Investigation of Learning in Creative Drama-based Classrooms through Community of Practice

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Abstract: In creative drama-based classrooms, the learners attain opportunities of working collaboratively in performing drama and determining their roles in their learning process through their performance. Also, there exist the opportunities of communication, learning various views, thinking creativity, thinking independently and forming mutual outcomes with the help of their previous knowledge and experience. The purpose of the current study was to examine the processes and the ways of formation of communities of practice in creative drama-based classrooms for preservice teachers enrolled in the departments of early childhood and elementary mathematics education through their learning process. Moreover, the roles of instructors and participants in different drama classrooms and programs in these different communities were investigated. The participants of the present study were composed of 55 sophomore preservice teachers at a university in northern part of Turkey. Data collection process lasted four weeks and included video recordings of the classes and audio-recordings of the interviews made with some of the participants. The qualitative data were analyzed by using community of practice framework. These communities were examined based on three dimensions of communities of practice (CoP), *joint enterprise, mutual engagement and shared repertoire* by focusing on their learning of these different communities. The findings showed that Wenger's CoP dimensions manifested themselves in the classrooms. Also, this framework utilized the understanding of similarities and differences among these different communities for their learning processes.

Key Words: Community of practice, creative drama, preservice teacher, mathematics education, early childhood education.

Yaratıcı Drama Sınıflarındaki Öğrenmelerin Uygulama Topluluklarıyla İncelenmesi

Öz: Yaratıcı drama sınıflarında, öğrenenler öğrenme sürecinde drama performanslarını yerine getirirken ve bu performanslarda rollerini belirlerken birlikte çalışma fırsatını yakalarlar. Ayrıca, iletişim, farklı bakış açılarını öğrenme, yaratıcı düşünme, özgür düşünme ve önceki bilgi ve deneyimlerle karşılıklı sonuçlar üretme fırsatları da bulunmaktadır. Çalışmanın amacı, okul öncesi ve matematik eğitimi programlarında kayıtlı olan öğretmen adaylarının yaratıcı drama derslerindeki öğrenme süreçlerinde uygulama topluluklarının oluşum yollarını ve süreçlerini incelemektir. Ayrıca, farklı program ve drama sınıflarındaki farklı topluluklardaki katılımcı ve eğitmenlerin de rolleri incelenmiştir. Çalışmanın katılımcıları Türkiye'nin kuzeyindeki bir üniversitede yer alan 55 ikinci sınıf öğretmen adayından oluşmaktadır. Veri toplama süreci dört hafta sürmüştür ve sınıfların video kayıtlarını ve bazı katılımcılarla yapılan görüşmelerin ses kayıtlarını içermektedir. Nitel veri uygulama toplulukları çerçevesi kullanılarak analiz edilmiştir. Bu topluluklar uygulama topluluklarının üç boyutu olan *ortak girişim, karşılıklı anlaşma ve paylaşılan repertuar* ile farklı toplulukların öğrenmelerine odaklanılarak incelenmiştir. Bulgular Wenger'in uygulama topluluklarıyla ilgili çerçevesinin boyutları sınıflarda görülmüştür.
Ayrıca, bu çerçeve faklı toplulukların öğrenme süreçlerindeki farklılık ve benzerliklerin anlaşılmasını kolaylaştırmıştır.

Anahtar Kelimeler: Uygulama toplulukları, yaratıcı drama, öğretmen adayı, matematik eğitimi, okulöncesi eğitim.

1. INTRODUCTION

It is clear that culture, context and learning cannot be considered separately based on sociocultural learning theories (Aguilar, 2011). Situated and more broadly sociocultural learning theories can be considered as an alternative to established views of cognition and learning as an individual and isolated cognitive phenomenon (Kirshner and Whitson 1998). Situated learning focuses on the learning as a social process because individuals participate in communities of practice (CoP) formed by situated cognition and situated learning (Lattuca, 2005; Wenger 1998). Instead of examining cognitive or conceptual changes in individuals, these theories investigate personal identity formation and transformation of it through participation and membership in various contexts, in communities of practice. These are key elements for the process of learning. In this respect, it can be claimed that situated learning theories might be appropriate for drama classes because these theories put an emphasis on context and participation having connection with role playing in the nature of drama. In drama-based classrooms, Wenger's ideas about CoP can provide an organized and accessible framework to study learning as participation. The three dimensions of CoP which are joint enterprise, mutual engagement, and shared repertoire can be used to examine these classes. With this motivation, this study focused on the use of the CoP framework as a heuristic for examining learning as a social process and producing effective creative drama-based classrooms. In other words, this study was designed to explore how CoP came into existence in creative drama-based classrooms for pre-service teachers in early childhood and primary mathematics education departments and examine the similarities and differences between these communities in terms of three dimensions of community of practice (CoP), *joint enterprise, mutual engagement and shared repertoire* and the roles of instructors and the preservice teachers.

Theoretical Framework
Creative Drama

Creative drama have become into prominence and popular in educational institutions. The importance of it has increased because deficiencies in traditional education system cannot meet the needs and the desire of active student learning (Sağlam, 2004). Therefore, the need of society is to improve individuals' levels of self-esteem and skills of communication. These individuals can think creative and be willing to take responsibilities. Based on this view, dramas can be used for educational aims in schools and the interest of the students about these aims can be supported in creative drama effectively.

In general, drama means "doing something" or "acting" in old Greek (Nutku 1983). Drama in education is being reenacted of any subject by the members of the group based on their experiences with the help of techniques such as improvisation, acting a part. In education, it is reenacted of any subject by the members of the group based on their experiences with the help of techniques such as improvisation, acting a part. Whereas drama is a process in which the feelings, considerations and experiences are shared comfortably and individuals make sense of the concepts of universal, social, moral and abstract (San, 1989), the participants animate one concept, behavior or event with the help of their original considerations, experiences and knowledge in a group working without a text which is written before in creative drama (San, 1991; San, 1998). The essential aims of using creative drama are improving imagination, providing independent reasoning, teaching collaboration, constituting social sensitivity and providing learning (Adıgüzel 2007).

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Learning takes place in drama by doing something and acting as members of the groups. According to Wenger (1998), learning occurs when the feelings, considerations and knowledge are shared with the others in a community and the degree of learning changes depending on the intensity of interaction. With the increase in sharing and mutual experience among individuals, the identities of individuals form, their adaptation facilitates and learning occurs. In this respect, it is possible to observe the existence of the concept of learning defined by Wenger (1998) in drama since learning takes place in drama by doing something and acting as members of the groups. Also, it represents a learning process grounded by experiences of members of group and reflects the relationship between the real life and drama performance (Senemoğlu, 1997). In this process, it makes the participant active by enabling them to interact with others, helping them to solve problems by utilizing their experiences. In addition, individuals reconstruct their knowledge by witnessing others' knowledge and experience in various aspects. Thus, due to the fact that creative drama provides learners real life experiences and presents opportunities to express themselves, it improves the skills of cognitive, affective and psychomotor (Adıgüzel, 2007). Moreover, individuals learn new behaviors by expressing themselves comfortably reducing the anxiety of making mistake (Tuluk, 2004). It also increases the feeling of belonging (Yeğen, 2003). In that respect, the nature of creative drama classrooms is suitable to be examined through CoP. According to Akyol (2003) creative drama is a method which can be used from early childhood to postgraduate in the education of different grade level students.

Community of Practice

The term of communities of practice (CoP) has its origins in the studies of situational learning in various occupational apprenticeship settings (Lave and Wenger 1991). According to Lave and Wenger (1991), learning does not represent only a cognitive process but also a process of increasing participation in communities of practice. The context, functions and capabilities of community affect the definition of CoP. According to Wenger`s definition, a CoP is an effective platform which enables individuals to exchange knowledge and internalize new information depending on their own needs and environments where they live. It includes dynamic process, encouraging permanent alteration and self-development by the nature, goals and communicative procedures of it (Yang 2009). A CoP supports sharing information, solving problems and developing individuals` identities.

Lave and Wenger's (1991) explained CoP as "a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice" (98). CoP represents "groups of people informally bound together by shared expertise and a passion for a joint enterprise" (Wenger and Snyder 2000, 139). A community of practice can be expressed by three dimensions stated by Wenger (1998). *Joint Enterprise* as the initial dimension explains collective understanding of the members of the community about what their community establishes with the help of mutual accountability among members. It represents the level of learning energy and the question in this dimension is "How much initiative does the community take in keeping learning at the center of its enterprise?" The community has a responsibility to provide development and maintain inquiry. Second dimension as *Mutual Engagement*, provides building community. Members of a community constitute norms and relations of mutuality by the interaction among members of the community. It is the deep part of social capital and the question is "How depth the sense of community generated by mutual engagement develop over time?". For successful mutual engagement, trust among members is important. In addition, the members of the community must know the others for productive interaction well. Third dimension as *Shared Repertoire* is related to common resources including language, routine, stories, symbols and tools formed

by the community. It is the degree of self awareness and the question is "How self-conscious is the community about the repertoire that it is developing and its effects on its practice?". Accessibility of this repertoire depends on how it is used appropriately. Reflecting repertoire provides understanding the development of them from multiple perspectives, considering the learning process again and realizing the hidden possibilities in terms of a community (Wenger 2000).

These three dimensions are interdependent. Learning energy makes community dynamic. The feeling of belonging constitutes the links between members and community, and the reflection of the dynamic nature of the community provides learning different perspectives (Wenger 2000). Through the learning energy and dimensions of CoP, creative drama classrooms are useful to include communities aiming to learn.

Communities Formed in Creative Drama Classes

With the help of the creative drama individuals work with the others collaboratively to design how they present the drama and determine their roles related to a particular topic. In this process they interact with each other, learn different perspectives, engage in activities, perform dramas, use their creativity, consider freely and produce mutual outcomes by applying their previous knowledge and experiences. In the communities the instructors can ask learners questions in order to express their ideas, encourage them to evaluate interaction and learning process in the community. Hence, it can be claimed that the dimensions of CoP take place in the communities formed through the learning process in the creative drama-based classrooms by encouraging the formation of them mutually.

To recognize children`s interpersonal needs and the importance of collaborative activities for experiential learning, Dewey (1958) promoted the idea that "students should function as a social group" (p.65). Many research show that pre-service teachers need to be involved in collaborative learning communities in which they are free to apply various approaches and strategies with the support of their peers (Grossman, 1991; Stein, Silver, & Smith, 1998; Wideen, Mayer-Smith,&Moon, 1998). Developing teacher learning communities entails, the creation of joint work, or a project that requires collaboration among a group of teachers. Developing these communities also entails the increase in learning practices and the capacity of group members` creating and using tools or knowledge in order to improve institution for students (Wenger, 1998). Hence, creative drama can play important role in teacher education because it meets the explained needs. Therefore, the focus of the present study is on the emergence of a CoP in two creative drama-based classrooms in teacher education. With this motivation, this study focused on the use of the CoP framework as a heuristic to examine learning as a social process and its formation in creative drama-based classrooms. In other words, this study was designed to explore how community of practice was observed in creative drama based classrooms of pre-service teachers in early childhood and elementary mathematics education departments. It was also aimed to examine the similarities and differences between these communities in terms of community of practice (CoP), the roles of the instructors and the students.

2. METHOD

This study was designed with respect to multiple case study as a qualitative research. It facilitates understanding the processes involved in the study thoroughly and gathering an essential amount of data (Merriam 1998). Multiple case study is a kind of case study including multiple cases, in which multiple cases are described and compared to provide insight into an

issue (Creswell 2012). It also supports generalizability and provides validity of the findings at a particular level (Meriam 1998; Yin 2003).

Participants and Setting Design

In the present study, there are two groups of participants enrolled in teacher education programs at a university in southern part of Turkey. Totally, 55 preservice teachers participated in this study. Of these participants, 20 registered at elementary mathematics education program and 35 registered at early childhood education program. They were sophomore students taking undergraduate courses of "Drama in Mathematics Education" and "Drama in Early Childhood Education", volunteered to participate in the study. Both courses were instructed by different instructors having Ph.D. degree in mathemeatics education and childhood education. Both instructors had the certificate to instruct in drama-based classrooms so they had sufficient knowledge and skills to design and manage these courses about drama.

The role playing activities were made in drama-based classrooms. The design of the classrooms were similar. The classes had wooden floor, pillows for students to sit, teacher desk and teacher chair. There were drawings and pictures of the participants on the wall to form relaxed atmosphere. There was also a blackboard in the classes to use if it is necessary. The students were not allowed to enter the drama classrooms with shoes and accessories to prevent students from injury. This was the rule that everybody had to obey in drama classrooms.

Two participants from each group were selected to be interviewed to talk about the drama activities and their learning and participation process each week. In each group after completing the drama application of each week, two participants were selected based on purposive sampling strategy. They were selected with respect to their roles and the amount of participation in role playing activities. It was thought that all 16 participants could provide similar data for the interview while selecting the interviewees.

Data collection and Analysis

Data collection period took four weeks and three hours in each week. All of the process in the drama classrooms were recorded by two video-cameras. The data collection period was finished based on the saturation of data about establishment of the roles and the domains of the CoP. At the end of each week, two of the participants were selected based on their roles and participation and asked to be volunteer about being interviewed about what they did and understood in the process. The audio recordings of the interviews were collected. Observations, drawings, and interviews were transcribed. During semi-structured interviews, students were asked questions about what they did, how they felt, what they understood from the activities, what roles they had and how they thought and felt and what practices they undertook. The transcribed data were analyzed based on framework representing Wenger's (1998) communities of practice dimensions. The instructors of the lessons sometimes wanted them to draw their feelings and thoughts related to the context applied in the lessons. These drawings were also used in the analysis process in order to analyze the learning process of the participants in detail and effectively.

The qualitative data collected through recordings of the drama classrooms and interviews and drawings of the participants were analyzed by constant comparative data analysis method of grounded theory. This method illustrates an inductive process composed of forming and connecting categories and then comparing different incidents by these categories

(Glaser & Strauss, 1967). By this method, the patterns in the qualitative data were established by comparing different groups, different weeks and hours. In other words, this method was used by making comparisons between the data collected in the same day and in the same group and the data of different groups and different weeks. In order to analyze the qualitative data, the codes and categories represented by the CoP dimensions and characteristics of them were used in the current study.

Main codes and themes were identified as illustrated in Table 1. By forming this table, the framework formed by Aguilar and Krasny (2011) was also used. The dimensions of CoP and the characteristics of them were represented in Table 1.

Table 1.Characteristics of Communities of Practice in Creative Drama Classes.

Communities of practice dimensions (Wenger 1998)	Characteristics of these dimensions
Joint Enterprise	Purpose of practice Evolution of practice Negotiation Contextual Influences and Constraints Mutual Accountability
Mutual Engagement	Membership Engagement Participation and Participant Relationship Participant Identity and Roles Structure and Quality of Interactions
Shared Repertoire	Tools Language Stories and Shared Experiences

Based on this table, it became beneficial and easy to organize and design the data to represent. It facilitated the process of deeply examination of the data and understanding the cases effectively based on the dimensions of communities of practice as described in Wenger (1998).

All of the data were analyzed independently and notes were taken about potential categories. After coding was completed, the researchers made discussions by comparing their analysis. When the disagreements happened about them, the data were reexamined and they discussed until reaching a consensus. The analyzed data were discussed for the agreement after making discussions exceeded the consistency rate of 90 % between the researchers. After the process of comparison of the analysis was completed, they documented the research. The agreement was provided accepting the rate of consistency between the two researchers in deciding exceeding 85%. At the end of the analysis, the researchers assessed the analysis process considering consistency and coherence after two weeks.

We employed a variety of methods to provide trustworthiness of the study. We attempted to make rich and descriptive explanations for the cases. We also employed data triangulation across methods within cases and across cases throughout the study (Patton 2002), recorded notes and researcher reflections after every data collection session and reviewed them before subsequent data collection visits (Creswell 2012), and used member-checks with respondents with the help of the students and the academician responsible for the courses and instructing them (Creswell 2012).

3. RESULTS

THE INTERACTION AND CHANGE DURING DRAMA ACTIVITIES

The role of the instructor of an early childhood education drama course

The instructor was the facilitator to encourage the participants' exploration, development, expression and communication of ideas, concept and feelings by fostering communication. The instructor was the person well-equipped by the knowledge about the meaning of drama and the techniques and phases of drama in theoretical view. The instructor had the responsibility of designing, organizing and controlling the lessons. The instructor questioning style encouraged the communication of the participants in drama-based instruction. They asked real life questions, encouraging the participants more deeply into their thinking and think in different point of view. The following interview data explain the role of the instructor in drama classes in her perspective:

> "My first responsibility is to teach the students what the drama is and what its importance and need are in education. Then, I teach them how the drama can be used in the lessons. Also, I must have the ability of adopting a variety of roles such as motivator, guide and co-artist. I must know and make good decisions about when to lead and when to follow the students while working alongside the students."

This interview data confirm data collected by video-recordings about the role of the instructor in drama-based classrooms of preservice early childhood education.

The role of the participants in the drama-based classroom of early childhood education

The participants were responsible for constructing their own ideas and experiences whatever they engaged in various roles. After completing their drama activities, they sat on the pillows in O-shaped and explained their feelings, and observations to other participants in the classroom and the instructor. By evaluating the drama applications, social negotiation facilitated the participants to develop common interpretations of events and objects. If participants actively built their interpretations of the world, they had more ownership of those thoughts. Further, social negotiation promoted the construction of common interpretations of events and objects. In whole process of the course, they became leader or participant. These roles changed each week. Also, different contexts such as going shopping, parent attitude towards children were used in each week. Hence, they took roles such as mother, father, six-year-old child, and sellers. The following interview data explains the role of the participants in drama-based classrooms in their perspectives:

> "Initially, I am expected to have the knowledge about the emotional, physical and mental development of children from one-year old to six-year old. I must also have knowledge about parental involvement to assess their attitudes. Then, I must learn what the drama is, how it is used in early childhood education and how a role playing activity is designed and applied in a classroom. In this course, I am expected to participate in the role playing activities by taking different roles such as a leader, a mother and a child. Each week, I take different roles. I also share my ideas about the role playing activities. At the end of the semester, I will be able to design a lesson plan based on drama."

The interview data confirms the roles of the participants determined through observation data.

Phases of drama and interaction in the community of early childhood education drama course

Generally drama based lesson consists of three parts; introduction, development, and quieting (Heinig, 1988).

In the introduction part, warm-up activities were used to lead everyone went in a relaxed mood, to be ready to work together in a harmony, to trust each other and also to have fun. In this phase about the rest of the lesson, the participants made warm-up activities such as walking, exercising and listening music by giving clues.

In the development part, make-believe environment was created in which the participants were pretending as if something was happening and/or as if be someone. Make-believe atmosphere created natural place for dramatics moments and required abstraction and imagination. Make believe play formed a metaphor which was a link constructed between the topic of the lesson and the real life. A frame and roles associated with the participants' actual experience and knowledge from daily life examples, conditions and situations were presented to the participants to foster meaningful understanding. Throughout any type of drama activity in the classrooms, there were a number of symbol systems used helping to create metaphor. These were "iconic" (the use of symbols; pictures, photos, letters); "enactive" (people making sense of the world by participating in active form) and "symbolic" (knowing through use of language) (Combs 2001). In this phase, the instructor explained the main activity as follows:

T: You will be divided into five groups. In each group, there will be child/children who is/are six years old. The group will make shopping in any place in which they want. Also, the characters that you will stimulate can be formed based on your choices.

After this explanation, the groups were formed randomly. They made mini talks about the roles of the participants and their general characteristics. The talks happened as follows:

A_1:   We can go to the bazaar to sell some vegetables and fruits.

A_2:   It is good. I can be the child who is impish.

A_3:   This child can be unwilling about going to bazaar. The mother wants him to go with her and persuades him.

A_4:   Ok. I can be the tomato seller.

A_5:   I will be the potato seller.

A_1:   So, I will be the mother.

Then, each group presented different stories with different characters. They implemented their roles. Their roles and general characters of the roles were clear but they decided what to say about implementing their dramas.

A_1:   Mehmet. Let's go to the bazaar. We want to need to buy some fruits and vegetables.

A_2:   I don't want to come with you. I will play games outsides with my friends. You can go.

A_1:   It is impossible. You will come with me!

A_2:   I won't come with you!

A_1:   If you come with me, I will buy you what you want. (Then, the mother persuades the child and they go to the bazaar.)

After they bought what they needed. The child began making discussion with his mother. While going their house, the child overturned the crates of tomato and jumped on the tomatoes.

A_2:   You promise me so you would buy the pants but you don't buy them.

A₁: I won't buy them. What are you doing?

A₄: You will pay for my tomatoes. Your child damaged my tomatoes. You are a bad mother. You aren't able to control your child.

A₅: Ok. It is not problem. He is a child. Do not admonish the Madame. Please, come here. I am selling tomatoes. Dou you need potatoes?

A₁: Ok. Please give me a kilo of potatoes.

Lastly, in quieting phase, the key points of the activity were summarized. The participants reviewed what they had learned either by answering or solving the questions posed by the instructor, or presenting what they had learned by an improvisation that required the use of knowledge learned. This phase was important to see whether learning and progress were accomplished or not. In this phase, the students sat on the pillows in the ellipse-shaped. The instructor determined three participants as the leaders. The participants sat in the U-shaped and the leaders sat on the empty part of the shape. The discussions were initiated by the leaders by asking general questions such as "What do you think about the application of the first group? What do you think about the characters in the groups and their behaviors based on their characters?". The interaction process can be exemplified as follows:

L1:   What do you think about the application of the first group?

B3:   They were in the bazaar. A mother and her son went to the bazaar. The child damaged the tomatoes. The tomato seller wanted money for the damage from the woman. Then, she did not pay. There was another seller giving sugar to the child and the woman bought potatoes.

C2:   The actual problem was the activity of mother related to not fulfilling the promise. She did not buy the pants. Therefore, he was obstinate and damaged tomatoes. Also, she admonished him loudly.

D5:   The important point in the drama is that the child is 6 years old. He is small so the behaviors of him should be met by understanding him. The seller should be understanding and help the mother.

E1:   I think that the mother should control the behaviors of her son. If she had controlled him, she could have prevented his damaging activities.

E2:   The mother was faulty in this drama since she did not make payment for the damaged tomatoes. She was not also illustrated good behaviors for him. He should have learned that if he had damaged anything, he should make something to meet the damage.

The role of the instructor in the elementary mathematics education drama course

Before the lesson, the instructor made preparation and designed the process. The instructor determined the purposes of lessons in each week, choosed what kind of activities would be carried out, which topic or the life of one scientist would be applied. The instructor encouraged the participants to share their feelings, opinions, knowledge and what they had learned. So, the instructor made the participants aware of the process, why they were in these kinds of engagements and provided to gain different perspectives by interacting with each other. The instructor clarified the points confusing the participants by interacting and communicating in a positive manner with students. The instructor had an expert role in classroom management. The instructor orientated the participants based on her domain knowledge in drama, gave directions to the participants in order to engage in warm-up activities and drama applications. She was also one of the members of the process and took roles in warm-up activities. On the other hand, she controlled and evaluated the lesson and participants` performances, gave feedback related to positive and negative aspects of the performances and explained to how the deficiencies could be removed.

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The role of the participants in the drama classroom of elementary mathematics education

The participants had the responsibility of participating in the lessons actively and taking role in warm-up activities and drama applications. None of them waited without joining any group in the process. The roles and groups were dynamic, the participants` roles changed depending on the context. The participants who participated in the same group, determined what kind of strategies they would follow in warm-up activities in order to gain the games or what kind of drama they would present by interacting with group members and their roles in this process. They might ask questions if there was some point which they didn't understand or give some advices related to activities. In addition, they observed each other, evaluated the dramas, made interpretation about performances of the others or indicated their considerations or feelings if there was something they wanted to share. The following interview data explains the role of the participants in drama classes in their perspectives:

"Initially, I am expected to have the knowledge about mathematical concepts. I must also have knowledge about how these concepts are taught. Then, I must learn what the drama is, how it is used in mathematics classrooms and how a role playing activity is designed and applied in mathematics lesson. In this course, I am expected to participate in the role playing activities by taking different roles such as a leader, a mathematician and a mirror. Also, I must participate in the discussion part at the end of the lesson."

The interview data confirms the roles of the participants learned from observation data.

Phases of drama and interaction in the community of mathematics education drama classroom

Generally drama-based lessons consisted of three parts; introduction, development, and quieting (Heinig 1988) as we mentioned before. One example including these three parts is as follows:

Warm-up Activities

In this phase instructor explained the rules of the activities and how they would engage in these activities.

Activity One: Mirror Working

T: May one of you come opposite to me? (One student goes).

T: You will do the same behaviors I did. (Teacher lifts up her hand, student lifts up her hand as her opposing).

S: Like symmetry.

T: Yes. We will walk in the room by doing mirror working. The purpose is providing communication and association.

Everybody constituted binary groups and walked around in the room. First one person was leader, determined the movements and then the other became leader and orientated the others. Therefore everybody took the responsibility.

Activity Two: Find Your Home

T: One person will be catcher, one will be escaper and the others will be couples. The couples will link arms. If the escaper links one`s empty arm the other person in the couple will escape and try to find another arm if the catcher touch him, he will be new catcher.

In this activity, students improve strategies not to be caught and make exercise by running.

Activity Three: Fishing Net

T: We will walk in the room, I will touch someone, this person will be catcher and s/he will try to catch the escapers. If one is caught, he will not be able to leave the net. The aim is joining

everybody into the net. After joining, the members of net will try to catch the others arm in arm together without breaking off the net.

This activity continues till everybody is caught.

Development

In this phase, instructor gave the directions and required the participants applying drama depending on directions.

Teacher: Form a ring together and count from one to three respectively. The same numbers will be in the same group. I am reading the directives and I want you to apply drama.

You are one of the important scientists of ancient age, you have lived in Babylon and Egypt for a long time. There are too many contributions of you to science, mathematics, music you have lots of theorems and 3-4-5 angle, you have a school called Pythagoras. This school is wanted to close by the dissident people as from establishment of it. Pythagoras gives lesson with the students which he chose. One day, while he gives a lesson, the school will be set on fire by the dissident people and the people in this school will be killed. While trying to extinguish the fire Pythagoras will die as well.

T: Each group will implement drama related to this text. However, I want you to tackle different points of the story. There are students, school, dissident people and fire. By taking into account these different points present your animations. If you want to animate all parts I accept.

After teacher gives directives, each group try to plan how they animate the story and determines their roles by negotiating for a while. One wants to be Pythagoras, the other choose being student and the other takes the role of the dissident person. The conversation in drama is as the following:

A_1: I proved Pythagoras theorem in the last week and I wanted you to think about the different proving ways of this theorem. Is there anybody found?

A_2: I tried to find. I want to show something. (Another student comes by the way).

A_3: There is statement on the door "One who doesn't know geometry cannot come into". See how I will enter. Give up seeking these unimportant things.

A_1: Who you are? What are you doing here?

A_3: I planted wheat on soil, I became rich. How will I be rich by using angle?

A_1: The real richness is seeing the power of mathematics.

A_3: Why is mathematics important? Can you show mathematics in real life?

A_2: I think you really don't want to see it. If you look at nature you can see it everywhere.

A_3: All of them don't serve any purpose.

A_2: I don't care whatever you think, get out of here. Let's going on proving.

A_3: I know what I will do. (He sets on fire the school).

Quieting

After each drama instructor asked the participants "Is there something do you want to say?". For above drama instructor said that both individuals would not talk in the same time since it became hard to understand the conversation and determined which person would be followed. One of them said that while they were proving they turned back and closed the blackboard so we couldn't see what they were doing. Some participants said that it was good drama.

General evaluation was made together at the end of the lesson by forming a ring. The instructor wanted the participants evaluate the lesson by thinking from the beginning to the end of the lesson and ask questions like "what did you feel?", "what did you remember from your previous knowledge" and "what did you learn?" and participants shared their opinions respectively.

The Community of Practice in A Drama-Based Classroom for the Pre-service Teachers at Early Childhood and Primary Mathematics Education Programs

1. Joint Enterprise

With respect to the joint enterprise characteristic of *purpose* of practice, both of the groups had similarities and also differences. It could be said that there were three different goals of participation in three phases. The main goal during the whole drama process was to have fun and learn. In the first phase, introduction part, the aim was to engage in warm-up activities. These activities helped the participants to be relaxed, ready to work together in a harmony, and to trust each other in funny atmosphere. In the first phase, the participants usually made warm-up activities such as walking, exercising and listening music in the class of early childhood education group, whereas the participants played games such as mirror working, fishing net and find your home which had rules in mathematics education group. However, although the warm up activities were different for the groups, the main aims in both classes were the same. In the second phase, the development part, the main aim was to exhibit their dramas by integrating the situation explained by the instructor and their prior knowledge about the situation and to take possible roles in the situation for both groups. This main aim was valid for both groups in general perspectives. However, the aims of activities and context were different because they were educated to be responsible for the children from different grade levels. For example, in the class of mathematics education, the aims were to attain the ability of thinking as a mathematician and to understand the mathematical concepts effectively. On the other hand, in the class of early childhood education, the aims were to attain the ability of thinking and feeling as a child, mother and the other people interacting with children in the real life. In the last phase, the purpose was to evaluate the drama activities for both groups.

With respect to the joint enterprise characteristic of *evolution* of practice, both of the groups had similarities and also differences. In the first phase, the warm up activities were made together so that the enterprise happened during warm-up activities in both groups. The participants usually made warm-up activities such as walking, exercising and listening music in the class of early childhood education group, whereas the participants played games such as mirror working, fishing net and find your home which had rules in mathematics education group. In the second phase, the enterprise involved helping the environment and the community through specific activities like drama activities based on specific situations. Enterprise included the activities done by the participants to integrate their previous knowledge as a mother, child, the sellers in early childhood education group or Pythagoras, student, the dissident person in mathematics education group and learning how to get along as a group and with others in the community in both groups. In the last phase, in quieting phase, the key points, important and wrong parts of the activity were summarized. The participants made discussions about what they observed, understood and learned. The enterprise happened through making explanations and sharing ideas about the roles of the participants, their behaviors and important points. There were some differences between two classes in this phase. In early childhood drama lessons, evaluating was made after all drama applications presented and students tried to remember what the groups presented, explain the roles, what good and bad aspects of these dramas` were. The participants were obviously willing to share their opinion and many of them talk about the process. In addition, the members of the groups explained what their roles were to make clear their presentations. On the other hand, in mathematics classroom, after each drama application, the instructors asked the participants to state their considerations when they wanted to share. However, although sometimes the participants sometimes made interpretations, they weren't willing to share their opinions as the participants in early childhood education program as. This situation might

be due to the behavior of instructor since she didn't insist on evaluating if the participants were unwilling. In addition, in early childhood classroom, this process was like rule but in mathematics class, it was considered as optional. They usually preferred not focusing on evaluating too much after each drama. On the other hand, preservice mathematics teachers carried out general evaluation at the end of the lessons as well. In this process all participants mentioned their feelings and what they have learned in the lesson. Focusing on evaluating more after each drama could be useful for better understanding the purpose of the lesson.

With respect to the joint enterprise characteristic of *negotiation and mutual accountability*, both of the groups had similarities and also differences. In the first phase including warm-up activities, negotiation was provided in different ways in the groups. The members of early childhood education group made negotiation by their behavior with respect to the context without talking. For example, the instructor told to imagine that they were swimming in the sea. Then, they began to behave in this respect. The members chose their behavior considering to be appropriate to the context and to the other members. On the other hand, the members of mathematics education group provided negotiation to form the strategies in the game to win the game. In the second phase including the application of drama activities, negotiation was provided in similar ways. They were separated into groups by some strategies. For example, they counted numbers from one to five. Then, the people saying the same number became the member of the same group. The group members formed negotiation about the roles and general characteristics of the roles by discussing. As it was understood from the conversations above, the participants performed their roles based on their observations and previous knowledge attained through the daily life experiences. For example, the role of mother was a typical mother explaining commitment and not carry out them. The child was also a typical 6-year-old child producing problem behaviors. On the other hand, in the role of Pythagoras, the participant applied her previous knowledge and said "One who doesn't know geometry cannot come into". The student`s questions of "Why is mathematics important?" and "Can you show mathematics in real life?" generally reflects most of the students` typical questions at the present time.

With respect to the joint enterprise characteristic of *contextual influences and constraints*, both of the groups had differences. The instructors of the groups used different warm-up activities including different contexts. The early childhood education group used swimming, jumping, running and walking activities. On the other hand, the mathematics education group used the games such as mirror working and fishing net. Moreover, in the second phase of drama, the participants applied their dramas by using different contexts in each week. The similar point of contexts used by early childhood education group was that there was always a six-year-old child. On the other hand, the similar point of contexts used by mathematics education group was that they focused on mathematical concepts. Moreover, the last phase was designed with respect these context so the context changed each week.

The processes in both communities occurred similarly. The instructors determined the topic such as communication, life of a scientist, the feelings of human or development of tangram, gave directions and wanted the participants make drama applications by constituting groups in the same way.

In order to examine joint enterprise clearly, the interviews were made with the instructors and the participants. A typical interview result obtained from one of the instructors as follows (R indicates researcher and I indicates the instructor):

R: What is the purpose of the drama activities in your classroom?

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T: The main goal of the course is to understand the importance and need for drama in early childhood education and to use drama as learning and teaching style.

R: Who determines this goal?

T: This aim is determined by the Ministry of Higher Education.

R: You instructed different drama axctivities each week. What were the aims of these activities?

T: I determined these activities by considering the important points in earlychildhood education. For example, going shopping with children, the feelings and emotions of children in different of situations. I think that these activities are critical since they are the important points for the children in order to be taught to adapt in the life.

R: What are the roles that you assign to the participants?

T: There are leaders and group members.

Moreover, the participants were interviewed about joint enterprise. The typical interview example is as follows (S indicates the participant):

R: What is the purpose of the drama activities?

S: The purpose is to understand the feelings and behaviors of a child in different situations. While learning about early childhood education and attaining these abilities, we can be good teachers in the future. Also, we have opportunities to apply theoretical knowledge that we obtained the other courses. Moreover, while making drama, we help each other in the group and have fun.

The findings of the interview showed that the instructors and the preservice teachers confirmed the existence of joint enterprise. They made similar expressions about joint enterprise. The purpose of participation and the part of evolution was understood in the same way. They provided negotiation about them.

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2.Mutual Engagement

With respect to the mutual engagement characteristic of *membership*, both groups had similarities. The participants in both groups engaged in as members of groups. The group members changed every week. All of them were friends since they are sophomore and know each other through more than a year in the program. The participants having some amount of background knowledge about childhood education and attending in the childhood education program, on the other hand, the participants having some amount of background knowledge about mathematics education and attending in the mathematics education program were considered equal members in their communities.

With respect to the mutual engagement characteristic of participant *identity and roles*, both of the groups had similarities and also differences. The members in both groups could take roles as leader and applier and these roles changed every week. The specific roles also changed based on the specific situation of drama activities and their choices when they made while sharing their roles in the situation. For example, in the early childhood education group, participant identities and roles were mother, father, seller six-year-old child. Whereas, in mathematics education group, participant identities and roles were Einstein, and mirror. Moreover, the characteristic of participation and participant relationship have similarities and differences in both groups. The similar point was that the determinant of participation was to be willing to participate in both groups. Their roles could be minimized based on their willingness to participate. For example, there was a member unwilling to take a role in the third group. Their shopping happened in a big a shopping center. Because of this feeling of this participant, the other members and he made decisions about his role and he became a security guard in the shopping center and there was no word to say in drama. He only stood up

on the floor. In the process of the lesson, the instructor helped him to participate in the role playing activities and discussion part. It was not acceptable not to participate in the warm-up activities, the role playing activities and discussion part in drama classes. In addition, the participants` knowledge might have impact on their role preferences in both groups. The another determinant of participation and participant identity and role might be the amount of pedagogical content knowledge that participants have. For example, the participants were unwilling to be Pythagoras since they thought playing this role might require talking about mathematics a lot and might be difficult so they were in tendency to choose the other characters.

In order to understand the existence of mutual engagement, the interviews were made with the preservice teachers and the instructors. The following is a typical interview made with the instructor:

R: How do people participate in drama activities?

T: Only preservice teachers who are enrolling in the course of "Drama in Mathematics Education" in the mathematics education department can participate in the drama activities.

R: In what types of roles are the participants engaged?

T: There are leaders and group members. The leaders are responsible for encouraging group members to work in harmony and emphasize important points in the activities by helping me. The group members are responsible for role playing as a mathematician, wife of a mathematician and mirror in drama activities.

R: How is the membership determined?

T: The participants are sophomore students in the programs. They have known each other for more than one year. Therefore, I assigned them into different groups each week. I think that they become interacted easily since they know ech other. Membership is determined by attending the course regularly, being willing to participate in the activities and to work together.

Moreover, typical interview data obtained from a preservice teacher is as follows:

R: In what types of roles are you engaged in?

S: In one week, I was a leader. I controlled and oriented warm-up activities and discussion part in drama activities. In warm-up activities, I told the rules of the games and the activities. Then, I asked critical questions to help the group members think about the drama activities. In other weeks, I was a group member in different groups. I was a mother, a child and the dog in the activities. Also, I explained my ideas about the drama activities, the behaviors of the characters and precautions for misunderstanding in mathematics concepts.

R: Was the participation in different groups difficult for you?

S: I think that it was not difficult since I have known everybody since last year. We can apply our drama activities by working as a group effectively. Also, all of the members were willing to participate in the activities.

It was observed that the interview results confirmed the observation results. Membership was determined by the participants' abilities to work together and their attendance at meetings and playing their roles in drama activities. There were not participants taking role in dramas. Membership evolved to one that took the role in drama activities and participated in the discussion and evaluation parts. In general perspective, the groups were similar with respect to the characteristic of structure and quality of interaction. The groups and the participation of the members were determined in similar ways. Also, mutual engagement processes in both communities took place in a similar way. The communication, interaction,

negotiation, the change of identities depending on different roles, sharing knowledge and gaining different perspectives were the essential elements of this phase.

3.Shared Repertoire

Whereas the words of the child, attitude of mother, small child, the unawareness of the children about what they did, to understand children, attitude of the children were the words used in all drama activities in early childhood class, the words used in drama activities of Mathematics class were more general, namely, the participants used words related to daily life, feelings or experiences as well as mathematics. The dialogs in early childhood class were more specific, related to education of children and reflecting their knowledge about this domain. This approach could be useful in terms of focusing on the purposes of lesson, consolidating information in the subject and prevent irrelevant dialogs. On the other hand, applying dramas which included more comprehensive dialogs rather than related to relevant education domain by obeying the directives can provide to learn information related to different subjects depending on the others` knowledge and experiences. The clothes in order to use presenting more realistic dramas, stories shared by teachers and the roles that the participants played constituted shared repertoire in both communities. Moreover, the interviews were examined and they provided specific examples for shared repertoire. The following interview obtained from an instructor in mathematics classroom is a typical example:

> "We used the words such as doing mathematics meaning having number sense, numerical ability, spatial-reasoning, a sense of cause and effect, ability of constructing and following a causal chain of facts or events, algorithmic ability, the ability to handle abstraction, logical-reasoning and relational-reasoning. We also use understanding as comprehending conceptual and structural knowledge about the concepts. The words of games mean the activities used to teach mathematical concepts."

Also, the instructor in early childhood education explained:

> "We used the words related to earlychildhood education such as parental attitude, mental health, emotional disorders, behavior problems and feeling and behaviors of children. These children are six-year old. We also use cognitive development and language development which are the critical points in early childhood education."

The interview results and observation results showed that there were words specific for each community. These were used in different communities and understood effectively by each member in the communities. The difference between the words used in different communities of practice resulted from the differences of the departments and the aims of their education.

3. DISCUSSION AND CONCLUSION

This study represented that the courses of drama included the elements that defined a community of practice, as proposed by Wenger (1998). It also illustrated the detail of the dimensions defining a community of practice. In this respect, this study provided beneficial information explaining how Wenger's dimensions manifested themselves in the drama courses and how these dimensions helped understanding learning. In other words, the study provides information about the existence of a community of practice and the process of leaving and the formation of the communities including it in the drama-based classrooms.

Findings of the present study showed that the communities of practice were appropriate to examine and explain the different drama classrooms. Both of the groups

showed evidence of joint enterprise, mutual engagement, and shared repertoire. Although the courses were designed for two groups of preservice teachers as being enrolled in the programs of mathematics and early childhood education, they showed similar joint enterprise, mutual engagement, and shared repertoire. The groups also emphasized the importance of participant and participant, participant and leader and participant and instructor agencies in determining and negotiating the enterprise. The mutual engagement or membership was often characterized by the participant as commitment and dedication to the joint enterprise, suggesting the interdependence of communities of practice dimensions (Wenger 1998). Moreover, the study illustrated negotiation, evolution of practice and mutual accountability considering contextual influences and constraints the purpose of interaction. These concepts helped to understand the joint enterprise in the classes.

An examination of the drama groups encouraged illustrating learning as participation, membership, and identity and role formation. All of these concepts were important since they had influence on participants' shaping each other and what the students deemed important for their personal growth (Brickhouse and et al. 2000; Lemke 2001). In the process of the applications of the drama activities, the participants played different roles. Their main roles could be accepted as membership and leadership by doing participation. The participation and the roles played significant roles in shaping students' identities in the groups and affected how they saw themselves and how others saw them (Brickhouse and et al. 2000; Reveles and et al. 2004). In this respect, it was important to identify the structure and the quality of interaction in the communities of practice.

When the process was examined carefully, it was understood that the joint enterprise and mutual engagement was provided by the shared repertoire. They produced a common language to understand each other and become a member of the group. Each week, different situations were examined so different situations provided different tools and stories and shared experiences. With the help of the common language, this did not cause discontinuity in the process. They made explanations by using their common language. It was observed that by establishing the dimensions of CoP and the learners understand and perform their roles in their communities, they could learn effectively and participate in the lessons actively. Therefore, it can be claimed that CoP dimensions should be formed in the lessons in order to help preservice teachers understand and learn the concepts through drama activities.

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GENİŞ ÖZET

Eğitim alanındaki çalışmalarda yaratıcı drama öne çıkmaya başlamıştır. Yaratıcı dramanın aktif öğrenmeyi ve öğrenci katılımını sağlaması geleneksel öğretim yaklaşımında yer alan eksiklikleri giderecek niteliktedir (Sağlam, 2004). Böylelikle, bir toplumun gerektirdiği özsaygı ve iletişim becerileri geliştirilebilir. Yaratıcı dramayla bireyler yaratıcı düşünebilir ve sorumluluk almaları hususunda cesaretlendirilebilirler. Bu açıdan, yaratıcı drama eğitsel amaçlarla okullarda kullanılabilir ve öğrencilerin ilgilileri de bu doğrultuda yönlendirilebilir.

Uygulama toplulukları kavramı kökenini çeşitli mesleki çıraklık ortamlarındaki durumsal öğrenme çalışmalarından almaktadır (Lave ve Wenger, 1991). Lave ve Wenger'e göre (1991), öğrenme sadece bilişsel bir süreci değil aynı zamanda uygulama topluluklarındaki bireylerin katılımlarının artış sürecini de göstermektedir. Bu kapsamda, uygulama topluluklarının tanımı bu toplulukların fonksiyon ve yeterlikleri tarafından etkilenmektedir. Wenger'in tanımına göre bir uygulama topluluğu bireylerin bilgilerini paylaştıkları ve yaşadıkları ortam ve ihtiyaçlarına bağlı olarak edindikleri yeni bilgileri içselleştirdikleri bir platformdur. Ayrıca, uygulama toplulukları doğası, amaçları ve iletişimsel süreciyle dinamik bir süreç içermekte, kalıcı değişimi ve bireysel gelişimi desteklemektedir (Yang, 2009). Bilgi paylaşımını, problem çözmeyi ve bireylerin kimlik gelişimini de sağlamktadır.

Yaratıcı drama sınıflarında öğrenme aktif katılım ve bir grubun üyesi olarak davranarak gerçekleştirilir. Wenger'e (1998) göre, öğrenme inanışlar, düşünceler ve bilgi gruptaki diğer bireylerle paylaşılarak olur ve öğrenmenin seviyesi bu gruptaki bireyler arasında gerçekleşen etkileşimin yoğunluğuna bağlıdır. Artan paylaşım ve karşılıklı etkileşimle, bireyler gruptaki kimliklerini oluştururlar, uyumları kolaylaşır ve öğrenme sağlanır. Bu açıdan, öğrenmenin aktif katılım ve bir grubun üyesi olunmasıyla sağlandığı drama sınıflarında Wenger (1998) tarafından tanımlanan uygulama toplulukları kavramının varlığını aramak mümkündür. Böylelikle, gruptaki bireylerin deneyimleri temel alınarak bir öğrenme süreci gösterilmektedir ve gerçek yaşam ve drama performansları arasındaki ilişki yansıtılabilmektedir (Senemoğlu, 1997). Bu süreçte drama sınıflarındaki katılımcılar gruptaki diğer bireylerle iletişim kurarak ve birbirlerinin tecrübelerinden faydalanarak problem çözebilir ve öğrenebilirler. Ayrıca, bireyler birbirlerinin çeşitli konulardaki bilgi ve tecrübelerine şahitlik ederek kendi bilgilerini yeniden yapılandırırlar. Böylece, yaratıcı darama toplulukları öğrenenlerin bilişsel, duyuşsal ve psikomotor becerilerini gerçek yaşam tecrübesi kazanarak ve bunları gruplarındki diğer bireylere sergileyerek sağlarlar (Adıgüzel, 2007). Ek olarak, bireyler kendilerini yanlış yapma kaygılarını azaltarak davranışlarını rahatça sergileyerek öğrenirler (Tuluk, 2004). Yaratıcı drama dersleri aidiyet duygusunu da arttırmaktadır (Yeğen, 2003). Bu açıdan, yaratıcı drama sınıflarının doğası bu sınıfların uygulama toplulukları kavramıyla incelenmesini mümkün kılmaktadır. Akyol'a (2003) göre yaratıcı drama okul öncesinden başlayarak mezunyet sonrası bireyleri kapsayacak şekilde birçok seviyede kullanılabilmektedir.

Yaratıcı dramayla bireyler deneyim ve bilgilerinden faydalanarak grup arkadaşlarıyla işbirliği yaparak dramalarını organize eder ve rollerini belirlerler. Bu süreçte diğerleriyle etkileşim içerisindedirler, farklı bakış açıları kazanırlar, etkinliklere katılırlar, yaratıcılıklarını kullanırlar, özgür düşünürler ve ortak sonuçlar üretirler. Bu topluluklarda, eğitmen öğrencilerin fikirlerini ifade etmelerini sağlamak amacıyla sorular sorabilir, değerlendirme yapabilir ve öğrenme sürecini control edebilir. Böylece, uygulama toplulukları kavramının bu süreçte yer aldığı iddia edilebilir.   Yaratıcı drama sınıflarında, öğrenenler öğrenme sürecinde drama performanslarını yerine getirirken ve bu performanslarda rollerini belirlerken birlikte çalışma fırsatını yakalarlar. Ayrıca, iletişim, farklı bakış açılarını öğrenme, yaratıcı düşünme, özgür düşünme ve önceki bilgi ve deneyimlerle karşılıklı sonuçlar üretme fırsatları da bulunmaktadır. Çalışmanın amacı, okul öncesi ve matematik eğitimi programlarında kayıtlı olan öğretmen adaylarının yaratıcı drama derslerindeki öğrenme süreçlerinde uygulama topluluklarının oluşum yollarını ve süreçlerini incelemektir. Ayrıca, farklı program ve drama sınıflarındaki farklı topluluklardaki katılımcı ve eğitmenlerin de rolleri incelenmiştir. Çalışmanın katılımcıları Türkiye'nin kuzeyindeki bir üniversitede yer alan 55 ikinci sınıf öğretmen adayından oluşmaktadır. Veri toplama süreci dört hafta sürmüştür ve sınıfların video kayıtlarını ve bazı katılımcılarla yapılan görüşmelerin ses kayıtlarını içermektedir. Nitel veri uygulama toplulukları çerçevesi kullanılarak analiz edilmiştir. Bu topluluklar uygulama topluluklarının üç boyutu olan *ortak girişim, karşılıklı anlaşma ve paylaşılan repertuar* ile farklı toplulukların öğrenmelerine odaklanılarak incelenmiştir. Bulgular Wenger'in uygulama topluluklarıyla ilgili çerçevesinin boyutları sınıflarda görülmüştür. Ayrıca, bu çerçeve faklı toplulukların öğrenme süreçlerindeki farklılık ve benzerliklerin anlaşılmasını kolaylaştırmıştır.