

EVALUATION OF SCIENCE TEACHING PERFORMANCE THROUGH COTEACHING AND COGENERATIVE DIALOGUING

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Educating science teachers has always had its challenges and to the extent that society has changed markedly in the past century so too have those challenges. At the present time teacher educators face a vast array of problems associated with educating science teachers to practice in a multitude of different contexts. One of these is the evaluation of science teachers and teaching. Evaluation normally involves an outsider to the classroom applying a set of culturally and historically developed criteria during a specially arranged event that constitutes the observation of teaching. The event often incorporates additional “anecdotal” information together with artifacts provided by the teacher and/or other stakeholders. For example, teachers may provide as evidence of their teaching effectiveness videotapes that show teaching in different contexts, reflective journals that include evidence of reflective practices, and portfolios containing artifacts of work selected to show the achievements of their students. Similarly, school administrators might submit evidence to support the teachers’ claims, such as written records of formal evaluations undertaken in previous semesters and a summary of the results of a survey of students’ perceptions of their learning environment. These artifacts, which can be weighed to inform a final decision about teaching performance, reflect implicit and non-articulated theories and assumptions such as the context-independence of pedagogical knowing. Equipped with a variety of data, an evaluator examines various aspects of classroom life and compares teaching performances to established benchmarks.

When it is conducted in this way, evaluation is an activity that involves judgments from the side using criteria considered salient (by the evaluator) in the setting. Evaluations like these, although well intentioned, might be unfair to teachers and may have little impact on learning to teach. Even though evaluators may be sincere and secure in their knowledge, we regard the security as false. How can it be known that particular teacher actions will produce postulated social and learning outcomes? Or, how can evaluators know if actions they recommend are feasible in the unfolding circumstances of a teacher's praxis? Even in the best of circumstances the recommendations of outsiders can only be regarded as possible narratives for what might have occurred or what might be desirable. In most circumstances, evaluation can be regarded as a form of oppression: senior and powerful others indict and prescribe for actions with an expectation that their exhortations will be followed. Although evaluators' renditions take into account their knowledge and expertise they include only distant and vicarious experiences of teaching and learning, which are the objects of evaluation. When evaluations from the side take place it is not clear to us how an evaluator can determine whether given practices are or are not appropriate in the contexts that apply. Unless evaluators participate in practice, how can they get a sense of the context and even more to the point how can they viably assess whether particular practices will or will not afford the learning of students? How do science teacher educators take account of context when a new science teacher is evaluated¹ and certified to teach? Are there alternatives to models of supervision that involve making evaluations from the side? In this chapter we explore issues associated with performance assessment in a context of teaching science in urban high schools.

The remainder of the chapter consists of six sections in which we lay out a different practice for teaching and assessing teaching performance. We begin by articulating the theoretical concepts that frame our practice of coteaching/cogenerative dialoguing. A second

¹ We use the term "new teacher" in preference to "student teacher" or "teaching intern," both of which tend to lessen the value of individual as a legitimate participants in school and university activities.

section presents a description of the site for the research presented in this chapter. In the third section, we present three scenarios from our research database in which new teachers learn to teach science and supervising professors evaluate by coteaching in urban high schools. We then use a metalogue between the two authors—reflecting the way in which we build theory through cogenerative dialoguing—to analyze and interpret the three scenarios from the previous section. Our analysis is conducted in terms of theory and research associated with learning to teach, assessing teacher performance and the context of urban schooling. A fifth section contains a vignette that illustrates some of the roles of an evaluator who participates as a coteacher in an urban science classroom. A metalogue between Michael and Ken identifies salient issues about evaluation, learning to teach and affording the learning of high school students. In our final section, we present implications and conclusions based on this and other research in which we have been involved.

Coteaching and the Assessment of Teaching

Past theories of teaching have not paid sufficient heed to the fact that teaching is something being done rather than being a static set of procedural and declarative knowledge that somehow is transformed and applied to yield classroom actions. We do not see how it is possible for such transformations to occur. What is known and can be written or spoken can serve as referents for reflection and associated planning of intended actions. However, the knowledgeable (know-how in action) that characterizes teaching is ontologically different from what can be spoken and written. Furthermore, there is a precarious relation between plans and situated actions so that what is intended is only partially related to what actually occurs. In praxis, all sorts of things occur and actors can be conscious about some actions and unconscious about others. To eschew the reductionist approaches of previous theories of teaching, we have elaborated a framework that focuses on the phenomenological dimensions of teaching experience, and particularly on those aspects of teaching that resist description (Roth, Lawless, & Masciotra, 2001; Roth, Lawless, & Tobin, 2001; Roth,

Masciotra, & Boyd, 1999; Roth & Tobin, 2001b). Central to our framework, which we refer to as praxeology (Gr. *praxis*, action and *logos*, talk) or talk about action, are the notions of habitus and being-in/with.

Habitus and Being-In/With

We propose an epistemology of teaching as praxis as an alternative approach to understanding teaching and the assessment of teaching performance. Our theoretical framework draws on phenomenology and elaborates a praxeology that hinges on *habitus* and *being-in/with* to conceptualize learning to teach and assessing teacher performance through *coteaching*.

Theories of knowing and learning grounded in phenomenology are concerned with everyday praxis and presuppose *being-in* the world as a fundamental condition of all knowing, a non-thematic, unreflective but concerned absorption in everyday activity (Dreyfus, 1991). The world is comprehensible, immediately endowed with meaning, because we have been exposed to its regularities ever since we first entered the world at birth. Active participation with others in our social world opens us to material and cultural conditions that can catalyze changes in the ways we construct others and our own identities (Giddens, 1991). Being-with others in particular social spaces allows us to acquire *habitus* (Bourdieu, 1990, 1997), systems of dispositions for perceiving and interacting. *Habitus* is not directly accessible and describable but reveals itself in practical situations and in the face of practical decision making. *Habitus*, a generative mechanism that produces practical actions, is not fully accessible to our consciousness and therefore remains beyond reflection as it generates the patterned ways we interact with the world (i.e., the practices that embody actions, perceptions, and expectations). Because *habitus* is formed by the regularities of the world, it anticipates these regularities in its conduct and thereby assures a *practical* comprehension of the world that is entirely different from the intentional and conscious decoding acts normally attributed to comprehension.

Habitus is not part of a deterministic system that is static and closed, but is an open system of dispositions that is under continuous experience-dependent transformation. That is, *habitus* changes through participation in practice. Practical experiences either reinforce or modify existing *habitus* such that it can sustain more viable practices in a particular context. Occasionally *habitus* cannot adapt sufficiently to a social milieu, which reveals itself as practical failure. In such circumstances subsequent practices will likely be more deliberative until the context changes sufficiently for the *habitus* to afford the goals (or until a new and appropriate *habitus* is forged). Importantly, *habitus* can “also can be transformed via socio-analysis, i.e., via an awakening of consciousness and a form of ‘self-work’ that enables an individual to get a handle on his or her dispositions” (Bourdieu & Wacquant, 1992, p. 133). Thus, reflection is an additional, though not principal mode by which *habitus* is formed and transformed. Our model of coteaching/cogenerative dialoguing takes advantage of both tacit and reflective modes in forging new *habitus*.

Coteaching and Cogenerative Dialoguing

Informed by activity theory, which is concerned with the irreducible societal nature of human activity, coteaching makes student learning its primary goal. In coteaching, two or more teachers teach at one another’s elbow in order to facilitate student learning (Roth & Tobin, 2001a). The coteachers assume collective responsibility by teaching together, at the same time, rather than dividing up tasks to be done independently (divide and conquer). At the same time, coparticipation allows coteachers to learn from each other without making knowing or learning thematic. As the events of the classroom unfold there is more than one teacher to deal with emerging problems in ways that afford the learning of students. Our research conducted in and as part of teaching praxis evidences significant learning of all participants including teachers, evaluators, and researcher-teachers. Interestingly enough, this learning often occurs in unconscious ways and teachers realize only much later what and how much they have learned while working together with one or more colleagues. Even

so, it is probable that most of what is learned remains beyond consciousness (Bourdieu, 1997; Dewey, 1933; Giddens, 1984; Lakoff & Johnson, 2000).

Coteaching experiences are coordinated with meetings during which coteachers and students debrief, make sense of the events, evaluate what has happened, critically reflect on their understanding, and construct local theory and new action possibilities. We call this activity *cogenerative dialoguing*, for all participants have equal opportunities to contribute to the construction of evaluation and theory. In an earlier form of coteaching, the teachers involved met later in the day (after class, during recess, after lunch, at the end of the school day) to debrief the shared experiences. In our recent work, (ideally two) students also participate in these meetings to make sense, understand what has happened, and construct generalizations and expand action possibilities (e.g., Tobin, Roth, & Zimmermann, in press). In our work, we are interested in open theory, that is, theory constructed by all participants, because theory constructed in this way can be tested by the participants and ultimately leads to change of praxis. In order to guide our meetings, interactions, and types of issues to be addressed, we developed a heuristic (Table 1) that is made available to all participants in cogenerative dialoguing so that they can orient their own actions in appropriate ways.

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The praxis of coteaching/cogenerative dialoguing necessitates new ways in which traditional roles of new teacher, (cooperating, regular) teacher, supervisor, and evaluator are understood and enacted. Because the approach is symmetrical in the classroom, traditional forms of critique by one individual (e.g., supervisor) of another individual (e.g., new teacher) lose legitimacy. For example, in a traditional situation a supervising university professor might admonish a new teacher for not maintaining high levels of participation. In coteaching, if the supervisor/evaluator observes a lack of participation or notices that a transition wastes valuable learning time, s/he is obliged (an obligation that is shared and therefore socially mediated within the coteaching group) to act. If the action was conscious

and of salience to the learning of students then it could be discussed in the cogenerative-dialoguing session.

In our praxis, only insiders contribute to the generation of theory. This approach harbors dangers in that existing understandings within the group of coteachers can be reified and thereby become ideology. That is, when we use only immediate descriptions of the context, we are likely to remain stuck and reproduce ways of perceiving and acting in a particular context. So, while we need our immediate experience in terms of the concepts that correspond to them, we also use cogenerative dialoguing as a means for engaging in critical analysis to come to an understanding that makes salient the fundamental structures of the condition that we are finding ourselves in. This critical analysis requires our personal understanding of praxis and also the expression of a “radical doubt” (Bourdieu, 1992) or “suspicion of ideology” (Markard, 1993) to address the possibility that we remain ideologically stuck in our current understanding.

Performance Evaluation

Praxis has its own constraints; most importantly, praxis unfolds in time and therefore has local coherence whereas evaluation from the outside seeks global coherence, which is nearly always irrelevant for practical action. Practical wisdom is concerned with the appropriateness of actions in the here and now of a situation, not in the coherence and generalizability of actions across different contexts. We therefore propose that all individuals—new teacher, (regular, cooperating) teacher, researcher, supervisor, or evaluator—participate in teaching so that they share symmetrical mediating relations between students and their knowing. There is no time out for practitioners, forcing them to enact their knowledgeability rather than standing back, as theorists and outside evaluators are able to do, to consider and elaborate all (theoretically) possible forms of action (e.g., Bourdieu, 1990; Roth & Tobin, 2001a). These constraints of the temporality of praxis and the praxis-related limitations in a participant’s room to maneuver are available only to coparticipants in praxis. Because *habitus* only reveals itself in praxis and in reference to

particular situations, what has to be done cannot be pre-specified in the abstract (e.g., in the form of advice to a new teacher for building rapport), but emerges from the contingencies and temporalities of each situation. An assessor can therefore only access *habitus* through coparticipation with the teachers who are being assessed. Hence, coparticipation is not only a fundamental condition for learning to teach, but also for enacting roles as supervisor and evaluator. That is, as a teacher collective, we do not condone the involvement of individuals who construct themselves as outside observers *looking at* teaching and learning rather than *participating in it*.

Demographics

City High School² has about 2,300 students arranged in 10 small learning communities (SLCs) that can be considered as schools within schools. Each SLC has its own students, classrooms, and teachers. The idea is that students stay together with teachers over the duration of their high school lives and greater personalization of the curriculum leads to higher achievement and a feeling of *esprit de corps* as a result of belonging to a SLC and getting to know the students and teachers. Ninety-seven percent of the students at City High are Black and 87% are from low-income families. The percentage of students graduating in four years from City High is 43%. Two of the 10 SLCs have a curriculum intended to be college tracked whereas most of the others are career-oriented. For example, students in the *Health* SLC often pursue health-oriented themes in their studies and they regularly undertake field studies in health institutions. Most of the students in *Health* are female. In contrast, most of the students in *Science, Education and Technology (SET)* are male. The research described here took place in *SET*, although one of the new teachers, Lisa Gray, also taught a class in *Health*.

² All names for persons and places are pseudonyms (except for the authors).

Coteaching

Coteaching, the approach to teacher education that we describe in this paper, seeks to change the roles and practices of the key stakeholders associated with learning to teach. Briefly stated, during their yearlong internship, most of our teacher-education students coteach with one or more partners, normally including peers and cooperating teachers, and sometimes university supervisors and researchers.

New teachers are encouraged to learn to teach by teaching. They begin to teach almost immediately—not to take over the control of an entire class but to teach at the elbow of the regular classroom teacher. We envisioned a peripheral (yet legitimate) participation in teaching and acknowledged from the outset that coteaching could be arranged differently in different places. In the conversations with prospective teachers and coops we made it clear that coteaching involved teaching with another and that there were probably many ways to do this. Since the new teachers were to be in schools for an entire year there was the potential for different modes of coteaching to emerge over time.

When university supervisors visited a class we encouraged them to coteach with new teachers and their coop rather than to effect evaluations from viewing teaching from the side or back of the classroom. In this way, they too participated as teacher, to become a teacher in the class with another teacher and in so doing, to build new habitus and an associated room to maneuver (Roth, Lawless, & Masciotra, 2001). The role of the supervisor was not so much to judge from the side as to coteach as part of a collective that assumed responsibility for the learning of the students and to facilitate cogenerative dialogue between coparticipants from with/in.

Assessments of Teaching

This section contains three scenarios that highlight aspects of teaching and the assessment of teaching performance. In the subsequent section we interpret the scenarios and identify critical issues in a metalogue.

Today they were Terrible

Lisa: I'm so glad you didn't come today. They were terrible. Even Donna was angry with them. For some reason the students didn't want to work.

Ken: Oh. I'm so sorry to hear that. I know exactly how it feels. Sometimes these kids are just so unpredictable. I must say that I have seen Donna struggle with them before, but it is a rare event.

Lisa: We tried to talk to them about it. But they didn't even want to do that. In the end we made it through, but it wasn't pretty.

Ken: Don't be too hard on yourself. The learning comes from the struggle. I am sure you learned a lot.

Lisa: (*shrugging*) Maybe so. But I'm not sure what...

Ken: Tomorrow I'll be there for sure and I'll do my best to help and learn from what happens.

Lisa, a new teacher enrolled for a masters degree leading to certification to teach high school biology, was coteaching a biology elective with Greg at City High. The class was small and consisted of 11 grade 9 students (7 male and 4 female) who needed an additional science course to meet the four-credit requirement for graduation. All students were of African American origin. Even though the course was elective the students had not opted to take it. They had been assigned to the class. Concurrently with teaching, Lisa attended a science methods course. Donna was the methods instructor who had extensive experience of teaching science in urban high schools and had several years of experience of teaching at City High with students like those in this class. However, Lisa and Greg, who were in their second semester of teaching science at City High, had more experience with these particular students and had taught several of them in the previous semester.

The class was unusual in several respects. Donna, as a methods instructor and researcher, was coteaching with Lisa and Greg four days of the week and no cooperating teacher was assigned to supervise them or to assume responsibility for the class. Lisa and Greg were regarded as new teachers who would learn to teach by coteaching during this and two other 90-minute classes each day. Because of the difficulties we all have experienced while teaching at City High, Donna had agreed to collaborate with Lisa and Greg to develop a curriculum that took into account students' interests and life experiences. Lisa and Greg assumed full responsibility for planning and enacting the curriculum; however, Donna

collaborated to the extent possible and undertook research on the teaching and learning of science. Lisa and Greg also undertook action research on their own practices, the lifeworlds of their students, and the manner in which the curriculum was enacted. As the university supervisor for Lisa and Greg, Ken visited the classroom on a regular basis and participated in coteaching. In his fourth year of research at City High, Ken was well aware of the difficulties of teaching in ways that were engaging for learners while affording their learning (e.g., Tobin, 2000).

Ken also was aware of the gap between the praxis of teaching and descriptions of praxis as provided in many methods courses. With Michael he had undertaken research on learning to teach in urban high schools. Together they had explored the manner in which roles of the new teacher, the university supervisor and the methods instructor had adapted to enhance the learning of the high school students while the new teachers learned to teach science (Roth & Tobin, 2001a). One aspect of the research undertaken by Ken and Michael involved the development of a collective responsibility for the learning of students in lessons in which coteaching occurred. Accordingly, the supervisor's role as an assessor of teaching was adapted to be consistent with the idea that all participants, including new teachers, supervisors, methods instructors and high school students would contribute to the collective responsibility for the quality of the learning. We acknowledged that as the curriculum was enacted, expertise was distributed in that any one coteacher was more expert than others were in some situations and some of the time and that his/her role would be correspondingly more central as the lesson unfolded. However, through coparticipation in all activities we expected students to learn science and all coteachers to learn from one another about science teaching.

Dealing with Crises

I [Ken] arrived just as the lesson was about to commence. Lisa was looking somewhat flustered and Greg was nowhere to be seen. "He is rounding them up," remarked Lisa with a laugh as she interpreted my quizzical look. Slowly the students arrived in class, some

under their own steam and others ushered in by Greg. Donna shuffled papers on the side of the room as Lisa spoke to her about the general approach to be adopted in this lesson. Following the dysfunctional nature of the previous lesson Lisa and Greg had decided to ask students to sign a statement about adhering to school rules and discuss with them the consequences of not conforming to the rules. I was not quite comfortable about what she proposed to do, but I knew from my experience with students at City High that it was best to follow the suggestions of those who have been most closely associated with the students. Accordingly, I resolved to support whatever Lisa and Greg endeavored to accomplish.

Lisa distributed the forms to the students and immediately they were on the offense. With few exceptions the students were opposed to signing the form and they were very vocal in their opposition to the coteachers' request. Two male students were most vocal and aggressive in their opposition. Lisa drew a line in the sand. If the students did not sign they would be taken to the coordinator of the SLC and would not be permitted back in the class until they agreed to abide by the school rules. "If they are school rules why do we sign?" Bobby was convinced that being asked to sign was disrespectful and he was prepared to accept any consequences for not signing. Meanwhile the argument in class was getting more heated. Lakia enjoyed science and was shouting at the males to stop their protests and sign the form so that they could continue their work. In making her point she used obscenities which violated the first rule on the form. Quickly the males pointed out that she had violated the rules and should be suspended. A shouting match quickly developed and things were rapidly getting out of hand. I decided to act. I walked over to Bobby. "Are you going to sign?" "No," replied Bobby defiantly. "Then lets do what we've got to do. Outside!" I motioned to Bobby with a wave of my hand and briskly strode to the door, holding it ajar for Bobby to leave. "Where you goin' man?" he queried. "To see the principal," I stated emphatically so that everyone in the class would hear. "You ain't told me we were goin' to no principal. I ain't goin'" "Oh yes you are! Outside." For a moment I wondered about the sensibility of my confrontational approach. But it was too

late. There could be no backing off now. Tracy recognized the drama in the moment and enjoyed this unexpected confrontation. "It's a face off man!" Quickly I moved into the hallway and Bobby followed. "I'm gonna get suspended man!" Bobby was angry with me. "This is your decision Bobby. You are showing disrespect to everyone in there and that cannot happen." "Why you takin' me to the principal man?" "It's your decision," I insisted as Bobby turned to return to the classroom. "If you go back in there you will be in a lot of trouble I warned him." Bobby turned back to me. "This sucks! Why I 'ave to sign no school rules?" Fortunately I saw a chance to compromise. "If you go back in there you must show respect for your teachers and work without further disruption. OK?" Bobby appeared to welcome a solution in which he did not lose face. He nodded at me and with a scowl returned with me to the classroom.

Ten minutes later I approached Bobby who was silently working. Quietly I asked if he would meet with me at 3 p.m. to talk about the incident. Bobby shook my hand and agreed to meet. I was relieved. Since the lesson was now proceeding in ways that were relatively controlled, I decided to leave to talk with the coordinator of the SLC. As I walked downstairs I saw Greg who remarked "I was just taking Reggie to an NTA. He is always late and we cannot let him in when he is late. We have got to be consistent or they will all come late. He'll be suspended for being late but in the long run this is best for him and the rest of the class. We have got to be consistent." I nodded my agreement and continued my way to the SLC.

Judging from the Back of the Room

Three days after the above visit to the classroom Lisa came to Ken's office visibly upset by the actions of the coordinator of the SLC during a visit to her classroom. It was only the second time in a year that Sonja had observed Lisa and Greg teaching. From Lisa's perspective Sonja lacked understanding of the context for the lesson she observed. This led Sonja to chastise the students and to make unfair judgments about how Lisa and Greg were teaching. Donna, who cotaught with Greg and Lisa, was also disappointed with Sonja's

role. The following is an excerpt from an interview with Lisa on the same day that the incident occurred.

She came in today ... she went to sit back ... with Alana to the back of the classroom ... she did it once before and I normally nod and smile at her when she says things. Because some of the things she says ... I just don't agree with ... some of the things she has to say are pretty valid ... but today it was just like ... she singled kids out that I thought ... weren't ... weren't acting appropriately. She had no ... she didn't show up ... she showed up in the middle of the class period ... after we had an amazing conversation about the difference between brains and computers and the kids were communicating amongst each other and there was lots of cross talk about science. She started as far back in the class as possible so that she couldn't hear what kind of dialogue was going on. ... she yelled at some students ... and I was just like ... so why are you yelling at my students? Why are you undermining my authority ... that you say I don't really have to begin with? I mean you know the kids that she yelled at already had detention and already were getting a call home and already had a pink slip. So she was basically undermining everything she has already told me that I should be doing. And I mean that's just what kind of ticked me off. I was just like you couldn't ... you haven't seen the improvement that we've made in the last three days.

She wanted to talk to Greg and I about how we should be dealing with our classroom management. We know. I mean I know I have to start the paperwork process because some of these kids don't want to be there and are undermining what we're trying to do. I know that already. Greg and I are already working on that. And I met with her and I said, 'can we talk now?' And she said, 'I would rather talk with you and Greg both. You know. It is your class.' And I said, 'OK, that's fine.' ... She said, 'I have some ideas that I really think will work.' I said I probably know already what you're going to say. I'm too nice, I'm not judgmental and I'm giving complements to kids who don't deserve them. Unbelievable! When I think that positive reinforcement is the one thing these kids need. They keep being told that they can't do this and they don't do that and they won't do this...

Assessing Teaching Performance: Looking Back³

Breaking New Ground

Michael: In traditional teacher education, evaluation is a process in which an outside observer makes judgments about a situation that s/he really knows very little about. We might therefore question the claims of such forms of evaluation to be viable descriptions of teacher competence.

³ According to Bateson (1972), metalogues are conversations in which previous texts and dialogues are brought to a new more general level by abstracting themes from previous accomplishments. Metalogues are reflexive of the dialogic manner in which we make sense as researchers and evaluators.

Ken: As a science teacher educator I often supervise new teachers. My primary goal in so doing is to ensure that they teach in ways that afford the learning of students. Hence, when I visit the classroom I feel that it is necessary to do more than make a record of what happens and to list the new teacher's strengths and weaknesses. If there is an opportunity for me to act in ways that will afford the learning of the students I do so, based on a premise that the new teacher, being in the classroom with me, will learn from the events associated with my practices.

Michael: Your approach really changes the situation, for it makes learning salient as the primary concern of teaching. Furthermore, by participating in teaching you have a better understanding of what can possibly be done in the situation than if you were to look from the outside into this classroom—through a window into the classroom so to speak.

Ken: There are many purposes for assessing teaching performance of new teachers. Being in the classroom with the new teacher allows for coteaching between the supervisor and the new teacher with the goal of improving the learning of the students. Just as a quarterback will often huddle with the offensive team before commencing a play so it is often desirable for the coteachers, including the supervisor, to huddle during a lesson. In this way, coteachers can ascertain that they are all on the same page in their endeavors to enhance the learning of the students.

Michael: What I like about evaluation in the coteaching mode is that an additional person contributes to the learning. In this experience, the evaluator gains a better understanding with the situation, finding out for him/herself what works and what does not. Also, rather than being the subject of your evaluation, which has a tenuous relationship to teacher learning, your coteacher can learn directly from the event. Subsequently, evaluation happens in the cogenerative-dialoguing session but in new ways because all coteachers—cooperating teacher, supervisor, or researcher—and students contribute to the evaluation of teaching and learning. Here, evaluation becomes a collective responsibility for

a shared situation. The main question becomes, How can *we* contribute to improve learning and teaching?

Assessment from Afar

Michael: There may be a temptation for Lisa and Greg to deal with the contradiction of having to perform for Sonja by setting aside their concerns for student learning and switch instead to a demonstration of teaching competencies that are likely to appeal to Sonja. In so doing they can be regarded as working around contradictions by staging an event that looks like authentic teaching but which is focused more on teaching performance than the learning of students.

Ken: Sonja is very well meaning in what she does. She believes in her students and will go to the rack for her teachers too. She was concerned about what had been happening in the biology elective and felt that Lisa and Greg needed her clout to get things right. She seemed to have made up her mind about what to do before she ever came into the class.

Michael: What a difference in Lisa's experience between coteaching with you and the evaluation situation with the SLC coordinator. The old paradigm that evaluation is more objective when it involves fly-on-the-wall type observation sits deep. At the same time, this form of evaluation frightens teachers, which I attribute in part to the process of objectification that they experience.

Ken: Sitting at the back of a classroom to formulate discussion points or judgments is not a viable way of knowing about the teaching and learning that is happening in the classroom. The more the assessors distance themselves by sitting in the back or the sides the more it becomes possible to regard the responsibility for the lesson to be with the new teachers. Sitting in the back relinquishes the shared responsibility for affording the learning of students, and to base judgments on decontextualized understandings of what happened.

Michael: Although it is known that the praxis of teaching differs from its representation in theoretical terms, teacher evaluation generally has not been sensitive to the differences between a situation perceived by a distancing observer and by the involved practitioner. Yet

practice theorists such as Bourdieu and Holzkamp point out that the situated, temporal affordances and constraints of praxis are available only to the practitioner fully immersed in the situation.⁴

Forging New Habitus

Michael: One of the important issues in teacher evaluation has to be an appropriate conceptualization of the notion of learning. Perhaps too much emphasis is placed on explicit forms of learning and too little on unconscious and unintentional forms of learning.

Ken: Yes. I think that discussions can serve to bring some of the unintentional and unconscious to the fore. Then, as conceptual objects it is possible to use them for creating new understandings grounded in the experiences of teaching and learning and to plan different sets of intentions for the future. Discussions about shared experiences happen at many different times. In all cases I tend to take the perspective that learning to teach always occurs while teaching. Hence no matter what the judgments might be about how dysfunctional a lesson was, there is a potential to learn from every incident that emerges in a classroom. I like to emphasize that learning can be conscious and unconscious, intentional and unintentional. Hence learning by doing is assured while coteaching.

Michael: Perhaps it would help us understand learning to teach if we focused our attention on the production of knowledgeability, the flexible process of engagement with the world. Knowledgeability, as Jean Lave points out, is routinely in a state of change, involving people who are related in multiple ways, who improvise struggles in situated ways, and for whom the production of failure is also a normal part of routine collective activity.⁵ A focus on knowledgeability leads us to a conceptualization of knowing and learning as (changing) engagement in ever-changing human activities.

⁴ Bourdieu, 1997; Holzkamp, 1991

⁵ Lave, 1993.

Creating Collective Responsibility

Michael: A key aspect of coteaching is the way in which collective responsibility shapes our actions as teachers and as learners.

Ken: Discussions about shared experiences can profitably focus on possible solutions to perceived problems. However, an imperative is to enforce the idea that the responsibility for learning is shared and may extend to system factors. Teachers, particularly in urban schools, can redress many of the problems by planning effectively and enacting the curriculum in ways that engage students.

Michael: This means that evaluators, too, no longer observe teaching and learning from the sidelines but contribute to the collective responsibility of providing the best learning environment for the students in this class and for the other coteachers present. From their position as coteachers, evaluators are no more in the position to construct authoritative descriptions of teaching performance than any other coteacher. The very idea underlying the practice of cogenerative dialoguing was to create open theory, that is, theory to which all participants contribute. Only when we theorize our situation together do we have any chance in bringing about evaluation that has the potential for driving changes in the situation that we theorize.

Ken: However, system-level factors also need to be changed in many cases and it is important that teachers understand that they should not accept full responsibility for what happens in the classroom.

Michael: I agree. Unless we recognize that what we observe at City High are only subsets of actions from a larger set of societally available actions, there is little emancipatory power in our work. If we simply contribute to make new teachers and students fit into an unjust society then we reproduce inequality and contribute to the subjugation of all to

middle-class values. In this sense, evaluation can actually be one of the contributing elements to the status quo through cultural reproduction of inequity.⁶

Avoiding Ideology

Ken: Cogenerative dialogues, involving representatives from those who have shared a teaching and learning experience are ideal opportunities to reflect on practice and to infuse into the discussions relevant theory and research. It also is significant that productive discussions ought to be challenging so that speakers should always provide a rationale and justification for perspectives and all participants should show radical doubt about claims made about the effectiveness of particular practices and recommendations for future practice.

Michael: Indeed, with our focus on theorizing from inside the situation, we have to be acutely sensitive to the possibility of getting stuck in ideology and its insensitivity to blind spots, which contributes to the reproduction of existing situations rather than to the production of change and more equitable situations. As researchers, supervisors, cooperating teachers, new teachers, and students, we are located differently in the activity system that focuses on student learning. These different locations provide different horizons for interpreting classroom events and therefore constitute an opportunity for dealing with particular ideologies.

What have we Learned?

Just what role does evaluation play in the three scenarios? In the first scenario Lisa and Greg came to the conclusion that the lesson was very bad indeed. By that they meant that the students refused to cooperate and actively resisted the coteachers' efforts to participate seriously in the intended curriculum. Lisa and Greg were committed to their roles in an activity system in which student learning was the object of the activity. When the students resisted Lisa and Greg endeavored to negotiate with them to re-focus their participation in

⁶ Bourdieu & Passeron, 1979.

the intended curriculum. Their commitment to facilitating the learning of the students was also evident in their ongoing efforts to build a curriculum around the interests and knowledge of the students. With the assistance of Donna they planned activities that were of potential interest to the students and consistently sought students' feedback on how to better teach someone like them.

Although neither of us were present at the lesson that is the focus of "Today they were Terrible" we have experienced many lessons at City High that could aptly be described as dysfunctional. Traditional evaluation, such as the one conducted by Sonja, might lay blame with the teachers, our own evaluation focuses on the entire activity system, its historical development, and its societally mediated character. Thus, teaching, as learning and resistance, need to be factored into why intended learning did not happen in this particular lesson. Clues as to why the students, with few exceptions, were so resistant to the intended curriculum when it so obviously had been designed with their interests in mind can be seen in the concept of "hallway hangers" (MacLeod, 1995). These hallway hangers rejected the dominant achievement ideology, which assumes that hard work and academic success leads to a better life. They had experiences that indeed showed the fallacy of the achievement ideology and preferred instead to shoot pool, drink beer, and smoke pot rather than to participate in schooling. Not surprisingly they failed to graduate from high school and to proceed to university. Our data from City High suggest that a majority of the students reject the achievement ideology and do not take seriously the necessity to graduate in four years and to proceed to a college education. So few do it and those who do are not necessarily better placed with respect to employment and economic resources than those who drop out. Perhaps the students resist the dominant ideology of a system that blatantly advantages white middle-class males. Although almost 100 percent of the students at City High are African American the school endeavors to enact a curriculum that is similar in form to what might be found in an affluent middle class suburb in which most students are white. Policies designed for all students characterize the school and an enforcement system that is

highly controlled. Each morning students are herded through a single entrance and are required to pass through metal detectors. The process is in many ways dehumanizing and a sign that the students are not trusted. Safety is on everybody's mind and Non Teaching Assistants (NTAs) are present in each of the SLCs to control the students. Not surprisingly there are signs of widespread resistance to the dominant "official" school code and evidence of the enactment of alternative codes throughout the school. As Boykin (1986) has pointed out, these students live their lives as minorities in a dominant white culture where their ideologies must be enacted within a context of hegemonic practices that disadvantage them. Schooling is a potential candidate for hegemonic practice. It is well documented that African American youth fail to achieve at the same level as white youth, especially in science. Yet there is widespread acceptance of the hegemony that what happens at school is normal and a matter of common sense—even though the evidence suggests that what happens at City High is oppressive to African American youth.

It is in this context that Lisa and Greg teach and learn to teach. The foregoing analysis, which made evident the societal mediation of the events at the school and in the classroom, was needed for change does not come about or last unless societal contradictions are being addressed. We believe that our coteaching/cogenerative dialoguing paradigm, which involves other teachers and students in the evaluation of the entire activity system, is a better model than traditional forms of teaching, which merely contributes to the reproduction of an inequitable society. It is through the taking of collective responsibility by coteachers and students that currently existing vicious cycles of failure to learn can be broken.

Ken's role as a science teacher educator, supervisor, and evaluator are potentially problematic as far as his actions leading to social transformation of the students. Like other new science teachers, Lisa and Greg were assigned to teach in pairs and learn to teach through coteaching. All are assigned to neighborhood high schools like City High and teach in career oriented SLCs. Without exception the new teachers are middle class and only one (out of eight) from Lisa and Greg's cohort was African American. Initially the teaching

habitus they bring with them to City High, formed in and by their middle-class culture, is not suited to teaching the students whom they are assigned to teach. Accordingly, the process of learning to teach is slow and involves the adaptation and building of new habitus. In this situation, evaluation needs to be situated rather than abstract, in order to support the transformation and change required to develop expertise in teaching in schools such as City High. Furthermore, evaluation needs to address and contribute to change of the entire activity system rather than constructing attributes for individual new teachers irrespective of the situations in which they do their work. Because Lisa and Greg teach in an urban school where resources are scarce, the curriculum usually enacted by the regular science teachers involves the use of outdated books and a focus on learning facts. In fact, for the past four years the science curriculum at City High where most new teachers are assigned, has been defined by the new teachers rather than the regular school faculty who have remained in the school. Thus, a contextual factor that is significant is assessing teacher performance concerns the accessibility of suitable equipment and materials, maintenance, and disposal of wastes. City High, like many urban high schools has scarce resources and few structures to support curricula like those enacted by new teachers.

Through our ongoing research at City High our own ideology is always under close scrutiny. We doubt the wisdom of enacting a curriculum that is focused on the National Standards, which have been formulated as a set of decontextualized propositions; these standards embody and contribute to the reproduction of middle-class culture and values (Rodriguez, 1997). To bring about change, (self-) evaluation needs to be paired with action research to enable necessary changes. In this spirit, Lisa studied the resistance of students at different institutional nodes throughout the school. Using the concept of culture as a site for resistance and struggle (Sewell, 1999), Lisa came to understand her classroom in terms of struggles between dominant and dominated ideologies. Greg also undertook research. He investigated the impact of poverty on the lives of the students. Since the vast majority of the

students live beneath the poverty line it was informative to find out how limited access to money affects the lives of the students.

As the SLC coordinator Sonja leaves her stamp on the entire SLC. She can create local policies for her school within a school and with the assistance of NTAs and a former student of the school she has made major strides in the past several years in terms of creating a stronger academic focus and a sense of collegiality among the faculty. However, she is a very strong voice and does not back off in the face of occasional student violence or in her conversations with faculty. She has a perspective on what the SLC will be like and she works with others in a very collegial manner to attain her vision. When Sonja entered the classroom to observe Lisa and Greg it seemed as if she already knew what she wanted to advise them. Her reason for visiting the class was to legitimize her advising Lisa and Greg how to be better teachers with these students. Her motivations were solid. Sonja wanted the best for the students and also for the new teachers. However, her view of teaching was that there is a correct way to teach and she knew what that is. Whether she was speaking to her veteran teachers or the new teachers Sonja positions herself as expert, speaks with authority and does not expect to be challenged. Although Sonja knew about our commitment to coteaching and saw the faculty, new teachers and supervisors participating in coteaching she had made no serious effort to coparticipate in this way. Accordingly, her perspectives were distant and discursive. Her suggestions to Lisa are to gain control in the conventional ways. "Send them out, put them on work detail, or suspend them." "Don't praise them when their work level is too low." "Don't be so friendly." "Don't smile so much." These suggestions are not grounded in a shared experience and stand in stark contrast to Ken, Lisa, Greg, and Donna who readily accepted responsibility for the learning environments in the classes they cotaught. Sonja's advice is predicated on Lisa and Greg having the responsibility for the class and the advice was tailored for Lisa and Greg rather than for the collective "we" that worked to better the school experience of *these* students who attended the grade-9 science class. If Lisa and Greg were to receive too much advice of this type they

might begin to play a game to resolve the contradiction of wanting to enhance the learning of science, on the one hand, and teach as Sonja suggested, on the other hand. However, teaching as Sonja suggested, in our view, only contributes to maintaining the oppressive status quo rather than affording the learning of science.

Evaluating Teaching and Learning Science

This section contains a vignette that describes Ken's role as a supervisor as he coteaches with Lisa and Greg in a biology class, a field that is outside of his science specialization (physics). The vignette is written in Ken's voice.

Participant Perspective

"Hypertonic or hypotonic?" Lisa approached me with a perplexed look of urgency on her face. I shrugged. "I have no idea," I said, a little embarrassed at not knowing the answer to her question. "My background is in physics." My explanation was unnecessary because Lisa had moved on. A group of students needed assistance in measuring the size of a bloated water-filled egg. Each group of students had removed the shell from several eggs by soaking them in vinegar and then placed them in various solutions (i.e., water, dilute salt solution, and syrup). At various stages of my teaching career I had known what these terms meant and I knew for sure that their meaning related to the concentration of solute in and outside of the egg. I also knew that the soft inner coating of an egg was a semi-permeable membrane. As I searched for a biology textbook I stopped by several groups of students and asked them about hypertonic solutions. There was confusion in making sense of one of the results and it was not clear to me whether the confusion was related to the terminology or to the concentration of salt in the beaker being less than the concentration of salt in the egg.

Greg was totally occupied in activities in which he appeared to be measuring the volume of different eggs. Lisa asked him about the syrup. "Is it hypo or hyper?" she asked. "It's ambiguous. It could be either." Greg smiled as he continued his activity with several

students. As I eavesdropped on the conversation I thought about the extent to which Greg was virtually invisible in the class. He seemed to blend in with the students and they all appeared to like him.

The students were grouped and engaged in myriad activities that reflected what I perceived as a better than average day. Even so there was ample evidence of students pursuing social agendas. Alana was flirting with Kareem and both were distracted from the lab activity. Octavia was cleaning out a syringe over at a large metal sink that was half filled with dirty glassware. Or was she playing? What appeared to be a legitimate cleaning activity soon revealed itself to be an opportunity for her to fill the syringe with water and then use it as a water cannon. At present she was squirting water into the sink and its dirty glassware, occasionally spraying the wall. It was just a matter of time before she would be squirting the water at other students. Anticipating problems I moved in her direction. She saw me coming and with a grin aimed the syringe at me. Instinctively I stopped and reminded her that this was no time for me to take a bath. I smiled and moved toward her as she eluded me by moving quickly toward a group of males, spraying them with water as she evaded my supervision. My mind left Octavia. "Let her do what she has to do," I thought as I returned to the task of locating a textbook.

My mind was on the science-related concepts needed to interpret the lab. The terminology would be a problem for these students. Solute and solvent were easily confused terms and yet both were important in this lab. They needed to realize that the concentration of ions in solution either side of the membrane was salient. If there were a difference in concentration then the solute would move through the membrane from high to low so as to even out the concentration. But it was the solvent that would do the moving not the ions I reasoned. And some solvents would be unable to move through the membrane at all because of the molecular structure of the membrane and the molecules. As I searched I was figuring out the design of the lab and potential difficulties these students might experience. Finally I located a spare book and using the index quickly found a table containing hypotonic and

hypertonic and relating the terms of the concentration of a solution either side of a membrane. Having assured myself of the difference I returned to my role of moving from group to group to check on what was happening.

The class consisted mainly of African American males. They were sophomores and juniors and therefore were much more easily managed than the freshman class which Lisa and Brain cotaught earlier in the day. The 20 males were arranged in groups of 4–5 students, which were located at large workbenches. Their shelled eggs had been soaking overnight and they had the task of removing the eggs from solution and then measuring various aspects of the physical properties of the egg in order to ascertain what had happened. There were also a small number of female African American students in the class. Two had opted out of the lesson because it was “gross” and they would not touch the eggs. Octavia was circulating the room but mainly focused her activities on the sink where she was presently playing with food coloring. She had covered her hand in red dye and now was pleading with Lisa to let her go to get help since she had cut her hand. Her act was somewhat convincing to me, but not to Lisa who playfully suggested Octavia wash her hands and get back to the lab. Alana was circulating too. I was unsure of which students she was assigned to work with. But she seemed to be in no mood to work for sustained periods. Teesha was serious in her efforts to learn but was a focus for male attention. Like Alana she was playful at times and her good fun response to the advances of males appeared to give some of them encouragement to spend time interacting with her.

I turned toward two female students who were seated at desks and appeared not to be engaged at all. What’s up? I inquired as I approached. “We ain’t doin’ it. It’s gross. I ain’t touchin’ it.” “Come on it’s no different then cooking breakfast.” I felt chastened by my sexist allusion that females might know about eggs because of preparing breakfast. “We ain’t doin’ it.” Arnetha was emphatic. “Then let me show you what it is all about,” I said encouragingly. Both ignored me and continued with their social chatter. “Heh, don’t ignore me just because I’m old.” “Sorry. My bad,” said Arnetha with a grin. Neither

student moved. "Come on get yourselves to the board. Don't you want to see what is going on? This is cool." As I gave them verbal encouragement I herded them toward a couple of stools close to the chalkboard. They moved and joined me in what turned out to be a mini-lecture for the two of them. I began by reviewing the egg and its basic structure. "It's basically calcium carbonate, just like this chalk," I told them referring to the shell of the egg. When we put it in vinegar the acid will react chemically with the shell to produce a gas and leave a residue that will wash off the membrane of the egg. As I spoke I created a labeled diagram of the experiment and included most of the terms that appeared to be needed and/or that had been used in the earlier part of the lesson.

"Yeeuck!" Eggs were beginning to break in various parts of the classroom as Lisa moved to assist students to clean up the mess. Arnetha was more interested now in the mess that was being created and she was quickly distracted from my explanations. "Riley shoulda given us work to do," she said as she moved away from me. "It's his fault. He shoulda given us somethin' to do." "But it's your education," I protested as I moved with her. "It's you who is just wastin' your time. Why don't you ask him for another activity?" "Nah. He's our teacher. He oughta give us somethin' to do." They moved back to their desks and resumed their socializing as I began to work with some of the males in the class. "Come on Dawoud. Don't miss the chance to learn something." Dawoud and I have known each other through my research activities in the school and he has worked with us as a student-researcher. He looked up seriously and nodded his head in affirmation. For the time I was with the group he worked sedulously on the completion of the task and so did his peer group. But as soon as I moved away they relaxed and continued with their good-natured socializing.

At last Teesha was alone. Seizing the opportunity I approached her. She smiled as I asked her whether she was trying to become a thug. "Oh. My bad." She slid back her hood and waited for me to continue. "So, what do you think about the lesson?" "It fun," she remarked. "You have some good teachers," I suggested and she readily agreed. "How

might we make this lesson better?" Teesha surveyed the class and quickly began to offer suggestions. "They not workin'. Riley gotta give them less time." My thoughts exactly. The lab had gone for too long and there was no sense of urgency. "He gotta get them workin'," she said with a wave of her hand. Once again I agreed with her. "Will you talk to Greg and Lisa about the lesson?" Teesha nodded her affirmation and our discussion was over.

"I gotta go to the bathroom." Octavia was remonstrating with Lisa who assured her that: "It won't make a difference. It won't wash off. It won't hurt you. It's in the foods you eat." Octavia looked dubiously at the red blotches over her arms and hands. "Nah. I gotta go to the bathroom." "It'll wear off," I assured her. "You sure?" I nodded my affirmation and moved toward the front left of the class.

Greg was getting ready to wrap up the lesson. He positioned the overhead projector as Lisa facilitated the tidy up of lab materials. The transition was an opportunity for socializing of various forms as some of the males practiced their latest dance moves, good-naturedly sparring with one another and hanging out for a bit. Some of the females also socialized and one or two interacted flirtatiously with some of the males. In due course they were all seated and Lisa and I went from student to student encouraging them to get their notebooks out and open. Greg's expectations were different than ours. He wanted them to watch his explanation of the lab whereas Lisa and I wanted them to have notebooks and pen out and to get down the salient points into their notes. Accordingly, as we moved around the classroom those students with whom we had most social capital complied with our requests and others ignored us, complaining that Riley didn't require them to take notes. "So be it!" My mind switched to Greg's diagrams and explanations.

Greg was focusing his explanations on one anomalous result. He had expected the water to diffuse from inside the egg in the saline solution and was making the point that science does not always turn out as you expect. He made several excellent points about the nature of science and also the experimental method in which the design can be adapted to

examine what is going on in a closer way, perhaps in this case by making a more concentrated salt solution. As he explained about hypotonic situations I intervened. “There are so many complicated words here,” I said. “Do they know that it is the solvent that moves through the membrane but the concentration of the solute that determines which way it flows?” Immediately Greg began to adapt the diagram on the overhead by adding black dots to show concentration. “Some of them don’t know who you are,” said Lisa. “Who doesn’t know who this gentleman is? Who knows who he is?” Some of the students shouted my name and others raised their hand. “He’s my teacher,” said Lisa. Some of the students who knew me well explained to others about my role and Greg continued with his explanation, now with a more detailed set of diagrams. I moved toward to door. “I have a meeting,” I explained to Lisa as I moved off. “Can you talk to Teesha about the lesson? She has some interesting perceptions that might help us to do a better job.” Lisa nodded affirmatively and I gave Greg a nod of encouragement as I left the classroom for the university.

Metalogue

Michael: Your account of this chemistry lesson articulates some of the central features of our coteaching/cogenerative-dialoguing paradigm. Although you are Lisa’s methods teacher, you are not merely an observer noting things that work and those that don’t. Rather, you participated in the lesson, that is, in fostering learning, and at the same time in coming to understand what works and what does not work. Rather than providing a posteriori advice, the viability of which can never be tested, you actively encouraged reluctant students to participate. In dealing with their resistance, you experienced what was possible or impossible in the situation. But because Greg and Lisa were in the lead, you were able to step back and think about what they were doing. In this way, you were in a position to take a step back and reflect on the ongoing events.

Ken: I evaluate this as another “both/and” day. The lesson was a good one and the coteaching between Lisa, Greg and I was well articulated and to the benefit of the students.

Not only that, the lesson provided a nice context for learning to teach. On the other hand the lesson was as event full as most classes are in this school and many of the students were seemingly preoccupied with forms of participation that were guided by goals that were unrelated to learning science in the way I understand it. But between the three of us we had kept many of them involved in science and there had been no serious problems. I was convinced that Greg needed to plan more activities and break his 90-minute classes into 15-minute chunks, pacing students through each chunk. The “urban shuffle” was as evident today as it ever has been. The students get their work done as they participate in socially focused activities for most of the time.

Michael: Your mention of the “urban shuffle” also highlights the issue that articulating something as a problem and understanding it does not necessarily assist in changing classroom practice. We have talked about this “problem” for quite some time. Yet despite this awareness, and despite your concrete actions designed to deal with the phenomenon, it is still a salient feature of teaching and learning at City High. Your attempt to redress the situation is a neat example of actions coteaching evaluators might take rather than waiting to chastise Lisa and Greg for not having dealt with this phenomenon. Here, you were personally experiencing the difficulties to make changes—difficulties that traditional evaluation would not have made thematic. Advising Teesha, Lisa, and Greg to talk about how to address the urban shuffle (“He gotta get them workin’’”).

Ken: In saying this I am not being critical of Greg for the lesson and the way it played out. I have taught in this school for three years and know how difficult it is to get the students to work in a sustained way and to learn science of the type that was the focus of today’s lesson. There are aspects of what happened that I would change, but these aspects pertained to my own role, not Greg’s or Lisa’s. My hope is that Teesha will speak to Greg and Lisa about shortening activities and keeping the students focused for shorter periods of time.

Michael: Such involvement of students in the evaluation of teaching and learning constitutes the very core of our coteaching/cogenerative-dialoguing model. It is only through such involvement of all stakeholders that we can hope to bring about changes that allow the African American students at schools like City High to succeed in ways that are consistent with their own values.

Ken: My sense is that Greg might find her suggestions more persuasive than mine. For several months now I have been advocating that all teachers in the school plan at least six activities for each 90-minute period. Neither the teachers nor the students appear to be using the full 90 minutes of activity productively. The students are often cooperative but rarely do I see most students having a sense of urgency about time and its use.

Michael: But this may be more your problem than it is that of the students. I think that we have to look at this “lack of urgency about time” in terms of their own goals, which are not those of middle-class students.

Ken: You are right, perhaps this is my problem. I am aware that African Americans and Caucasians have different perceptions of time and its use.⁷ I do have that Western efficiency goal and like to see more purposeful activity in class.

Michael: Yes, but is this goal appropriate and viable to assist African American students from situations of poverty to be successful in their terms?

Ken: During the “shuffle” they are dealing with their social agendas. I do value the students learning of science and argue that it has transformative potential for their lives. For most students science is just another course they have to pass and the value of graduating from high school might not even be seen as potentially transformative. A desire to pass may be more related to pleasing parents/guardians than to a belief that high-school diplomas provide increased access to wealth or employment. In fact, significant numbers of students

⁷ See Boykin, 1986.

have rejected the achievement hegemony⁸ and see school as having purposes other than learning science.

Michael: I agree with you on this point. And it is therefore important to involve the students at City High in evaluation of learning and teaching, and to involve them in changing their situation all the while allowing the students to empower themselves. But let me address another issue. An important component of evaluation in the coteaching/cogenerative-dialoguing paradigm is that evaluation is not separate from action. Telling new teachers what they might have done often does not help because the particular situation may not crop up again. Furthermore, advice from the sidelines may or may not be viable. I believe that it is better to see if some action brings about a desired change, and subsequently to talk about the success or failure of the intervention. In this way, the evaluator is an integral part of the situation, and involved in bringing about change in a concrete way. In the relation between evaluation and teaching, I see parallels with the relationship between theory and praxis. I see little utility in uncoupling the two and favor the testing of actions and change in the very moment that we engage in praxis.

Ken: I agree. In one of my first studies on the teaching and learning of science in urban high schools I learned that I should never ask students to do something unless I could deal with the consequences of them not doing as I instructed. Previously, I might have told new teachers to do this or that. By addressing the situation directly, I can actually find out whether what I might have proposed as part of an evaluation actually works then and there when the action is most relevant. Also by my own actions to manage student behavior and participation I have learned not to make matters worse. To the extent possible I endeavor to focus my efforts in the class on facilitating the learning of students who came to learn. Also, in ways that are respectful of the students, I endeavor to get them engaged when they are not

⁸ See MacLeod, 1995.

participating on task. As I interact with students to assist their learning I endeavor to earn their respect and build rapport.

Let me address another issue. When the question about the difference between hypertonic and hypotonic solutions arose, my intention was, since I cotaught, to learn the terminology *then and there* and to assist students in learning what they were expected to know and use.

Michael: Here, I am a bit worried about the perceived need to make students know the difference between “hypertonic” and “hypotonic” solutions. These are just words, which are likely to have no relevance to the lives of the students. Furthermore, even Lisa and you do not know how to use the two words, which does not take away from other aspects of your life. Why do you and Lisa insist on telling students about the concepts when even Lisa and you, highly trained individuals, forget how to use them?

Ken: You make a good point. Teachers need to be selective about what terminology to include in the science toolkit. Knowing some basic terminology of science is important for these students so that they can participate in science-like discussions and build understandings about what they are learning. Not only that, knowing science terms can connect to the students’ identities.

Michael: Well, I believe that we have to rethink this. If we want to make science relevant to everyday out-of-school situations, then we have to accept that the monoglossic form of scientific discourse will change. Absorbed into the already heteroglossic everyday discourse, science changes and, in fact, becomes more democratic.⁹

Conclusion

In the course of our work at City High, we adopted activity theory (Engeström, 1987; Leont’ev, 1978) and poststructuralism (Bourdieu, 1997) as ways to think of learning to

⁹ Lee & Roth, 2001.

teach and assessing teaching performance. This has allowed us to create an awareness of the advantages of creating a collective responsibility for the students and their learning of science. Simultaneously, we are attuned to the real consequences of competing ideologies and tendencies for the cultural production of students to recreate their locations in social space. Of course being aware is no guarantee that we will succeed in any of our endeavors. However, as we create new roles for assessing teaching performance, by coparticipating in classrooms and by making evaluation a collective responsibility of coteachers and students alike, we come ever closer to the tenets of Guba and Lincoln's (1989) fourth generation evaluation. As supervisors we learn from our evaluation in that our constructions vary over time, always seeking to be viable in changing contexts of learning and teaching. Collectively, we make every effort to ascertain what is happening and why it is happening from the perspectives of the key stakeholders and then to contribute to educate ourselves with respect to the perspectives of one another. As a result of what we learn through evaluation we seek to catalyze positive changes that are consistent with the goals of the teachers and students of the school; change is enabled because evaluation is a collective effort. Finally, we are tactical in our efforts to help those who have difficulty helping themselves in a school in which oppression is widespread and involves different stakeholder groups.

We have adopted the premise that teacher education is a transformative activity—not merely for the new teachers but equally important for the students and teachers in the schools where new teachers enact their internships. While learning to teach the new teachers assigned to City High are able to make a positive difference to the lifeworlds of the students and others in the school. Because City High is such a different school to any that new teachers have previously encountered, their experiences are potentially rich learning opportunities. However, it is imperative to remember that much of what is learned, the special know-how of teaching, will be unconscious, unintended and not accessible through the use of language. Knowing and learning to teach, as Lave (1993) suggested, are flexible processes of changing engagement with an ever-changing world. If that is the case, and we

believe that it is, then experiences need to be structured such that new teachers can participate in the myriad events that unfold at a seemingly alarming rate. What we want to support are learning *situations* and forms of *interactions*, neither of which can be reduced to individualized knowledge and properties of individuals. As teacher educators, we strive to support the emergence of collective responsibility for teaching, learning, and the continuous process of evaluating teaching and learning processes to enhance the participation of others (students and teachers) alike. Coteaching and cogenerative dialoguing seem to be the keys to participating in ways that are measured and enjoyable. It seems unfair to assign responsibility (for teaching or evaluating) to any one individual or set of stakeholders. On the contrary, it seems reasonable for groups of stakeholders to assume responsibility for the learning of students (including the students themselves) and through a collective agency to coparticipate in ways that are mutually beneficial to all stakeholders. Just as learning can be a goal for all stakeholders so too can evaluation and assessment. Cogenerative dialoguing has appeal as a suitable venue for all stakeholders to participate in evaluation designed to afford the goals of the collective.

Acknowledgments

This research was funded in part by the Spencer Foundation and Grant 410-99-0021 from the Social Sciences and Humanities Research Council of Canada.

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Table 1

Heuristics for productive cogenerative dialogue sessions

1. **Respect** (Between participants)
 2. **Rapport** (Between participants)
 3. **Inclusion of stakeholders** (Student teachers, students, school personnel, high school students, university personnel)
 4. **Ways to participate**
 1. Coordinating discussion
 2. Listening attentively
 3. Initiating dialogue/ideas
 4. Posing critical questions
 5. Providing evidence
 6. Expressing an opinion (agree/disagree)
 7. Speaking freely
 8. Clarifying and elaborating on ideas
 9. Suggesting alternatives for actions
 10. Evaluating ideas and practices
 5. **Opportunities to participate**
 1. Contributing to an equitable playing field
 2. Listening attentively
 3. Making space to participate
 4. Showing willingness to participate
 5. Making invitations to participate
 6. Refusing all forms of oppression
 6. **Discussion topics**
 1. Learning to teach
 2. Teaching and learning
 3. Curriculum
 4. Teaching kids like us
 5. Coteaching
 6. Transformative potential of activities/curriculum
 7. Links to particulars
 8. Quality of the learning environment
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