THE USE OF DRAMA EDUCATION TECHNIQUES IN CULTIVATING CRITICAL THINKING SKILLS OF STUDENTS IN PRIMARY SCHOOLS

Elena Kaiafa, Aikaterina Dima, Asterios Tsiaras
Department of Theatre Studies, University of Peloponnese, Nafplio, Greece

Abstract
The study conducted aimed at investigating and establishing whether an innovative teaching approach such as educational drama, can help students in primary school cultivate their critical thinking skills. There were 15 theatrical workshops designed, related to the culture and interests of the specific age group, which were based on the principles of educational drama. There were three stages for the experimental method used, the pre-research stage, the main research stage and the results extraction stage. Four hundred students from six different primary schools in Greece, between 8 and 10 years old, were randomly selected as the sample of this research. Subtraction, induction, observation, reliability, detection and troubleshooting were the five critical thinking skills under study. The anticipated result of the study stemmed from the data collected, both qualitative and quantitative and confirmed the main research hypothesis that educational drama, as an innovative method, can reinforce students' critical thinking skills in primary school.

Keywords: educational drama, critical thinking, skills, primary school, drama techniques, experimental research

1. INTRODUCTION
As times and society change, so does the need for teachers to adapt accordingly and update the teaching methods applied in the classroom. According to Huss (2019), teachers are required to cooperate in order to acquire and develop the necessary skills. Their improvement is based on the experiences they gain; hence it is vital that they enrich their teaching approaches and evaluate their work in the process.

As it comes to children and young people to judge what needs to be changed in society in the future, since they are at the core of this need for change, it is essential that they learn how to think efficiently and effectively. As stated by Facione & Facione (2013), people can improve their future and become active members of society, if they are equipped with the right skills and knowledge to make the right decisions. Learning to think critically offers a student the foundations for positive progress in all areas of their lives. It may not guarantee lifetime happiness, but it can certainly partially protect them from the consequences of poor decisions and choices.

Additionally, by teaching critical thinking in school, students learn the value of truth-telling, become rational and open-minded towards new stimuli, respect their interlocutors and are willing to think and reflect on things from a different point of view (Bailin, Case, Coombs & Daniels, 1999). Therefore, it is essential to cultivate critical thinking in students.

As critical thinking is not determined by certain rules or set within a particular context, it stands to reason to wonder whether it can be measured.

Mc Peck (1981) argues that the teacher is required to incorporate critical thinking in the teaching of other subjects due to the fact that is a skill that can be taught like many others but is not included in any curriculum as a subject. Students’ social reform can be significantly affected by such a useful tool as is drama in education, according to Landy and Montgomery (2012).

Educational drama as an experience can form attitudes and open channels of critical thought.

Neelands (2011) suggests that crucial skills in modern life and society, such as self-discipline, teamwork, critical thinking, problem-solving ability, self-esteem and self-confidence can be developed
by drama in education. The conclusion drawn by Bailin (1998) after examining critical thinking and drama in education, is that through drama students begin to expand their own critical challenges, answer questions, stimulate their thinking ability and develop healthy dialogue with peers, in an atmosphere of mutual trust and respect.

The focus of this article is to examine whether educational drama can deliver the changes required in the educational system and the way critical thinking can be incorporated into it. Educational drama is perceived as a tool that will enhance critical thinking in the context of primary school curricula.

2. THEORETICAL BACKGROUND

2.1. Drama Education

As communication, information and technology are increasingly taking over society, there is a growing need to modernize pedagogical and learning methods. However, when the arts were introduced into European school curricula, the need for an alternative form of learning emerged in as the second half of the 19th century (Mellou, 1996). Art, is therefore, established as a means for children to profoundly cultivate their spiritual, social, and moral values. What is very interesting to note is that the artistic practices which are used and sharpen the spirit and virtues of children are what matters, not the value of the arts themselves (Jörissen et al., 2018). It should be noted that the present article, out of all the arts, focuses on educational drama.

The word 'drama' means action and even though it has been adopted by other European countries in different forms such as 'drame' (France) or 'Schauspiel' (Germany), it signifies theatrical or dramatic work everywhere (Pavis & Ubersfeld, 2006). Drama firstly appeared in education and in the classroom, through Plato’s work "The Republic", touching on the contribution of play in classes (Bolton, 2007). The fact that drama in education has its roots in theater was also confirmed in the mid-1960s, when actors, directors and writers in Britain encouraged teenagers to engage in theater, (Sextou, 2004). However, it should be stated that the combination of theater and education appeared earlier in Britain in the 1920s, where the term 'dramatization' was made up by Finlay Johnson (1911).

Nowadays, educational drama remains almost unchanged, regardless the time that has passed and the use of technology within the school (Anderson, 2012). Through the use of techniques such as play, students can express themselves freely and spontaneously (Boal et al., 2008). Education has undoubtedly received many benefits from drama, which will be defined and discussed below. “Drama is the paint that turns life into an art and builds the bridge between what this world is and what it might be” (Prentki & Stinson, 2016: 4).

Furthermore, through the symbolic language used in drama, the real world can be represented (Varriour, 1994). Apart from the entertaining character that drama undoubtedly has, which is based on its playful form, it also acquires a social character. It provides children and adults with the motive to use their spirit and emotion along with their body (Baldwin, 2009) thus, giving drama a multi-layered role. Through the use of drama in education students acquire, along with the aesthetic experience offered, knowledge in different ways and gradually distance themselves from traditional learning methods, making this an educational phenomenon (Sextou, 2004). According to Cattanach (1996) the most important thing offered through educational drama is the so called "aesthetic illusion". Students are provided with the opportunity to simulate daily life activities in a "safe" environment created by the theatrical context without any restrictions and fears with the help of educational drama and its tools, such as improvisation, games, etc. Bolton (1984) states that through educational theater supporting, students have the opportunity to learn about the principles that govern, democracy and their interrelationship. Through collaborations and harmonious participation, students learn to express their opinion freely and cultivate a critical view of the world.

2.2. Critical Thinking skills

Following all the above, it is understandable to wonder about the kind of benefits that educational drama can provide to school curricula and the cultivation of critical thinking.
The effort to define critical thinking, through the conduct of appropriate tests and both within in a theoretical and empirical context, has been going on for decades without the discovery of a clear definition. One of the theorists who has researched critical thinking in depth, Ennis, defines it as "a reasonable reflective process focusing on deciding what to believe or do" (Ennis, 2018:166). However, this definition evidently needs further investigation and clarification (Kuhn, 2019).

According to another interesting definition, critical thinking is defined as an activity where a person evaluates or composes information through observation, experience, and/or communication as a guide for those who believe or act (Scriven, 1987). However, it is believed, even by the author of this paper, that only one definition may not exist or is not possible to formulate in a universal context. Critical thinking is a conceptually complex entity which involves various skills, five basic and 35 subcategories and each one needs to be defined separately, as stated by the American Philosophical Association (APA) (Schmaltz, Jansen, & Wenckowski, 2017).

What is complicated about critical thinking in education, is that it refers to most, if not all, of the scientific disciplines and is tangible in many categories. The skills of understanding and evaluation, followed by analysis and synthesis prevail at all levels of education (Kennedy, Fisher, & Ennis, 1991).

According to Ennis (1989), elementary school students should be taught or rather guided through the channels of critical thinking from the early school years, as it can be very beneficial for them. A "general approach", like a simple disagreement in the classroom can be the starting point until students learn to think critically and develop this ability to the wider external social environment. Keeping this in mind, it is clear that, students’ academic performance and adaptability to society in their adulthood later on, can be enhanced if critical thinking is taught and cultivated in primary school.

Based on Marin and Halpern’s (2011) research findings, critical thinking is comprised by a series of vital skills, which need to be cultivated in education since we live in times of fast-paced information. Essential and effective education requires the advancement of all of the students’ critical thinking-related skills (Facione, & Facione, 1996). The issue with critical thinking in school education is that the literature on its cultivation and development is rather incomplete, despite the unanimously acknowledged need for all school curricula to incorporate it.

Strengthening the critical thinking of primary school students is essential and can be achieved by studying and measuring observation, reliability, induction, subtraction, problem identification and coping (Ennis, 1989).

Educational drama turns learning into experience through role-playing games and theatrical improvisations. It can create a happy and creative atmosphere where students’ interaction, collaborations and skills are enhanced and therefore was considered ideal in this case to use it for the cultivation of critical thinking skills.

3. METHODOLOGY

3.1. Research objectives

It is undoubtable that educational drama, as a fundamental process in human experience, follows a dynamically evolutionary track (Tsiaras, 2016a), where, as Heathcote (1984) argues, students express themselves as they would in real life (Johnson and O’Neil, 1991: 78). Educational drama and critical thinking are connected due to the fact that educational drama, as an innovative tool, can cultivate and contribute to the development of the five (5) abovementioned main skills of critical thinking; observation, inductive and subtraction, reliability, detection and troubleshooting.

One of the most important skills in critical thinking is observation. An observant student can identify all the data of the problem and then find and specify a correct solution faster. With abstraction a student thinks logically, connects and interrelates data in the right sequence and then makes the right decision. The use of inductive thinking helps students proceed from given facts to reasonable and sound generalizations and consequently to the right solution. Equally important is identifying the student’s problem, as examining the data of the difficult situation will lead him to deal with it. Finally,
self-confidence and therefore proper control of the data source has to do with the student's perception, as his ability to evaluate and confirm the reliability of a specific data source, can lead to the correct solution of the problem.

Following the above, this paper aims at examining the extent to which educational drama, as an innovative tool, can influence and enhance the critical thinking of primary school children.

An intervention programme was designed and implemented based on the principles of educational drama focusing on cultivating these five critical thinking skills (observation, inductive and subtraction, reliability, detection and troubleshooting) so as to answer this question.

3.2. Pre-research preparation

At the stage of pre-research, there was an in-depth study of the theoretical framework governing critical thinking and the theories around it. The principles of educational drama were discussed and the necessary actions for the implementation of the present research were planned.

In scientific research, hypothetical propositions about the possible relationships between natural phenomena are constantly under examination (Kerlinger, 1979). In that respect, both the theoretical background of the research approaches and two basic criteria were taken into consideration when selecting and adopting the methodological approach and for the goal and objectives of this paper to be met. The first criterion requires that the approach used provides the greatest possible certainty about the actual descriptive characteristics while the second criterion requires the greatest possible certainty in order to ensure the true nature of the relationship between the variables.

Therefore, the research supervisor and the members of the research team considered it essential to design and implement the experimental method (Kolaczyk, 2009).

The five critical thinking skills were identified as the dependent variables while the independent variable was decided to be the educational drama. Four hundred (400) students aged from 8 to 10 were randomly selected from six primary schools in Greece. Half of the students (200) formed the experimental group while the remaining half (200) formed the control group of the research. In terms of their sex, 118 were girls and the remaining 82 were boys. This is a representative sample of the population under examination as it was randomly selected in order to cover the different educational and social criteria of the student population of the country's primary schools.

Following the above, the fifteen (15) theatrical workshops that would be used as interventions in cultivating the critical thinking skills of primary school students were designed in detail.

The theoretical framework was established by the researchers after reviewing the available domestic and international bibliography.

Each workshop was structured in such a way so that all of the five critical thinking skills could be progressively developed and enhanced and aimed at developing students’ critical thinking through playful activities and dilemmatic situations designed to lead them ultimately to the right decision.

All theatrical workshops were designed almost identically, as they began by telling a story in which the hero faced some obstacles and dilemmas and students were asked to help him overcome them. Following the above, came several theatrical techniques, such as confidence games, role-playing games, icy images (Bolton, 2007), which concluded with reflection. In the workshops, students first identified the problem, evaluated the data and the reliability of the sources, listened to everyone's opinions and concluded to the correct treatment and solution of the problem before expressing their opinion.

During the preparation for the main research, students would be given a questionnaire before the implementation of the theatrical workshops and after their completion was designed. The Cornell Class-Reasoning Test scale (Form X), a series of Cornell Critical thinking tests by Ennis, Gardiner, Morrow, Paulus and Ringel (1964) and the Starkey’s Questionnaire (2010) were the basis for research team’s evaluation of critical thinking as a complex function.
The questions used were translated with the reverse translation approach (translation-back translation) and adapted according to the age, culture and interests of the specific sample. Once it was validated and considered reliable and functional, the main research stage begun, during which the skills of observation, reliability, detection, troubleshooting, induction and removal were investigated.

The questionnaire includes twenty-four (24) questions that focus on the five axes of critical thinking skills and are in the form of multiple choice where the correct answer was one of the four choices provided (a, b, c, d). Below is an example:

You hear on TV that all buses, subways, trains, etc. will go on strike because employees are demanding an increase in their salaries. What conclusion do you draw?

a) They have made everything more expensive so they are asking for an increase.

b) If they are not given an increase, the ticket will be increased in the following days.

c) People who move with these means will have to find another way of commuting and reach their business.

d) Their bosses will not like this at all.

All important events and behaviors of the students during the implementation of the theatrical workshops where recorded in a research diary by each member of the research team as an addition to the questionnaire (Burgess, 1981).

The initiation of the main research stage took place as soon as the required permits from the Ministry of Education and the consent of both the principals of the primary schools and the parents or the guardians of the students were obtained.

3.3. The Main Research

As soon as all students completed the questionnaire, the main research phase began. Upon the completion and collection of the questionnaires, the 15 theatrical workshops were implemented by the research team. Each workshop for each class lasted 45 minutes, that is one teaching hour of the school and took place once a week. The 15 theatrical workshops were conducted on our experimental group, consisted of 200 students, within the school schedule and during the Theatrical Education course. This intervention lasted 4 months, during which each researcher kept a diary, which would later be used for the extraction of the qualitative features of the research.

Once the 15 theatrical workshops ended, the research team gave again the same questionnaire to the 400 students, both in the experimental group and in the control group, to complete. Through this activity, the team aimed at examining whether the educational drama, as an innovative method, worked in cultivating critical thinking skills.

4. RESULTS

Following the completion of the 15 theatrical workshops and the collection of the completed questionnaires, as well as the recorded information from the research diary, the evaluation of the research results begun. The research process was completed by triangulating the data.

The SPSS statistical program was used for the processing of the values of the dependent variables which in this study were observation, reliability, abstract and inductive thinking, problem identification and coping and was deemed necessary to study each dependent variable separately.

The statistical criterion t-student was used for the measurement of the averages of the dependent variables on the same scale, at two different times. The statistical test for normal distribution was done...
with the Shapiro-Wilk test and the distribution of the population which our sample comes from, is approximately normal.

The research team used the Cronbach’s alpha reliability index in order to calculate the reliability of the measurement tool. The results were analyzed, based on the values observed before and after the intervention and Cronbach’s alpha values for each of the five skills were calculated. The process was followed for both the control and the experimental group.

In Table 1 the mean estimate and standard deviation for all of the five factors as they evolved in the experimental group are displayed.

**Table 1.** Measurement values of the factors of variables subtraction-induction-reliability-observation-problem identification and troubleshooting of the experimental group

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean estimate</td>
<td>standard deviation</td>
<td>mean estimate</td>
</tr>
<tr>
<td>Subtraction</td>
<td>1.96</td>
<td>0.20</td>
<td>1.60</td>
</tr>
<tr>
<td>Induction</td>
<td>1.80</td>
<td>1.19</td>
<td>2.64</td>
</tr>
<tr>
<td>Reliability</td>
<td>4.36</td>
<td>1.15</td>
<td>3.52</td>
</tr>
<tr>
<td>Observation</td>
<td>2.32</td>
<td>0.48</td>
<td>2.28</td>
</tr>
<tr>
<td>Identification</td>
<td>0.92</td>
<td>0.64</td>
<td>2.24</td>
</tr>
<tr>
<td>Troubleshooting</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As seen in Table 1, the results have a positive statistical significance, as all five students’ critical thinking skills improved after the intervention.

Table 2 below displays the mean estimate and standard deviation for all five skills in the control group and the results do not show statistical significance.

**Table 2.** Measurement values of the factors of variables subtraction-induction-reliability-observation-problem identification and troubleshooting of the control group

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean estimate</td>
<td>standard deviation</td>
<td>mean estimate</td>
</tr>
<tr>
<td>Subtraction</td>
<td>1.24</td>
<td>0.66</td>
<td>1.04</td>
</tr>
<tr>
<td>Induction</td>
<td>2.52</td>
<td>1.32</td>
<td>2.28</td>
</tr>
<tr>
<td>Reliability</td>
<td>3.84</td>
<td>1.17</td>
<td>3.40</td>
</tr>
<tr>
<td>Observation</td>
<td>1.84</td>
<td>1.28</td>
<td>1.96</td>
</tr>
<tr>
<td>Identification</td>
<td>1.76</td>
<td>1.23</td>
<td>1.96</td>
</tr>
<tr>
<td>Troubleshooting</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Students who attended the theatrical workshops, which were based on the principles of educational drama, had their five skills enhanced, as opposed to the students of the control group. The statistical analysis of the survey data confirmed the research hypothesis and the answer to the main research
question is affirmative. Educational drama, as an innovative tool, can influence and enhance the critical thinking of primary school children.

Very interesting is also the data collected from the research diaries of the members of the research team. In the first weeks, it was observed that most groups had 'leaders', as there were some students who were more dynamic, took responsibility and guided the rest, while the others did not actively participate. Gradually, however, the weakest characters began to express their opinions and students began to trust and cooperate with each other. During the workshops, students were motivated to take initiatives, examine all the data of the problem, listen to the opinions of others, evaluate them and finally draw their own conclusions.

According to the notes in the research diaries, decision making by the students was often underestimated and wrong decisions were made, as students were not used to observing all the data and listening to the opinions of the others. Nevertheless, as the theatrical workshops progressed, their observation became sharper and to the point.

An impressive observation we made was that almost all of the students did not evaluate the source of the information at all and consequently perceived incorrect information as correct. However, most students could assess a difficult situation, which could be solved by the hero of our story.

A fact that was observed towards the end of the workshops and not initially, was that as far as two skills that students have difficulty acquiring are concerned, inductive and abstract thinking, at the reflection stage they could generalize their thinking. They were able to easily formulate a series of interrelated sentences to prove the truth or not, while phrases such as "since the hero is lying, the rest will be never led to the truth" were heard. Furthermore, they often recorded the details of the problem and drew their own conclusions.

Therefore, our experimental research proved that educational drama, as an innovative tool in the hands of teachers, can cultivate critical thinking skills.

5. DISCUSSION

As it turns out from the results of the research, educational drama, as an innovative method in educational practice, can indeed cultivate the critical thinking skills of primary school students.

Its approach focuses on experiencing and realizing reality, where through theatrical techniques, students can directly express their experiences and find solutions to their problems (Adıgüzel, 2009). Through role-playing games, pretend behavior for students develops from a synthesis of recreating experiences from their daily lives and stimuli from what they read, hear and see on television; a fact which reflects their life experiences (Tsiaras, 2016b).

The theatrical workshops aimed at motivating students to grasp the dilemmatic situations the heroes found themselves into and find the most suitable solutions. In order to achieve this, they had to sharpen their critical skills.

For the enhancement of observation, icy images or sculpture-sculpture technique were used, where students had to observe all the details in order to be able to reach a correct conclusion. They needed to assess whether the data was reliable, so as to make the right decision and it should be stated that, theatrical improvisations helped a lot to make this possible.

Students were able to identify details, generalize results and thus enhance their inductive thinking, through role-playing games, which proved to be very helpful. Additionally, theatrical improvisations and the corridor of consciousness helped their ability to use abstract thinking, that is, to use a logical sequence so as to find ways that could lead them to the most appropriate decision. In the end, all theatrical workshops concluded with the stage of reflection during which, students became aware of the experience they lived through the educational drama.
The 15 theatrical workshops were planned for the purpose of identifying the appropriate factor in cultivating the skills of critical thinking and highlighting educational drama as an innovative tool used by teachers.

CONCLUSIONS

As a conclusion, it can be said that educational drama is a different approach to education, which in essence is differentiated from the principles of traditional teaching and gives learning an interesting and creative character in the form of a ‘game’. Students can act with independence, express themselves freely, think critically, and act for the team. Educational drama links thinking ability to behavior and therefore, plays an important role in enhancing student’s critical thinking as an innovative tool for teachers (Fisher, 2008: 164).

Through this innovative proposal we aimed at proving that primary school students, in a pleasant environment, can enhance their critical thinking skills and specifically, observation, subtraction, induction, reliability, detection and troubleshooting. The results of the research proved that educational drama affected this advanced type of thinking in a positive way.

Still, we have to bear in mind the fact that research on critical thinking combined with educational drama is limited and that there are issues that arise from this method. However, it is our firm belief that the fact that we achieved the goals we set from the beginning, to cultivate critical thinking in primary school students, will positively re-adjust the direction the important role of education in Greece has taken, aiming at the well-being and the best interest of our society.

ACKNOWLEDGEMENTS

This research was funded by and implemented within the framework of the programme "Supporting researchers with emphasis on young researchers - cycle B", NSRF 2014-2020, with the title "Enhancing Critical Thinking Skills of Primary School Students through Educational Drama".

REFERENCES


Educational Researcher, 18(3): 4-10.


