A Study on Teacher Community for Professional Development\textsuperscript{1)}

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The purpose of this study is to contribute research on mathematics education by reviewing earlier studies on teachers' communities. To do so, I searched literature on various kinds of teacher community such as study groups, video clubs, and lesson study. Teacher community has been studied for professional development of teachers and there existed many studies that teacher community help teachers develop their professionals in real. From reviewing literature, I suggest that researchers in Korea need to study about teachers' communities and to find ways using communities in teacher development programs.

Key Words: teacher learning, professional learning community, professional development

I. Introduction

Research on teacher education has effective models of teachers' professional development for a long time and has focused largely on developing content knowledge through professional development programs. Recently these research interests have extended to studying the role of a community in supporting teachers' professional development as well. Scholars in the field have tried to define and characterize a Professional Learning Community (PLC) so that the community can help teachers' professional development and can also help students' learning. Although educators still do not agree on the definition of the term, a professional learning community; studies about various communities are increasing in teacher education. Many different terms are used to describe teachers' communities. For example, there are “teacher inquiry groups” (Hammerman, 1997), “professional study groups” (Mitchell, 1989), “teacher support groups” (Rich, 1992). Although these researchers used different terms, they all described teachers’ professional development through groups or communities. Therefore, the results of earlier studies about teacher communities can inform the study of a mathematics teachers' community.

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In this paper, I first discuss how the concept of community has been described and related to teachers' professional development, and how the community can be used for research on mathematics teachers from reviewing literature.

II. Literature Review

1. Teachers' Community

There was little research on teachers' community until the 1980s. William Goode (1957) linked the concept of community to the issue of professionalism. He discussed the community of profession using professions such as law and medicine. Each profession is a community contained within a larger society having these characteristics: sharing a sense of identity and values, role definitions both for members and nonmembers, common language, and controlling reproduction of members. The professional communities that Goode described were groups of professionals that reproduced their members through training and education. Although the concept of a professional community is comparable to a teachers' community, there are several differences. According to Grossman, Wineburg, and Woolworth (2001), teachers have various understandings of the goals of teaching, curriculum, and anything related to teaching depending on their grade level, subject area, education level, and type of students. A few teachers are involved in recruitment of new teachers in their schools, but except for daily classroom teaching, visions or tasks (such as deciding curriculum) rest in the hand of administrators. As a result, there is an attempt to create a professional vision for teaching, but no such professional community for teachers exists like the community of law or medicine. Hence, researchers need to approach the concept of community in education in different ways.

Little and McLaughlin (1993) used collegiality to develop the concept of teachers' community. They considered collegiality not only as the counterpart of individuality and privacy but also as the foundation of teachers' cultures. They stated that school studies tended to overstress the school as a professional community site and to define community by school-level goal consensus. They pointed out that teachers can work collaboratively out of school if they are actively involved. Since teachers hold multiple memberships in collegial contexts, the occasions, sites, and boundaries of collegial interaction can be various. Therefore, Little and McLaughlin suggested studying subgroups within the school setting to provide a lens to view school culture.

2. Professional Learning Communities of Teachers

From the perspective of sociocultural on learning, researchers began to take an interest in teachers' community and PLCs. Collegiality and a PLC were fresh ideas in studying teachers, in contrast to the individualism of American culture (Little &
McLaughlin, 1993). In this section, I discuss two trends emerged in studying teachers’ community. Some researchers (DuFour, 2004; Hord, 1997; Kruse & Louis, 1993) studied communities focusing on the principles or characteristics of PLC, that is, the context itself. Other researchers (Arbaugh, 2003; Franke & Kazemi, 2001; Grossman et al, 2001; Hammerman 1997; Little, 2003; Sherin & Han; 2004) focused on teachers’ learning and development in the context of community.

The first trend in studying communities involved defining and characterizing PLCs to apply the PLC model to school improvement. For example, Kruse and Louis (1993) suggested five characteristics of a school-based professional community after reviewing the literature on professionalism and on community: reflective dialogue, de-privatization of practice, focus on student learning, collaboration, and shared values. Hord (1997) considered a PLC as an organizational arrangement, a potent staff development approach, and an influential strategy for school improvement. She found five attributes of the PLC in the literature: supportive and collective leadership, shared creativity, shared values and vision, helpful conditions, and collective personal practice. DuFour (2004) pointed out that people used the term PLC too often and too generally and thus lost the meaning. He suggested applying three core principles of PLC for improving schools: focusing on learning, working in a culture of collaboration, and using data based on student achievement.

The second trend in studying communities that has emerged is related to teachers’ learning in small groups not limited by a school system. In many efforts to understand teachers’ learning and development, researchers suggested that teachers’ communities such as study groups or video clubs are useful to support teacher learning and professional development (Birchak, Connor, Crawford, Kahn, Kasier, Turner, & Short, 1998; Brahier, & Schäffner, 2004; Hammerman, 1997; Secada & Adajian, 1997; Sherin & Han, 2004). Lesson study is also a kind of effort to investigate teachers’ professional development in the context of communities. Next, I review studies of teachers’ study groups, video clubs, and lesson study related to teachers’ learning and development.

1) Study Groups

Brahier and Schäffner (2004) believed that a study group would assist reform processes in teaching and learning mathematics because it gives teachers opportunities to learn and grow professionally according to previous studies of study groups. They used mixed methods to examine the effects of study groups to reform teaching practice in mathematics. They investigated the progress of three study groups consisting of total 16 teachers coming from different elementary schools to participate in the SUCCESS (Suburban-Urban Collaborative for Classroom Educators in a Study-group Setting) program for three years. Using data from pre-tests and post-tests of teachers’ knowledge and attitudes toward inquiry-based teaching, classroom observation, and focus
meetings, thinking club, the conceptions videos clubs. Han consisted video how They 2) thoughts mathematics possibility teachers' participant self-efficacy peers indicated geometry study on on collaboratively which and appeared teachers. mathematics; of interviews, researchers found that teachers come together on a regular basis to support each other and they work collaboratively to both develop professionally and to change their practice. Sherin's study illustrated the participant teachers' thinking about their experiences in the study group. In addition, the teachers' opportunity to collaborate with their peers on a regular basis suggested the possibility of using study groups as a form of professional development for high school mathematics teachers. This research helps teacher educators understand teachers' thoughts about their participation in study groups.

2) Video Clubs

Sherin and Han (2004) investigated a video club as a context for teacher learning. They discussed changes by the teachers who participated in the video club. To examine how teachers' change occurred through participating in the clubs, they investigated ten video club meetings that took place once a month during an academic year. The club consisted of four middle school mathematics teachers and two researchers. Sherin and Han described the first and seventh video club meetings to show what happened in the clubs. In the first meeting, the video club teachers watched two of the teachers' lesson videos after school, and they commented their notices about interactions in the lessons. In the seventh meeting, the teachers had a day-long meeting to talk about teaching and learning using their lesson videos. In their results, they claimed that participating in video clubs prompted teachers to think more about pedagogical issues related to student conceptions and understandings compared with focusing on only pedagogical issues in the initial meetings. By having teachers analyze their classroom interaction in a video club, the researchers found that the teachers became more analytical about students' thinking and about classroom interaction. Sherin and van Es (2005) also used video club meetings to discuss video's usefulness as a tool to help pre-service and in-service
teachers learn to notice in their classrooms. They reported two related studies that used video and discussed changes by using video. The first study came from the video club meetings of four middle school mathematics teachers, and the second study came from six preservice teachers’ participation in three hour-long sessions. From two studies, they found changes in what the teachers noticed: The first study found a shift of discussion topic from pedagogy to student thinking, and the second study found that teachers became able to identify crucial aspects of the video segments of classrooms. They claimed watching video with other teachers together helped teachers learn to notice. Their study showed not only how to use video in teacher education but also how to use video clubs for teachers’ professional development.

3) Lesson Study

Japanese teachers engaged in lesson study to improve their teaching and to help their students’ learning experiences. Teachers planned lessons together, observed those lessons conducted in actual classrooms, discussed their observations, and revised the lesson plans through lesson study (Fernandez & Yoshida, 2004). After Makoto Yoshida used lesson study as a subject for his dissertation in the early 1990s, researchers in the United State had a growing interest in it s. Since lesson study has been valued as a form of professional development for teachers in Japan, the efforts were made to apply it to American teachers and schools so that they could also benefit from lesson study. Since it involves in teachers’ professional development and collaborative efforts, lesson study can be considered as creating a community of teachers. For example, Fernandez and Yoshida (2004) identified six steps of the lesson study process: collaboratively planning the study lesson, seeing the lesson in action, discussing the lesson, revising the lesson (optional), and teaching the new version of the lesson (optional). Those steps included characteristics such as collaboration and shared vision and activity. Hence, lesson study has elements of a learning community of teachers. Moreover, since lesson study traditionally was conducted by teachers regularly in schools for their professional development, it is also a kind of PLC.

4) Other Studies about Teachers’ Learning Communities

Using the various terms about learning communities of teachers, researchers obtained meaningful results for teacher learning. For example, Little (2003) investigated the intellectual, social, and material resources of professional communities through teachers’ interactions in a community. She pointed out that there were few studies focusing on

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3) They defined a notion of “notice” as those things teachers identified as noteworthy in a teaching situation, those instances in which teachers made connections between the classroom events and principles of teaching and learning, and those instances in which teachers used what they knew about the classroom context to reason about the situation in the video.
the teacher development that exists within ordinary daily work and few studies investigating teacher learning in the ordinary interactions of working together. Thus, she planned to find the resources for professional communities through investigating teachers' daily learning. She attempted to describe teacher learning in workplace collaboration and explained the specific interactions and dynamics of the professional communities, for example, through an English department meeting, an Algebra Group of mathematics teachers, and a weekly meeting of the Academic Literacy Groups in two high schools. She investigated representations of classroom practice as resources for a professional community. This research showed how teachers make instructional improvements outside the classroom and claimed that professional communities contribute significantly to instructional improvement and school reform. This research is meaningful in that it focused on teacher interaction in ordinary workplace contexts, not on formally organized professional development activities.

Hammerman (1997) examined the experiences, beliefs, and concerns of seven teachers who participated in the Mathematics for Tomorrow (MFT) project. The project was planned to help a small set of teachers become teaching facilitators and to continue the inquiry groups after project funding ended. The participant teachers came to understand a facilitator’s role requiring knowledge about mathematics and teaching and having relationships with colleagues. However, in Hammerman’s study, the participant teachers showed concerns in working as facilitators in a group. Some teachers felt that the facilitator needed more knowledge to lead a group. Other teachers showed a slight hesitation in perceiving their colleagues as experts and described the importance of shared leadership of inquiry groups as a way of resolving the difficulty. Their concerns involved issues of power, relationships, and the leadership role in the context of collegial collaboration. Rather than studying teachers’ community directly, Hammerman gave hints of what kinds of difficulties teachers would have in a community of teachers.

3. Sociocultural Perspective and Teacher Community

Many of the studies that I reviewed about teachers’ learning and development in communities so far have been conducted using a sociocultural perspective. They emphasized communities of teachers and change in teachers’ participation. The communities mean the contexts of teachers’ learning and development, and the participation means not just attendance but all the interactions within the context of communities. Although most studies were based on the sociocultural perspective, they were insufficient to discuss how the members’ learning can be explained by their theoretical framework. However, Kazemi and Franke (2004) showed a good example of how to use the sociocultural perspective in members’ learning. Kazemi and Franke studied teachers’ group work in terms of a transformation of participation. They examined the evidence of teacher learning in the participation of a workgroup of elementary teachers. During the school year, ten teachers in an elementary school and a
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research team met regularly and discussed problems brought up by the research team. Visiting classrooms once or twice between workgroup meetings, the researchers provided ongoing support and built relationships with the teachers. They found two shifts in teachers' participation: a greater focus on children's thinking and development of instructional trajectories in mathematics. Their study shows that a teachers' community can help teachers change in their thinking about children's mathematics and teaching.

As Rogoff (1994) discussed, researchers cannot understand the learning and interaction of members without an understanding of the sociocultural perspective. Therefore, it is necessary to understand that the relationship among members and the value from their practice in the communities are crucial issues in studying communities of teachers using a sociocultural perspective.

III. Discussion

In the earlier section, I reviewed studies on various kinds of communities of teachers. The previous studies on PLC have much in common. First, most researchers considered a school as a PLC or the school developing to be a PLC. They supposed that if a school were a PLC, then people would find various characteristics of PLCs. They suggested that studies of a PLC model help to define a school or to improve the school because the characteristics of a PLC are helpful to the sustained improvement of any organization (Eaker, DuFour, & DuFour, 2002). Hence, the researchers regarded applying a PLC model to a school as a way of improving the school and, as the result of improving the school, they expected that students' achievement would improve.

Second, the studies of a PLC highlighted students' learning. Previous studies argued that a school shifting to a PLC would ultimately improve students' achievement by focusing on their learning. Although the studies did not elaborate who were the members of a PLC, teachers would count as central members. In fact, when teachers discuss and support each other in working with students, cooperative relationships have been observed (Kruse & Louis, 1993). Focusing on students' learning is essential because it is an aim of a PLC, and a school as a PLC can provide cooperative environment for teachers by focusing on that.

Third, research on a PLC emphasized collaborative environments. As a sociocultural perspective was introduced, researchers became interested in social and collective affairs rather than individuality and isolation of teachers. In addition, since the concept of community starts with a group of people, most researchers stressed collaboration as a basic principle of a community. Hence, the studies about a PLC naturally highlighted collaboration and regarded the relationships and trust among members as important.

In contrast, there are shortcomings in the research on a PLC. First, there was no clear definition of a PLC. The above studies considered schools to develop PLCs only for school improvement so that most PLCs were K–12 schools. However, teachers can
be members of various PLCs depending on how a PLC is defined. Second, the members of PLCs are poorly identified. If a school is regarded as a PLC, then who are its members? There are administrators, staff, teachers, and students in a school. Moreover, parents sometimes are involved in school affairs. Then who should be counted as members of the PLC? Since no research has clearly defined the members in a PLC, it is difficult to imagine a concrete vision for a PLC. Finally, the second shortcoming implies that the above research on a PLC focused on the community itself and not its members. I believe that a community and its members cannot be regarded as separate. The characteristics of PLCs originate from their members' interactions so that research on PLCs should include research on their members' learning. When studying PLCs, we need to consider the shortcomings of earlier studies.

Researchers on mathematics education in Korea need lessons from the shortcomings of research on PLC. I consider a teachers' community as a PLC under the condition that the community has a purpose of professional development, memberships, and regular meetings. Then we can think a lot of PLCs of mathematics teachers. The community can be a meeting to study mathematics curriculum in a school or professional development programs consisting of teachers from different schools. We can count on administrators, staffs in schools, teachers, parents, and students as members of the community based on how we define the PLC. What we pursue is to find ways of developing teachers' professionals using the form of community. In Korea, educational institutions perform professional development for teachers. Since these kinds of professional development programs force teachers to do things that they learn from the programs, we hardly expect the teachers' changes from participating the programs. Even though there are a few studies on teachers' online communities in Korea, we need more investigations about various kinds of teacher communities, in particular, mathematics teacher communities. It would help researchers understand mathematics teachers' learning and development within a community and help teacher educators improve professional development programs.
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References


본 연구의 목적은 교사들의 커뮤니티에 관한 이전 논문들을 살펴봄으로써 수학교육 연구에 기여하고자 한다. 이를 위해, 다양한 교사 커뮤니티들, 예를 들어 스타디 그룹, 비디오 클럽, 일본의 수업 연구 등을 다른 연구들을 살펴보았다. 교사 커뮤니티는 교사들의 전문성 향상을 위해 연구되기 시작했고, 실제로 교사들의 전문성 향상에 도움이 된다는 연구들이 많이 존재한다. 선행 연구들을 통해 우리나라에서도 교사 커뮤니티를 통한 연구가 필요하며 교사 연수 등에 커뮤니티를 활용하는 방법 등을 찾아야 한다는 것을 제안한다.

주요 용어: 교사 학습, 전문성 학습 커뮤니티, 전문성 향상

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