity. She sets the scene for the mime; then she mimes the first act, steps out of the scene, and asks the students (participants) what they think that character says. Floriano makes a hypothesis and Marietta goes on to the next act. This time it is the other participants that remind Marietta to ask the student played by Floriano to repeat his hypothesis. The instructional activity is thus built up as common practice in the group, routinized, and embodied until it becomes a tool within which these novices have room to think about their students and how they make sense of the language they are attempting to learn. In the days that follow, further preparation will give them practice constructing representations of student responses they can use to get them to the target of the lesson.

Action Protocols for Balancing
Stability and Flexibility in Instruction

Conversation Rebuilding can be represented as a set of routine steps—an action protocol—that is used to structure teacher-student-content relations around some authentic disciplinary problem. Learning to follow the steps in this protocol will enable the novice teacher to conduct socially and intellectually complex interactions in which students express what they know and can do and the teacher responds with the appropriate teaching of the subject matter's elements. What the novices needed to know how to do in order to perform the simple version of the activity was listed in a handout they were given at the end of the first day. The first set of steps is listed here as an illustration of the level of detail in the protocol (translated from Italian by the authors):

- Enact the scene with two persons at the beginning of a dialogue, well-distinguished in terms of where they are in the space and personal characteristics (how they move and dress).
- Tell the students to watch and not to say anything; mime the first [linguistic] act.
- Get out of the role of the actor and ask the students "What did ____ say?" indicating the person.
- Repeat the first hypothesis [enunciated by a student].
- If the first hypothesis expressed is not conceptually acceptable, say "excuse me" and mime the act again and repeat the two preceding steps.
- Tell the students to listen, recite the

first enunciation [in the role of the actor].

- Exit the role of the actor, and repeat once the first enunciation, beating the rhythm.
- Repeat the first enunciation three times in chorus, beating the rhythm (if the first chorus doesn't work, don't insist, go on to the next point).
- Have the students repeat the first enunciation individually.
- Have them repeat many times, in chorus and individually.

The first four steps here were being rehearsed in the interactions described above. After that, the teacher educator would work with the novices on the steps focusing on enunciation. In a class with language learners, this series of 10 steps would be repeated in exactly the same way for each linguistic act in the conversation "until three minutes from the end of class." Next, the teacher would write on the board the part of the dialogue that had been covered, ask if there were any questions, and ask the class to copy the dialogue in their notebooks.

The steps in the protocol for Conversation Rebuilding detail a participation structure for language instruction that is designed to enable the teacher and students to work together on content in a way that is faithful to a complex set of ideas about the nature of language and how it is learned. When the protocol is put together with different kinds of conversations, it can be used for different levels of instruction. The kind of coaching by the teacher educator that we saw above enables novices to stabilize the foundational framework for those interactions, no matter what level or content they are teaching. Another kind of coaching targets the use of content knowledge in the responses novices must create to particular, somewhat unpredictable student performances (Lampert & Graziani, 2007). This work will come later in the course.

Although the series of steps in the simple version of the activity presented on the first day is highly specified, it still requires some degree of professional judgment for novice teachers to enact it "ambitiously." In particular, the novice teacher must listen to student hypotheses and interpret them to judge when a hypothesis given by a learner is conceptually acceptable. The teacher needs to make a diagnosis of the misunderstanding and revise the mime to more closely represent the speaker's communicative intention. These acts of judgment and invention take place inside a set of routines designed to be faithful to assumptions about what is to be learned and how it is learned—the rules of engagement of ambitious teaching. Rehearsing, enacting, and debriefing these routines make it possible for novices to develop this judgment while holding many other aspects of interaction constant.

Instructional Activities in a Cycle of Practice

Conversation Rebuilding is an activity that the teacher educators and novice teachers in this program work on, in progressively more complex versions, over 9 of the 20 days of the program. Each variation is the center of a daily cycle involving multiple forms of deliberate practice (Ericsson, Krampe, & Tesch-Romer, 1993). This cycle is an unusual feature of a teacher education program, and one that works in concert with instructional activities to further both teacher and teacher educator learning. The cycle begins with the teacher educator presenting and leading a discussion of a new perspective on some element of language as communication, as we saw above with the theory of "speech acts." He or she then demonstrates the instructional activity in front of the group and links its structure with theories of language and learning. Following this "input," lasting for approximately 2 hours, the teacher educator distributes materials and a common lesson plan that scaffolds the lessons the participants will do with language learners later in the day. Then the novice teachers go off

to work in teams of three on planning and independently rehearsing how they will do the lesson with a particular group of language-learning students. For 2 hours they imagine together how it will go, preparing for specific student input, rehearsing what they might do with it, observing and coaching one another as they do the steps in the instructional activities. They predict how students might respond, plan potential "next moves," and deliberate about the consequences of their own responses to student actions.

After lunch, the whole group convenes again with one of the teacher educators for another hour during which a few randomly selected participants rehearse parts of the lesson as they planned it while being observed by the whole group and coached by a teacher educator. Like a tennis coach playing the role of an opponent, often the teacher educator/coach plays the role of a language learner and "serves up" problems of practice during the rehearsal that are common but unlikely to be anticipated by novice teachers. The novice who is rehearsing makes a responsive move, and the teacher educator invites the group to propose and discuss alternative moves. The group's attention during the rehearsal is high, as all participants are anticipating practicing the same activities.

After these various kinds of preparation and practice, the groups of three teach their lessons to learners of Italian in classrooms around the school. All groups use the same instructional activities, in the same order, for the same period of time, with the materials adjusted so that the content is appropriate for the level of the learners they are teaching. For example, in Conversation Rebuilding, the structure of the activity would be the same, but the conversations for each group to work on would be different depending on the level of the students being taught. After the lesson, for 1 hour, the group reconvenes for a public study of the practices they are learning to do. Selected participants are called upon to describe or reenact something that occurred in a lesson or look at a video from the lesson chosen by the teacher educators.

A Small Set of Instructional Activities Selected on Solid Theoretical Grounds

The activities that the teacher educator and novices work on in these daily cycles of intensive deliberate practice are not chosen casually. The choice and distribution of the instructional activities represents, in a parsimonious fashion, a coherent theoretical perspective on what language is and how it is learned. It is based on the intersection of a theory of language as communication, which defines competence as the ability to perform as a reader, writer, speaker, and listener; and a theory of learning, which asserts that a combination of authentic (or free) and analytic (or controlled) work with language is optimal for producing competence. Such a theoretically based framework for deciding what teachers need to know how to do is another feature of the program that works with instructional activities to further teacher and teacher educator learning.

At the Dilit–International House, a full program of language instruction (i.e., a "course") at any level of language learning distributes the instructional activities across speaking, listening, reading, and writing, and each of these aspects of language is taught using both authentic activities (such as engaging in a conversation about weekend plans) and analytic activities (such as finding all the verbs of a particular form in a written text like a newspaper article, and making hypotheses about patterns of use). The instructional activities taught to novices in the Basic Formation Program are distributed through all of the cells in the table that results from the intersection of the communicative theory of language and theories of how language as communication is learned (see Fig. 2).

All of the activities in the framework are

EIGHT CLASSES OF TEACHING ACTIVITIES

| | RECEPTION | | PRODUCTION | |
	AUTHENTIC	ANALYTIC	FREE	CONTROLLED
SPOKEN LANGUAGE	Listening to authentic speech for comprehension	Analytic listening using authentic texts Language puzzle	Production of oral language for purposes of real communication Production of oral language for purposes of imaginary communication	Mimed Conversation Conversation rebuilding Grammar games
WRITTEN LANGUAGE	Reading authentic texts for comprehension	Analytic reading using authentic texts	Production of written language	Cloze (fill in the blanks structured as an analytic reading and writing activity) Revision of student produced text (peer editing)

FIG. 2.—Representing a theoretical foundation for a set of instructional activities (translated from Italian by the authors).

built around texts written or spoken in Italian, such as newspaper articles and excerpts from novels and short stories, audiotapes of authentic conversations among Italians, and the students' own speaking and writing. A given activity uses the same participation structure to engage teachers with students and students with one another at every level of instruction, from beginning to advanced, while the content is varied by the choice of the written or spoken text on which teacher and students work together. The rules of engagement of ambitious teaching require all of the students to solve problems of written and spoken communication and to analyze their solutions. All of the instructional activities are designed to solicit these kinds of student performances and to enable the teacher to adjust the content covered to a diagnosis of what students know and are able to do.

Program Features Enabling Teacher Learning and Teacher Educator Learning

The features of the Dilit Basic Formation Program that enable novice teachers' learning of ambitious practice are intimately connected to a parallel set of features that enable the teacher educators who work in the program to get better at what they do. The features we have identified support both the continual negotiation, transformation, redefinition, and recombination of knowledge that occurs as colleagues work on common problems and the accumulation and the generation of formalized knowledge that can be applied to the solution of future problems (Gasson, 2005). The

dynamic knowledge building maintains a functioning and self-correcting program. Formalized knowledge is generated to improve teaching and teacher education, not only within, but also outside the local context.

Negotiating a Collective Understanding of What Novices Know and Are Able to Do

The teacher educators' daily observation and analysis of novice teachers' efforts to enact the instructional activities is a local context for the development of shared understanding or "tacit group knowledge" about doing the work of teacher education (Cook & Brown, 1999). Although six different people teach the course, there is remarkable "shared understanding" across the team about what novice teachers are supposed to be learning and whether they are learning it. This arises not by fiat of the director, but by the continuous negotiation of purpose and method that occurs during their observation of novices as they teach in actual classrooms. What it means to enact the steps in each of the activities competently is freshly redefined as they sit together and watch the novices on the closed-circuit television network. As they watch, they talk about what they are seeing and what kind of coaching is needed, naming aspects of the work of teaching that matter. They can do this kind of sense-making because the novices they are watching are all working on the same instructional activities, albeit with different levels of students. Because the timing inside the lessons is strictly laid out in advance, transitions from one activity to another will happen at nearly the same moment in all three classrooms.

The complexity of judging whether the novice teachers are learning what the teacher educators are teaching is reduced by this standardization of the novices' practice. The daily opportunity for teacher educators to find out how the novices are doing on the specific skills and judgments they have been teaching them would be overwhelming if the agenda of the lessons was not highly specified both in terms of time and participation structure. The teacher educators know intimately the lessons that these novices are going to be teaching. They likely have taught them to many different kinds of language learners at many different levels, using the same materials and the same action protocols. They know what is supposed to be happening when, and they have the kind of knowledge that very experienced teachers often have of what students are likely to do. This is the backdrop against which they can observe three lessons at once, turning the sound up on one lesson at a time when they want to hear as well as see what is going on. What counts as a "problem" in the lesson they are observing and what they will do to work on that problem can be discussed in a highly abbreviated and efficient manner because of the organizational structure in which they are working and the common goals they have set for themselves. Knowledge about how to improve their practice develops as they "notice" out loud, making comments to one another on the novices' performance and speculating about what they might do to address problems in what the novices are doing. These modifications might be particular to the novice being observed or the month in which they are working together, but they also might range into reformulations of aspects of the program the next time that it is offered. In Karl Weick's (1995) terms, what these teacher educators are doing is the kind of joint sense-making that enables a mutually negotiated understanding of the nature of the work to be accomplished by an organization. In slightly different terms, these teacher educators are defining in detail the problems of practice they are jointly committed to solving (Morris & Hiebert, 2009, in this issue).

Since the lessons are being videotaped as well as being broadcast to them on a

closed-circuit television network, they are also building their practice as teacher educators by conferring on possible bits of the video they might show during the debriefing discussion that one of the two of them will conduct in the class that will follow for all of the novices. They are developing a shared understanding of what aspects of an activity particular novices need to work on and how to work on it with them. What these teacher educators are doing to build their own knowledge in this work session is analogous to the work on common problems of practice that Scott Cook observed among flute makers in their workshop as they negotiate "the right way" to use the tools of their trade as they work collaboratively to produce a high-quality flute. As they hand a flute-in-progress back and forth, working on different parts, they can be heard discussing its "clunkiness." Cook and Brown (1999) point out the importance of this kind of interaction in defining the goal of collaborative work and how to achieve it in a particular case: "This interaction with the piece and with each other dynamically affords a negotiation in practice as to what exactly 'clunky' means in reference to a piece at hand and concerning what work needs to be done to it" (p. 396). As they watch their novice students teaching lessons together and exchange comments on the quality of their students' work, the two teacher educators similarly negotiate both the meaning of competent teaching and the means they are using to improve the novice teachers' performance.[4]

The teacher educators in the Dilit Program learn that they cannot go very far into abstract propositional notions of what novices should be able to do in response to students because what they are watching them do is rooted in particular interactions with actual language-learning students—students who are late to class, students who are not very interested in the content, students who are silent when they need to talk to learn. These language learners present themselves in the messy social context of

diverse groups, not one by one, and they are differentially prepared for the work they are being asked to do, so complex and risky interactions need to be managed in order to accomplish instructional goals. When teacher educators help novices learn ambitious teaching, they present the novice teachers with different kinds of information about what their students know, what they need to learn, and what they are like as learners. This information determines the problems of practice that the teacher educators must help novices solve in order for them to be able to teach ambitiously. The formal system of instructional activities around which they organize their work simplifies the complexity somewhat, but the regular observation of practice maintains the multifaceted and uncertain nature of the work. It is in this context of actual teaching problems that they develop their knowledge about how to be effective teacher educators.

Teacher Educator Knowledge as Codified Records of What Is Learned in Practice

In addition to the situated knowledge building that the features of the Dilit Basic Formation Program afford the teacher educators, codified records of what is being learned, and what has been learned across the 20 years that Dilit has been offering programs for novice teachers of Italian, exist in multiple forms. In these forms, the knowledge that is generated goes beyond the work of the six faculty members in the program. It becomes usable by other teachers and teacher educators in the field of foreign language instruction.

One form in which locally generated knowledge is made public is the series of teachers' guides and textbooks that have been produced by the same people who have been teaching the program for several years and also teach language learners themselves (Catizone et al., 1997–2003). These are the most formalized version of

the knowledge that has been accumulated, and they are intended to be used at a distance from their creators. The book series has been "vetted" by its publisher, and evidence for its usefulness can be measured in terms of consistently high levels of international sales. The instructions that are given in the teachers' guides in the series are based on knowledge generated in the teacher education program. They were able to be revised multiple times in that setting before they were published. These instructions are also a form of teacher education based on first-hand knowledge of what novice users of the materials will struggle with.

Equally public and impersonal, but somewhat less formal, are the regular articles that program instructors write about the use and learning of the instructional activities in a newsletter distributed to all graduates of the program and interested others a few times a year since 1980. In the articles that appear in this venue, one can trace, over time, developments in the conceptualization and design of the instructional activities and their use. Both the textbooks and the newsletters mix teacher research, teacher educator research, and references to current scholarship in linguistics, sociolinguitics, and glottodidattica (research on language pedagogy).

A place where dynamic knowledge building and codified knowledge intersect is the "Guide for the Teacher Educator," revised every time the program is offered. As a formalized set of lesson plans for use by two of the teacher educators as they take turns teaching the same group of novices, the guide is updated with input from everyone who teaches in the program before it is printed at the beginning of every month-long program. From one offering of the program to the next, suggestions are solicited for how to revise the presentation, the scaffolded planning, the rehearsal, and the debriefing of lessons that make up the program's pedagogies. The instructional activities that focus these lessons are a hook on which to hang the organization's memory about how to improve the work of teacher education. They help those who teach the program to span the boundary between the localized context of the work in each instantiation of the program, and the codified formal knowledge about what the program should be, a challenge that is regularly identified by scholars in the field of organizational learning (Gasson, 2005).

Challenges This Model Poses for Knowledge Building in U.S. Teacher Education

Along with the editors of this issue, we argue that it has been challenging to organize the profession of teacher education to build the knowledge it needs to improve itself and become successful at preparing teachers for practice because it has neither had a sense of common goals across members of the profession nor has it formulated its goals in terms of what graduates should be able to do if it is succeeding (Ball et al., 2009, in this issue; Jansen, Bartell, & Berk, 2009, in this issue). Drawing on the research we have reported here—admittedly conducted in a setting that is outside of our usual purview—a small group of American teacher educators in the fields of elementary and secondary mathematics and early literacy have begun to design and identify promising instructional activities, develop different forms of teacher education programs within which to teach them to novices, and learn in and from their own practice about how to improve professional preparation for ambitious teaching (Franke & Chan, 2007; Ghousseini, 2008; Kazemi & Hintz, 2008; Kazemi & Hubbard, 2008; Kazemi, Lampert, & Ghousseini, 2007; Scott, 2008). We have identified several challenges in trying to bring these ideas into the university teacher education context; some are general, and some are particular to mathematics education.

The Lack of a Link between Teacher Education and Improving Teaching

Because they are situated in a school, the Dilit teacher educators themselves can regularly perform and improve the instructional activities they are teaching to novices. This work is similar to what attending physicians do with interns during rounds (Patel, Kaufman, & Magder, 1996). In contrast, in teaching a methods course, the more typical teacher educator demonstrates a method of teaching and advocates the method, warranting his or her advocacy with reference to some kind of theory. There is little chance in this scenario for the teacher educator to learn whether novices are learning what is being taught or whether what they are being taught "works" in classrooms. Lab schools, professional development schools, and schools chartered by universities seem like places where teacher education might be linked to improving teaching, but they have been beset by a set of problems associated with trying to bring together two institutions that have different goals, different cultures, different reward structures, even different calendars (Clifford & Guthrie, 1990; Labaree, 2006).

Universities are not the only source of this challenge. Schools are not currently places where teachers are expected to learn in and from their practice to be more effective producers of student learning (Gallimore, Ermeling, Saunders, & Goldenberg, 2009, in this issue). To work on this problem, we could learn from the "communities of practice" line of research on professional development about how to structure "preservice" professional education so that it takes advantage of what we know about what makes it possible for teachers to learn ambitious instruction "on the job" (e.g., Horn, 2005).

The Lack of a Principled Framework Within Which to Situate Instructional Activities

Though some routine activity structures have been identified that regularize aspects of instruction in relation to ambitious principles of mathematics content and learning (Leinhardt & Steele, 2005; Stein et al., 2008), these routines do not get deliberately practiced in teacher education in ways that would enable novices to gain expertise (Ericsson et al., 1993). We are a long way from the sort of principled framework that gives the Dilit teacher educators the authority to specify ambitious teaching in terms of a spare set of instructional activities. Here we could learn from studies of other professions, where the complex interactive work that practitioners do has been "decomposed" in principled ways to make it learnable by novices (Grossman et al., 2009).

A Lack of Expertise in Using Pedagogies of Enactment

What Grossman and McDonald (2008) call "pedagogies of enactment" predominate in the Dilit Teacher Education Program. Such pedagogies are rarely found in university-based teacher education as it is now practiced in the United States. More common are "pedagogies of investigation": case methods, video cases, and teacher inquiry projects. Learning the interactive aspects of teaching is commonly left to field experiences, where teacher education pedagogy is weakly developed or nonexistent (Steadman, 2003). Teacher educators would need to learn a whole new set of instructional practices like coaching rehearsals and debriefing with records of practice and they would need to learn to do these practices in ways that are integrated with the improvement of novices' subject matter knowledge and their knowledge of learners.

A Lack of Understanding about How to Maintain Ambitious Principles in Using Routine Activities

The final set of challenges we will mention here arises around our need to understand the seemingly intractable problem of the mechanistic use of well-designed in-

structional activities. Often the ambitious principles of the designers are not expressed in the way activities play out in classrooms (for examples of this phenomenon, see Franke, Carpenter, Levi, & Fennema, 2001; Kennedy, 2005; Palincsar, David, Winn, & Stevens, 1991; Stein, Smith, Henningsen, & Silver, 2000). We would need to understand the difference between teacher education practices that succeed in helping ambitious teachers to use routines thoughtfully and teacher education that simply puts surface features of routines in place without changing the underlying structure of instructional interaction to instantiate ambitious learning goals.

This is a large agenda.

Notes

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1. Our use of the term "instructional" draws on the way Cohen, Raudenbusch, and Ball (2003) define instruction: "*Instruction* consists of interactions among teachers and students around content in environments" (p. 122).

2. Many descriptions of the activity are available in Italian, but the only reference to it in English is by a pair of computer scientists who used it to imagine the design of an intelligent tutoring system for language learners (Micarelli & Boylan, 1997).

3. A *speech act* is the necessary information the speaker needs to express in order to perform a communicative task, as opposed to an *utterance,* which is the actual sequence of words produced to perform that act (Austin, 1962).

4. We owe the articulation of this analogy to our colleague Laurie Sleep.

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