Taking a Step to Identify How to Create Professional Learning Communities—Report of a Case Study of a Korean Public High School on How to Create and Sustain a School-based Teacher Professional Learning Community

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Abstract

This study intends to identify some key factors in creating and sustaining school-based teacher professional learning communities (PLCs) through a case study of a South Korean public high school. To achieve this, the study identified some essential infrastructure, preparation, and necessary social organization for creating PLCs. The ideal unit and the encouraging/discouraging factors in the implementation process were also investigated. Data were gathered via classroom observations and by analysis of interview transcripts, questionnaire responses, and minutes from PLC meetings. Nineteen participants, including 16 teachers, a principal, an assistant principal, and a facilitator from a city department of education, who assisted the school reform process, completed the questionnaires. Three of the teachers who took the reform initiative participated in the in-depth interview. The study provides a detailed description of the school context before the PLC implementation, challenges that faced the teachers, and two main characteristics of their PLC initiative. The study indicates that participants perceived prepared teacher leaders, building trust and respect among faculty, and securing time for classroom observation and PLC meetings as the most necessary preparation in creating and implementing their PLC. Empowering grade level chairs, increasing teacher proximity, and employing additional administrative assistants were identified as effective administrative support. Participants recognized that each grade level had more advantage in implementing PLCs and thought positive changes of disruptive students and their own instructional practices were the most encouraging factors in overcoming implementation problems. Authoritative leadership of school administration and a city DOE that forcefully mandates PLCs were perceived as discouraging factors in PLC implementation.

Keywords: bottom-up reform, creation, empowerment, grade level, implementation, professional learning communities, trust

1. Introduction

Professional learning communities (PLCs) have been believed to offer an effective infrastructure for addressing various types of challenges that face schools such as teacher isolation, difficult interaction with colleagues, and challenging students (Morrissey, 2000). And though it has not been long since research began to investigate the effect of PLC implementation on student achievement and teachers' practice, there is considerable evidence of a correlation between the implementation of teacher professional learning communities, enhanced student learning, and improved teaching practice (Darling-Hammond, 2010; Hord, 2009; Louis & Marks, 1998; McLaughlin & Talbert, 2010; Newmann & Wehlage, 1995; Thiessen & Anderson, 1999).

However, *how* these professional communities can be created, developed, and sustained is still not so clear, and little has been written about (Cowan, 2009; Hord, 1998; McLaughlin & Talbert, 2006; Morrissey, 2000). This study intends to take a small step in figuring out some key factors on how to create and implement school-based teacher professional learning communities through a case study on a Korean public high school which has been transformed from a low-performing urban school that served predominantly underprivileged, low-achieving students into an exemplary professional learning community with enhanced student achievement and higher student acceptance rate to selective universities.

As we know both from research and experience, finding actual cases of schools with mature communities of teacher reflection and inquiry is not easy (Hord, 1998; McLaughlin & Talbert, 2006). Many schools in South Korea that externally manifested PLCs also gave up their reform efforts in less than a year because of failing to gain sincere cooperation and participation from their teachers. Transforming a school into a place of continuous inquiry is never an easy project because it takes not only structural changes but also cultural changes, including a fundamental shift in the habits of mind of teachers. Change of teachers' minds is essential in PLC implementation, because it is the individual teachers that actually attend the PLC meetings, reflect on their teaching practice, change pedagogy, and eventually accomplish school reform. When mandated, teachers can still act as if they all agree and they already share values and common beliefs, but in reality they stick with their old patterns in, what is called, a pseudocommunity (Grossman, Wineburg, & Woolworth, 2001). Therefore, reform initiatives and teacher participation need to be operated on voluntary basis in order to be authentic and sustainable. It is whether teachers can find shared personal practice to be really helpful in improving their teaching skills and student learning, and whether they find themselves enjoying being in PLC meetings, not being forced to be there that determines the success and failure of a given school reform initiative. If forced, they can pretend to confer and cooperate with each other, but they would never be able to grow as teachers who actually adjust their instruction to meet student needs, and the sustainability of school reform initiatives in those schools would be difficult to guarantee. From this point of view, this study intends to hear from the teachers, principal, assistant principal, and a facilitator from a city department of education (DOE), and learn some of the key factors in creating PLCs in school. The study is based on the following research questions: (1) What are the essential infrastructure, preparation and social organization in a school that intends to create a professional learning community for the first time? (2) What is the ideal unit in implementing PLCs in schools? (3) What are the encouraging factors that help teachers to overcome the implementation problems and continue the reform process?

2. Theoretical Background

2.1 Conceptual Basis and Brief History of PLC

School-based teacher learning communities have been playing the role of being the "zone of proximal development" (Vygotsky, 1978, p. 86) of teachers, where they grow as professionals by planning their lessons together, observing the classrooms of colleagues, and getting involved in reflective conversations on their instructional practices. Though the coinage of the term professional learning communities is quite recent, the concept and the value of teacher collaboration is not new. John Dewey (1916) was one of the first theorists who emphasized the value of schools as a community where not only learning happens, but also learning improves through sharing experiences and having relationships with others in school. The PLC concept was also influenced by the theorists who emphasized the value of authentic situations and social context in the learning process and knowledge of professionals (Riveros, Newton, & Burgess, 2012; Vygotsky, 1978; Wenger, 1998). Moreover, since Little's (1982) case study of successful schools where teachers participated in collaborative planning and sharing teaching practice, the concepts and benefits of PLC implementation have been provided by researchers and practitioners (DuFour, & Eaker, 2008; Gallimore, Ermeling, Saunders, & Goldenberg, 2009; Hord, 1997; Louis & Marks, 1998; McLaughlin & Talbert, 2006; Morrissey, 2000; Palmer, 1993; Sergiovanni, 1994). Teacher professional learning communities also share their characteristics with concepts such as learning organization (Senge, 1990), where "...new and expansive thinking are nurtured, ...and people are continually learning how to learn together" (p. 3), and communities of practice (Wenger, 1998), which later have been applied to business, organizational design, public sector, and field of education (Wenger, 2015). The tendency of emphasizing teacher learning through collaboration is also obvious in developing national/state standards for teacher professional development that embrace joint planning, giving/taking feedback on teaching practice, use of student data, and shared responsibility for student learning (CCSSO, 2011; TN DOE, 2016).

2.2 Definition and Key Characteristics of PLC

Despite the current tendency of referring to any teachers' meetings or professional developments in school as PLCs (Cowan, 2009; Pirtle & Tobia, 2014), the term PLC has been defined by research to have specific norms, characteristics, purpose, and value (Hord, 2009). Researchers generally agree that the definition of PLC indicates a group of educators committed to the continuous process of collective inquiry, constructive conversation about instruction and learning, and sharing teaching practice, including observation of colleague's classroom for the purpose of enhanced student learning and improved teachers practice (DuFour et al., 2008; McLaughlin & Talbert, 2006; Pirtle & Tobia, 2014; Riveros et. al., 2012). Research has also shown a considerable level of agreement about the dimensions that successful professional learning communities hold–supportive and shared leadership, shared value and vision, collective learning and application of learning, supportive conditions, and

shared personal practice (Bolam, McMahon, Stoll, Thomas, & Wallace, 2005; DuFour et al., 2008; Hord, 1997; Kelly & Cherkowski, 2015; Morrissey, 2000; Owen, 2014; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006). Various groups of educators can become PLCs, such as subject department, grade level, cross-subject teams, and even educators across schools (McLaughlin & Talbert, 2010) as long as they abide by the major principle of PLCs.

3. Methodology

3.1 Description of Context and Participants

3.1.1 Description of Context

The case study school served predominantly underprivileged students whose parents' socioeconomic status was low. The students gained much less on achievement tests than those from other schools in the district, producing only 4-5 students of approximately 400 graduating students getting admitted to nationally selective universities each year. One of the main reasons why many parents did not want their kids to be assigned to this school was the overall disruptive classroom atmosphere caused by many unmotivated students.

There has also long existed a very unique antipathy against classroom observation and subsequent meetings among teachers in almost all levels of Korean schools. In such meetings, participants would take turns to make comments on the teacher's instruction, mainly criticizing the instructor's teaching practice, which would be embarrassing to the person who opened the classroom. This made opening classroom and sharing one's teaching practice one of the last things teachers would wish to do during their teaching career.

Most high school students in South Korea stay at school until 9 or up to 11 at night to study, which requires teachers to overwork for the sake of supervising the students. Moreover, according to the Organization for Economic Co-operation and Development (OECD, 2011), unlike such countries as Belgium, Finland, France, Italy, the Russian Federation and Slovenia where teachers are not required to spend time on non-teaching activities, Korean teachers are required to handle many administrative tasks even after their work hours, which also makes it extremely difficult for teachers to concentrate on planning and teaching. In this situation, it was also extremely difficult for teachers in the case study school to secure time designated solely for sharing teaching practice. Opportunities to suggest and share ideas were rare, and those efforts were often ignored by administrators, which resulted in low morale and self-efficacy among faculty. Former principals have shown little to no instructional leadership but showed strong characteristics of bureaucratic management that emphasized finishing administrative tasks on time and reporting to the higher authorities. They were not so much helpful about disruptive student behaviors in classroom, and taking care of those students was the responsibility of individual teachers. Since teachers were struggling with both disruptive students in the classroom and with overwhelming amount of administrative tasks which often kept them late at night at school, they were neither ready nor willing to launch any school reform efforts.

3.1.2 Participants

Korean high schools have three school years until graduation, and public school teachers are required to move to different schools every four year. The new principal who came to the case study school in August 2010 tried to let as many of the same teachers as possible teach the same students of the class 2014 until they graduated in order to better understand the students and enhance teacher collaboration. The 19 participants of this study included 16 teachers and three administrators. All of the 16 teachers who taught this cohort of students and participated in the school's PLC initiative for at least one year were selected as participants and responded to the survey. Three core group teachers, Mr. Youngsoo Kwon, Jaehyuck Kim, and Donghi An (The names of the interviewees are pseudonyms), who took the reform initiative participated in the in-depth interview. A principal, an assistant principal and the facilitator from the city DOE who assisted the reform process of the school for the three-year reform period, were also selected as participants. Seven of the 16 teacher participants taught the same student cohort and participated in the PLC implementation process for the whole three-year period. Five of them joined the reform process for two years, and four of them did for one year. The principal and the facilitator from the city DOE joined the initiative for three years, and the assistant principal it for two years.

3.2 Data Collecting

Data for the study were collected between March 2011 and June 2016. Data collection was performed through classroom observation, analyzing interview transcripts, survey questionnaire responses from 19 participants, and minutes of PLC meetings. Classroom observations have been performed in order to observe how the participants changed their instructional methods based on the reflections and feedbacks from the PLC meetings. A total of sixty six times of classroom observations have been done from March 2011 through November 2013 according

to monthly observation schedules which indicated the names of the teachers, dates, and periods of the classes that were to be observed. Field notes were taken at each observation. Interviews with three interviewees were performed in June 2016 and each interview lasted for an hour to an hour and a half. Eleven interview questions were all open-ended and were designed to identify participants' perception of the key elements in creating, implementing, and sustaining their school-based teacher professional learning community. Though there were prepared questions for the interview, the interviewees were allowed to have discretion of saying anything that, they thought, was related to creating and sustaining their PLC. All three interviews were recorded as separate digital files and were transcribed by word processing software word by word. In order to obtain a more comprehensive conception from the participants of the key elements in PLC creation, a survey questionnaire was administered through email to all of the 19 participants. The questionnaire contained 19 closed-ended questions that asked the participants to prioritize the given factors in each question in order of importance in creating PLC. The 19 questions fell into one of the four categories of launching PLC, implementation of PLC, leadership in PLC, and PLC meeting. Though the questions were closed-ended type, each question allowed written comments from the respondents. Another important data resource was the minutes from the PLC meetings. The participants held 26 times of PLC meetings from March 2011 to November 2013, and all of the conversations from these meetings were transcribed as minutes by a teacher who had been appointed to do the job. The conversations in the minutes were analyzed in order to identify how the teachers' perception of PLC meetings and their level of commitment have changed since the launching of their PLC. The author of the study was one of the faculty in the case study school and participated in weekly classroom observations and PLC meetings with few exceptions.

3.3 Data Analysis

Interview transcripts, responses from the survey questionnaire, and the minutes of their PLC meetings were analyzed through a repetitive review process to find out patterns of words and phrases, which later became the coding categories (Bogdan & Biklen, 2006; Wiersma & Jurs, 2005). Through this elaborate coding process, four main categories were identified, which provided the foundation of the coding scheme along with the research questions: (1) Characteristics of the PLC of the case study school; (2) Preparation for launching their PLC; (3) Implementation process of their PLC; and (4) Encouraging/discouraging factors in implementing the PLC. To enhance the reliability of data analysis process (Bogdan & Biklen, 2006), minute document files of PLC meetings were shared with all the participants each time they were distributed through the school's intranet system, and the participants were asked to provide feedback about the accuracy of the documentation. In order to acquire the fit between the written interview transcripts and what the interviewees and adjusted based on the feedbacks.

4. Findings

4.1 Characteristics of PLC in the Case Study School

While performing data analysis, two unique characteristics were identified. This school shared Hord's (1997) five dimensions of typical PLCs, but it also had two unique features: (1) bottom-up reform initiative; and (2) efforts to share their experiences with other schools in the district.

4.1.1 Bottom-Up Reform Initiative

External influences often have negative, rather than positive effects on school improvement by imposing unreasonable tasks or regulations, and/or rapid change in different policies (Newmann & Wehlage, 1995; Spears & Oliver, 1996). And many of school reform efforts have been a top-down process (Spears & Oliver, 1996), including school reform initiatives with the PLC process in mind. A common picture is that state or district department of education, school administration, and/or local university take the initiative, offer necessary funds and professional development for teachers, and expect teachers' participation and cooperation. Part of the uniqueness of the reform procedure in the case study school was that it began with the teachers. There were three core teachers who thought they needed some change in their teaching practice, and they had been building up trust with colleagues through casual conversations. Mr. Jaehyuck Kim, one of the interviewees, said about their trust building in his interview:

While reform initiatives in some schools begin just because they have to, we felt the need to change, and had trust with each other that had originated from many casual friendly conversations with each other. We shared that we didn't need to pretend that we were doing perfect jobs in our classroom. We wanted to share our struggles and learn from each other.

Faced with many unmotivated and low-achieving students and the need to improve their long lasting

sage-on-the-stage teaching methods, the three core teachers suggested to the principal that they need to have an interactive workshop to share the core value of enhancing high-quality student learning and sharing instructional practices by creating PLCs in their school. The principal readily accepted the suggestion, prepared the necessary budget for the two-day workshop, and assigned these teachers to the same grade level. During the interactive workshop held just prior to the 2011 school year, they shared their wish to collaborate in sharing instructional practices, decided to open their classrooms, and have PLC meetings on a regular basis. Right after the kickoff of the 2011 school year, they began to observe classrooms of one another, had PLC meetings to share personal practice and reflect on their instruction, and tried to figure out the causes of enhanced or impeded student learning. The reform movement continued in 2012 and 2013 school year, influencing the other two grade levels to create their own PLCs.

4.1.2 Efforts to Share Their Experiences with Other Schools in the District

Their bottom-up commitment for school reform was not limited to implementing PLCs in their own school. From the 2012 school year, which was their second year of reform initiative, they regularly opened their classrooms of several subjects to teachers from other schools and leaders of the city DOE. They also demonstrated their PLC meetings for the audience to observe their collegial conversations. Their PLC meetings that consisted of reflection on the causes of enhanced or impeded student learning without any fault-findings or direct advice for other teachers' instructional practice were different from what those teachers from other schools had experienced before and positively affected the audience. Mr. Youngsoo Kwon shared the reason that they could open their classroom to teachers from other schools even though they had not yet had a perfect PLC in their school.

I think the biggest change that had taken place in us was that we began to think that we didn't care whoever comes into our classrooms. I had been so worried about opening my classroom before I attended PLCs because I knew what people would say about my teaching at the meeting after the class. But, since we were not supposed to say anything about each other's teaching and focused only on students' learning, we felt it was OK now to show what we were doing. We just wanted to show people from other schools that it is OK to open up the classroom because they would never find fault with anybody and would just share what they learned as a teacher.

Word of this successful PLC spread into other schools in the district, which prompted the city DOE to set PLC implementation in other schools in the city as one of their main goals in the following school year. In the 2012 school year, the city DOE assigned a special budget and provided support measures for the schools which wanted to introduce PLC initiatives in their schools. The three core teachers were also often invited as guest speakers to speak in professional developments and workshops in other schools that wanted to launch PLC initiatives. In addition, teachers in the case study school visited Japan in 2012 in order to observe classes and share classroom practices with Japanese teachers in successful learning community schools in Hiroshima and Okayama, Japan. On their trip to Japan, they invited teachers from other schools and a leader from the city DOE for the purpose of sharing their experiences and disseminating the value of teacher collaboration and the spirit of continuous inquiry.

4.2 How Did They Create and Sustain Their PLC Initiative

There often exists some disparity between what the research says and schools' ability to put that into practice (Morrissey, 2000). Schools might have implementation problems and obstacles because teachers and administrators can face some unexpected difficulties in their school reform efforts. This study intends to determine some key factors in preparing for and implementing PLC initiatives by listening to the voices of teachers and administrators who experienced different stages of transforming a traditional school into PLCs.

4.2.1 Preparation

In the survey, when asked to list necessary overall infrastructure in order of priority for a school that decided to launch a professional learning community, the vast majority of teachers and administrators put "teacher leaders" on the top of their list, followed by securing a designated time for PLC meetings. Many of them noted core group meeting, rather than a professional development workshop by a brought-in *expert* would be more effective in launching PLCs in schools. Mr. Youngsoo Kwon noted the importance of building up voluntary will from teachers in preparing for PLCs.

Launching a PLC in a school is building a new structure of its own. Voluntary will of the people who realize that they can't stick to traditional ways of teaching is more important than just being told what to do.

Securing a designated time for PLC meetings was recognized as one of the key factors in launching a PLC. In high schools in Korea, the normal school hour ends around 4 in the afternoon, but supplementary classes follow for about two hours, followed by self-study sessions until 9 or up to 11 at night, depending on the grade level. Not only do students get tired from this overwhelming study load, but also teachers can hardly find time to plan lessons and share student work and their learning with colleagues. The core teachers in the case study school suggested to the principal that they needed to secure a designated time for PLC meeting in place of two supplementary classes on Thursday afternoon, and the principal accepted it, which led to securing 90 minutes every week. The teachers and administrators regarded increased teacher proximity as important preparation for their school's success. The teachers in the school used to spread out in many different offices though all of the classes and administrative works were being done by each grade level teachers. The principal pulled together the teachers who taught the same grade level into one office that had individual teacher desks and a table for meeting. This increased teacher proximity and they were more easily able to build relationships of trust and respect and share their practices through PLC meetings. When asked to say what was the most important social organization that the teachers needed to share or the principal needed to show before launching a PLC initiative, most participants said it would be building trust and respect with one another about the fact that they would never be blamed or criticized in PLC meetings. As stated in 3.1.1, the fear of being criticized seems to originate from the old tradition in Korea that teachers used to be criticized by administrators and colleagues in meetings after classroom observations

4.2.2 Implementation

4.2.2.1 Sharing the Core Value and Putting That into Practice

The case study school was one of the typical schools where teachers would glance at the cover of the curriculum book when asked to tell the core value of their school; nobody remembered otherwise. In many cases, their priority used to finish the overwhelming amount of administrative tasks on time and report to higher authorities, rather than enhance student learning. In the 2011 school year, which was their first year of PLC initiative, teachers and the principal worked collaboratively to set up a new slogan as their core value: *Learn Together and Grow Together in Our School Professional Learning Community*. Not only did the principal emphasize the new slogan by repeatedly articulating it in different meetings such as professional developments, weekly staff meetings, and parent conferences, but he also carried it out into practice in order not to let it be forgotten as rhetoric. He received funds from the city DOE and employed four additional administrative assistants in order for them to take over much of the administrative tasks that had belonged to teachers before. Mr. Donghi An noted in his interview that teachers realized that the principal's emphasizing of the core value was not just rhetoric when they saw what their principal did for them:

PLCs should never be another thing on your plate. Giving priority to a PLC initiative means you will remove less important things from your plates. I think our principal did a great job on this by employing four additional administrative assistants who took over much of the teachers' administrative works. We could feel and tell our principal was serious about the PLC and was supporting us by this.

4.2.2.2 Shared Leadership and Teacher Empowerment

The principal renovated his office from a place with a luxurious sofa and coffee table into a conference room with a table for 16 people to be seated. He also installed a projector on the ceiling with a built-in screen made of glass board on one side of his office wall on which the image from computers could be projected and letters could be written on the screen with markers at the same time. That change turned out to be useful for collaborative works. The 14 department chairs had a weekly meeting in the principal's office, and they could share their ideas more effectively through this technological support. This also made it easier for teachers to bring a flash drive and share their ideas to improve their instructional practices. Moreover, believing that empowering staff is the very starting point of creating collaborative culture, the principal made three small schools in school by informally calling the three grade level chairs *principals of each grade level*. He was short on rhetoric and long on resolute empowering. He valued the leadership of each grade level chair who was in charge of running the PLC meetings by providing the necessary budget and staffing the teachers with whom each chair wanted to work. Mr. Donghi An recounted his principal's leadership sharing as follows:

Basically, he trusted us. He encouraged us to try anything if it could enhance student learning and improve teaching practice even though there would be some mistakes. He said he would take the responsibility of the results. He empowered us by conferring decision-making on us, and trusting us.

Also, accepting the suggestions of grade level chairs, the principal allowed teachers to teach same students for three years until the students received diplomas. Teachers said teaching the same cohort of students for three

consecutive years was extremely helpful in better understanding students and building collegiality with colleagues. Mr. Youngsoo Kwon mentioned the value of working with the same people for three years:

I believe having the same members in our grade level for three years in a row was one of the keys in our PLC implementation, because when you have brand-new people each year, you have to begin from scratch in building up trust and relationships.

4.2.2.3 Securing Time for Regular Sessions to Share Classroom Practices

As supported by research (Morrissey, 2000; Oliver, Chen, Huffman, & Wang, 2015), setting aside appropriate time for sharing classroom practice was a central systematic factor in PLC implementation in this school, too. In the first year of their reform effort, there was no schedule for visiting neither other classrooms nor a fixed period of time for PLC meetings, and even sometimes they had PLC meetings after school was over. Mr. Youngsoo Kwon recalled his first year of PLC experience:

When I first opened my classroom to colleagues in 2011, nobody came in to observe my class. I thought, "What's this?" Visiting other's classrooms was truly a big thing for most of the people at first. I think the fact that "We began and began to open our mind" was meaningful in the first year.

Like he said, visiting and observing other teachers' classrooms was quite limited in their first year of PLC implementation, as is often the case in other schools (Hord, 1998; MetLife, 2009). It was partly because they could hardly find time to and partly because they were not fully confident in the value of PLC meetings. But as the teachers increasingly gleaned useful information from classroom observations and PLC meetings, they gradually could give their priority to observing others' classes and attending PLC meetings. From the second year, they rescheduled the school time, and set aside 90 minutes on every Thursday afternoon with administrative support. Moreover, each grade level appointed a teacher who was solely in charge of making a schedule for classroom observations, reminding PLC meetings to colleagues, videotaping all the classes which were offered from different teachers, and keeping minutes of every PLC meeting.

4.2.2.4 Grade Level as Unit of PLC implementation

When participants were asked about which unit in school would be more appropriate in implementing a PLC, nearly 80% responded that each grade level would be more appropriate than subject level or school-wide implementation. They thought grade level had benefits because most of the teaching and administrative practices were done around it, which made the collegiality among teachers stronger than any other unit in school. They also thought they were able to focus more on *learning* than on *teaching* when they observed in their colleagues' classrooms who teach different subjects and had PLC meetings with teachers of their own grade level. Mr. Jaehyuck Kim and Youngsoo Kwon noted the value of grade level PLCs:

Mr. Kim: When you observe in your colleague's classes who teach different subjects, you come to more concentrate on the device of learning or the relationship involved in student learning because some students are doing differently than they did in your class. When you observe colleagues teaching the same subject, you are more inclined to see how he/she "teaches", rather than how students "learn".

Mr. Kwon: Teachers in the same grade level are the ones who share same students, not the same teaching material. They can more easily notice a certain student's different learning strategy and different performance displayed in other teachers' classes than they do in their own classroom. You sometimes find out a boy who constantly slept during your class is doing excellent in another's class, which will lead you to think of the origin of the difference. We are more likely to focus on teaching materials rather than on students when we get together with colleagues teaching the same subjects.

4.2.3 Encouraging/Discouraging Factors in PLC Implementation

4.2.3.1 Encouraging Factors

It was found that the biggest encouraging factor that helped teachers overcome implementation problems and move forward was the change of students who used to sleep or did not pay attention to classroom activities before, and the positive change of teacher themselves' instructional practice. Almost all the participants said they had observed positive changes in student learning such as their being better able to share their ideas with teachers and friends rather than just listening to the instruction and experiencing constructive learning through small group activities. Mr. Youngsoo Kwon shared his experience of employing cooperative learning into his class:

When I used traditional instructional methods, it was so frustrating to see students raising their hands for help, but I couldn't help them because I was the only one who could teach. It also made me feel sad to see those who were indifferent to learning because they didn't understand anything about math. But I learned in a PLC meeting that students could construct their knowledge and learn in their small group by talking to each other. When I viewed the videotaped lesson of myself, I was literally thrilled to see concomitant learning events here and there in the classroom and to hear a guy say "Yes, I got it!" That change in myself and my students drove me to go ahead for three years.

Building trust and respect with colleagues was named by most participants as another key encouraging factor that helped maintain the sustainability of PLC meetings for three consecutive years. The concept of teacher-professionalism has been widely accepted, and enhancing self-efficacy of teachers is one of the key factors of it. A teacher who is not allowed to participate in the decision-making process at school, or is not given the discretionary power to use his/her practical knowledge acquired from his/her own reflection and collaborative dialogue with colleagues on their teaching practice cannot be said to be a professional. The core teachers in the case study school thought enhancing teachers' interactions in a more formalized structure such as PLC meetings was the first thing to do for enhancing the self-efficacy of teachers. Unlike the prevalent PLC practice where the principal or instructional coaches at the meeting offer solutions and advice (Pirtle & Tobia, 2014), teachers in this school made it a rule not to give solution or advice to other teachers' instructional challenges, let alone criticize them. Instead, they were expected to simply share what they observed and learned in the course of classroom observation. As expected, teachers, at first, just scratched the surface for a while in PLC meetings. That is, teachers did not get into the core of their struggles in the classrooms. But once some teachers shared challenges, other teachers began to feel safer and could gradually share their own classroom challenges without fear of being criticized. They moved on to talk about strategies to adjust their instructions to meet student needs and engage students in learning, including discussions about how to create worksheets which go beyond the simple fill-in-the-blank type into the ones that effectively stimulate collaborative conversation and higher-order thinking processes in their small groups. In order to enhance opportunities of reflecting on what they discussed in previous PLC meetings, they shared minute files with colleagues through the school intranet network. The teachers went beyond talking about personal classroom practices, and moved on to amending curriculum of the grade level to best fit student's needs in applying for college, to making improvement in assessment, and developing effective counseling skills on college readiness of students.

4.2.3.2 Discouraging Factors

The vast majority of teachers responded in the survey that the last thing a principal would do when launching a PLC initiative is showing his/her persistent will to teachers that they would implement PLC at any costs. They also said the number one cause of failing in implementing PLC initiatives in other schools in their district was principals pushing forward without securing their teachers' agreement and understanding goals of their PLC implementation and how they would implement it in their school. This highlights the value of sharing vision with staff prior to and in the course of PLC implementation. Mr. Donghi An recounted what he observed in another schools' failure:

Many of the schools in our district also tried to implement a PLC structure in their schools, but some of them failed. The habit of mind of some of the principals was just too dogmatic and doctrinaire. They were too strict and just told teachers to do PLCs without providing any administrative support. PLCs in these schools were just another thing on teachers' plates. Perhaps the worst attitude of principals might be being perfunctory. Some of the principals didn't actually want to change their schools. Though they were reactionary on this, they just told their teachers to do it because they had been told to implement PLCs from the city DOE. I am so glad that this was not our case.

It was a meaningful change for the city DOE to get inspiration from the success of the case study school and decided to encourage other schools in the district to implement PLCs, but many teachers were worried about the city DOE's initiative toward quantitative evaluation of PLCs in each school. Mr. Donghi An perceived this as one of the major discouraging factors from the city DOE in implementing PLC initiatives in schools:

They sometimes seem to be more interested in how many times we opened our classrooms and what percent of our teachers participated in the professional development of the PLC than how students are changing or how the teachers are changing their instructional practices. The city DOE once distributed a memorandum that said they would evaluate schools A, B, and C according to the number of classroom observations and PLCs we had, which would affect our school budget. I don't think these

things will help change the school culture or help PLCs to be well implemented in schools because teachers will more pursue only the "numbers" rather than truly try to change their teaching practices.

5. Discussion and Conclusion

There could be no one-size-fits-all guide or strategy in establishing professional learning communities in a school. Just as each teacher needs to find instructional methods that best fit him/her, so will individual schools need to find appropriate strategies that best fit them, which will lead them into communities of continuous inquiry. However, this study intended to take one step further and shed some light on the question of *how* we can guide a school in creating and sustaining a school-based teacher learning community, where teachers grow as professionals and students learn as effective learners. The three research questions posed were: (1) What are the essential infrastructure, preparation and social organization in a school which intends to create a professional learning community for the first time? (2) What is the ideal unit in implementing a PLC in schools? (3) What are the encouraging factors that help teachers to overcome the implementation problems and continue the reform process?

Though not included in the research questions, two unique characteristics of PLC implementation of the case study school stood out during the coding process: (1) bottom-up reform initiative; (2) efforts to share their experiences with other schools in the district. The PLC initiative was launched by three core group teachers who felt the need to change their teaching practices confronted by many unmotivated students. Unlike common reform practice of which the initiative is taken often by either the district or school administration, it was different in that the teachers ascribed their PLC implementation to the bottom-up voluntary energy for changing their school culture. It was also meaningful to observe how a school's change could influence other schools in the district and even the city DOE to be inspired about the value of teacher collaboration.

The finding regarding the first research question reveals that teachers and administrators thought they needed teacher leaders as an overall prerequisite in launching a PLC initiative in school. Regarding the very first step in launching a PLC before a new school year begins, teachers said the core group teachers' meetings would have the priority. They also said securing a designated time for observing the class of others and having PLC meeting was the most necessary systematic condition for launching a PLC, which is also supported by previous research. As for the most important social organization that teachers need to share before launching a PLC, the vast majority of teachers said it would be building trust and respect with one another about the fact that they would never be criticized in a PLC meeting. Administrative supports such as empowering grade level chairs, increasing teacher proximity, and employing additional administrative assistants who took over much of teachers' administrative work were perceived as major contributing factors in launching a PLC in their school.

When it comes to the ideal unit of PLC implementation, which was the second research question, teachers perceived each grade level had more advantage than any other unit in school such as subject level or whole school unit, in that teachers in the same grade are more likely to have stronger collegial relationships. And teachers noted that when they had PLC meetings in grade level, because they shared same students, not the same teaching material, they could focus more on learning than on teaching.

The finding on the third research question indicates that teachers believed the positive changes of unmotivated students and of their own instructional practices were the two biggest encouraging factors for them to overcome the implementation issues and keep moving on to build a learning community in their school. Building trust and respect for each other by removing direct advice out of PLC meetings was perceived as another important factor in sustaining a PLC meeting. Once the teachers came to feel safer and began to think that they did not need to show something to others, they could share challenges as well as success in their classrooms, which resulted in enhancing both the quality and sustainability of PLC meetings. On the other hand, administrations pushing forward PLC drive without securing faculty's understanding or providing administrative support and the city DOE's quantitative evaluation initiative of PLCs in schools were perceived as discouraging factors in PLC implementation.

The researcher being one of the faculty in the case study school can be a source of potential bias in data analysis. It might also be difficult to generalize the findings to other schools of different levels and cultures because the study was conducted about the PLC implementation of a Korean public high school. However, the significance of the study results will stimulate conversation about some of the key factors of preparing, launching, and sustaining PLCs in schools and on the necessary infrastructures including systematic and social organization. It is expected that principals, teachers, and external facilitators would be able to get insights for implementing PLCs from the perception of the teachers who experienced an actual process of preparing, creating, implementing, and sustaining a school-based teacher learning community.

The significance of the study also lies in its suggesting the value of bottom-up reform process where teachers perform as reform agents rather than targets of a reform. The concept of teachers being reform agents can be significant when we consider that a PLC is not the goal of a school reform initiative but is a supporting structure (Morrissey, 2000) that enables the staff to voluntarily collaborate with each other and focus on enhanced student learning.

The initiative to transform a school into a professional learning community requires a fundamental shift in teachers' habits of mind and change in the professional culture of the school. That would also need a lot of time, patience, and cooperation from many people. But the initiatives to create caring communities where teachers and students learn and grow should never cease as long as fresh evidence indicates that they enhance the effectiveness of schools and help our kids learn.

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