Discourse and Professional Growth: Processes, Relationships, Dilemmas, and Hope

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Abstract

This research study examines the processes and relationships among four secondary mathematics teachers as they established a discourse. The intention of the research was to explore the possibilities that a discourse of two experienced secondary mathematics teachers and two first-year secondary mathematics teachers might create for their professional development. Based on emergent patterns, three categories were developed: extrinsic and intrinsic motivations, hopelessness and discourse of hope, and mentoring relationships. The findings of the study suggest that more effective mentoring programs would depend upon experienced teachers who are already engaging in a paradigmatic shift toward a more constructivist perspective on mathematics teaching and learning. In addition, the study suggests more research on existing school structure, role, and relationships for facilitation of individual change is needed.

Introduction
People who have an awareness of freedom are those who have something to say, who want to speak and write, and who experience the dictatorship as a concrete barrier to their very being. They take the obstruction personally, and, in order to be in the world and among others, they feel compelled to try to break through or transcend (Greene, 1986, p. 75).

Greene asserts that individuals who are aware are prepared to confront each obstruction; their passion does not allow them to remain stationary. These are the individuals who are passionate enough to confront. Million and Vare (1997) discuss authentic collaboration as one where university and school faculty share equally in instructional, administrative, and research tasks; their goal is the restructuring of both schooling and teacher education. They state, “…inequality of status is a major hindrance to successful collaboration” (p. 711). Lytle and Cochran-Smith (1992) make a similar observation:

When teacher development is reconfigured as inquiry and teacher research as challenge and critique, they become forms of social change wherein individuals and groups labor to understand and alter classrooms, schools, and school communities. These transformations will inevitably cause conflict as those traditionally disenfranchised begin to play increasingly important roles in generating knowledge and in deciding how it ought to be interpreted and used (p. 470).

As the levels of reflection and change ascend, the confrontation of traditional modes is inevitable. This confrontation is often uncomfortable, but essential to the process of change.

Ellis (1993) found collegial talk to be an important component in the gradual process of learning to make fundamental change in instruction. Pourdavood and Fleener (1997) also found that a dialogic community of teachers had profound impact on the participants’ self-reflectivity and individual change. The researchers observed that through the medium of dialogue and communication, each individual teacher became more aware of her own feelings and beliefs about teaching and made some significant changes in the classroom environment to provide more learning opportunities for her students.

Two important components of their findings were the establishment of a dialogic community to generate trust, connectivity, and relationships among participants; and teachers’ willingness, readiness, and time commitment for their professional growth. The participating teachers came to know each other personally and then moved toward deeper layers of professional relationships. The sense of community, support, trust, and belonging significantly facilitated the individual risk-taking and reconstruction. The teachers’ passion, love, and caring attitudes for their students’ intellectual growth
acted as “strange attractors” searching for possibilities. Their searches were intrinsically motivated; they were also autonomous processes, closely related to and facilitated by the synergy of the dialogic community (Senge, 1990).

Although maintaining equality in professional relationships among the participating teachers such as collegiality, openness, risk-taking, critical thinking and self-evaluation profoundly influenced the synergy and effectiveness of the community, the power of mentoring early teaching careers by including beginning teachers in a dialogic community needed further consideration and exploration.

Therefore, a prior research study became a starting point for the current study. The intent of this research, as a natural extension of the previous work, is to examine the nature of collaborative dialogue among two experienced secondary mathematics teachers and two first-year secondary mathematics teachers with respect to teacher professional development in an entry-year teacher preparation program.

Research Question: To what extent may a discourse of four secondary mathematics teachers influence teachers’ beliefs, attitudes, and create an environment conducive to professional growth?

Ways of Knowing

There is ongoing research and debate on the notion of knowing and learning. The question of whether the mind is in an individual’s head or in society (Cobb, 1994) is getting increasing attention among different research communities (for more discussion, refer to Cobb and Yackel, 1996; Derry, 1996; John-Steiner and Holbrook, 1996; and Prawat, 1996). Some researchers believe that knowing and learning is biological and is inherently constructed by individual cognition. “The function of cognition is adaptive, in the biological sense of the term, tending towards fit or viability” (von Glaserfeld, 1990, p. 23). This perspective is closely related to Piaget’s theory of mental operation. This perspective is generally known as radical constructivism.

Sociocultural perspective, however, argues that knowing and learning is a social and culturally situated activity. “Any function appears twice or on two planes. . . . It appears first between people as an intermental category, and then within the child as an intramental category (Cobb, 1994, p. 16, quoted from Vygotsky, 1960).

The third perspective, the emergent perspective (Cobb and Yackel, 1996) argues that knowing is constructed by individuals within the sociocultural condition, and suggests that, “. . . learning is a constructive process that occurs while participating in and contributing to the practices of the local community (Cobb & Yackel, 1996, p. 185). The emergent perspective is used to
examine the processes and relationships among two experienced secondary mathematics teachers and two beginning secondary mathematics teachers as they engage in professional development.

Design of the Study

Setting and Participants

The research study reported in this article was an emergent study developed within a larger teacher preparation investigation. The larger project sought to increase the quality of preparation and support for entry-year teachers. The emergent study included two experienced secondary mathematics teachers and two first year secondary mathematics teachers teaching in the same school. The high school was located in an urban setting housing approximately 1,900 students. The physical layouts of the classrooms were traditional. Each classroom had about 30 desks in each room. Chalkboards were along the front and sidewalls of the classrooms. Each room had a teacher’s desk, overhead projector, screen, and windows. All of the desks were arranged in rows.

The four participating teachers’ ages ranged from mid 20’s to early 40’s. Betty was in her early 40’s and had 17 years of teaching experience. Kay was in her late 30’s and had four years of teaching experience. Laura and Don were both first-year teachers and they were in their mid 20’s and mid 30’s respectively. Their participation in both the larger and the emergent study was voluntary. All participants received some monetary reward from the larger program to purchase instructional materials for their classes. In addition, the four teachers received four to six graduate credit hours for their engagement in the active phase of the study in winter and spring quarters.

Data Collection

Data collection occurred in two phases. The first phase of the study took approximately three weeks. During this phase background data was gathered in these ways: (1) group discussion and negotiation of study procedures with the participants; (2) individual participants’ completion of questionnaires (Cohn and Kottkamp, 1993; and Senger, 1992); (3) two group meetings for further collection of background information; and (4) two observations of the two first-year teachers’ classrooms. Background data was important for inferring changes in beliefs and attitudes as the study progressed.

The second phase of the data collection process took approximately two university quarters. During this phase, the primary researcher observed each of the two beginning teachers in her/his mathematics classroom once every two weeks. The observations were videotaped once at the beginning of the
second phase, once in the middle, and once at the end. All videotapes were shared with all the participants for reflection and possible suggestions for dialogue topics. In that sense, the primary purpose of classroom videotapes was to create a situation in which the four teachers could talk and collectively act upon the classroom activities. The primary researcher also met with all participants once every two weeks for approximately two hours to discuss various educational topics suggested by the participants or by the primary researcher. All dialogue and discussion were audiotaped and transcribed for later analysis.

Data Analysis

The analysis of the audio tapes from bi-weekly mathematics dialogue meetings, the primary researcher’s field notes, videotapes from classroom observations, and the teachers’ written responses to the questionnaires were all a part of ongoing analyses during the study. Nevertheless, synthesis across cases was not done until after all fieldwork was completed. These analyses were guided by Lincoln and Guba (1985). Based upon emerging themes, three categories were developed for the research question: (1) extrinsic and intrinsic motivations, (2) hopelessness and discourse of hope, and (3) mentoring relationships. The following is the discussion of these three categories.

Results

Discourse

An important goal of this study was to examine how the establishment of discourse might influence a teacher’s beliefs and personal visions, and create an environment conducive to professional development for all teachers in general and for the first-year teachers in particular. Consequently, an understanding of the term discourse, as used in the context of this study, is critical to making sense of the categories that were developed from emerging themes. Discourse is intended to characterize the qualities necessary for the exploration of new ideas, critical self-reflection, and change. Cochran-Smith and Lytle (1992) described, “...Particular ways of describing, discussing, and debating teaching...” (p. 309), as a critical factor in the formation and maintenance of learning communities. Through talk, teachers make knowledge more visible, they question their prior assumptions, and generate data in order to jointly construct, deconstruct, and reconstruct knowing.

Analysis from the data revealed that, in general, the interactions among the participating teachers can be grouped into three categories according to indicators of motivation: (1) intrinsic and extrinsic, (2) representation of belief...
Extrinsic and Intrinsic Motivation

An element critical to the development of an effective discourse is the passion, desire, and willingness for participation in that community for individual and social growth. In order for a discourse to grow out of a collection of peers, the participants must move beyond the extrinsic reasons for taking part in the project and move to one that is intrinsic in nature.

Data from the transcripts indicate that the participants’ motivation in this study (at least for the mentors, Betty and Kay) began partly as an extrinsic one. For example, during the outset of the study, the primary researcher asked the participants their reasons(s) for participating in the program:

Betty: My reason for being part of this research study was to earn graduate credits while working with some fellow teacher on the program. By talking with fellow teachers, I hope to gain new insight into relating to the students. I also feel it keeps me from “burning out” before my time. I hope, in this research study, we will discuss concrete methods of motivating students to want to try and learn. Also, ways to keep our spirits up when we aren’t succeeding with the students.

Kay: I am acting as a mentor to a first-year teacher [Laura] and also earning graduate credits. I hope to gain ideas for teaching and managing my own classroom. I also hope that sharing my experience will help the other teachers in our group.

Laura: This study will hopefully give me insight into some of my teaching practices. Along with that, it will make me a better teacher. I expect to learn other techniques and ideas for teaching. I also expect a support system if I have any questions; how to motivate students is a great concern of mine.

Don: I hope it will prepare me for day-to day classroom management, student motivation, and specific teaching ideas.

While both mentors indicated earning graduate credits as one of their reasons, both first-year teachers mentioned the importance of professional development as a primary reason for their participation. Both experienced and first-year teachers were given continuing education credits for participation in the study, thus accomplishing professional and employment requirements. Mentor teachers acquired credit needed for certification/licensure, while first-year teachers acquired credits necessary for job security. Extrinsic motivation for participation is normal and expected. However, there seemed to be hope that intrinsic motivation could evolve from teachers’
interactions.

Throughout the study, the primary researcher, as a facilitator of meetings, offered questions and topics that were dialogically based in the hope of providing opportunities for discourse among the participants. In addition, the primary researcher provided resource materials (Tsuruda, 1994; NCTM, 1989, 1991, 1995), current literature, and some activities for problem solving and mathematical modeling. In general, however, the participants seemed to feel most comfortable with discussions such as students’ lack of motivation for learning mathematics, lack of parental involvement, and classroom discipline problems. The participants offered very little or no interest in designing instruction to attract and engage students in meaningful and interesting mathematics.

Don: There are some [students] that are never going to get it. At least I know with me that they’re never going to get it. I mean, I could probably sit there every day for the rest of the year and work with them on one thing and they still don’t get it, because they don’t want to get it; that’s the bottom line.

Laura: It seems like you just have to have those little conversations with students and their parents all the time. And then offering them that you are here after school for X amount of days and X amount of time and ask them to feel free to show up.

Kay: I’m curious to see which of them show up. I really feel for some of these kids. They feel like, ‘I can’t do this, I don’t know why, I can’t pass.’

Don: And getting them not to give up is difficult. The ones that, you know, do try, because after awhile, I can agree with them. They’re just like, ‘Oh God, I try and I flunked the Proficiency Test. I’m just stupid.’

Betty: I’ve had this conversation with them that high school is different than junior high, that they’re not going to go up if they don’t pass the test. I really believe some of them don’t believe it until June hits and [students learn] they’re in ninth grade again.

While Don and Kay showed very pessimistic attitudes toward the students’ learning, Laura and Betty took an approach toward conversation, parental involvement, and after school interactions with the students.

As the study progressed, we found that the participants’ frustration about their students’ lack of achievement and interest combined with the importance of the upcoming Proficiency Test brought the discourse to an interesting turning point. For example, in one of the meetings, the teachers talked about searching for some meaningful activities that would engage students in mathematical problem solving and mathematics connections.
Don brought up the topic of Proficiency Tests and mentioned how he felt he was stealing exciting mathematical activities from his students because his teaching emphasized the Proficiency Test. He felt he needed to stop his students from doing mindful problem solving.

Don: Do you know, I was just thinking the other day, some of my lower achievers were enjoying and excited about finding various areas of different geometric shapes using tangrams. Here I was; I had to stop them because I had to prepare them for the test.

Don suggested that he would search to find some resources for teaching the concept of estimation, number meaning, number relationships, relative magnitude of numbers, and relative effect of operation (NCTM, a, b, 1991). Betty suggested that the group think about some ideas related to mathematics connections. Laura shared some ideas about students’ group projects.

During the following meeting, all participants were actively engaged in finding new ways to present mathematical concepts relating to estimation. Each participant enthusiastically offered suggestions and entered into the creative process that came from brainstorming with colleagues. Betty brought in some resource books on estimation. Laura offered suggestions on how they might utilize these concepts in small cooperative learning groups. Don gave an example of Australian teaching methods related to estimation. Kay presented an idea on teaching estimation using money. These creative and synergistic types of interactions were encouraging and denoted the power of shared vision and the collective action of a community. The discourses occurring mid-way in the data collection process represented group interaction and meaningful discussion. However, thoughtful interactions and communications were not sustained due to numerous factors, including complexity of their teaching, complexity of the school, time commitment, and willingness of some participants.

Schedules and time constraints inherent in their daily lives were of great importance to each member of the group. Time requirements for participation in the study became an issue of discussion in one of the dialogue meetings when Don brought up a concern about future participants being required to attend these types of meetings. He indicated an understanding of the need for ongoing professional development. But he also expressed concern that, “...for a new teacher there are a million things you are learning...I’m wondering if this is the most efficient use of time...” (Don, mid-way in the data collection process).

Each of the group members seemed to benefit from time spent together, but the substance of interactions for Don and Kim remained questionable. As the study progressed, they became less active. Their intention and desire to be
involved in the group process seemed to weaken as the study evolved. In that sense, the discourse dissipated; yet, somehow, Betty (the experienced teacher) and Laura (the entry year teacher) managed to reorganize themselves. They chose, above and beyond the project, to meet together after school. Betty, Laura, and Patty (Betty’s student teacher) organized a team. They planned and met twice a week after school to exchange ideas, resources, and teaching strategies. The relationships they developed were meaningful, the tone was positive, and a feeling of trust and belonging began to emerge.

**Hopelessness and Discourse of Hope**

Another recurring pattern that evolved from the data was conversation concerning underlying beliefs about teaching, learning, and self-efficacy of the four participating teachers. The pedagogy of hope versus hopelessness that started very early in the dialogue meetings became clearer as the study progressed. For Kay and Don, in many ways, the extrinsic motivations were driving those underlying beliefs to find solutions and fix problems. Given the opportunity to work on a concrete problem, such as designing new ways to teach the mathematics necessary to master the Proficiency Test or using student group projects more effectively; Don and Kay were engaged, energetic, and purposeful. Yet, when presented with more challenging and less tangible problems such as how to encourage students to construct their own meaning through mindful problem solving and classroom interactions, the tone of the discussion took on a note of frustration, discouragement, and even hopelessness.

Betty: This year we’re planning to use the same unit because it will be new for all of us. However, we will have to change it next year for kids who have seen the material in the Proficiency Test.

Don: Maybe not. A lot of the material I present to the kids is not new, but they don’t remember how to do it. If a kid goes from Proficiency to connections, he’ll need to learn it again. Their long-term memory does not kick in well.

Researcher: However, if they have made a connection, they learn the concept. Do you think they will forget that concept they have already learned?

Don: I think that even when they make a connection, it wears off. I’m not sure they really retain it.

Kay made similar pessimistic responses. While those responses occurred early on in the meetings, they continued to reappear as the study progressed. Those responses were in some ways reflective of the beliefs and attitudes
of participants toward many of the teaching dilemmas they faced. When compared to discussion that occurred further along in the meetings, it would seem there was little change in Kay’s and Don’s beliefs and attitudes about teaching and learning.

It seems that, in many ways, these teachers’ beliefs and attitudes about their professional efficacy are being shaped by a profound sense of frustration, discouragement, and even hopelessness. Even Laura and Betty, influenced by the complexity of day-to-day school situations, reflected their frustrations.

Laura: I think there is [a solution to the problem of motivation]. I think part of the problem is that we are to the point that a student is never wrong. They’re so pampered and we can’t hurt their feelings, but we can only hold their hands for so long. They’ve got to do something for themselves. I think no one is telling them that, not at home, not here.

Betty: In the [name of the newspaper] yesterday, there was an article about twelve steps to make [name of the city schools] better. One of the steps says that a teacher should be fired if he/she does not have 80% of his/her class passing. I was screaming at the newspaper while I was reading it. Now, look at the classes Don was handed this year. Is it his fault that 80% are not passing? Should he be fired? If you put that restriction on me, guess what’s going to happen at the end of the year? Eighty-one percent are going to pass, no matter what.

Their focus seemed to be one of blaming. How can we teach with so many discipline problems? We do not get any support from parents. Students don’t care. A discourse would probably have difficulty taking root in such an environment. These beliefs, attitudes, and the discussion of hopelessness provided very little effort to look inward for new ways of doing significant mathematics. There is even less desire and willingness to change.

**Mentoring Relationships**

Mentoring can be an effective way of establishing a discourse. Among other things, a mentor acts as a guide and supporter, providing new ways of adapting, believing, and responding. By modeling appropriate self-disclosure and sharing their personal visions, mentors encourage beginning teachers to examine their own belief systems, challenge common practices, and search for possible alternatives.

At times, the mentoring relationships that emerged from the data of this study had the potential to promote meaningful communication. Kay’s expression of empathy toward some of her struggling students, “I really feel for some of these kids”, evoked a similar response in Don, who replied, “and
getting them not to give up is difficult”. In another instance, Betty’s reflections brought her to the notion that she “should do more” and in disclosing this to the group, she modeled critical self-reflection, inviting others to do the same. In acknowledging her “imperfection,” Betty led the way for Laura to feel comfortable enough to say, “sometimes I feel like ten minutes have gone by already and I haven’t gotten to where I should be starting”.

At other times, the mentors offered encouragement to beginning teachers, helping them develop realistic expectations and an adequate perception of their strengths as well as their vulnerabilities.

Laura: That’s my biggest regret. I need to be a little tougher.
Betty: Remember, it’s your first year.
Laura: Everyone warned me about this, but I said it’s not going to happen to me. I don’t even know where I fall into this. One of my students told me they thought I was a really nice teacher and she had thought I was going to be mean.
Betty: It’s easier to be really mean and then get nice than it is to be nice and try to be mean.
Laura: I keep thinking, ‘Where did I lose it?’
Betty: I don’t think you lost it. I think you’re doing fine. It’s not like we don’t have problems in our classes. Also, you need to remember the level of kids you have.

These types of mentoring relationships are those most likely to promote the development of discourse. There were also mentoring relationships through critical reflections on classroom events. These kinds of relationships encouraged more openness, collegiality, partnership and trust. For example, in one of the meetings Betty expressed her feeling about her classroom situation.

Betty: As far as motivating, I did something today that may give you some ideas about how to motivate. There was a girl in my Proficiency whose skills were very weak, and she was writing notes to her buddy. I wasn’t asking her to do anything difficult. I just lost it. I said, ‘You know, [student’s name], I don’t get it. What else do I have to do to get you to do this stuff? Do I care more than you do?’ She doesn’t respond. As I’m walking away from her, I say, ‘When you’re ready and you want to learn, let me know. I’m getting angry and upset because I care more than you do. I can’t change you. You have to change yourself!’ At the end of the period, I asked her to come over to me and repeated my concern that I care more than she does about her passing the Proficiency Test.
This is a powerful message the mentor is conveying to others in the group through storytelling. The message being communicated is one whose underlying beliefs are: (1) Change is an inherently autonomous process that “you have to change yourself”, and (2) A teacher cannot change his/her students.

Discussion

Ellis (1993) found that every teacher in her study described her learning as a gradual process and named at least one colleague with whom she had talked every day about concrete issues in practice during the first stages of change. It was powerful to observe the turning point on Betty’s and Laura’s attitudes toward their professional development when they organized their new team to include Patty, the student teacher in their team. Fueyo and Neves (1995) found that open discussion was a prerequisite to the development of trust and once the trust was built, the nature of the dialogue changed.

Clearly, the motivation to participate in a discourse must be intrinsic, it must come from within. Movement toward changing one’s beliefs, attitudes, and practices is an intrinsically autonomous process. Therefore, it cannot be forced. Furthermore, lack of desire and time constraints for one’s professional development forestall critical evaluation and the potential for change.

The findings of the study suggest that a careful selection process for mentors is essential. If the mentor teachers involved in this study were chosen to critically evaluate their own and their first-year colleague’s beliefs and attitudes, they might have gotten past their dialogue of hopelessness. Although the participating teachers somehow engaged in reflective thought through discourse, it was not enough to make sense of the world of teaching (Wiggins and Clift, 1995). Kay’s and Don’s beliefs and attitudes were a good indication that each individual perceived a given situation through his/her own perceptual lens. Reflection without intentional probing may not reveal the teacher’s dilemmas. Making connections between one’s beliefs and practices is a complex process.

Heikkinen, McDevitt and Stone (1992) found mentors to be a real asset in teacher preparation. A supportive atmosphere is essential to create openness in which ideas and beliefs can be shared. Methods for teacher development must be based on the concept of teacher ownership. They must emphasize collegiality, recognize teachers as learners, and focus on multiple interdependent dimensions of the culture of instructional change and individual change.

Further, in order for teachers to truly experience professional development, they must experience a level of autonomy, an ability to take control of their own professional development. They must perceive themselves as mentors and novices alike, to experience an equal footing in the discourse. Bickel and
Hattrup (1995) suggest that “...sustained, substantive collaborations must be grounded in a sense of respectful, reflective equity among the participants, coupled with an experience of worth and effort” (p.58). Similarly, Zeichner identified two issues, which undermine the authenticity of teacher development. He argues that in many cases, professional development is a stated objective, but in reality, the teachers are extremely limited in their ability to influence conditions of their work; they are not experiencing equality. He further proposes that even when professional development is not “illusory,” teacher development becomes the end in itself, something divorced from the broader questions about education. Is it possible that there were some, as yet unseen, influences which made our participating teachers experience these limitations? Probably so. External and internal complexities of school need further exploration. Further study is needed to examine existing school structure, and whether this structure is providing enough support for teachers’ professional development.

References


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