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Original article

THE EFFECT OF TEACHING APPROACH WITH DRAMATIZATION USED IN SCIENCE AND TECHNOLOGY LESSON TO THE STUDENTS ACHIEVEMENT LEVEL

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Abstract

Aim: In this study, it was aimed to analyze on 7th grade students the effect of teaching approach with dramatization to the students' achievement level about digestive system within science and technology.

Methods: In accordance with the determined purpose, the research group consisted of 58 7th grade students attending the science and technology lesson in Ankara Salih Alptekin Secondary School. Research was designed in experimental model with pretest-posttest control group. Placement test including the subject of digestive system which is one of the subjects of science and technology lesson was made for the research group in the form of multiple choice test. After assessment of tests; by matching their points, students who got the same or close point were appointed to the 2 different groups named as control (n=29) and experimental group (n=29). Thus, it was assured that groups had homogeneous structure. For the experimental group, in the direction of 4 domain experts' opinion related to content and application; two hour-long drama session was prepared to perform in school gym. Drama session was prepared in 3-stage model (Preparatory-Warm Up Workings, Performing, Assessment-Discussion) (Adiguzel, 2006). The content of drama is; 1st stage: Touring the exhibition consisting of the big posters and pictures about digestive system, 2nd stage: Coordination track application, which is composed of the stations expressing respectively the process of digestive system and students will complete with various movements and tasks, 3rd stage: This is the last stage; in which each students perform the digestive system organs they want, bodily form is opened to interpretations of other students and by using pastel students draw what they remember about digestive system. With classic teaching approach, digestive system was lectured by relevant teacher to the control group in classroom environment. One week later, pretest prepared for both groups was carried out. SPSS 15.00 package program was used for the statistical assessment of data. Quantities were included in tables by using dependent and independent t-test in analyses.

Results: Meaningfulness was tested in the level of 0.05. As a result of assessment, it was seen that average point of experimental group (87.41±11.32) is significantly ($t= 2.361, p<0.05$) higher than average point of control group (79.13±14.58). In addition, it was found that in each group, average point of female students is higher than average point of male students. As a result, teaching approach with dramatization affected positive and significantly the students' achievement level about digestive system.

Conclusion: When drama session formulated in accordance with its purpose is used effectively, it has qualification to contribute considerably to purpose of learning.

Key words: drama, digestive system, teaching method, student, physical education

Introduction

In modern education system, it is essential to develop not only the cognitive aspects of individual but also the affective and psychomotor aspects, and to increase the individual's interest in lesson. Subjects such as learning way of individual, permanence of informations, methods, teaching style of teacher bring with them the constant questionings in educational sciences.

Drama is one of the effective learning tools for the cognitive, affective and psychomotor development of the students. In addition, drama gives

chance students to reflect their emotions through the body, to regulate and synthesize their informations and to display products within groups through communication in collaboration environment by creating original products (Ataman, 2006). Even though major purpose of drama is to entertain the children, during drama activity children have fun and become happy. It develops imagination. It provides children to think independently. It develops the cooperation ability characteristic. It creates social and psychological sensitivity. It provides four basic language skills (speaking, listening, reading and

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writing), enriches language's usage area and quality. It provides non-verbalized language to be learnt. It provides creativity and esthetic development. It enables ethic values to develop. While moving muscles, it provides to find and try new methods and to develop body sophisticatedly (Rizaoglu, 2006). Drama method in education uses student-centered education as base both in preparation phase and in implementation phase. The purpose is to enable children to be active during learning process, to provide within this process the children to spend entertaining time and to provide permanence of learning (Koc and Dikici, 2003). Participants of drama activities should be ready for an in-group study, feel confident and relaxed, be ready to discover new and different aspect on themselves. Dramatization as a teaching method makes easier to learn for children by providing an environment making students active. According to Demirhan (2006), dramatization has the meaning of dramatizing a subject and making subject livable. In dramatization, distributing of roles and selecting the subject and text are made by leader or teacher. Participants perform the character, given by teacher or included in text, with body language or verbal expressions. Leader is more active, directive and determinative in dramatization. Dramatization is in act just as creative drama; in this process, a dramatization and a making livable is the subject (Adiguzel, 2006). Dramatization helps students to make contact between the informations learnt actively and their experiences, to join group studies, to motivate to the subject, to see themselves as a part of subject since they set their experiences into work (Karadag and Çaliskan, 2005). Drama is already in the nature of child through the game. It is important to determine and plan in advance the things that are to be taught to child. When child enter actively into subject, s/he researches the details with his/her methods and reaches to result. Thus child gets the chance to observe, to research and to discover the world s/he lives in. Child needs a reason in other word necessity to learn something and to adjust what s/he has learnt to daily life. Here, teacher creates this necessity through drama (Gonen and Dalkilic, 2003). In intraclass drama activities, even though children seem like they just watch the situation, experiences acquired when they get chance to perceive the situation are very important for them. While audiences live only the dramatized subject; in terms of the one who dramatizes, dramatized subject is both a playing event and a living event (Bilen, 1996). In literature, it is seen that with using of drama method, in the studies conducted in various domains such as

math, geometry, biology, learning of language (Duatepe, and Ubuz, 2010; Roze et al. 2000; M. Fleming et al. 2004; S. Karakelle, 2009; W. S. Jeong, 2009) this method affects positively the students' learning level. In this research; by trying two separate method (classic expression and dramatization) on teaching digestive system subject among the 7th grade Science and Technology lesson units; it was aimed to determine which method contributes to the students' achievement level in terms of learning quality.

Method

Research was designed in experimental model with pretest-posttest control group. The research group consisted of 58 7th grade students attending the science and technology lesson in Ankara Salih Alptekin Secondary School. Placement test including the subject of digestive system which is one of the subjects of science and technology lesson was made in the form of multiple choice test to the research group. After assessment of tests; by matching their points students who got the same or close point, were appointed to the 2 different groups named as control (n=29) and experimental group (n=29). Thus, it was assured that groups had homogeneous structure. One of the experimental group students didn't attend the drama session. Beside this, since one student didn't attend the post-test exam, 27 students' data were assessed in the post-test of experimental group. For the experimental group, in the direction of 4 domain experts' opinion related to content and experimental; two hour-long drama session was prepared to perform in school gym. Drama session was prepared in 3-stage model (Preparatory-Warm Up Workings, Performing, Assessment-Discussion) (Adiguzel, 2006). The content of drama is; 1st stage: Touring the exhibition consisting of the big posters and pictures about digestive system, 2nd stage: Coordination track experimental, which is composed of the stations expressing respectively the process of digestive system and students will complete with various movements and tasks, 3rd stage: This is the last stage; in which each students perform the digestive system organs they want, bodily form is opened to interpretations of other students and by using pastel students draw what they remember about digestive system. With classic teaching approach, digestive system was lectured by relevant teacher to the control group in classroom environment. One week later, pretest prepared for both groups was carried out. All researchers have initial teacher training. Also, one of the researchers took 72 hour-long education about creative drama. From this aspect, research was carried



out by a qualified team in all respects. *The Content of Drama Session:* In this chapter, the content of 3 staged drama session is expressed. Drama session was prepared in 3-stage model (Preparatory-Warm Up Workings, Performing, Assessment-Discussion) (Adiguzel, 2006). Time of session is 80 minutes and, balls in various dimensions (basketball, football, volleyball, handball, tennis), funnels, hula hoops, colorful cartons; pastel, biscuit and water was used for each student as a material.

Warm Up Workings

a. Leader enters into school gym with participants. In advance, the pictures of the organs in digestive system were placed into school gym. Students tours in school gym with leader as if they come to visit the picture exhibition.

b. After exhibition, leader starts to talk with participants and asks a question: -Yes children, we toured the exhibition. Which pictures did you see in exhibition? (organs) Which system do these organs belong to? (digestive system) Do we count these organs together? (Mouth, tongue, tooth, pharynx, oesophagus, stomach, small bowel, large bowel, anus) What do teeth work? (to crumble the foods) Why do we need to crumble the foods? (because our oesophagus is small and so that foods can pass easily) Now, we are opening our mouth as hugely as we do in doctors. Look, our mouth is big but we need to crumble the foods because our oesophagus is small. Now, let's take our hands into our oesophagus. Now, let's gulp. Did you feel the oesophagus? (yes) Starting from here, where does oesophagus end? (in stomach) Now, I will distribute biscuits to each one of you. Let's take the biscuits into mouth. Start everybody to chew. What are we chewing with? (teeth) Our teeth have started to chew the biscuits. With what are we turning the biscuits? (with tongue) Our tongue helps us to chew biscuits. If you have recognized, the biscuits have got wet. Why is so? (Because there is split in our mouth. Why is there split? (so that we can swallow the biscuits by softening) Don't swallow the biscuits. Now, let's hold the throat. Let's we all swallow the biscuits when I say 1, 2, 3. We will feel the passing of biscuit through throat. We felt it, didn't we? Where did biscuits go down? (into stomach) What happens when the foods reach the stomach? Stomach is waiting for the food. Foods are coming... Now, foods are needed to be smaller. Well, what happens, when the foods are in our stomach? Our stomach makes much smaller the foods by compressing and straining like a balloon. Where do the foods go? (into small bowel) They will make a long journey here. Let's follow the journey.

Here, foods have been much smaller and useful foods have joined into blood. For example, orange has C vitamin, carrot has A vitamin. These vitamins are sucked in small bowl, join into blood and disperse to our body. Later, what will remain? (pulp remains) Like orange's pose remains when we squeeze the orange. Now, where will they go? (into large bowel) Foods are getting thrown out from anus after passing in large bowl. What has happened? Useful parts have remained in small bowel and harmful parts have been got thrown out from anus through large bowel. Come on, let's create the digestive system organs.

Performing: While the digestive system was explained respectively, one coordination track was prepared for students. The student who will complete the track has a basketball which is a symbol of food. Student enters into the mouth section that is a beginning of the digestive system. Here, there are 9 students appointed to be teeth, 2 students to be split and 1 student to be tongue. Student appointed to be teeth move as if they compress the food and students appointed to be tongue bite the basketball coming as a food. Student appointed to be tongue push the basketball into pharynx by turning the food. There is a student in pharynx task. There is a football near this student. The student coming into pharynx takes the football, leaves the basketball and passes through the legs of the student in pharynx section. Later, student reaches the oesophagus. As oesophagus looks like a helix, hula hoops were used in here. 3 students hold the 3 hula hoops standing side by side. The student coming with football as a food passes with football through the hula hoops and reaches the stomach. 6 students were assigned in stomach. These students have created a circle by holding each other's hands. They take the coming food into circle and make the circle smaller and larger, which symbolizes the straining movement of stomach. This movement is repeated 3-4 times and food goes into small bowel. Slaloms resembling the structure of small bowel were used here. At the start of this station, there is a handball symbolizing the food that has been shrunk in stomach. Student leaves the football and takes the handball. Student passes through the slaloms by dragging the handball with hands and reaches the large bowel. Slaloms were again used in large bowl. This time, student passes through the slaloms by dragging the ball with foot and comes the anus which is the last section of the digestive system. There is a one hula hoop symbolizing the anus and 1 student holds it. Student who has come the anus throw out the handball through the hula hoop.

All students were assigned in each station and all students practiced once the track.



Assessment: Leader asks students to create with their body one of the digestive organs, which they still remember. Leader touches one of participants and asks him/her which organ you are. Leader divides the participants into two group, distributes one pastel and one cartoon to both group, and asks them to draw the digestive system in the form of how they remember.

SPSS 15.00 package program was used for the statistical assessment of data. Quantities were included in Tables by using dependent and independent t-test in analyses. Significance was tested at the level of 0.05.

Results

Table 1. The comparison of the pretest points average of experimental and control groups

Group / Test	N	X	S	df	t	p
Experimental Pretest	27	62.77	21.23	54	0.092	0.926
Control Group Pretest	29	63.27	19.11			

When analyzed the Table 1, in which the pretest points of experimental and control groups are compared; it is seen that there is no significant difference between the groups according to average of the points which they get from the multiple choice

placement test which was made before the experimental group students attend the drama session and before the control group students attend the classical lessons in classroom environment (t:0.092; p>0.05)

Table 2. The comparison of the posttest-pretest points average of experimental group

Group / Test	N	X	S	df	t	p
Experimental Group Pretest	27	62.77	21.23	52	5.321	0.0001
Experimental Group Posttest	27	87.41	11.32			

When analyzed the Table 2, in which pretest-posttest points of experimental group are compared; it seen that there is a significant difference between the average of the points which they get from the multiple choice placement test which was made

before the experimental group students attend the drama session and the average of points which they get from the multiple choice posttest exam which was made for the both groups after attending the drama session (t:5.321; p<0.05).

Table 3. The comparison of the posttest-pretest points average of control group

Group / Test	N	X	S	df	t	p
Control Group Pretest	29	63.27	19.11	56	3.4285	0.0012
Control Group Posttest	29	79.13	14.58			

When analyzed the Table 2, in which pretest-posttest points of control group are compared; it seen that there is a significant difference between the average of the points which they get from placement test and the average of the points which they get from

multiple choice posttest exam which was prepared for both group one week later after the lesson was lectured with expression method in classroom environment (t:5.321; p<0.05).

Table 4. The comparison of the posttest points average of experimental and control groups

Group / Test	N	X	S	df	t	p
Experimental Group Pretest	27	87.41	11.32	54	2.3613	0.0218
Control Group Posttest	29	79.13	14.58			

When analyzed the Table 4, in which the posttest points of experimental and control groups are

compared; it is seen that in favor of experimental, there is a significant difference between the



experimental group students' average points which they get from drama session and control group students' average points which they get from the multiple choice posttest exam which was prepared for both groups one week later after the lesson was lectured with expression method in classroom environment ($t:2.3613, p<0.05$).

Discussion

When analyzed the literature; it is stated that in experimental research, in which dramatization is used, good results were obtained with this method in many theoretical lessons in different domains (Duatepe and Ubuz, 2010; Gungor and Can, 2006; A. Saricoban, 2004; Ogur and Kilic, 2005, 12, 15, 17 and 22; Haruyma, 2010; Sengul and Örnek Tukenmez, 2009). Beside the cognitive and psychomotor learnings, also in the researches for the dramatization method's effect on equipping students with affective characteristics, (Okvuran, 1995; Freeman et al. 2003; Wlsh-Bowers and Basso, 1999) it is defended that this method increases the learning quality. These researches show that drama is a tool supporting the learning products. It supports the results of our research with this aspect. Physical education and sport lessons are generally regarded in society as a lesson in which only physical and physiological characteristics are developed, and it is not known that these lessons contribute to cognitive and affective domains. Learning quality is associated directly with teaching method. In this research, physical education and biology, which are very different domains from each other, were systematically combined with dramatization method and presented to students effectively. As a result, it was determined that when the digestive system subject, which is a theoretical subject, are presented with dramatization method, it is more effective than classic method and contributes considerably to the students' achievement level.

Conclusion

In this research, it was aimed to analyze on 7th grade students the effect of teaching approach with dramatization to the students' achievement level about digestive system within science and technology. Two different independent variables were used in research. The first independent variable is the digestive system subject presented by biology teacher in classroom environment according to classic expression method. In other words, teacher-centered expression method was carried out to students. The second independent variable is a 3-stage drama

session (Preparatory-Warm Up Workings, Performing, Assessment-Discussion) prepared within the context of Physical Education lesson. Digestive system subject was presented to experimental group with dramatization method. Placement test including digestive system subject was made in the form of multiple choice. After assessment of tests; by matching their points to students who got the same or close point, were appointed the 2 different groups named as control and experimental group. Thus, it was assured that groups had homogeneous structure. It was determined that there is no significant difference between the groups according to average of the points they get from the multiple choice placement test which was made before the experimental group students attend the drama session and before the control group students attend the classical lessons in classroom environment ($t:0.092; p>0.05$). Before the independent variables were carried out, the point averages of groups were close to one another and therefore, it is thought that this situation affects the research's objectivity in a positive way. It was determined that there is a significant difference between the average of points (62.77 ± 21.33) which the experimental group students get from multiple choice placement test which was made before they attended the drama session and the average of points (87.41 ± 11.32) which the experimental group students get from multiple choice posttest exam which was prepared for both groups one week later after attending the drama session ($t:5.321; p<0.05$). Digestive system subject was lectured to the experimental group students with an unusual method (dramatization). In this experimental conducted for the students who get used generally to the teacher-centered approaches in education system, it was revealed that group's posttest point average showed considerably increase. It was determined that there is a significant difference between the average of points (63.27 ± 19.11) which control group students get from the placement test and the average of points (79.13 ± 14.58) which control group students get from multiple choice posttest exam which was prepared for both groups one week later after the lesson was lectured with classical method in classroom environment ($t:3.4285; p<0.01$). The subject lectured by biology teacher through the expository in classroom environment called in research as "classical method" affected positively the control group students' achievement level about digestive system. However; since the purpose of research is to determine which method is more effective, comparing



to both groups' posttest points will answer this question. It is seen that in favor of experimental, there is a significant difference group between the experimental group students' average points which they get from drama session and control group students' average points which they get from the multiple choice posttest exam which was prepared for both groups one week later after the lesson was lectured with expression method in classroom environment ($t:2.3613$, $p<0.05$). In other words, both methods contributed considerably to the both groups' achievement levels. However; it was concluded that dramatization method, developed on the basis of stations and movement forms within physical education lesson and presented to experimental groups, developed the experimental group students' achievement level much more than classical method. Suggestions. According to this result, dramatization can be used as a method which makes easier to learn and increases the success. According to result acquired from research, following suggestions are presented. Academic program can be prepared in a way that it includes drama activities.

In schools, in which teachers and trainers are educated, students can be lectured about dramatization applications.

Teacher guidebook about how to carry out the dramatization methods should be written and in-service courses can be organized.

According to readiness level of the students in the whole stages, dramatization method can be popularized in the whole education stages.

Researches about the different theoretical subjects and different drama methods can be increased.

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