Views of Teachers on the Use of Drama Method in Science and Technology Courses

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Abstract

The aim of this study is to identify the views of the teachers on the use of drama as a teaching method in the science and technology courses. In the current study, qualitative research method was used. The data were collected through semi-structured interviews. The participants of the study were selected via maximum variation sampling. The participants consisted of 25 primary school (classroom) teachers teaching in primary schools located in the city-center and county centers of Afyonkarahisar, Turkey. The reliability of the interviews was found to be 89 %. The findings show that drama can sometimes be used for science and technology topics. Most of the participants reported that the material in science and technology course was easier to learn through drama. While some of the participants make preparations to use drama, others use it without any preparation whenever they feel that the use of drama is appropriate. The participants made several recommendations to improve the effectiveness of the drama method. These recommendations apply to school administrations, teachers, and the Ministry of National Education.

Keywords: *Primary science education; Science and technology course; Drama method; Primary school teachers*

Introduction

The significance of primary science education has increased parallel to rapid advances in science and technology (Sağırlı & Gürdal, 2002). Through the course science and technology students can gain scientific and technological literacy and account for some daily events using their knowledge of scientific principles (Bahar, 2006). Science courses can thereby produce science and technology literate individuals can be achieved. There are various teaching methods and techniques used in science and technology courses that provide meaningful learning by making connections to daily life activities. One of these methods is called the "drama" method.

In all interpersonal interactions or people's interactions with objects, pragmatic and operational points occur, which are called dramatic acts (Aral et al., 2000). Drama involves doing something as it is real. Therefore, it provides a presentation and interpretation of a physical or mental activity and is a way to transform students' mental and physical potentials into creative acts (Durusel, 2007). Experiences, intellectual background and knowledge gained through education and dreams are all basis for drama (Aksarı, 2005).

The drama method provides a cooperative learning environment in which students can employ scientific principles in their daily life (Sloman & Thomson, 2010). In drama, students are assigned various roles. They then act as the character they were assigned. They talk and think in the way the related character talks and thinks. In this way, students improve their language and communication skills (Farris, 2001, cited in İçelli et al., 2008). Drama in educational settings makes students active participants in the learning process (Gönen & Uyar-Dalkılıç, 2003). It also reinforces student motivation due to its joyful character (Önder, 2006).

Since students animate the roles in their preferred way, they are not timid, leading to an increase in their self-confidence. During role playing, children try different solutions and exclude those that do not work in the relevant situation, and employ useful ones that are further improved upon. This process eventually improves their problem-solving skills (Kocayörük, 2004). In short, drama as an educational method allows students to reflect, discuss, make connections with real life, and look at the events from different angles (Littledyke, 2001). Some scholars argue that drama reinforces the attainment of cognitive, emotional and technical skills related to analysis, synthesis and evaluation (Dorion, 2009).

The drama method can be used as an innovative way of helping students to learn scientific concepts and topics in primary science education. It is important for students who learn better through games or game-like activities that curriculum designers and educators understand the value of drama (Furman, 2000 cited in Doğru et al. 2010). However, the literature on using the drama method in science education is limited (Çokadar & Cihan-Yılmaz, 2010; Kamen 1992; KasPolisini & Spector, 1992; Özdemir & Üstündağ, 2007). New examples should be developed nowadays so as to correct the wrongly known and applied activities in using the drama method. The educational needs should be met and insufficiencies of teachers of various fields in drama should also be supplied (Özdemir & Üstündağ, 2007). In order to employ the drama method effectively at the primary education level some points should be taken into consideration. For instance, its level of use, effective factors for the use of drama and solutions for potential problems regarding its use should be analyzed. It is valuable to learn about the views of primary school teachers concerning the use of drama as an education method. Therefore, the aim of this study is to identify the views of teachers on the use of drama as an education method in science and technology courses.

Methodology

Model of the Study

A qualitative research method was used in the current study. Qualitative research helps to explain and understand the significance of the social facts and deals with how people make sense of their feelings, acts, views and the world. Researchers who use qualitative research techniques focus on how and why the acts occur to collect detailed information that provides an understanding of the content (Merriam, 1998; McMillan, 2004).

Participants

The participants of the study were selected via maximum variation sampling that is one of the purposive sampling techniques. Maximum variation sampling consists of choosing participants or sites that are very distinct or different (Schreiber & Asner-Self, 2011). The participants consisted of 25 primary school (classroom) teachers teaching in primary schools located in the city-center and county centers of Afyonkarahisar, Turkey.

Data Collection Tools

The major data collection tools used in qualitative research are observations, interviews, phone interviews, personal and official documents, pictures, drawings, diaries, emails, and other informal documents (Gay et al., 2006). In the current study, the data were collected through semi-structured interviews in May 2011. Semi-structured interviews are designed to have a number of interviewer questions prepared in advance but these prepared questions are designed to be sufficiently open that the subsequent questions of the interviewer cannot be planned in advance but must be improvised in a careful and theorized way (Wengraf, 2001). The following questions were asked to the participants during the face to face interviews:

1- What do you know about the drama method?
2- What do you think about the use of drama as an education method in science and technology courses?
3- How do you employ it in courses? (Preparations)
4- What are the effects of drama on students? (Advantages and disadvantages)
5- What are the contributions of drama to teachers?
6- What teachers should do in order to effectively use this method? What are your suggestions?

Data Analysis

In qualitative data analysis, certain steps are followed: the collection and organization of the data, detailed analysis of the data, coding of the data in the form of categories, the development of definitions regarding people, places and activities, the development of themes, and the reporting and interpretation of the data (Lodico, et al., 2006). In the current study, these steps were followed. The details of the process are given below:

In order to establish internal validity, the developed interview form was analyzed by four field specialists. Then the items of the form were reorganized based on the views of the specialists and the form was finalized. In order to establish external validity, the form was used in a pilot study with one teacher. The answers given to the items were recorded and transcribed. Then the correlation between items and answers was analyzed in terms of the appropriateness of the items.

After the interviews with all the participants, the audio recordings were transcribed. According to the descriptive analysis method, these transcripts were analyzed by the authors independently and then coded. Next, the codings by the authors were compared and the reliability was determined using the reliability formula developed by Miles and Huberman (1994): "Reliability = Agreement / (Agreement + Disagreement)". The reliability of the interviews was found to be 89 %. While giving direct quotations, abbreviations (P for participants) are used together with numbers. The themes were developed based on the questions asked in the interviews. Related codes obtained in the data analysis were used as sub-themes and categories.

Findings

In the current study, teachers were asked six questions in face-to-face interviews. For each question, the related table is shown below. The tables show the themes, sub-themes and categories of the teachers' answers.

Findings of the First Theme

The first theme of the study concerns the answers of classroom teachers to the question "what do you know about the drama method?" Table 1 shows the sub-themes and relevant frequency.

Table 1. Definition of Drama

Definitions of the drama method developed by the participants	f
(a) Animation	15
(b) Learning by doing and experiencing	10
(c) Play	6

One of the participants who defined drama as an animation stated *"the method of drama is a method of animation that reinforces student learning"* (P4). Other participants reported *"The method of drama is animation of any topic by students who use improvisation rather than predetermined scenarios"* (P22).

One of the participants, who stated that the drama method is learning by doing and experiencing something said *"...it is a method in which students practice something through doing something"* (P1), while another one with the same view said *"Drama provides students with the opportunity to learn something through experience of events"* (P18). One of the participants who stated that the drama method is play said *".....drama mostly implies play"* (P12).

Findings of the Second Theme

The second theme of the study concerns the answers of classroom teachers to the question, "what do you think about the use of drama as an education method in science and technology courses?" Table 2 shows the sub-themes and relevant frequency.

Table 2. Views on Drama as an Education Method

Views of the participants regarding the use of drama in science and technology courses	f
(a) In terms of study topics	
a.1. For many study topics	13
a.2. For some study topics	9
a.3. For all study topics	2
a.4. For a few study topics	2
(b) In terms of frequency	
b.1. Sometimes	14
b.2. Rarely	6
b.3. Frequently	5

Some of the participants stated that drama can be used for many topics delivered in the courses. Others argued that the use of drama in science and technology courses depends on the nature of the units. They added that it is suitable for some units, but not all. However, there are also some participants who argued that the drama method can be employed for all study topics. There were also some classroom teachers who think that this method is not applicable to science and technology courses.

A participant who reported that he frequently uses drama in science and technology courses stated *"I try to use it as much as I can"* (P2), whereas another one said *"…although I could not use it in all the units, I employed it in the proper units"* (P20). One of the participants who reported that they seldom make use of drama as a learning method said *"I used it very rarely, since we focus on experiments"* (P7). Another participant reported *"I use it frequently in all the units and for one of three class hours per week."* (14).

Findings of the Third Theme

The third theme of the study concerns the answers of classroom teachers to the question, "How do you employ it in courses?" Table 3 shows the sub-themes and relevant frequency.

Table 3. Views on Employing Drama in Courses

Views of the participants concerning the use of drama in science and technology courses	f
a. Without preparation	11
b. Preparation for drama	7
c. Informing students before the course	7
d. Playing roles like students	7
e. Using teachers' guide	2

Some of the participants reported that they did not make preparations for the use of drama in courses. For instance, *"I did not do any preparation. It occurs simultaneously, but if I prepared it it would be more efficient"* (19) and *"I did not do any preparation"* (25).

There were also participants who make preparations before using it in science and technology courses. For instance, *"I prepare the course in advance. I know what to deliver in the course. Then I deliver the course based on my preparation"* (3). In order to prepare the students for drama, some teachers reported that they inform the students before using it in classroom: *"Since we know which unit or topic will be studied, I inform them in advance to increase their readiness for the course"* (5). One of the participants stated *"In general, I also take roles in drama with students while studying some of the topics"* (7).

Findings of the fourth theme

The fourth theme of the study concerns the answers of classroom teachers to the question, "What are the effects of drama on students?" Table 4 shows the sub-themes and relevant frequency.

Table 4. Views on the Effects of Drama on Students

Views of the participants about the effects of drama on students	f
(a) Positive effects	
a.1. They like the course and teachers	19
a.2. They always want to study the course through drama	17
a.3. It facilities student learning	17
a.4. It facilities student understanding	16
a.5. It makes the course joyful	7
a.6. Students express themselves easily	4
a.7. It improves students' self-confidence	3

Views of the participants about the effects of drama on students	f
a.8. It improves socialization	1
a.9. It improves the creativity of students	1
(b) Negative effects	
b.1. Mockery due to incorrect role playing	4
b.2. Only some students take part in drama activities, leading to a sense of isolation in the remaining students	4
b.3. Seeing the course as play, leading to underachievement	2
b.4. Becoming bored	1

Some participants stated that drama has positive effects on students, such as making students like the course and teacher, increasing participation and student achievement. For instance, *"Students learned the topics very well"* (20) and *"When the course is given through drama, they can fully achieve the objectives"* (22).

Teachers also stated that using drama facilitated student learning. Two of them also reported *"students always want to study the course through drama since it makes the course more joyful"* (1) and *"Students want us to deliver the course using drama"* (8). Another one added that through drama, students could understand the material much more easily. It was further argued that the material learned through drama is retained longer by students.

However other participants emphasized the negative effects of drama when used in courses. For instance, they stated that due to the roles they play, some students can be mocked by their classmates (17). It was further suggested that if any problem occurs in role playing, it may lead to derision (23).

There was also one participant who argued that when the course is delivered through drama, the students perceived the course as more play, leading to insufficient learning of the material (13).

Findings of the Fifth Theme

The fifth theme of the study concerns the answers of classroom teachers to the question, "What are the effects of drama on teachers?" Table 5 shows the sub-themes and relevant frequency.

Table 5. Views on the Effects of Drama on Teachers

Views of the participants about the effects of drama on teachers	f
(a) positive effects	
a.1. Courses are much more joyful.	13
a.2. It facilities the delivery of the course	8
a.3. It improves the teaching skills of teachers	7
a.4. Teachers can more easily discuss the characteristics of students	3
a.5. It makes teachers passive and students active	2
(b) negative effects	
b.1. It is tiring for teachers	1
(c) no contribution to teacher.	3

One of the participants argued that the use of drama in science and technology courses makes the courses more joyful (4) and others said that it makes the courses more active (14) and (16).

One of the participants argued that the use of drama in courses also improves the teaching skills of teachers (6). Another one reported *"since students easily understand and learn the material given through drama, I feel myself happy to be a teacher"* (19). One of the teachers stated *"drama method makes students active in the learning process and teachers passive. More specifically, since course delivery becomes more active with student participation, teachers just watch what's going on"* (12).

One of the participants, on the other hand, stated *"the use of drama is exhausting for teachers due to noise in the classrooms, since students perceive it as play, leading to unnecessary noise in the classroom"* (11)

There was also another participant who stated that the use of drama in courses does not affect him, but that he uses it for students (21).

Findings of the Sixth Theme

The sixth theme of the study concerns the answers of classroom teachers to the question, "What should be done to improve the efficacy of drama?" Table 6 shows the sub-themes and relevant frequency.

Table 6. Views about the Effective Use of Drama in Courses

Views of teachers regarding the effective use of drama in courses	f
(a) Suggestions for school administration	
a.1. Supportive materials should be developed.	4
a.2. There should be drama rooms in schools.	2
(b) Suggestions for teachers	
b.1. They should be prepare to use drama	6
b.2. They should work with their colleagues	6
b.3. They should read and use books on drama	4
b.4. There should be drama contests	2
b.5. Teachers should be informed about the curriculum	2
(c) Suggestions for in-service training	
c.1. The courses should be given by the ministry of national education	9
c.2. The courses should be given by faculty members from different universities	2
c.3. Brochures should be used for this aim.	1
(d) Suggestions for curriculum	
d.1. Textbooks should include drama exercises	6
d.2. The class hours of science and technology courses should be increased	1

Some of the participants stated that school administrations can contribute to the effective use of drama in courses by developing supportive materials and course equipment*. "All necessary materials including drama costumes can be stored in a room at the school"* (3) and *"The ministry may send some samples of drama work together with the necessary equipment. I think these will be useful to us"* (16)

There were some teachers who suggested that cooperation among teachers will be positive for the effective use of drama in classrooms (7) and *"During the seminars teachers have available time to discuss such topics. I think these discussions will produce creative ideas regarding the use of drama in classrooms"* (20).

Some of them suggested that in-service training can be used as an opportunity to improve the effectiveness of the drama method. For instance, *"Related in-service training activities should be increased"* (13) and *"Teachers should be offered in-service training activities by the Ministry regarding drama activities and related techniques. These can be more comprehensively explained to teachers."* (15). There were also participants who argued that teacher guides should include much more information and instructions about the use of drama in courses (10) and (9).

Conclusions and Discussion

The findings of the study which aimed to identify the views of classroom teachers on the use of drama in classrooms as a learning method indicate that the participants regard drama as animation. This finding is consistent with that of Güney (2009). On the other hand, the participants also conceptualized drama as learning through doing and play.

The findings also show that drama sometimes can be used for many science and technology topics. The finding that drama is one of the applicable learning methods is consistent with that of Ormancı and Şaşmaz-Ören (2010). Regarding the use of drama, the participants reported different ways in using it. Some of them inform the students before using it in classroom. While some of them make preparations for drama use, others use it without any preparation whenever they feel that the use of drama is appropriate.

The participants stated that drama as a learning method has both positive and negative effects on children. The finding that drama has positive effects on students is consistent with the conclusions of Yılmaz (2006), Güllü (2009) and Selmanoğlu (2009). The finding suggesting that drama provides lasting and relevant learning is consistent with that of Sağırlı and Gürdal (2002). It is also similar to that of Dorion's study (2009). Most of the participants reported that the material in science and technology course is much easier to learn if it is given through drama. This finding is similar to that of Hendrix et al.'s study (2012) and Sağırlı and Gürdal's study (2002).

Regarding the effects of drama use on teachers, the participants stated that it may have positive or negative effects. There were also reports that it has no effect on teachers. As a positive effect, it was reported that the use of drama makes courses more joyful. On the other hand, some participants stated that during drama activities teachers became passive. This report contradicts the finding of Toivanen et al.'s study (2011) in which they argued that teachers have active roles to play during drama activities.

Participants provided several suggestions on how to improve the effectiveness of the drama method. These suggestions are for school administrations, teachers, and the Ministry of National Education. These suggestions may help to solve the problems faced during the practice of drama in classrooms. These ways of solving problems are similar to those mentioned in Güney's study (2009). The suggestion that schools have drama rooms is similar to that given in Tengku et al.'s study (2012).

In 2005, the primary school program in Turkey went through radical changes, implementing new and effective teaching methods. This program is student centered; activity based and concentrates on active learning. Because the students are active learners in drama-based learning environments and also have a chance to construct knowledge in their minds through meaningful learning activities, using the drama method in primary science education is very important. Therefore, teachers must use drama effectively as a teaching method in science and technology courses.

Based on the findings of the study, the following suggestions are put forward concerning the use of drama in classrooms as a learning method:

- Drama should be more frequently used in courses.
- Physical conditions in classrooms should be improved in order to accommodate drama activities.
- In-service training activities should involve practical activities towards the use of drama.
- Teachers guide books should include drama-related exercises.

Regarding future studies on the use of drama in classrooms, the following suggestions are put forward:

- Drama activities carried out in classrooms should be observed to uncover problems faced during practice.
- The views of the students can also be analyzed.
- Actual problems in the use of drama can be identified through the use of action research in order to develop action plans to deal with these problems and to develop solutions.

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