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Creative drama applications as complementary for constructivist approaches for science courses: teacher and student's evaluations

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Abstract

It is crucial that; application of new approaches, methods and techniques on the education of science and technology based on constructivism. It is also required that ; teachers must ensure the sufficient level about the subjects new approaches-methods and techniques such as creative drama. The goal of this case study, is to investigate the opinions of 30 individual 6. class students and 2 science teachers about the utilization and effectiveness of creative drama practices which is improved and applied by the researcher. Towards this goal, it was worked that; applying of design of the creative drama education program, about lesson, In the research; observation, meeting and document analysis which are qualitative data collection tools are used in the determination of the opinions of the students and teachers tending to this application process. After the data that are achieved from the researches, observations and student views; creative drama application provides that students knows themselves more and learning by experience and provides an easier and enjoyable education media and also provides social development and communication. It is expected that; contributing to the area with regard to an addition to methods based on constructivism ; but not contributing usage of creative drama in addition to conventional methods.

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1. Introduction

Modern education approaches are essentially the approaches that teach students ways to acquire knowledge rather than memorizing it. This provides for the development of various learning models and teaching methods that enable the structurization and discovery of knowledge by the students themselves. Nowadays, the creative drama is being implemented as seen to be a student oriented method that makes the individual participate actively in the learning process, gives the opportunity to learn through actions and experience, to learn how to study, to realize themselves and to be a creative, productive individual; an approach that, shortly, contributes to the development of an individual's all aspects (Kaf, 2000).

"According to the modern education understanding, teachers are supposed to develop skills related to the subject field and field education, as well as the teaching-learning process. The level of development, self improvement and knowledge fund require the teachers to posses knowledge regarding modern, cultural and universal subjects, to be aware of the new methods and techniques. One of such methods is the creative drama method (Özdemir & Üstündağ, 2007, p. 227)."

Studies performed in the field show that the use of creative drama method in Science and Technology education gives the students an opportunity to bring forth their hidden energy, to discover themselves and to learn through actions and experience (Dakılıç & Gönen, 1998). Gürdal et al. (2001) indicated the advantages of the creative drama method in terms of Science and Technology education to be the provision of social development and communication in group work during drama workshops, creation of a more enjoyable and easy learning environment for the science and technology concept. Bentley & Watts (1989) described it as being able to increase verbal communication and gives the students an opportunity to share their experiences with the world.

The science and technology program aimed to ensure that students learn, understand and experience the excitement of the natural world, find interest in the science and technology, gain the skills to structure the new information, develop their knowledge, experience and infrastructure regarding the professions, use science and technology in problem solving, learn to study, use their scientific process skills, this case, the use of creative drama, which involves activities for active participation of students in the process and is able to invoke curiosity in students, is important in terms of achieving the goals of the science and technology program (Önder, 1999). Moreover, teachers, who assist the students in learning according to the applied program goals, need to become sufficient in terms of use of the creative drama method, which has an important place in achieving the goals of the program (Özdemir & Üstündağ, 2007). The vision of the Science and technology lesson program is to bring up all students, regardless of their individual differences, as literates of science and technology. A general definition of the science and technology literacy is the combination of science related skills, attitude, values, understanding and knowledge necessary for individuals to develop their research-questioning, critical thinking, problem solving and decision making skills, to make them life long learning individuals, to ensure that the sustain their sense of curiosity for the environment and the world. Bringing up the students as literates in science and technology or scientific literates, regardless of their individual differences, can be achieved by means of the creative drama method (Özdemir & Üstündağ, 2007). Güzel (2001) and Candaş (2008) applied the drama method in various subjects within the scope of the science and technology courses and indicated that student successfulness, course incentive increased, the classes became more interesting as a result of the applications, which helped the students to remember what they learned more easily, simplified the learning process, and concluded that the applied drama activities ensured extremely consistent learning.

1.1 Problem

The goal of this study conducted as a case identification study is to study the opinions of 30 6th-grade students and 2 science teachers, who participated in creative drama application developed and implemented by the researcher, regarding the use and effectiveness of such approaches. Answers to the following questions were sought in scope of this study.

What are the views of students and teachers regarding the use of creative drama applications during the 6th grade science courses?

What are the difficulties encountered by students and teachers in regard to the creative drama applications?

What are the students' suggestions regarding the creative drama applications?

What effects do contributions and suggestions of students for the structuring of the process have on the achievement of goals of the creative drama applications?

What effects do contributions and suggestions of teachers for the structuring of the process have on the achievement of goals of the creative drama applications?

2. Method

2.1 Research Pattern

The goal of this study conducted as a case identification study is to study the opinions of 30 6th-grade students and 2 science teachers, who participated in creative drama application developed and implemented by the researcher, regarding the use and effectiveness of such approaches. Since the study involves gathering of opinions of students and teachers regarding the use and effectiveness of creative drama, it is referred to as a case identification study. On the other hand, the observation, interview and document analysis among qualitative data collection tools were used in identification of the opinions of students and teachers regarding the application process.

2.2 Participants and Environment

As described above, the process conducted jointly with students and teachers was executed within the scope of a 4-hour science and technology class and in a special class environment designed as a science and technology classroom.

2.3 Content

Process oriented evaluation was used within the scope of lesson plan prepared to suit the creative drama method and based on the constructivist approach with the subject "Conductors and Non-conductors". Evaluations performed in the results section of the lesson plan were carried out in focus of the process evaluation.

2.4 Process of Education

Stages of plans used during the study performed by Özdemir & Üstündağ (2007) were taken into account when preparing the lesson plan. After the lesson plan suitable for creative drama was prepared, the view of a field specialist was acquired and the introduction, development and results (evaluation) sections of the plan were identified and necessary corrections were made.

2.5 Data Collection Process

The study was conducted by implementing a lesson plan prepared with the use of creative drama within the scope of the *Conductors and Non-conductors* subject with 30 6th grade students. For observation of the process, codes were created by focusing on the participation of students in the performance activities, roles and responsibilities in group exercises, their contributions to the developed process, stories formed during the activities performed.

2.6 Data Analysis Plan

Focus group interviews were performed with the nine students with high course success and rate of participation in activities and their views regarding the use and effectiveness of creative drama applications were sought. Different themes were formed from the data and codes acquired at the end of interviews and their frequency values were identified. During the research process involving the monitoring of these nine students, it was attempted to determine their views regarding the use and effectiveness of creative drama from the data acquired by observing whether the students comprehended the goals of the activities, their participation, responses given to the discussion inquiries, their roles and responsibilities during group exercises, their use of science notebooks, their use of materials.

3. Findings

According to the descriptive analysis of focus group interviews with, students actively participated during the lesson in terms of the use and effects of creative drama (55.5%). Most of the students (88.8%) indicated that such application allows them to learn through actions and experience and that they learned more consistently and easily and their level of success increased due to these applications. Moreover, in relation to the effect of the application, students indicated that they were able to act independently and freely, thus their level of anxiety was reduced, they seized the chance to express themselves (44.4%). Findings of the content analysis also support these findings.

Students indicated that they found the activities to be relative to their areas of interest, enjoyable and fun (44.4%). Views regarding the activities are also supported by the findings of the content analysis.

In regard to the difficulties encountered by students during the process, a portion of the students (22.2%) indicated that the application should have been carried out in a more spacious area, the games could be played with certain difficulties in a confined space. Findings of the content analysis also support these findings.

Students indicated the advantages of the creative drama to be the possibility of thinking over alternative situations with life-examples (44.4%). A portion of students (33.3%) stated their views that such application would prove to be significantly useful if implemented in other classes as well. Findings of the content analysis also support these findings.

In regard to the group work, students indicated that they provided views from different perspectives, helped in creating a team spirit and that evaluation activities performed after group exercises were quite extensive (55.5%). Findings of the content analysis also support these findings.

3.1 Findings of content analysis of focus group interviews with students

When the students were asked about the effects of conducting the lessons in such manner, the students indicated that they were able to better understand the lesson, could learn more easily, were able to learn through actions and experience, exhibited more sharing. Studies performed in the field show that the use of creative drama method in Science and Technology education does not give the students an opportunity to bring forth their hidden energy, to discover themselves and to learn through actions and experience (Dakılıc & Gönen, 1998). Students express it as follows:

"My Master, I think this was very good, because there were students that never participated in the classes, now even they took place. And it also was more consistent. (Girl1)."

"It was an environment with high level of participation in the class and conducting the lesson in such manner resulted in consistency. For instance, whenever I encounter something in my daily life that relates to the subject, I instantly remember the activities we performed and I remember those times (Boy2)."

"A person generally keeps either very happy or very sad memories. We had a lot of fun here. Therefore, the experience became permanent. For example, the books provide information that seems very complex, however, we learned that information more consistently here through enactments. (Girl 3)."

Among the advantages of creative drama in terms of teaching Science and Technology; group exercises performed during the drama workshops ensure social development, information provided in science and technology books can be taught in an easier and more enjoyable manner through games used in the drama method. Students indicated that they could learn more easily and with more joy with following statements:

"I think these activities encourage us to participate during the lesson. The lessons become more fun. Even our classmates, who do not participate during the lessons very much, began to participate more. We would like to have such activities in other classes as well. (Girl 4)."

"For example, the most loved class is the physical education, because we learn about the basketball by playing it. The science class is also alike as we learn while having fun, making improvisations, having various activities."

For instance, if we only read the rules for playing basketball, we will not learn how to play the game. It is the same here. When we learn all this knowledge in such manner, we are able to apply that knowledge in our daily lives. Thus, we have more practice here than during the normal classes (Girl 2).

Bentley & Watts (1989) defined the advantages of using creative drama method during science and technology classes as increasing the verbal communication and providing a possibility for students to share their experiences with the world. The students' views also support these studies. Students explained the reasons for their liking of such activities as follows:

"All of us were focused on the activities. The fact that there are many different activities allows for everybody to find an activity from their field of interest and participate in the class (Boy3)."

"I liked most the card drawing game with the drama activities. However, not knowing the answer to a question and having to pass the card to another person in the group did not feel very good. I was embarrassed when I could not answer a question, but during the improvisation there was no environment for us to be afraid or shy of each other (Girl 3)."

Contemporary education approaches aim for the learners to become active, participating, question-asking, questioner individuals able to work in a team, able to learn to study, able to learn the ways and methods to acquire knowledge and able to become excited when acquiring knowledge. Nowadays, the creative drama is being implemented as seen to be a student oriented method that makes the individual participate actively in the learning process, gives the opportunity to learn through actions and experience, to learn how to study, to realize themselves and to be a creative, productive individual; an approach that, shortly, contributes to the development of an individual's all aspects (Kaf, 2000).

Beyond that, teachers also have very important tasks in the application of creative drama methods. Preparing a suitable program is very important in this process. Students indicated the importance of the preparation of a suitable program as follows:

"For example, we would like to have the lesson conducted more freely. We freely performed exercises without boredom. For example starting the lesson by making us walk around in the area for warm-up significantly helped us to focus on the lesson. We add some things according to our wishes but we also know the goal of the lesson. (K2)."

The creative drama method is a method that helps the students to discover themselves as well as the teachers to discover their students better. Observations show that among all students there are those who like role playing, shy ones, ones that are more capable in games. Observation of such individual differences is very important for students to exhibit their skills.

"Being in a different environment increased everyone's participation and in this way it was a bit different from the activities we generally perform in class. It was nice to have a different environment and we loved to perform the activities with the teacher. It was a lot of fun and very joyful. We want to have more other activities (Girl 3)."

"There was an environment for everyone to exhibit their skills more and to show their knowledge freely. I think the environment was very suitable for everyone and everyone could achieve satisfaction. (Girl 2)."

When the students were asked about the things they liked most in the process, they indicated that they enjoyed the variety of activities, the games were entertaining, and the fact that their opinions were collected in evaluation. Students express it as follows:

"For example, I like to imagine a lot. You are also very important here. You are very entertaining and at the same time your dialog with us in the class is very nice and it is very effective (Girl 1)."

3.2 Findings of the descriptive analysis of documents

When the roles and responsibilities of students in group exercises were being determined, they were requested to evaluate their groups using the evaluation forms. Students evaluated following eight criteria in their group

evaluation forms: The criteria are as follows: aware of each other's work, distribution of tasks is equal, carries out responsibilities, respect each other's ideas, compatible with each other, respectful and tolerant, evaluate their work together, work productively and make cooperative decisions respectively.

Table 1. Values obtained from the group evaluation forms

Criteria	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8
Mean	4.52	4.26	4.69	4.91	4.37	4.91	4.96	4.52

When the mean values calculated from the points given to the items according to the responses of students (frequently (4)/all the time (5)) are reviewed, it can be seen that students are aware of the work of team mates, the task distribution among the team is equal, each team member executes their responsibilities, team members respect each other's ideas and are compatible with each other, behave respectfully and tolerantly, everyone's work is evaluated jointly with the team members, team members work productively and team members take decisions cooperatively.

3.3 Findings of the content analysis of documents

During the study the students were requested to write stories about "traveling by train" and to fill out self-evaluation form following the creative drama activities in order to evaluate the process and these forms were analyzed as documents. When reviewing the stories, the students were seen to utilize a scientific language and take advantage of their imagination. Students' indications provided in the self-evaluation forms are given below;

What did I do during the activity?

Creation of a versatile learning environment during the study ensured inclusion of activities that provided for active participation of students. Different groups were formed and game and improvisation activities were performed. Active student participation was ensured during this process. Full student participation in game and improvisation activities was observed. Thus, the students were given a part in the process and an opportunity to learn through actions and experience.

"We wrote down our dreams and enacted them in drama. We continued to perform drama. Our teacher handed out papers. The papers contained the properties of conductors and non-conductors and we attempted to find the substances they are attributed to (Girl 1)."

What did I pay attention to during the activity?

In this section students indicated that they paid attention to the fact that while performing improvisations, they were related to the subject and the theoretic knowledge as well. These activities performed by students in relation to the subject and the information were effective in remembering the subject, increasing the permanence of learning, relating to daily life.

"When performing this exercise I was careful to respect my teammates, take into account their opinions and not to interrupt them (Boy 4)."

What did I learn from the activity?

When reviewing the statements of students, it can be seen that students were able to describe what they had learned from the activity using a scientific language. Keeping the science notebooks within the scope of activities suitable for the constructivist approach ensures that students make clear and net statements.

"I have learned a lot from this exercise. For example, I have learned about the properties of conductors and non-conductors (Boy 2)."

In this section of the self-evaluation performed after the activity students express their opinions that the activity was entertaining. This shows that the students' perceptions of the lesson have a positive tendency. In terms of simplification of learning, students indicated that they found the activities to be simple and educating.

"The things I liked about this exercise is performing activities together, reinforcing the knowledge and performing drama (Girl 1)."

What are the things that bothered me about the activity?

Students indicated that they were not bored at all by the plans prepared in terms of multiple various activities and games and that the process was very entertaining.

"I think it was very fun to have activities with my Teacher. We had fun and were not bored at all. The thing I loved the most is being together with my teacher and my classmates, it made me very happy (Girl 2)."

It can be seen that students are responsible for their in-group behavior during the activity implementation process and that they criticize unsuitable behaviors.

Self-evaluation is an approach that helps the individuals to discover their own skills. Application of self-evaluation forms within the scope of creative drama activities, which constitute an effective method for development of reflective thinking skills, was more suitable. Self-evaluation requires the students to evaluate what they have done in school, how they were thinking and how they performed the activities. The students had an opportunity to evaluate their improvisations, games and other activities by means of the self-evaluation form.

3.4 Findings of content analysis of focus group interviews with teachers

When researching the effects of creative drama on the interest in the study, semi-structured detailed interviews were conducted with 2 science teachers using the interview forms prepared with regard to the process.

When the teachers were asked what they did when preparing for the lesson, teachers indicated that they used guide books, the Internet, prepared short quizzes for evaluation, prepared their own plans and indicated that they were able to motivate the students more in such way.

"I prepared and use my own plans and archives. There are motivation, discovery, definition sections. Students have a better motivation for the lesson (T1)."

When the teachers were asked about their participation in scientific meetings and activities, the teachers indicated that they attended scientific method related meetings, seminars about the regulations and project competitions.

"I used to attend when preparing my thesis. I generally attended meetings regarding scientific methods. Two time I participated in notification presentations. Participated in the Clean Sea project. Then we presented it to students in the school. I also went to the project fair. (T2)."

When the teachers were asked about the contributions of such activities and scientific meetings, they indicated that such activities create awareness, increase experience.

"We gain new knowledge. There are some that are useless. There were some activities where I asked myself why I went there at all. I developed myself even more when preparing my thesis, my subject was creativeness. Creative drama is also included. Beyond that, I also studied analogies, writing creative stories, and creative drama exercises. (O2)."

When the teachers were asked about the advantages and disadvantages of the creative drama applications, they indicated that disadvantages can be listed as difficulties with improvisation, the need for an adaptation period, having too little time to explain a lot of subjects. Beyond that, they indicated that the method was important in terms of student motivation and reaching out to everyone.

"You are able to reach more students but the time is problematic. There are so much things that can be exercised through creative drama but there is no time. (T1)."

"There is a problem with improvisations, it is ineffective when performed once, it needs to be done continuously. It needs to be applied to the curriculum. (T2)."

Teachers also indicated that visuals are very important, the need for materials and costumes, and that classes are very crowded. When the teachers were asked why it is important to have creative drama applications during science classes and they indicated that the science class is the class where creative drama is most effective.

When the teachers were asked about the aspects they most liked about the applications and that had most effect on them, they indicated that the applications were able to attract the attention of the most uninterested students, increased the success, included teachers in the process as well, simplified their jobs, provided them an easier teaching experience and allowed for less repetition.

"Drama seems to make our job more difficult, but actually it simplifies the job. We do not repeat because we repeat even less. (T1)."

Finally, when the students were asked about situations they were not able to acknowledge before but discovered after the application and requested to perform evaluations on the matter, they indicated that their conscience was clear, they were proud of themselves, their expectations were increased and they discovered their own creativeness.

4. Discussion and Suggestions

The drama method was applied in various subjects within the scope of the science and technology courses and it was indicated that student successfulness, course incentive increased, the classes became more interesting as a result of the applications, which helped the students to remember what they learned more easily, simplified the learning process, and concluded that the applied drama activities ensured extremely consistent learning.

Students need to become active, participating, question-asking, questioner individuals able to work in a team, able to learn to study, able to learn the ways and methods to acquire knowledge and able to become excited when acquiring knowledge as per the modern education approaches. Students addressed the teacher and the environment when expressing their views regarding the process in the study. Therefore, the teacher needs to be able to prepare a suitable environment and to have a good communication with the students. Teachers have very important task in planning, applying and evaluating the education program based on creative drama method. The creative drama method is a method that helps the students to discover themselves as well as the teachers to discover their students better. This is also very important in observing the individual differences.

Bringing up the students as literates in science and technology or scientific literates, regardless of their individual differences, can be achieved by means of the creative drama method (Ozdemir & Ustundag, 2007). The vision of the Science and technology program is to bring up all students, regardless of their individual differences, as literates of science and technology. Therefore, creative drama is important in creating science and technology literate individuals.

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