Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.9, No.1, 2018

The Effectiveness of an Educational Program Based on Drama in Improving Scientific Concepts among Kindergarten Children

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Abstract
The study aimed to demonstrate the effectiveness of an educational program based on the drama in improving Kindergarten children's scientific concepts. The current study followed the experimental approach with a quasi-experimental design with two experimental and control groups, with a pre and post-test. The research personnel was selected from kindergarten children in the age group of (4 6) years. Their number was (39) children in Baraem Al Shifa Kindergarten of the University Brigade Directorate in the capital Amman. They were distributed into two groups (experimental and control) (19) children in the experimental group and (20) children in the control group; the researcher prepared an educational program based on drama after referring to the previous educational literature that was applied to the experimental group. The researcher prepared the scientific concepts test consisting of (24) questions that were applied in the pre and post-test to the study groups. And after making sure of the suitability of its psychometric properties. The study results found that there is a difference between the mean scores of the members of the research group in the pre and post applications, to test social scientific concepts in a statistically significant manner and favor the post-application. It is evident that the educational program based on drama has contributed to developing scientific concepts among the research group members. In light of this, the study recommended that kindergarten teachers pay attention to developing scientific concepts in children. And the necessity of training kindergarten teachers to use the drama method to achieve kindergarten education goals.
Keywords: educational program - drama - scientific concepts - kindergarten children

Introduction

Early childhood is considered one of the critical stages in a person's life because it is the stage in which the individual's personality features are determined in all its physical, mental, social, and psychological aspects. Therefore, developed countries have paid great attention to the kindergarten stage and have made educating the child and providing him with experiences and skills at that stage an essential goal of early education, where concept development is essential in the learning process because it helps children understand many cosmic phenomena without studying each phenomenon separately. That is why most of those interested in education see that one of the essential goals that all educational stages should emphasize, especially the kindergarten stage, is the development of concepts. And many concepts must be taken care of in the development of a pre-school child, including scientific concepts because they represent the product of different sciences and connect sub-concepts, and they also show unity between the different branches of science.

The theoretical framework and previous studies

Early childhood is a critical period for science learning and scientific concept development. It is the period during which the child can acquire many basic concepts that he develops in the following life stages, especially the scientific concepts that help him deal with the surrounding environment (Bakri, 2003 :). The child also acquires scientific concepts through direct or indirect experiences. The development of scientific concepts for the kindergarten child helps him understand and explain many things that arouse their attention in the environment and explain some scientific phenomena. Concepts learning also helps him increase their ability to use the information to solve problems; it also increases their motivation to learn. This is confirmed by many studies aimed at developing scientific concepts in kindergarten children. Including Marzouq's study (2008) to designing a computer game program to help kindergarten children develop physical concepts. The study of El-Shafei and Abdel-Fattah (2008) aimed at developing scientific concepts, namely the concept of electricity, the concept of sound, and the concept of light, using educational situations based on the blended education model for children with the cognitive style and the study results indicated the effectiveness of educational situations in developing children's achievement of scientific concepts as well as their scientific behavior. In addition to Abdul Hamid (2008) study on developing some scientific concepts using the cooperative learning method and some scientific activities, which are directed discovery activities, educational games, discussion using color pictures. The study results indicated the effectiveness of the proposed program in science education using the cooperative method

and some scientific activities on second-level kindergarten children. The study of Mansi and Abdul Alim (2009) used a multimedia program to develop some cosmic physics concepts among kindergarten children as concepts. Al-Zoubi's study (2010) also aimed to investigate the effect of using a program based on learning concepts through play on the kindergarten's acquisition of these concepts and developing scientific thinking skills and scientific tendencies. The results showed that the experimental group children outperformed the children of the control group in both the acquisition of scientific concepts and the development of scientific thinking skills and their scientific tendencies.

Khader's study (2011) also aimed to know the effect of some scientific activities on developing creative thinking skills. Its results reached the program's effectiveness based on scientific activities in developing creative thinking skills for kindergarten children to benefit the experimental group. Ahmed and Ahmed (2011) study indicated the effectiveness of using the knowledge cycle in imparting a kindergarten child some scientific concepts. The study of Ghada Makhlouf (2012) aimed at developing scientific concepts and life skills by using educational pillars and its results indicated the effectiveness of using educational pillars in developing scientific concepts and life skills in pre-school children. Abdul Karim's study (2012) also aimed to educate children and provide them with some scientific concepts using concept maps. The study results indicated the effectiveness of concept maps in teaching kindergarten children and giving them some concepts. In light of the above, the importance of developing scientific concepts for kindergarten children in the early childhood stage becomes clear, as it simplifies the environment and helps them explain the phenomena surrounding them in the environment that attracts their attention. Also, children's participation in science activities leads to the development of their thinking skills. And thinking can be taught at all age levels, from kindergarten to advanced stages (Khattab, 2008).

John Locke believes that the best way to develop a child's thinking and benefit from the available experiences is to train the child's senses as they are the windows through which knowledge enters the child's mind and feelings in order to develop his thinking, As the education of the child and the development of his thinking can only be achieved by stimulating his thinking and stimulating his imagination, and this requires helping children to develop their creativity in order to discover their creative talents in thinking in the future. "(Muhammad, 2005). Whereas, the child acquires scientific concepts through direct or indirect experiences, therefore, providing scientific programs for children contributes to the growth of scientific concepts and this is what has been confirmed by many previous studies that aimed to develop scientific concepts in kindergarten children, including the study of Marzouq (2008), the study of Al-Shafi'i and Abdel-Fattah (2008), and the study of Abdul Hamid (2008), And Mansi's study, Abdul Alim (2009), Al Zoubi's study (2010), Ahmed and Ahmed's study (2011), Makhlouf's study (2012), and Abdul Karim's study (2012).

The study of Gordon Wells (1994) also confirmed that to understand scientific concepts, one needs to cooperate with the teacher and conduct experiments. Marilyn Chapman (2000) also indicated the importance of teachers providing opportunities to help children develop their scientific concepts using sensory activities, as children by nature tend to solve problems and curiosity. The study (Abdel-Fattah, 2009) and the study (CesarinaMacinelli, 2006) confirmed that the development of concepts depends on the child's interaction with the things around him and the child's participation in the scientific activities presented to him by the teacher; therefore, children need to plan organized scientific activities directed at developing scientific concepts, the study (Al-Laithi, 2009) emphasized the interest in activities to form scientific concepts in kindergarten children. In other words, programs help the child to learn how to think about what he is learning, and this is achieved through an educational program based on drama. To find out the effect of teaching educational drama on the development of creativity in kindergarten children, Hornachova, 2016 conducted a study consisting of (40) kindergarten children. The study results indicated the superiority of the experimental group over the performance of the control group and the development of their creativity; on the other hand, Yaman, 2015 conducted a study aimed at investigating the effect of creative drama on the development of the characteristics of children aged (4-5) years as the research sample reached (300) children. The study results indicated that there are differences in the children's scores between the pre- and post-test in favor of the post-test and the existence of an effect of creative drama on the development of children's personal and linguistic characteristics. And to identify the impact of drama on the creative imagination of children of different age groups from (0-13) years. Aysun, 2013 conducted a study consisting of a sample of (60) children. The results indicated that there is an effect of the educational program based on drama.

To find out the role of educational drama in improving creativity, Momeni, 2017 conducted a study consisting of (52) kindergarten children. The results indicated the effect of educational drama on improving creativity. On the other hand, the study (Khalifat, 2018) aimed to identify the effect of using educational drama on developing

religious awareness among kindergarten children. The study sample consisted of (46) kindergarten children. The study results indicated that there were no statistically significant differences between the averages of the post-measurement scores to test the religious awareness of children. Through a review of previous studies that dealt with an educational program based on drama and various variables among kindergarten children, the researcher notes that the previous studies focused on measuring the impact of drama education on the creative development of kindergarten children as a study (Aysun, 2013; Momeni, 2017; Munevyer, Can & Neriman 2012; Hornachova, 2016). The study (Yaman, 2015) examined the effect of drama on the development of children's characteristics; in contrast (Al-Khalifat, 2018) studied educational drama's effect on developing religious awareness among kindergarten children.

Study problem and its question

According to what previous studies have indicated, and despite what recent studies in kindergarten call for interest in developing scientific concepts among kindergarten children, there is a lack of interest in developing scientific concepts among kindergarten children as well as a weakness in following interesting and unconventional methods, which led to a failure to meet the needs of children to develop their scientific concepts and to achieve the goals of kindergarten, which requires searching for the possibility of using an educational program based on drama which can contribute to the development of scientific concepts among kindergarten children. Therefore, the current research problem arises in identifying the effectiveness of an educational program based on drama for the development of scientific concepts among kindergarten children.

The main research questions

1. What is the effectiveness of an educational program based on drama for developing scientific concepts in kindergarten children?

Research hypotheses

The present research attempts to validate the following hypotheses:

1. There is no statistically significant difference at (0.05) level in the mean total score for scientific concepts in the post-measurement between the experimental and control groups attributable to the educational program.
2. There is no statistically significant difference at (0.05 level) in the mean scores of scientific concepts between the post-application and the consecutive application in the experimental group.

The importance of the study

The research's importance is that it proposes an educational program based on drama to develop thinking skills and scientific concepts for kindergarten teachers and those who teach kindergarten. Curriculum planners and kindergarten programs can be of interest in developing scientific thinking skills and concepts. It also enriches kindergarten teachers' knowledge of applying educational drama to kindergarten children, which helps kindergarten teachers implement and apply it properly.

Study limitations

The current research is limited to a group of kindergarten children (4-6) years in the Kindergarten of Baraem Al Shifa affiliated to the University Brigade Directorate in the capital, Amman. This is due to the availability of modern capabilities, devices, settings, and equipment. It is also limited to the educational program prepared by the researcher, and the current research is limited to the scientific concepts of kindergarten children, namely (water, buoyancy, and diving, melting, light, shadow, rainbow, the five senses, heat, food, magnet, sound, gravity, Atmospheric air, Air thrust, air pollution, water pollution).

Procedural definitions

Effectiveness definition: This is what the program achieves from satisfactory goals when it is applied to a targeted group of individuals (Al-Felfili and Al-Ansi 2014). The researcher defines it procedurally: It is what the drama-based program achieves for its objectives in improving the scientific concepts of the experimental sample members and finding a difference between them and the control group that has not been exposed to the educational program.

Scientific concepts: The current research defines it procedurally: as a group of mental perceptions that form in kindergarten children due to their study of the subjects of the educational program based on drama.

Method and procedures

Research Methodology

The experimental approach was followed with a quasi-experimental design due to its relevance to the objectives

of the current study of the experimental and control groups with pre-test and post-test. The educational program based on drama to develop kindergarten children's scientific concepts was applied to the children of the experimental group, and it was not applied to the control group. Table (1) illustrates that.

Table 1: Study design

Experimental group	**Pre-test O1**	**Educational program X**	**Post-test O2**	**Tracer test O3**
Control group	**O1**	**……**	**O2**	

Study members: The research sample was selected from kindergarten children in the age group of (4 6) years, totaling (39) children in the Kindergarten of Baraem Al Shifa affiliated to the University Brigade Directorate in the capital Amman, and they were distributed into two groups (experimental and control) (19) children in the experimental group and (20) children in the control group. This kindergarten was chosen for the availability of capabilities, devices, settings, and modern equipment.

Study tools: First: Scientific Concept Test

A. **Preparing the list of scientific concepts included in the kindergarten curriculum:** The researcher analyzed the kindergarten curriculum, and the scientific concepts were extracted using the content analysis method. A number of previous books, references, and studies have been viewed that dealt with scientific concepts, including (Boutros, Ibrahim, 2003; Abd al-Salam, 2001; Al-Zoubi, 2010; Abd al-Hamid, 2008); Shafi'i and Abdel-Fattah, 2008), to arrive at an initial list of scientific concepts suitable for kindergarten children.

B. **Analysis reliability calculation:** To calculate the reliability, the researcher analyzed the content. One of the kindergarten teachers analyzed the same content to see how the researcher's analysis matched the parameter's analysis and using the statistical equations (cooper). The results indicate a high percentage between the analyzes (91.4%), which indicates a high reliability of the analysis. After the researcher made a comparison to analyze the content that he prepared and what was prepared by the kindergarten teacher, the researcher determined the verbal significance of each scientific concept in the field of science to prepare an extension of scientific concepts where the most suitable for children and drama-based educational program was chosen and that to be used in the preparation of the test of scientific concepts and after completing the list of scientific concepts, it was presented to the arbitrators in order to identify the clarity of the linguistic formulation of the scientific concepts. And they were improving the list by modifying, deleting, or adding. Some of the amendments referred to by the referees have been followed due to the failure of some concepts to follow the research concepts entrusted with the study, thus, the list became characterized by the validity of arbitrators and took its final form.

C. **Prepare the scientific concepts test illustrated for a kindergarten child:** To prepare the pictorial scientific concepts test for a child in kindergarten before and after the research experiment to identify the extent of the development of scientific concepts in children. The researcher prepared the pictorial scientific concepts test after reviewing the previous studies that dealt with preparing scientific concept tests. The objective of the test was determined, which is to measure the extent of the growth of scientific concepts for kindergarten children in the experimental group - before and after the application of the current program of the following research: (water - solubility, buoyancy, and diving - light - colors of the spectrum (rainbow) - a sense of touch - a sense of taste- Sense of sight - a sense of hearing - a sense of smell - heat - food - magnetism - sound - earth gravity - atmospheric air - air force - air pollution - water pollution).

D. **Preparing test items:** The type of test vocabulary was determined to be of the multiple-choice type because it could cover all the scientific concepts proposed in the educational program and children's ease of understanding the vocabulary of the test as it suits their growth characteristics in addition to easy and quick test correction. And the high-reliability coefficient when corrected. And the grades are not different in the case of different correctors. The researcher formulated the test vocabulary, and it was (24 questions), and each question had four alternatives. The correct alternative was chosen, instructions were drawn up, and a correction key was prepared. And thus, the initial image of the test was formed. The child's scores are recorded on the child's scorecard.

E. **Scientific Concepts Test Application:** The scientific concepts test, illustrated individually, was applied to each child by reading the test questions to the child several times in the language that suits him until he was sure that he understood the question, the formulation of these questions was taken into account accuracy, clarity, and the use of simple and clear language that the child understands while presenting the test questions, and then the responses are presented to him, and there are four alternatives, and the child must choose one correct alternative from among these alternatives. When the child puts a circle on the correct image, his answer is correct, and the score (1) is calculated for him, either if he chooses another picture or two pictures, a score of zero is calculated

for him, and the person in charge of the application writes the child's response as it is in the same test booklet. And the scores are added to give the total score for the test, and the total score for the test in its initial form is (24) marks. Then the researcher calculated the appropriate time to apply the test of scientific concepts by applying the equation to calculate the average test time. It consists of calculating the average time for all children to finish the exam, then dividing this total in time by (the number of children), then adding to that the time for reading the instructions with the kindergarten teacher's knowledge. Thus, the time taken for all children to respond to the test separately was 30 minutes.

F. **Calculation of internal consistency validity to test scientific concepts of kindergarten children:** The internal consistency or correlational relationship was calculated, the correlational relationship between each test questions (24 questions), and the total score of the test as a whole was calculated. And internal consistency was used to determine the internal homogeneity of the test, meaning that each question aims to measure the function measured by the other questions in the test, the internal consistency of the test was determined by calculating the correlation coefficients between each question and the total score of the axis to which it belongs, as well as calculating the correlation coefficients between the scores of the test axes and each other and between them and the total score of the test, and the results were as shown in Table 2.

Table 2: Correlation coefficients between the scores of the test axes, the scientific concepts of the kindergarten child, and his total score

N	Correlation coefficient	Significance level	Question number	Correlation coefficient	Significance level	Question number	Correlation coefficient	Significance level	Question number	Correlation coefficient	Significance level
1	0.69	0.01	7	.75	0.01	13	0.78	0.01	19	0.79	0.01
2	0.72	0.01	8	. 81	0.01	14	0.78	0.01	20	0.82	0.01
3	0.65	0.01	9	0.79	0.01	15	0.75	0.01	21	0.79	0.01
4	0.73	0.01	10	0.79	0.01	16	0.81	0.01	22	0.75	0.01
5	0.64	0.01	11	0.79	0.01	17	0.79	0.01	23	0.68	0.01
6	0.81	0.01	12	0.73	0.01	18	0.73	0.01	24	0.81	0.01

It appears from Table (2) that the correlation coefficients for each of the vocabulary to test the scientific concepts of kindergarten children.

G. **Reliability testing of scientific concepts for kindergarten children:** The test's reliability was verified by the "alpha" (α) for stability. Whereas the reliability coefficients of the test of scientific concepts for kindergarten children equal (0.91). Discrimination coefficients were calculated for the test questions using the discrimination factors for all the test items ranged between (0.58-0.79), which are considered high discrimination coefficients, and Table 3 shows the discrimination factors for the test items.

Table 3: discrimination coefficients for testing the scientific concepts of kindergarten children

N	Discrimination coefficient	م	Discrimination coefficient	N	Discrimination coefficient	N	Discrimination coefficient	N	Discrimination coefficient
1	9	6	0.78	11	0.71	16	0.72	21	0.74
2	0.71	7	0.58	12	0.77	17	0.79	22	0.72
3	0.72	8	0.77	13	0.67	18	0.75	23	0.75
4	0.58	9	0.66	14	0.69	19	0.61	24	0.78
5	0.77	10	0.70	15	0.79	20	0.69		

It became clear from Table (3) that the discriminant coefficient is between (0.58-0.79), which is considered high discrimination coefficients.

H. In order to verify the parity of the control and experimental groups in the pre-application to test the scientific concepts of the kindergarten child, the (T) test was used to calculate the significance of the differences between the mean scores of the kindergarten children in the pre-application. The value of the (T) test was equal to (0.764)

at a level of significance (0.215), which indicates that there are no statistically significant differences between the experimental and control groups before applying the educational program, which achieves parity of the two groups.

Study variables

The study included the independent variables: It is the teaching method, the educational program based on drama, the traditional method**, and dependent variables:** Scientific concepts.

Educational programs: To achieve the objectives of the study, an educational program based on drama was built after reviewing the specialized theoretical literature and related studies as a study (Gioia, & Tobin, Lillard, et al. 2013). In light of this, the initial formula of the program has been prepared. The educational program based on drama aims to improve the scientific concepts of kindergarten children and increase the child's educational outcome by acquiring a set of new scientific concepts. The current educational program topics include various activities as educational applications that provide children with the right experiences and relaxation after a great mental effort, as the program was built according to the foundations and assumptions of a sound and clear scientific theory. The program was also characterized by clear features, defining the assumptions, the general objective, sub-goals, the training plan and its timing, and the relevance of the dramatic activities included in the program with the children's ages, preferences, and abilities. It improves the child's development in all aspects and is suspenseful, exciting, and moving away from routine in training. In addition, it has clear and easy-to-implement instructions that take into account individual differences, in addition to releasing the body's motor energies in children.

Tutorial content: In light of the theory and specialized literature, the researcher prepared the initial version of the educational program and consisted in its initial version of (18) activities, and after presenting it to the arbitrators, some activities were modified, and five of them were deleted so that the number of activities became (14) activities.

Checking Tutorial Authenticity: The program was presented in its initial form to several experts and specialists in education and psychology, where they were asked to express their opinions and observations on each activity of the educational program in terms of objectives, content, materials, method of implementation, suitability for children and their role in improving scientific concepts.

Search procedures

The researcher identified a list of appropriate scientific concepts for the child to be developed and presented it to a group of arbitrators. And prepare an educational program based on drama. And present it to the arbitrators and make the amendment and addition in light of their observations so that the program is ready for implementation. The researcher prepared a pictorial test to measure kindergarten children's scientific concepts skills through the proposed program and presented it to the arbitrators to control it and verify its scientific integrity. The researcher conducted the exploratory experiment. The researcher applied the pre-test to test scientific concepts on the experimental and control groups, and then the program implementation time was determined in proportion to the daily program of the kindergarten. The program was applied in kindergarten to the experimental group at the end of 2017-2018. Then the researcher did the post-test on the experimental and control groups, and a tracer test was done on the experimental group, and the research results were analyzed.

Study results

To verify the study hypotheses, the researcher did the following.

The first hypothesis states, "There is no statistically significant difference at (0.05 level) in the mean total score of scientific concepts in the post-test between the experimental and control groups attributable to the educational program." To statistically treat this hypothesis, the "T" test values were calculated to calculate the significance of the differences between kindergarten children's mean scores in the post-measurement between the experimental and control groups. Table (4) shows the results of the "T" test.

Table 4: the results of the "T" test to calculate the significance of the differences between the mean scores of kindergarten children in the post-measurement to test scientific concepts between the experimental and control groups

	Group	Number	Arithmetic average	Standard deviation	Degree of freedom	"T" value	Significance level
Scientific Concept Test	Experimental	19	20.37	6.98	37	**3.256	0.01
	Control	20	14.37	4.51			

Table (4) shows that there are statistically significant differences at the level of (0.01) between the mean scores of kindergarten children in the post-measurement to test scientific concepts between the experimental and control groups, in favor of the children of the experimental group.

The second hypothesis: which states, "There is no statistically significant difference at (0.05 level) in the mean scores of scientific concepts between the post-application and the tracing application of the experimental group."

In order to treat this hypothesis statistically, the "T" test values were calculated to calculate the significance of the differences between the mean scores of kindergarten children in the post-measurement between the experimental and control groups. Table (5) shows the results of the "T" test.

Table 4: the results of the "T" test to calculate the significance of the differences between the average scores of scientific concepts between the post-application and the tracking application of the experimental group

	Application	Number	Arithmetic average	standard deviation	Degree of freedom	"T" value	Significance level
Scientific Concept Test	Post	19	20.37	6.98	37	1.03	0.141
	Tracking	19	20.15	5.14			

It is evident from Table (5) that there were no statistically significant differences at a level (0.05) between the mean scores of kindergarten children in the post and consecutive application of the experimental group. The experimental group's superiority over the control group can be attributed to the effectiveness of the educational program and its achievement of the goal it sought, which is the development of scientific concepts among kindergarten children. The improvement in the development of scientific concepts among the students may be due to the experience of the students of the experimental group. This study can explain the fact that the training program helped kindergarten children believe that they inhabit the world just as adults do (Munevyer, Can & Neriman 2012). Our mission as educators is to create opportunities that enable them to fully interact with and understand that world through their interactions so that they can perform their jobs successfully. However, we acknowledge that most experiences in school offer children some kind of interaction with the world after being filtered by the teacher, producer, writer, and others. In such circumstances, the feeling is easily separated from thinking and knowledge (Hornachova, 2016). When that happens, the opportunity to make information available becomes a personal matter. The scientist Brunner endorsed this vision in his book Toward a Theory of Education when he suggested that the learner needs to actively participate in the learning process and that the child's feelings, imaginations, and values need to be incorporated into the lessons for the knowledge to become personal. (Yaman, 2015) Perhaps the drama makes this possible. By its very nature, drama provides the opportunity for a new, interactive learning experience. (Momeni, 2017) In creating a world in the context of drama and inviting children to directly and effectively invest something of themselves in it, (Aysun, 2013), the teacher can create the opportunity to realize an understanding that is directly transferable to the real world.

The effectiveness of the educational program based on drama is evident in developing scientific concepts. Therefore, the researcher believes that there is a variety of drama experiences in the educational situation, which is what teachers need to provide children with the opportunity to engage in dramatic experiences capable of challenge, excitement, and motivation, so that it mainly depends on a group of types that enable them to understand the artistic form of drama, process it and use it to develop their ability to understand themselves in the world and comment on their experiences.

The researcher explains the current result that the program relied on drama style, which depends on the natural ability to create imaginary situations to explore real experiences through it. Drama, then, can connect different areas of experience by combining aspects of fiction and reality. (Gioia, & Tobin, 2010) and this would make experiences able to illuminate and enrich each other (Lillard, et al. 2013) All children, in their dramatic play, involve themselves in all possible and impossible worlds, and by doing so, they discover the boundaries between them for themselves. Whereas, imagination used effectively in the context of drama allows us to see multiple paths of action, appreciate their significance, and test them without suffering the consequences of long-term selection (Hui & Lau, 2006). The researcher believes that one of the important things that drama does is to allow children to develop the skills of performance and acting for others. Performance and elements of theater reinforce all action in drama within an educational context. Nevertheless, the learning that children acquire from engaging in music, dance, and visual arts within education is broad; the possibility of learning provided by drama is more comprehensive than the term "acting suggests" (Abdel-Fattah, 2009).

Teachers who are new to drama, in particular, may use it narrowly as a definition of it, and by doing so, they

reduce opportunities for their classes. Drama gives us strength. Through the unique 'role-playing' process, the diversity of form encourages creativity, imagination, aesthetic sensitivity, and performance. To understand, strengthen personal expression, and develop intellectual and emotional knowledge. They provide a framework for exploring thoughts and feelings and creating meaning. (Hui, Cheung, Wong, & He, 2011). Drama, then, is an integral part of the culture. Where drama provides opportunities for inquiry, reflection, celebration, and challenge. (Cesarina Macinelli, 2006) It is a powerful medium of collaboration and communication that can change the ways people feel, think, and act. Through its active and influential elements, it sharpens the ability and provides children with a means by which they can understand themselves and relate to those around them. And when teachers create drama opportunities for children, they offer a complex, rich, and vibrant way for children to transform into artists, and by learning about the art form, they develop a way to learn about the world around them. The teacher needs to present the scientific concepts clearly and in a specific framework composed of place, time, and situation, carefully chosen, through which the dramatic action can develop. And perhaps choosing the dramatic context appropriately creates fictional narrative situations in which kindergarten children can find the opportunity to explore the topic carefully in a meaningful way. And this is what Margaret Donaldson emphasized in her book, Children's Minds, which is that learning occurs most effectively when it includes context. While we are sometimes able to change the learning context for the sake of children, time and financial constraints usually mean that there is only one primary context for learning - which is the pupils in the class with the teacher. However, there is a way that we can allow to enter an unlimited set of learning contexts - without leaving school. (Marilyn Chapman, 2000) and this, of course, by imagining drama. And, children often use dramatic toys as a way to learn about the world we live in. They naturally put themselves into imagined roles or places, and with this procedure they explore a wide range of "what if" situations to understand them better. Children's ability to behave in an unlimited set of experiences is also one of the basic rules on which drama depends. It allows the teacher to use the pupils' creative energy to make learning a context that she wants them. The result is consistent with previous studies that dealt with educational programs based on drama and its effect on the development of several variables as a study (Marilyn Chapman, 2000; Cesarina Macinelli, 2006; Hornachova, 2016; Yaman, 2015).

In light of the results of the current study, the study recommends activating the role of educational drama at the kindergarten level and the necessity of training kindergarten teachers to use drama in teaching, making recommendations to the Ministry of Education, in addition to some lessons in the kindergarten course that includes drama classes.

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