INTERACTIONS BETWEEN TEACHING NORMS OF TEACHER’S PROFESSIONAL COMMUNITY AND LEARNING NORMS OF CLASSROOM COMMUNITIES

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This study was designed to cooperate with teachers’ professional community to develop students’ learning norms in classroom communities in which students were willing to engage in discourse. A collaborative team consisted of two researchers and four elementary teachers. The professional community intended to generate normative aspects of acceptable and appropriate teaching based on discussing teachers’ observations about their students’ learning mathematic in each classroom community. Classroom observations and routine meetings were used to collect data for the study. This paper just referred two teaching norms including students’ social autonomy and students’ questioning in the professional community and its effect on learning norms in classroom communities were the foci of this paper.

INTRODUCTION

Professional development activities that are externally mandated or coerced by a power hierarchy are ineffective because they do not result in development as a qualitative change (Castle & Aichele, 1994). Professional knowledge cannot be transferred. Rather, it is constructed by each individual teacher bringing his or her “lived experiences” as a learner and bringing the individual to an educational setting. Teachers move toward professional autonomy as they continue to construct their ideas about mathematics and how the autonomy is best taught to their students. Professional teaching autonomy is developed when teachers have opportunities to share their views with others and to hear and debate the views of others. One way of exchanging various perspectives would be the teachers participating in a professional teaching community. Therefore, establishing a professional community for teachers to mutually share their teaching experiences is the focus of this study.

Cobb & McClain (2001) argued that it is not possible to adequately account for individual students’ mathematical learning as it occurs in the classroom without also analyzing the developing mathematics practice of the classroom. They also argued that it is not possible to adequately account for the process of teachers’ development without also analyzing the pedagogical community in which they participate. Therefore, the goal of the study was to help teachers develop instructional practices in which they induct their students into the ways of reasoning by developing the...
norms of classroom discourse. This study was intended to describe and interpret how normative aspects of teaching constructed by the professional community interacted with the learning norms constructed by the classroom communities and how it affected teachers’ professional development and their students’ learning.

THEORETICAL PERSPECTIVES

The study was based on Cobb & Yackel’s (1996) theoretical perspectives of the relations between the psychological constructivist, sociocultural, and emergent perspectives in order to examine both teaching and learning in professional community and classroom communities. Constructivists’ perspective of learning claims that learners construct knowledge through the interactions between them and social worlds. Individual knowledge might be seen as a personal construction of the processes of learning relative to their ongoing experiences in the community involving reflection and adaptation (Piaget, 1971). The psychological perspective is view of individual’s activity as they participate in and contribute to the development of these communal processes. Sociologists are interested in the human need to adapt to social existence and to develop a system of shared meanings. Sociocultural perspective is an interactionist’s view of communal or collective community process. Cobb & Yackel defined the emergent perspective (social constructivism) as the coordination of interactionism and psychological constructivism. The emergent approach attempts to coordinate these two perspectives of analyzing classroom activity and treat them complementary. In this joint perspective, social norms and sociomathematical norms are seen to evolve as students reorganize their beliefs and values, and, conversely, the reorganizing of these beliefs and values is seen to be enable and constrained by evolving those two norms.

Yackle & Cobb (1996) claimed that the social structure in everyday life consist of normative patterns of interaction and discourse. From Yackle and Cobb’s analysis, one of their primary claims was that in guiding the negotiation of social norms and sociomathematical norms, teachers are simultaneously supporting their students’ development both of what might be termed a mathematical disposition and of social autonomy and intellectual autonomy. In a similar way to develop teachers’ professional knowledge was when teachers have opportunities to share the view with others and to hear and debate the view of others. Through exchange points of view, teachers develop an appreciation for diversity of thought. They become better at seeing another’s perspective, which leads to better pedagogical reasoning. In this study, the activities were structured to ensure that knowledge was not only actively developed by teachers but also involved in creating a safe environment for discussing, negotiating, and sharing the meanings of teaching based on classroom observations.
This perspective was based on Yackle and Cobb’s suggestions that there are some normative patterns of interaction and discourse found in this teachers professional community but not generated from classroom community. Teaching issues considered to be acceptable or appropriate are drawn to constructive discussions in such a sense of taken-as-shared. The norms of teaching involving in the study were developed in the professional teaching community, while the norms of learning were developed in the classroom community. The analyses of teaching norms and learning norms (social norms, sociomathematical norms, or the norms of reasoning etc.) and interactions between them were proved to be pragmatically significant because it helped us to understand the process that the teachers collaborating with their students to foster the development of autonomy in their teaching and learning.

METHOD

The study was the 3rd year of a three-year research project that was designed to support elementary teachers in implementing the recommendations suggested in the innovative curriculum into classroom practices. To achieve the goal, a collaborative team consisting of two researchers and four elementary school teachers were set up. The years of teaching for the four female teachers, Fey, Yin, Shay, and Lin, were ranged from 4 to 12. The researcher was expected to provide the teachers with theory-driven explanations, while the teachers were expected to share classroom experiences. The researcher created the opportunities for teachers to discuss and exchange their perspectives for the purpose of developing acceptable learning norms in their classroom communities.

To create the opportunities of learning from others’ concerns, routine meetings were scheduled once every other week. The teachers were invited to report their concerns relevant with the learning norms in the routine meetings after they observed one teacher’s teaching. The lessons of the four teachers were scheduled in turn to be observed on Friday morning and were immediately followed by a routine meeting in the afternoon to address what they were concerns with the learning norms. After the meeting, the teacher who conducted the teaching lesson was asked to watch her own teaching taped in the video, to identify the learning norms addressed in the meeting, and be encouraged to write the reflection journal. The teachers were given the opportunity in the study to conceptualize their pedagogical knowledge through the four processes: formulating or identifying the problems generated from mathematical classroom, discussing the problems and framing their pedagogical meanings in the routine meetings, adjusting and implementing the meaning they learned from one classroom into other classrooms, and revising the teaching practice and bringing it to the next meeting. Through interactions between the teachers and the researchers, the
teachers were expected to reconstruct the pedagogical reasoning needed for a professional teacher. The routine meetings and classroom observations were audiotaped and videotaped throughout the entire year. The audiotapes and videotapes were transcribed for analysis. In the data analysis, the transcriptions of audio and video were read repeatedly. The theme emerged focused on teaching norms to be acceptable in the professional community and learning norms to be acceptable in the classroom communities and how the two norms were mutually interactive.

RESULTS

The development of the teachers’ ability to explain what and why they did so in the classrooms to the professional teaching community and the improvement of their students ability to explain and justify their own thinking to classroom communities oriented the process of development of learning communities involved in the study. In the professional teaching community, a good teaching aiming at helping students work together to make sense of mathematics was not dominated by a criteria but it was through the negotiation between the teachers and the researcher. The interactions enhancing the establishment of normative aspects of teaching and learning were built on teaching practice of each individual teacher’s classroom community. The teaching norms and the learning norms continually moved toward the improvement of mathematical thinking through the reciprocal interactions between the teaching community and classroom communities.

There was several teaching norms found in this study. However, this paper just listed two teaching norms as examples to elaborate the interactions between the teaching norms of teachers’ professional community and learning norms of classroom communities.

Developing the Norm of Students’ Social Autonomy

It is found that the mathematical tasks the teachers designed for creating the opportunities of group discussion or whole-class discussion were getting more thoughtful. Initially, the teachers were not comfortable with dealing with group discussion since the discussion made classroom noisy and interrupted. To make group discussion effectively, the teachers were intended to set up the rules for students to obey. However, they realized that external incentives were not functioned since they did not result in the development of students’ social autonomy. In the very early period of the study, the issue around teachers’ discussion in weekly meetings commonly was relevant to discipline. For instance, Fey said that
“...Group work becomes a common strategy in my instruction but I feel it is difficult to carry out. I saw the teacher, Yin, used a good strategy in her classroom. Each student in one group was assigned a job. The coordinator deals with the process of group work. The recorder records and tracks what they discussed. The monitor takes the responsibility to check if the answer is correct or reasonable. The reporter makes a presentation to the whole class. The role of each student within a group takes turn by the next lessons. I also adopted this strategy that assigned the role of each student in my classroom of group discussion but it didn’t work very well. I don’t know why.”

After the discussion, we realized that the effect of group discussion on Yin’s and Fey’s instructions made a distinction. Although Fey adopted Yin’s strategy in assigning each job to each student, her students did not know the obligation and the expectation of each job. Yin explained with encouragement to the teachers in the professional community that the difficulty with handling in-group discussion. To overcome the difficulty, Yin always raised this issue to whole class discussion publicly, and then the obligations and expectations of each job in a group discussion became the focus of classroom community in Yin’s classroom. Accordingly, the norm of group discussion was established and improved gradually in Yin’s teaching. Yin’s norm of group discussion was not acceptable and not appreciated by the professional community until April 2002. It means that the process of developing the norm of group discussion in Yin’s classroom community first became the issue of the dialogue between the teachers in the professional community, and then the professional community assisted in developing the norm of group discussion in each teacher’s class community. Several issues were addressed by teachers and several normative aspects of group discussion were established. A norm of listening includes: (1) accepting a solution if presenter has a reasonable explaining, (2) listening carefully the presenter’s explaining, and (3) asking questions if the explanation was unreasonable. The other norm was related to reporter presenting his or her solution to his or her group or whole class. Reporter needs to explain or justify his or her solution. If reporter explains superficially what it has been done, then he or she would not be accepted. Reporter also requires responding the questions that her or his classmates raised.

Therefore, raising classroom events to discuss and negotiate for students so that students know their obligations, expectations, and responsibilities became the normative aspect of acceptable teaching strategies in the professional teaching community. Until October 2002, the norm of group-discussion in each teacher’s classroom community was well developed. For example, Fey posed the following problem to students. “There are 6 chocolates in a box. Jenny bought 3 boxes. How many chocolates did Jenny have?” After students solved the problem individually,
Fey asked them to share their solutions within a group in turn. The following episode was excerpted from the group 4 discussions. (Group 4 consists of five students S1, S2, S3, S4, and S5. S5 acted as the coordinator and conducted the discussion)

S5: Ok! S1 first!
S1: 6 plus 6 plus 6 equal to 18, because 6 plus 6 equal to 12.
12 plus 6 equal to 18, so that the answer is 18. (the right picture)
S5: Any questions? [S2 and S3 raised their hands]
S1: Ok! S3!
S3: what is the meaning of 6, why did you add three 6s rather than two 6s?
S1: 6 means a box has six chocolates and Jenny bought three boxes, so I added three 6s.
S5: Any question?
S2: what is meaning of 6?
S5: This question was already asked. You didn’t pay attention to! (S5 look at S2 with unpleasant and S2 feel a little embarrassment)
S5: Any more questions? [No one raised her or his hand.]
S5: Ok! S4 is your turn now. (November 11, 2002)

This episode suggested that the group discussion not only went smoothly but also involved in students’ mathematical thinking. S5 as the coordinator knew how to conduct a discussion. In the beginning of the study, the presenter did not explain where 6 came from so the explanation was not acceptable in this group. S3 asked “what does mean by 6”. S1 as the presenter knew to present her idea clearly and knew her responsibility to answer S3’s questions. Listeners required to pay attention to the presenter’s presentation and also were encouraged to raise their questions or provided the suggestions to the presenter’s solution. S2 was criticized by S5 without attending to S1’s explanation.

The above episode indicates that developing teaching norm based on developing learning norm not only affected teachers’ teaching but also affected students’ thinking.

Developing the Norm of Students’ Questioning

Through developing the norm of group discussion, the norm of whole-class discussion were constructed in classroom teaching and interactively constituted in the professional teaching community. The norm of whole-class discussion constructed by professional community included four stages: posing the problems by teacher, solving the problem by students individually or collaboratively, discussing and sharing their solutions within a group, and each group selected an acceptable solution and reported it in public to the whole class. The four stages created the opportunities
for students to communicate their thinking within a group but also in the whole class. In the four stages, developing the norm of classroom social autonomy and developing the norm of students’ intelligent autonomy based on developing sociomathematical norms were included. Several teaching norms of developing sociomathematical norms were identified in this study, but only the teaching norm of developing students’ questioning skill is reported here.

Regarding the normative aspect of how to help students to ask a good question in this professional teaching community, the presenter presented the solution within a group or whole class. Afterwards, the teachers encouraged other students to questioning if they felt the explanation is not clear enough. In the beginning of the study, students did not realize how to ask a good question. Students always asked the questions irrelevant to the mathematical meaning. For example, they asked: you forgot to write the “Ans: ”; the words you wrote were too small to seeing; why don’t you use the addition instead of subtraction; …etc. Therefore, how to help listeners to ask a good question to help the reporter to make her or his solutions clearly became the important issue of discussion within the professional teaching community.

Based on the developing process of the classroom social norm, the teachers developed the norm of questioning through their discussions and negotiations about how to ask a good question. For instance, Shay raised the following question for her students to answer and asked them to justify. The question raised by Shay to whole class was that “What is a good question or suggestion you want to ask or give it to group discussion or whole class discussion?” The good questions Shay’s students raised included: Ask him to explain his solution according to the situation of word problem; Help him explain when he stock there; let him or her explains slowly if she or he explain not clearly; ask the questions relevant to mathematics; Ask him to use the chips to explain the solution if he stock there…etc. After discussing how to ask a good question over several times, students gradually were able to ask helpful and suggestive questions to the presenter.

Other teachers learned and appreciated the developing process of asking questions in their own classroom communities from Shay’s sharing her improvement of questioning through the whole-class discussion in her classroom community to the professional community. As a consequence, students gradually skilled in asking good questions and offering constructive suggestions after their classmates shared their solutions. In Yin’s class, the questions students asked were irrelevant to the presenter’s solution were not accepted, because students need to examine if the presenter’s solution is reasonable or not. They would give comments to the presenter if necessary. Another normative aspect of asking question was necessary to connect to the mathematical meaning.
DISCUSSION

Fostering students’ development of intellectual and social autonomy oriented the goal of mathematics teaching involving in this study. Teachers with intellectual autonomy promoted their students becoming as self-directed learners who were used to question, inquire, and figure out the answer in their classroom communities. The teachers’ autonomy referring to the study was identified as teachers’ willing to participate in the professional community and students’ autonomy was clarified as students’ willing to participate in the classroom community. It is found that the process of fostering students’ intellectual and social autonomy was consistent with that of enhancing teachers’ teaching autonomy. The teaching norms promoted the teachers’ autonomy in their teaching practice through the dialogues of the professional community and developed the learning norms that promoted students’ autonomy in the classroom communities.

Project teachers performed the development of classroom learning norms with different paces in different classroom communities. The norm of developing students’ learning norms that were evolving and renegotiating within the dialogues of professional community was developed with some acceptable criteria. Then, each teacher taken and shared the norms of students learning, implemented them into her own classroom community, and then improved her teaching autonomy and her students’ social and intelligent autonomy in teaching practices. The evidence of two kinds of autonomy affecting mutually between teaching norms and learning norms was shown in above results.

REFERENCE


