



Teachers' Experiences in a Professional Learning Community on The Constructivist Lesson Planning: A Case Study Among Primary School Teachers

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Abstract

The purpose of the study is to determine the opinions of teachers about professional learning community (PLC) practices, and examine the change caused by this practice on their constructivist lesson planning skills, constructivist lesson plans (CLP) and constructivism comprehensions. In the research, the professional learning community practice being carried out regarding preparation of constructivist lesson planning in an eight weeks period has been addresses as case study. Four class teachers, serving at the level of primary school, have been determined as the participants of the study. Data has been collected through focus group meetings, metaphors and document review. In the research, the results obtained before and after the practice have been analyzed by descriptive analysis method. The metaphors formed by the teachers have been tabulated, coding has been made for the metaphors and the explanations -relevant to the metaphors formed- have been provided by direct citation. The "Lesson Plan Rubric" has been used in order to assess the lesson plans prepared before and after the practice. As the result of the research, it has emanated that the teachers have positive opinions regarding professional learning community, and that this practice creates a change towards constructivist comprehension in lesson plans. Depending on the obtained results, suggestions have been brought.

Keywords

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Introduction

"You can't step into same river twice"

As renewal in each minute of the water flowing in the river, the individuals are also continuously being reshaped and changing along with their experiences and lives. When it is considered that the efforts in the field of education is conforming to flowing water and being a part of it, it can be said that constructivism is one of the means of enabling this conformity. The roots of constructivism are being encountered in the opinions of philosophers who had lived in 4th – 6th century B. C. (Prince & Felder, 2006). When the above phrase of Heraclitus is assessed within constructivist comprehension, it is possible to replace the metaphor of river with students.

Constructivist learning processes support students' active participation, knowledge construction and deep learning, encourage students to think and act independently, and foster

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permanent learning. Despite its referred benefits, when teachers intend to transfer constructivist practices in classroom settings, their efforts often produce less than they expected (Marlowe & Page, 2005). This point brings to mind the importance of constructivist lesson planing (CLP) in advance for effective class practices. Effective planning requires the integration of knowledge of pedagogy, content and instructional design (Panasuk & Todd, 2005). But developing a plan by enabling the specified integration is not easy. This condition may have two reasons. The first reason is that teachers' knowledge and thoughts are not always consistent with their actual practices. Because of this inconsistency they cannot reflect their knowledge and thoughts to actual classroom environments (Ceyhan, 2014; Savaşçı & Berlin, 2012; Simmons et al., 1999; Uzuntiryaki, Boz, Kirbulut, & Bektas, 2010). The other reason for teachers having difficulty to employ constructivist practices in their classrooms is the lack of common rules and steps for implementing constructivist lessons (Baviskar, Hartle, & Whitney, 2009). Therefore, the efforts for development of CLP skills are coming into prominence in many studies.

As there are studies focusing on the process of forming lesson plans (Fujii, 2016; Janjai, 2011; Uhrmacher, Conrad, & Moroye, 2013), there are also studies for determining the characteristics that constructivist teaching is required to have (Baviskar et al., 2009; Brooks & Brooks, 1999; Dangel, 2011; Jonassen, 1999). A constructivist lesson, that is designed and implemented in an effective manner, creates huge opportunities for learning (Baviskar et al., 2009). But, practical applications of constructivism have led to some misuses of constructivist principles because lesson plans that teachers identify as being constructivist do not include sufficient characteristics of constructivist theory (Uzuntiryaki et al., 2010). In here, the main question is how the professional development of the teachers will be ensured for them to be able to make CLP. The professional learning community (PLC) comprehension is providing a significant opportunity in enabling the professional development of the teachers (Guskey, 2002).

As from the leading study of Hord in professional development (1997), PLC has been tried to be explained in many studies with the opportunity it provides for enabling the professional development of teachers (Darling-Hammond & Richardson, 2009; DuFour, 2002; Guskey, 2002; Hairon & Dimmock, 2012; Hord, 1997; Lunenburg, 2010; Puzziferro-Schnitzer, 2005; Sackney, 2011; Schmoker, 2006). Professionals come together in a group -a community--to learn in a PLC. A professional learning community is not just a place where teachers meet regularly or groups come together to work collaboratively. It is a way of organizing the educational staff to engage in purposeful, collegial learning. It serves to promote quality teaching (Hord, 2008). Briefly, PLC is based on studies of teacher teams for enabling professional development. In Turkey, the gathering of teachers with the purpose of teaching is being ensured through community meetings. But the studies that emphasize the insufficiency of community meetings in enabling the solidarity among teachers (Albez, Sezer, Durdağı, & Ada, 2014; Şahin, Maden, & Gedik, 2011) are also giving rise to the thought that PLC may be an alternative in enabling the cooperation among teachers. By the establishment of PLCs, the formation of environments in which the teachers work, learn, try and share together for developing and implementing more effective teaching practices will be enabled (Darling-Hammond & Richardson, 2009). In the research, it is intended to enable the professional development of teachers in preparing CLP. And for the lesson plans to reflect constructivism, it is important to argue and share ideas on it. The leading motive of the research is the thought that realizing the argument and sharing process by PLC is an effective way. Within this scope, PLC practice has been realized in order to ensure writing of the plans with a constructivist approach.

In this study, teachers' opinions about PLC was determined, and the change caused by this practice in their constructivist lesson planning skills, constructivist lesson plans (CLP) and constructivism comprehensions was examined. The research questions are presented as follows:

In the process of PLC;

1. How did teachers' opinions on PLC change?
2. How did teachers' understanding of constructivism change?
3. How did teachers' understanding of CLP change?
4. How did teachers' CLP skills change?

Theoretical Framework

Constructivism

Constructivism is premised on the belief that learners actively create, interpret, and reorganize knowledge in individual ways. The learning process occurs as students incorporate instructional experiences with their existent knowledge, cultural and social context and other factors related with learning (Windschitl, 1999). In other words, the main principle of the approach is that knowledge is perceived with individual tools, understood and reconstructed by the learner. The individual is active in the learning process and consciously develops and changes his/her own knowledge structure (Gür, Dilci, & Arseven, 2013). This active role of students leads teachers to undertake more responsibility in their students' learning process. To be more specific, teachers in this process, have to create learning environments and activities, which are relevant to individual differences and which give students opportunity to openly express their ideas and questions (Brooks & Brooks, 1999). To define an activity as constructivist, it has to stimulate prior knowledge, include tasks causing cognitive disequilibrium, create opportunities to apply knowledge and allow students to reflect on their learning (Baviskar et al., 2009). Moreover, activities should foster students' independency, higher order thinking skills, discussions, questions and dialogue (Brooks & Brooks, 1999), and should be centered on a problem, a case or a question (Jonassen, 1999).

Professional Learning Community

The term PLC has become universal in education, and refers to a variety of arrangements where individuals continuously share resources and seek to apply what they have learned to their own practice (Puzziferro-Schnitzer, 2005). PLC is a systematic process, in which teachers work together to analyze and improve their classroom practice (DuFour, 2005). PLCs can be school-based, district-based, cross-district, or national; the membership in a particular PLC is determined by its focus (Annenberg Institute for School Reform, 2004). However, professional learning communities formed by teachers have particular importance, because professional development program designs for teachers usually lack direct implications for actual classrooms and therefore usually remain insufficient (Guskey, 2002). From this perspective, learning communities emerge as an effective option for both teachers' professional development and improvement of learning environments. In this model, teachers work together and engage in continuously dialogue to examine their practice and student performance and to develop and implement more effective instructional practices. In ongoing opportunities for collegial work, teachers learn about, try out, and reflect on new practices in their specific context, sharing their individual knowledge and expertise (Darling-Hammond & Richardson, 2009).

Hord (1997, 2004), organized the characteristics of PLC's into five dimensions as being shared and supportive leadership, shared values and vision, collective learning and application of learning, shared personal practice and supportive conditions. These characteristics are explained below.

Supportive and shared leadership: Transforming the school organization into a learning community can be done only with the leader's sanction and active nurturing of the entire staff's development as a community. Leaders share power, authority, and decision-making, while promoting and nurturing leadership (Hord, 1997, 2004; Hirsh & Hord, 2008; Hipp, Huffman, Pankake, & Olivier, 2008; Zhang & Pang, 2016).

Shared values and vision: Having a common purpose is a fundamental component in constructing a vision of the school and just how the PLC will work together. The staff share visions that have an undeviating focus on student learning, and support norms of behavior that guide decisions about teaching and learning (Hord, 1997, 2004; Eaker, DuFour, & DuFour, 2002; Hirsh & Hord, 2008; Hipp et al., 2008).

Collective learning and application of learning: The staff share information and work collaboratively to plan, solve problems, and improve learning opportunities. Teachers in professional learning communities are constantly seeking out "best practices." This is done through the process of

reflective dialog or inquiry, where staff conducts conversations about students and teaching and learning, identifying related issues and problems (Hord, 1997, 2004; Eaker vd., 2002; Hirsh & Hord, 2008; Hipp et al., 2008).

Shared personal practice: Colleagues meet and observe one another to provide feedback on instructional practices, to assist in student learning (Hord, 1997, 2004; Hipp et al., 2008; Hirsh & Hord, 2008; Zhang & Pang, 2016).

Supportive conditions: Supportive conditions determine when, where and how the staff regularly comes together as a unit to do the learning. For learning communities to function productively, supportive conditions include the physical (place, time and technology etc.) or structural (trust, respect etc.) conditions (Hord, 1997, 2004; Hirsh & Hord, 2008; Hipp et al., 2008).

Related Research

In literature, studies addressing the formation process of PLCs, and the experiences, expectations and perceptions of the teachers within this process (Chen & Wang, 2015; Graham & Ferriter, 2010; Michelen, 2011; Murphy, 2012; Peterson, 2014; Sackney, 2011; Scott, Clarkson, & McDonough, 2011; Svanbjörnsdóttir, Macdonald, & Frímannsson, 2016; Tam, 2015; Yamraj, 2008) are present. In the studies, the positive effect of PLCs on the development and change of the teachers is emphasized.

The effects of PLC's in creating teaching-learning processes with more quality were also examined by many studies. In Padwad and Dixit's (2008) study, 18 teachers participated to PLC. At the end of the study the researchers reported that teachers' show greater performance in their skills to define instructional problems, bring out a critical approach and solve problems. Tam (2015), on the other hand, examined the effect of PLC's on teachers' practices and found that motivations of teachers who are participated to PLC increased and their practices showed a tendency to become more in line with constructivist approach. There are other studies focusing on PLC's effect on constructivist practices. For instance, Rahman (2011) worked with science teachers in his study and revealed that PLC's are effective for teachers in their ability to learn constructivist learning principles. In another research; Dogan, Pringle, and Mesa (2016) examined studies focusing on the effects of PLC for science teachers in their knowledge and practices about constructivism. These studies indicated that PLC's improved teachers' pedagogical content knowledge and led them from traditional approaches towards an inquiry-based approach in their lessons. Caton (2014), investigated professional development activities in USA and Finland for their abilities to effect constructivist science instruction. She found that science instruction in Finland is in more accordance with constructivist learning principles. Researcher explained one reason of this difference with Finnish teachers' participation in PLC's, whereas American teachers are obliged to participate in professional development activities as a requirement to maintain their teaching certificates. To summarize, studies in the field of teachers' professional development reveal that PLC's are effective ways to bring constructivist learning principles in actual classroom settings.

Method

Research Design

The study is examining the PLC practice focusing on CLP skills in a primary school. As in-depth examination of the PLC experiences of the teachers is intended, case study, which is one of the qualitative research methods, was used. A case study is an in-depth description and analysis of a bounded system. A bounded system can be single person who is a case example of some phenomenon, a program, a group, an institution, a community, or a specific policy (Merriam, 2014).

Participants

In the determination of study group, purposive sampling method –allowing in-depth study in cases of abundance of information- has been used (Patton, 1999). A private school has been selected by using accessibility sampling from among purposive sampling methods. In this method, the researcher selects a status that is close and easily accessible (Yıldırım & Şimşek, 2013). As the teachers were required to regularly allocate each week two and a half hours for the PLC study, an easily accessible school, in which voluntary participation was ensured, has been selected. Four class teachers, serving at primary school level, have been determined as the participants of the study.

Table 1. Characteristics of Participants

Grade Level	Gender	Seniority	Graduation
1.grade	Female	30	Education Institute
2.grade	Female	4	Education Faculty
3.grade	Female	43	Open Education Faculty
4.grade	Female	28	Education Faculty

Case Study: PLC Practice

In the research, PLC practice was addressed as case study. The purpose and the process of the practice were explained to the teachers and school principal by the researcher prior to practice. The working environment for the practice included a round table allowing teachers and the researcher have a face to face interaction. In the leadership of the researcher the practice took place in 2015-2016 fall semester and consisted of two and a half hours sessions in a week within a 8-weeks period. Each week, throughout the PLC practice, different dimensions of CLP skills were addressed. The dimensions were theoretical frame of constructivism, constructivist classroom environments, introductory activities, process activities, measurement and assessment activities, material development and CLP review respectively. In the last week a discussion about constructivism was conducted. In the first hour of a session, information sharing was performed regarding the subject of the week. By this process, firstly, teachers expressed their opinions about the topic and researcher went over the theoretical framework using discussion and question-answer methods. To guide the discussion process, teachers were provided with handouts covering the main ideas of the week's topic. After a 10 minutes break, researcher handed in sample documents (introductory, process, measurement and measurement & assessment activity samples, lesson plan and material design samples) developed by her. Teachers are encouraged to assess and comment on these sample documents. In the remaining time of the session, teachers shared and discussed their sample practices, and made suggestions to each other. At the end of each meeting, readings relevant to the subject were assigned as a task.

Data Collection Tools

It is a good research practice to use multiple methods to enhance the validity of research findings (Mathison, 1988). To provide richness and depth, this study utilized multiple methods for collecting the data. Focus group meetings, metaphors and document review were used as data collection methods.

Focus Group Meetings

The teachers' opinions relevant to PLC and examination of change caused by this practice constructivism and CLP comprehensions were collected through focus group meetings before and after the practice. The literature was reviewed in order to determine the questions of the focus group, and the questions were gathered under two themes as being PLC and Constructivism in the direction of the purpose of the research. As Yıldırım and Şimşek (2013) suggested, topic research sub-questions should not exceed 3 or 4 questions. The Focus Group Interview Form is presented in Appendix 1. The questions have been submitted to the opinion of the curriculum development expert in order to determine its conformity in respect of content, and the opinion of Turkish language expert has been received in respect of control of language and narration. The meetings have continued for about 45 minutes.

Method of taking notes was used during the meetings as the teachers had specified that they would be disturbed by the recorder. After the arrangement of the notes, they were made to be read by the teachers, and it was controlled whether they include any deficient or incorrect expressions.

Metaphor

To determine the change on teachers' CLP comprehensions, teachers filled in forms (Appendix 2) to express metaphors and their reasoning for choosing these metaphors before and after the implementation. Teachers were given 15 minutes to complete the forms.

Document Review

In the study, lesson plans were used as an evidence to monitor change in teachers' CLP skills using document analysis. It was asked for the teachers to prepare CLP by the beginning and end of the practice. And the plans have been assessed by the "Lesson Plan Rubric" (Appendix 3).

Lesson plan rubric was formed by reviewing the literature (Baviskar et al., 2009; Brooks & Brooks, 1999; Jonassen, 1999). The opinions of two curriculum development experts –in respect of conformity to the validity of content-, and of one Turkish language expert –in respect of language and meaning- were received, and it was put into its final form. In the final form of the rubric, five sections as being "Technical Structure", "Holistic Structure", "Warm-up Activities", "Process Activities" and "Closure Activities", and 25 phrases were included. Three success levels were determined for each phrase in the rubric, and they were graded as 1-2-3. The testing practice of the rubric was performed by the assessment of lesson plans developed by the prospective teachers in the lesson of Special Teaching Methods being within the scope of initial teacher training. By this way, it was observed that the key was functioning. The grade range of the lesson plan was 25 and 75.

Analysis of Data

In the research, the results obtained from the focus group meetings were analyzed by the descriptive analysis method. The data acquired as per descriptive analysis are summarized and interpreted as per the predetermined themes, and frequently direct citations are provided in order to accurately reflect the opinions of participants (Yıldırım & Şimşek, 2013). The opinions noted by the researcher with this purpose have been gathered under the themes of PLC and Constructivism. And the same operation has also been performed by two different curriculum development experts. And then the functioning of the themes and the questions under the themes has been discussed. Citations conforming to the themes have been included in the reporting process.

In the study, metaphors were used to collect data about teachers' opinions on CLP. By this way, it was aimed to reveal teachers' real thoughts and perceptions on CLP beyond the textbook explanations. Metaphors were analyzed by three curriculum development experts including the researcher. The researcher and experts developed codes independently from each other and then they discussed and categorized the codes regarding the relationship between metaphors and explanations. Teachers' metaphors and codes were presented in a table, whereas their explanations about their metaphors were presented using direct quotations.

“Lesson Plan Rubric” was used in order to assess the prepared lesson plans. The grading relevant to the lesson plans was also performed by two different curriculum development experts and the researcher. It was observed that the gradings were made similarly, and the points subject to difference of opinion were discussed and reassessed. After grading of the lesson plans, average values for each dimension in the grading key were presented. Because there were more than two raters in the study, Kendall’s W coefficient of concordance was computed to assure inter-rater reliability (Can, 2014). Kendall’s W coefficient was $W= 0.91$ ($p<.05$) for the first plans and $W=0.093$ ($p<.05$) for the last ones. These results pointed out a high level of concordance between raters. The raters discussed and reevaluated the items on which they had different opinions. Mean scores for each dimension of lesson plan rubric were presented after the ratings were completed.

Results

The findings were presented under the themes of PLC and Constructivism. Focus group interview data were used to address the research question of “how did teachers’ opinions about PLC change in the PLC process?” Findings derived from the analysis of interviews were presented in the framework of change in PLC expectations, the opinions about the features of PLC and the difference between PLC and department meetings.

Under the theme of Constructivism the research question of “how did teachers’ understandings of constructivism change in the PLC process?” was addressed using focus group interview data. For the question of “how did teachers’ understandings of CLP change in the PLC process?” both focus group interview data and metaphor expressions were used. The last question stated as “how did teachers’ CLP skills change in the PLC process?”, on the other hand, was addressed examining the lesson plans. Findings of this theme were presented under the headings of “findings regarding with the constructivism comprehension change”, “findings regarding with the CLP comprehension change”, findings “findings regarding with the CLP skills change”.

Findings Relevant to PLC Theme

When the existent opinions in the expectations of the teachers prior to practice are considered, it was observed that all teachers especially emphasize sharing of knowledge and experience. But when asked to express their expectations in more detail, it was observed that each teacher is expressing the conditions, in which s/he is directly experiencing problems and the aspects s/he is feeling deficient except the 4th grade teacher. The expressions of two teachers were provided as example.

In here, all the children are different from each other. While one is learning better through the drama method, the other is learning through the presentation method. I think I can make up my deficiencies regarding this subject (2nd grade teacher).

In my class, there are two students, with whom I encounter problems regarding participation in lessons. I think I may learn something for reaching them. It may also be relevant to the conditions of the class. I expect to enrich myself by sharings (3rd grade teacher).

After the practice, the teachers have specified that their expectations were met and that sharing was the aspect that made them happy the most. It was observed that two teachers expressed meeting of their expectations regarding method/technique, one of them expressed meeting of her/his expectation regarding arousing curiosity, and one of them expressed meeting of her/his expectation regarding sharing of activities. The opinions of two teachers were provided as example.

I lived a process exceeding my expectations. I attended with pleasure. We performed sharing together. And these enabled us to improve. I think I made progress regarding method/technique the most. I gained a different perspective (1st grade teacher).

First of all, we had a common time in which we could meet and share many issues relevant to education as class teachers. Each one of us shared their experiences. We learned different methods from each other (3rd class teacher).

Regarding the difference of PLC from community meetings, the teachers have specified that the community meetings are determined by strict limits, that its relation with instruction is low, and that PLC is enriching and directly relevant to the process. The opinions of two teachers have been provided as example.

The community meetings are proceeding with strict limits, and it is rather proceeding in the activeness level of each teacher (2nd grade teacher).

Generally things to be done, books to be bought etc. are discussed in community meetings, in here we discussed on education, we discussed how more effectiveness could be acquired, and criticism is made by using positive language (3rd grade teacher).

Regarding the supportive leadership dimension shared, the teachers have expressed opinions relevant to both the school's leader and PLC's leader. The teachers have specified that they find the attitude of the leader as positive and supportive. Two teachers have specified their discomfort regarding the assignment of additional task by the leader during this practice. The expression of one teacher has been provided as example.

The hard working and good-humored standing of the leader is definitely affecting positively. Additional tasks, such as preparation of ceremony, can prevent allocation of time to this practice (2nd grade teacher).

In the shared values and vision dimension, it was observed that the teachers are like minded on the issue that PLC will contribute to their professional development, and that they gather around a common purpose. The expression of one teacher was provided as example.

It is ensured for us to develop a common language. We improved on the issues of improving ourselves, sharing and being like-minded on common purposes (1st grade teacher).

In the dimension of collective learning and application of learning, it was observed that the teachers believe that they have formed a team spirit. Concepts such as cooperative learning, exchange of ideas, being a team have been emphasized. Two teachers specified that primary relations were developed in this process. The expressions of two teachers were provided as example.

I think we are a very good team. We supported each other not only in school life but also in our private life (1st grade teacher).

I think we definitely became a team. We took the problems told seriously as if our own problems and we made suggestions. The suggested ideas became very enriching. We started to know each other better, and the prejudices are replaced by real values (2nd grade teacher).

In the shared personal practice dimension, they indicated that they shared their own practices and benefited from the practices of their colleagues. Two teachers specified that they used the things shared by their colleagues in their classes. The expression of one teacher was provided as example.

I learned very good and creative practices. I applied them directly in my class, it became very beneficial (1st grade teacher).

When the findings relevant to supportive conditions dimension were examined, it was observed that it was complained about the insufficiency of the number of computers and slowness of the internet. The third grade teacher was speaking of time allocation, and fourth grade teacher was speaking of printer problem. The expression of one teacher was provided as example.

I felt jammed by the time. Allocating time was difficult within the lessons. Internet, computer is functioning very hard. The place is suitable, but time is a problem, I attended tired due to intensity of lessons (3rd grade teacher).

Finally, when it is asked to the teachers which dimension they care the most, all teachers have specified that they attach importance to the "collective learning and application of learning" dimension.

Findings Relevant to Constructivism Theme

Findings Regarding with the Constructivism Comprehension Change

Before the PLC practice, the teachers have used the concepts of “considering the differences of students” in their definitions. The expressions of two teachers were provided as example.

It is considering the differences of the students (1st grade teacher).

It is an approach in which the student is active and in which s/he expresses herself/himself (4th grade teacher).

And after the practice, it was observed that the definitions have gained depth. Especially, the emphasis of “associating the prior knowledge with new information”, “problem solving and research process”, “learning by doing and experiencing”, and “material usage and enriching” are drawing the attention. The expressions of two teachers were provided as example.

An approach which is focused on problem solving, in which learning is associated with real life, in which differentiated education is being prioritized. The student and teacher becomes involved in the research process (2nd grade teacher).

Comprehension in which material usage and enrichment with differentiated studies are performed, and in which reflection is important (4th grade teacher).

Findings Regarding with the CLP Comprehension Change

Before the practice, it was observed that the teachers specify that they encounter problems in the dimensions of “allocating time, being unable to adapt teaching as per different student requirements, and writing activities”.

Allocation of time, being unable to adapt teaching as per different student requirements and closure activities (1st grade teacher).

Diversification as per requirements of students, having difficulty in warm-up and closure activities (3rd grade teacher).

And by the end of the practice, the teachers pointed out that their problems on this subject have decreased.

I ensured diversity of activities for different student requirements, the rate of addressing each student increased (1st grade teacher).

The change in teachers’ understandings of CLP was investigated using lesson plan metaphors. Teachers expressed “brain, compass, forest, menu, mountain climbing, navigation, road map, top step of the stair” as the metaphors for lesson plan. This process helped the researchers to understand the themes and determine whether conceptual “change” was occurred between first and last metaphorical expressions (Akar & Yıldırım, 2009). Codes developed by evaluating metaphors regarding their explanations, were presented below.

Table 2. Lesson Plan Metaphores

Teacher	Pre-Metaphores	Kodlar	Last Metaphores Codes	
1	Menu	Linear Plan	Top step of the stair	Target focused plan Directive plan
2	Navigation	Target focused plan	Brain	Plan continuously being changed Plan considering differences
3	Road map	Target focused plan Directive plan	Mountain climbing	Target focused plan Directive plan
4	Compass	Target focused plan Directive plan	Forest	Plan considering differences

Examining metaphors and codes in Table 2, the codes of "linear plan, target focused plan" "directive plan" revealed a teacher centered, traditional understanding of lesson plans, because in the explanations of the metaphors having this code, teachers focused on linear structure of a lesson plan and targeted outcome. Besides focusing on target in plans coded as target focused plans; teachers also emphasize the way to reach the target. However, there was no mentioning about the role of students in this process. Therefore, these plans were also coded as "directive plan", because they emphasized the guiding feature of the plans. Metaphorical expressions, which are related with the codes under the traditional approach category, were presented below as before the practice (BP) or after the practice (AP).

Lesson plan is like a menu, because it has a specific order such as appetizer, main course and dessert (1st grade teacher, BP).

Lesson plan is like navigation, because it shows the road by which you will proceed (2nd grade teacher, BP).

Lesson plan is like a road map, because it shows things required to be performed while teaching the lesson (3rd grade teacher, BP).

It is like a compass, because it guides us at the place where we want to reach (4th class teacher, BP).

The lesson plan is like the top step of stairs, because it shows the road to target you want to reach (1st grade teacher, AP).

Lesson plan is like climbing a mountain, because if we have intended to reach the peak, it is required to start and work on it (3rd grade teacher, AP).

"Plan continuously being changed " and " plan considering differences " codes emphasize that during the process, different ways can be tried and the lesson plan may evolve according to students' individual differences. Therefore these codes were associated with learner-centered constructivist approach. Metaphorical expressions, which are related with the codes under the constructivist approach category, were presented below.

It is like brain, because you may be required to perform many different movements and behaviors (2nd grade teacher, AP).

Lesson plan is like a forest, because there are also many different living beings in the forest: Trees, flowers, animals (4th grade teacher, AP).

Findings Regarding With The CLP Skills Change

The lesson plans prepared before and after the PLC practice were graded with the rubric. The first lesson plan mean scores (FPM) and the last lesson plan mean scores (LPM) were presented in Table 3.

Table 3. Lesson Plan Mean Scores

		Technical Structure	Holistic Structure	Warm-up Activities	Process Activities	Closure Activities	Total Score
1.grade	FPM	1.00	1.00	1,25	1.00	1,25	1,10
	LPM	2.00	2,66	2,5	2,33	2,50	2,39
2.grade	FPM	1,50	1,66	1.00	1,25	1,25	1,33
	LPM	2,50	3.00	2,75	2,08	2,75	2,61
3.grade	FPM	2.00	2.00	1.00	1,91	2.00	1,78
	LPM	2,5	2,66	2,5	2,41	2,50	2,51
4.grade	FPM	2.00	1,33	1,25	1.00	1,25	1,36
	LPM	2.00	2,33	2,25	2,16	1,75	2,09
Dimension Total Means	FPM	1,62	1,49	1,12	1,29	1,43	1,39
	LPM	2,25	2,66	2,50	2,24	2,37	2,40

When Table 3 is examined, the change of the plans of teachers towards constructivist comprehension was observed. When total mean scores are considered, the mean scores -being 1.39 in the first plans- is 2.40 in the last plans.

Discussion and Conclusion

In the first problem of the study, while the teachers were expecting to perform sharing of knowledge and experience before the practice regarding the expectations of PLC included under the PLC theme, they specified that their expectations were met after the practice and have emphasized that the point making them happy the most in the practice was sharing. The same point is also being emphasized in literature (Murphy, 2012; Peterson, 2014; Schmoker, 2006; Yamraj, 2008). This condition makes us think that the teachers are generally unable to find opportunities for communicating and sharing with each other at school. Expressing of the conditions in which they encounter problems in their classes -while giving the details of the teachers' expectations before the practice- may be interpreted that they deem PLC as an opportunity to improve their teaching. The expression of Yamraj (2008) regarding that the main purposes of the teachers in PLC practice is to improve their own teaching practices, emphasis of Schmoker (2006) to the structure of PLC that continuously improves teaching, and the emphasis of Guskey (2002) to its structure directly focusing on the class teaching are in parallel with the findings of this study.

Regarding the difference of PLC from community meetings, the teachers have specified that PLC is more flexible, enriching and directly relevant to the process. When the relevant regulation of Ministry of National Education is examined (Ministry of National Education [MNE], 2014), it is specified that the community meetings may be held by the beginning, middle and end of the academic year and whenever it is required, and that each subject relevant to teaching process may be discussed at such meetings in a cooperative manner. But these meetings are generally being deemed as a work load, and they are not being performed in conformity with its purpose. In literature, it is being specified that teachers in the community meetings are being left alone in their operations, and that there are problems in settling of the consciousness of being a team (Albez et al., 2014). Though, the purpose of community meetings is to increase solidarity among the teachers. And the reason of being unable to ensure that may be associated to being unable to form an environment of trust. The teachers worry about that their comments in community meetings would encounter censure (Graham & Ferriter, 2010). However, this concern was not observed in PLC as the teachers work under an environment of trust in the direction of the same purpose. The specified reasons may be the reason of the opinions of teachers regarding differences in between PLCs and community meetings.

The teachers have assessed PLC in respect of its basic characteristics. Opinions have been provided regarding both the school principal and the PLC practice's leader relevant to the supportive leadership dimension shared. It was specified that the attitude of the principal is positive and supportive. It is important for the principal to attend the meeting held by the beginning of the practice, to specify the importance of team work, and to ask by the end of the PLC practice whether the practice was efficient or not. The teachers have attended by knowing that the school principal was supporting such practice. At this point, it shouldn't be forgotten that principals play a vital role in the creation of professional learning communities (Lunenburg, 2010). Attendance of principals to PLCs as participant is important for the teachers to see the conditions by which they are content or not within the process. The role of the researcher leading the study was assessed as positive and supportive. This point may be assessed as one of the indicators that the practice was carried out in a healthy manner.

In the dimension of shared values and vision, it is being observed that the teachers are like-minded regarding that PLC will contribute to their professional development and that they believe that they are gathered around a common purpose. In the PLC study of Scott et al. (2011), it was emphasized that there is a common comprehension in respect of this dimension, and they have associated one of the reasons of this condition with the explanation of vision in the information letters distributed to teachers by the beginning of the practice. In this practice, a similar notification has been provided verbally by

the school principal. Moreover, addressing by PLC practice of a point that the teachers may directly benefit from and discussion of values and vision within the process may be among the reasons of understanding the common vision.

In the dimension of collective learning and application of learning, it was observed that the teachers believe that they have formed a team spirit. In this dimension, the teachers have emphasized concepts such as cooperative learning, exchange of ideas and being a team. Two teachers emphasized the improvement of primary relations within this process. Yamraj (2008) -in his study by which the difficulties encountered while starting the PLC practice was examined-, and Michelen (2011) -in his research by which the effect of participation in PLC on the professional life of a teacher was examined-, and Peterson (2014) -in his study by which the perceptions of the teachers relevant to PLC was searched- revealed that the communication among teachers increase. In this respect, it can be said that the findings of the study is in conformity with literature.

In the dimension of shared personal practice, the teachers have specified that they have shared their own practices and benefited from the practices of their colleagues. The teachers, in their expectations relevant to PLC, have also specified the importance of sharing their experience. Zhang and Pang (2016), in their research for determining the basic characteristics of PLC, had assessed this characteristic as an important dimension within the structure of PLCs devoted to cooperative learning. Chen and Wang (2015), in the longitudinal study in which they examined the evolution process of PLC revealed the importance of sharing of knowledge and practice. In PLC, the teachers acquire information from each other, not from instructors from outside. They present and discuss their own practices, they perform self-assessment, and they improve themselves. The study was found to be beneficial by the teachers in this respect.

When the findings relevant to supporting conditions dimension were examined, it was observed that the teachers complain regarding the insufficient of the number of computers and slowness of internet. Moreover, allocation of time and printer problem was specified. PLC was performed on Fridays which was the common time of four teachers. Fridays being the day on which the teachers give homework for the weekend may be the cause in having difficulty in respect of time. Because PLC practices require the teachers to make readings and to improve sample practices, it takes time in respect of preliminary preparation. Lack of performance of such a practice for their professional development in their professional lives may be considered as the cause of encountering problems relevant to allocation of time in respect of the teacher group. It was observed that the problem of time was specified in many studies (DuFour, 2002; Hirsh & Hord, 2008; Yamraj, 2012). For the teachers to be able to do research in the subjects discussed within the community, they are required to be supported in this respect.

When it is asked to the teachers which one of the characteristics they care about the most, all the teachers specified that they care the dimension of "collective learning and application of learning". The requirement of the teachers for the environments in which they can learn together is also covered in the literature (Murphy, 2012; Peterson, 2014; Schmoker, 2006; Yamraj, 2008).

In the second problem of the study, the concepts of "considering the differences of students, guidance of the teacher, reflection, activeness of the students" were used before PLC. These concepts (Borooks & Brooks, 1999) are among the main characteristics of constructivism. But all the characteristics were not addressed in any of the definitions, and emphasis on how these characteristics will be implemented was not made. This condition makes us think that despite the teachers have framework knowledge relevant to constructivism, they are unable to carry this knowledge to implementation process. In literature, the relation in between the beliefs or knowledge of teachers or of teacher candidates relevant to constructivism and their practices is a subject being examined. Some researches showed that the knowledge, opinions and practices of the teachers are not always in conformity (Gür et al., 2013; Simmons et al., 1999; Uzuntiryaki et al., 2010). And it is being observed that the descriptions gain depth and become more extensive after PLC. Especially, the emphasises of "associating the prior

knowledge with new information”, “problem solving and research process”, “learning by doing and experiencing”, “material usage and enrichment” are showing that the teachers consider the characteristics being specified in literature (Baviskar et al., 2009; Jonassen, 1999) regarding the implementation of constructivism. Briefly, the condition arising before and after the practice is in the direction that the descriptions of the teachers relevant to constructivism improve in a manner as to cover the characteristics relevant to practice and that the lesson plans also support this change. Compared with lesson plans before the implementation, last lesson plans of teachers were found to be more in line with constructivist approach. Teachers gained higher scores from introductory, process and closure activities including specified features. It would be incorrect to say, that teachers did not know anything about the main principles of constructivism before the implementation. However, teachers’ prior knowledge about constructivism did not reflect itself in their lesson plans or they could not relate their knowledge to their actual practices. Last lesson plans, on the other hand, had a structure supporting constructivist approach. This can be explained with the opportunity that teachers found during PLC for creating their own understanding of constructivist approach by sharing and discussing their ideas and practices in the context of their actual classroom experiences. It is thought that this particular process triggered teachers to think about this question: “how can I bring constructivist approach to my classroom?”

In the third problem of the study, when it is asked to the teachers the points they have difficulty while preparing CLP, it was observed that they specify that they encounter problems in the dimensions of allocating time before the practice, being unable to adapt the teaching as per different student requirements and writing activities. Adapting the teaching as per different students requirements is among the important indicators of CLP. Because the main characteristic of this comprehension is its structure of being student centered against the traditional plan comprehension (Uhrmacher et al., 2013), and deeming the lesson plans as the learning plan of the student in a sense (Marlowe & Page, 2005). It is not surprising that the participant teachers of the research have difficulty in writing activities relevant to such a comprehension without having the required training. Lastly, the teachers have specified the problem of allocating time. Baştürk (2016), in his research by which he had examined the constructivism perspectives of the teacher candidates, had specified that one of the most significant concerns relevant to the implementation of constructivism is the requirement for more time. And after PLC, the teachers had specified that the problems they had considered before were removed or decreased. This condition is showing that PLC supports the teachers in becoming more competent in preparing CLP. The prepared lesson plans are supporting the opinions being expressed in this dimension. It has been observed that the quality of the activities –written in the first plans of the teachers- were low and that they didn’t consider personal differences, and that the quality of activities increased in the last plans of the teachers. This condition is supporting the expressions of the teachers regarding that they showed progress on the points they had difficulty while preparing plan. However, to understand whether the problem of allocating time is solved, there is a need to make classroom observations.

When the metaphor is examined, it was observed that the teachers had initially used the metaphors of menu, navigation, road map and compass, and when these metaphors are assessed together with the descriptions, that emphases were made on linear sorting of plan and the point to be reached. In the study, these metaphors were coded as “linear plan”, “target focused plan” and “directive plan” and described under the traditional approach theme. Özdemir (2012) examined the instructional program metaphors of teacher candidates in his study, and indicated that the metaphors were generally reflecting a behaviorism focused perspective. When it is thought that lesson plans are among the implementation tools of training programs in a sense, it will not be incorrect that the initial metaphors are showing similarity with the study of Özdemir (2012), and that they bear the characteristics of traditional approach. And after PLC, the metaphors of top step of the stairs, brain, mountain climbing and forest had been used. Even if the “mountain climbing” emphasis of the 3rd grade teacher indicates target focused structure, she had indicated in her description different ways that may arise in the process. It is being observed that he 1st grade teacher used the metaphor of “top step of the stairs”. But even if the emphasis -in her/his description- on the things to be made on the road makes us think that

s/he was considering the process, it indicates that s/he couldn't move away from target focused structure. Because of this, "top step of the stairs" and "mountain climbing" metaphors were coded as "target focused plan" and "directive plan" under the traditional approach category. It can be said that especially 2nd and 4th grade teachers headed to the constructivism through the metaphors covering differences of students and the learning process. "Forest" and the "brain" metaphors were coded as "plan considering differences" and "plan continuously being changed" under the constructivist approach category. At this point, it was observed that a structure indicating both the traditional and constructivist comprehension arises in the last metaphors of the first and third grade teachers. While target focused structure was not being ignored on one hand, an aspect emphasizing the process had been added on the other hand. At this point, the settled strong stereotypes due to the existence of a concrete objective such as learning to read at the first grade level and due to the third grade teacher being the one with the highest seniority may be considered as the cause of this condition. Seung, Park, and Narayan (2011), in their study performed in science teaching methods lesson with the pre-service class teachers, examined by the beginning and end of the lesson the metaphors of the teachers relevant to teaching of science. By the end of the study, they specified that the teachers both preserved their traditional comprehensions –which they specified by the beginning of the study- and added characteristics relevant to constructivism to such comprehension, and that it was the indicator of a transition process. The result arising in this study may be assessed with the same perspective.

In the fourth problem of the study, the lesson plans were assessed with the rubric. The plans showed a change towards constructivist comprehension. When it is assessed in respect of the items in the rubric, it can be said that activities that would generate dialogue and that would arouse curiosity were included in the warm-up activities of the final plans, that opportunities of learning together was enabled by locating the high level questions, discussion and implementation to the center in process activities, that process and product assessment were addressed together in the closure activities, and that reflection and meaningful homeworks were included. Moreover, it was determined that the teachers considered transitions among activities and the relation of material and activity, and that they reflected a holistic comprehension. These specified characteristics are dimensions whose importance was emphasized in constructivist practices in literature (Baviskar et al., 2009; Brooks & Brooks, 1999; Dangel, 2011; Jonassen, 1999). Janjai (2011), who performed a group study with the teacher candidates in order to form CLP, had emphasized that the plans had become more qualified by the end of the group study, and had associated this with working together and social interaction. In this study, the use of groups consisting of teachers within the scope of PLC is indicating a similar result, and it makes us think that study groups are one of the elements enabling change. As a result, it can be said that PLC forms a positive change on CLP.

Limitations

When the findings are assessed together, PLC practices enabled the change of lesson plans of teachers towards constructivist comprehension, and enabled the teachers to be in an environment in which they like sharing. The results arising in the study should be assessed within the limitations of the practice.

The study was covered only a period of eight weeks. Despite that, it was observed that the characteristics being emphasized in literature (DuFour, 2002; Hipp et al., 2008; Hord, 1997; Hord, 2004;) were structured, and that the teachers could be involved in an effective dialogue. In the researches of Scott et al. (2011), they specified that the teachers are able to interact regarding pedagogic knowledge and learning of students when they hold face to face meetings for twice or three times even if they work at different levels and different schools. Dangel (2011), in his study by which the articles on constructivist teacher training were examined, made inferences regarding the effect on the teachers of short and long term constructivist teacher trainings, and specified that practices based on constructivism –even if they are short termed- is effective in enabling the writing of CLP. On the other hand, Darling-Hammond and Richardson (2009) had specified that the most significant effect in professional development practices may be seen in between 6-12 months. Thus, it is being thought that

continuing the practice for a whole academic year will enable the PLC process to be better understood. Again in literature, it is being specified that one of the most significant dimensions of this characteristic is class observations (Hirsh & Hord, 2008), and it is specified that observations performed by the teachers through visiting each other's classes are important. And one step of the PLCs is the observations performed by the teachers through visiting each other's classes. Although the lesson plans are strong indicators of the instructional process (Ceyhan, 2014), this research is focused on lesson plans, the lack of inclusion of the specified dimension is being thought as a restriction. Finally, there is no control group in the research. The effect of different professional development practices on the same subject was not included in the research.

Suggestions

In further studies, the inclusion of class observations in the process, step by step examination of the formation process of PLC and performance of longer period studies with the teachers serving at different levels and schools will enable the consolidation of literature for the more qualified implementation of PLCs, and will draw a road map for the practitioners. Addressing the new implementations –being applied under the reform operations in the field of education- within the scope of PLC will enable the understanding of the contribution of PLC to the adaptation of teachers to new practices. As specified in the study, PLC is providing an opportunity for the professional development of the teachers. It is important for the Ministry of National Education to take the first steps for this opportunity to pass to implementation level. For PLC to be able to be implemented at the level of schools and countries, it should be ensured to organize in-service trainings and to notify the educators. The evolution of community meetings to PLC comprehension may also be considered as an option. At this point, it is important for the school principals to be leaders of their schools, to motivate the teachers, and to provide time and location in order to share ideas about teaching. Studies by academicians on different groups, and revealing the conditions supporting and hindering PLC will enable the performance of more qualified PLC studies. Comparing PLC and different professional development practices through experimental studies is also being deemed important. Finally, notifying teacher candidates on this subject at faculties of education, and especially enabling them to observe the community meetings in practices of school within the scope of teaching practice lesson and speaking on their differences and similarities with the PLC practice is important.

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Appendix 1. Focus Group Interview Form

We will conduct this interview to determine your opinions about PLC practice and constructivism. I will use the interview data only for scientific purposes. I will not use your names when presenting data. I anticipate that the duration of the interview will be around an hour. Thank you in advance for your participation.

- 1) What are your opinions and expectations about PLC practice?
- 2) What do you think about the main features about PLC? What do the dimensions of shared and supportive leadership, shared values and vision, learning and practicing together, shared individual practice and supportive conditions mean to you?
- 3) How do you define constructivist approach?
- 4) What do you think about preparing CLP? What are the main features of CLP? Where do you have difficulties by preparing CLP's? Can you give examples?

Appendix 2. Metaphor Form

You are required to create metaphors about the concept of lesson plan. In provided sentence, please fill in the blank with the first word (living things, objects, visuals, etc.) that comes to your mind when you think about this concept.

Please go over the example and place your word(s) indicating a metaphor in the sentence. After the word "because" please write down your reasoning.

Example: Teacher is like a pole star; because s/he guides us where to go.

*Lesson plan is like, because

Appendix 3. Lesson Plan Rubric

Dimensions	Criteria	Performance Levels		
		3	2	1
Technical Structure	Presents lesson's objectives within the framework of key concepts.			
	Indicates main teaching methods, techniques and materials of the lesson in a clear way.			
Holistic Structure	The lesson plan is constructed with a holistic understanding.			
	There are transitions among activities regarding the relationships between them.			
	Materials and resources are used in a way to support activities appropriately.			
Introductory Activities	Is suitable for bringing out students' prior knowledge.			
	Arouses curiosity in students.			
	Allows students to be active.			
	Promotes dialogue among students and between students and teacher.			
Process Activities	Provides opportunity for students to work together.			
	Allows students to be active.			
	Maintains students' interest.			
	Creates a fruitful discussion atmosphere in the classroom.			
	Contains meaningful and engaging tasks that encourage students to use higher order thinking skills.			
	Focuses more on learning process rather than knowledge acquisition.			
	Addresses individual differences.			
	Includes higher order questions.			
	Includes primary resources.			
	Encourages students to ask questions.			
	Allows students to make connections.			
Allows students to apply newly acquired knowledge.				
Closure Activities	Involves a measurement and evaluation process aligned with the objectives.			
	Involves an assessment process addressing higher order thinking skills.			
	Allows students to reflect on their learning process.			
	Students are provided with meaningful and engaging homework/research questions			

3: Sufficient level, 2: Average level, 1: Insufficient level