

Drama in Education for Sustainable Development: Preservice Preschool Teachers on Stage

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Abstract

Early childhood education for sustainable development roots on environmental, socio-cultural and economic ground for encouraging lifelong learning and improving values and behaviors that support sustainable development such as use of natural resources, cultural awareness, gender equality, and democracy. Educational drama contributes to the development of skills necessary for sustainable development such as communication, cooperation and decision-making. This study has two main objectives: the former is to raise awareness and to develop these skills of pre-service teachers by organizing drama activities in Education for Sustainable Development (ESD); the later objective is to implement and to evaluate the activities based on the data collected from pre-service teachers and from one specific pre-school teacher, in whose classroom these activities were carried out. Phenomenographic approach was adapted for the current study and the data was collected through interviews, photos, and field notes. The study shows that the drama activities increase awareness and improve skills for ESD within pre-service teachers. Furthermore, opinions and experiences of the pre-service teachers and the preschool teacher state that drama has positive impact on learning of pre-school children about sustainable development.

Keywords: educational drama, education for sustainable development, pre-service teacher, pre-school teacher, qualitative research

1. Introduction

Recently, people are becoming more careless about the use of natural resources. There is only one chance to save the planet and this will lead to undesirable consequences for all the humanity if human beings continue to follow their pure ambition and comfort. However, the sustainable use of natural resources provides opportunities for next generations to live in a habitable world (United Nations, 2015).

Sustainable development (SD) supports the sustainability of animal and plant species, ecosystems, and natural sources; which covers areas including gender discrimination, human rights, the right to education, health, security, and intercultural communication (Siraj-Blatchford & Pramling-Samuelsson, 2016).

Education for Sustainable Development (ESD) requires environmental issues to be integrated with the concepts of social and economic development and to be presented within an educational framework (Robottom & Simonneaux, 2012). The pillars of ESD have sociocultural, economic, and environmental values, all combined in an interdisciplinary approach (Davis, 2010; United Nations, 2015). According to Haddad (2008), early childhood education is a critical stage for the concept of sustainability in education. Early childhood education sets a physical, social-emotional, and cultural ground for development. It is also effective in improving values and behaviors supporting ESD (Pramling Samuelsson & Kaga, 2008). ESD is important because children play video games with their cell phones, tablets, and computers, instead of being in nature with plants, animals and all other natural beauties, feeling fresh air, playing with leaves, sand, and tree barks (Haktanır, Güler, & Kahrirman, 2016). According to the constructivist framework providing meaningful learning experiences,

children need to manipulate materials, to inquire about phenomena, to design their own models, and to develop educational products related to nature and sustainable use of natural resources. The effective ESD activities should require active participation of children (Pramling-Samuelsson & Kaga, 2008). Upon the launch of the United Nations Decade of Education for Sustainable Development, early childhood education for sustainable development (ECESD) has been more prominent both on national and international agendas. The United Nations Decade of Education for Sustainable Development (2005-2014) supports combining individuals and resources of different levels in early childhood education and encourages its cooperation (Kaga, 2008). ECESD should consider physical, social, and cultural differences of settings in which children grow up and live (Duhn, 2011; Pearson & Degotardi, 2009). To diagnose ECESD in educational settings, the World Organization for Early Childhood Education (OMEP) uses the term 7R, which refers to Reduce, Reuse, Respect, Reflect, Rethink, Recycle, and Redistribute (Duncan, 2011; OMEP, 2010). The pillars and dimensions (7Rs) of SD are described and exemplified in Table 1 (Kahrman-Öztürk, Olgan, & Guler, 2012, p. 2988).

Table 1. Three Pillars of ESD and 7R's

<i>Pillars</i>	<i>7R's</i>	<i>Meaning</i>	<i>Examples</i>
Environmental	<i>Reduce</i>	doing more with less	turning lights off when unnecessary reducing the number of toys bought
	<i>Reuse</i>	making more use of old things	drawing on both sides of a page making new toys from used articles asking parents to deliver materials to others they don't use any more
Social-Cultural	<i>Respect</i>	respecting nature and its competences	not disturbing animals not harming environment
	<i>Rethink</i>	valuing other things	challenging the culture of consumption inspiring children to be creative
	<i>Reflect</i>	mentioning cultural differences in the world	talking about how children live in other countries making reflections possible during children meetings
Economic	<i>Recycle</i>	someone else can use it again	sorting out waste making birdhouses from recycled wood
	<i>Redistribute</i>	using resources more equally	exchange projects with poorer schools

Pramling-Samuelsson (2011) stated that ESD has responsibilities such as drawing young children's attention to nature, environment, and science, and exhibiting a democratic attitude; and eliciting their opinions. The experiences of children about society and nature, learning how to protect nature and their active participation in decision-making processes constitute the components of ECESD (Davis, 2008).

McNaughton (2004) proposes that drama can be implied in congruence with ESD applications. Drama is defined as the process of transforming what is intellectual into actual and a method of education-instruction (Aslan, 2011). Furthermore, drama offers children a game-based learning environment and opportunity to learn by doing during the preschool period (Körükçü, 2014). Thus, drama plays an important role for preschool children in recognizing themselves, improving their problem-solving skills, and getting prepared for the future life (Kandır, 2003). Drama has potential to use in many educational settings and can be effectively used in the preschool years. According to Taylor (2000), the pursuit of solutions for social and environmental problems also forms the basis of dramatic procedures. In fact, it is claimed that how children learn science related concepts and how they comprehend nature of science is promoted by their own through role plays in dramas as well as pretended and unintended performances (Braund, 1999 & Braund, 2015). On the other hand, ESD practice includes procedures requiring active participation; therefore, drama greatly supports the procedures of learning by taking part in the process of ECESD. As well as contributing to the attainments related to the dimensions of ESD, drama brings significant contributions to the development of the skills necessary for SD such as communication, cooperation and decision-making (McNaughton, 2006). Drama can be used within the scope of ESD since it is influential in the attainment of information and experience and putting these elements into practice (Acting Green, 2011). McNaughton (2010) argues that there is a direct relationship between ESD and drama because they both include holistic, active, and participatory procedures.

Despite the strong relationship between ESD and drama, there are very few studies concerning the use of drama in ESD. In this context, this current research presents an example of how drama can be used in ECESD. It has been stated that drama is useful to enhance primary school students' environmental sensitivity (McLauchlan,

2006; McNaughton, 2010). McNaughton (2010) aimed to examine the effectiveness of drama in ESD implemented with primary school students, researcher found that ESD through drama had a positive impact on children's process of learning the concept of sustainable development and made great contributions to the enhancement of their environmental sensitivity. The experiences of children about society and nature, learning how to protect nature, and their active participation in decision making procedures are concluded as the components of ECESD (Davis, 2008). The implementation of ESD during the early childhood educational programs should emphasize the importance of early childhood education even further as well as making major contributions to sustainable development (Prince, 2010). It is observed that issues on environmental consciousness and sustainable development are significantly included in the preschool educational programs applied in many countries including Sweden, the UK, Australia, and New Zealand (Siraj-Blatchford & Pramling Samuelsson, 2016; Chatzifotou, 2006; Prince, 2010). Prince (2010) aimed at integrating the dimensions of sustainable development within Te Whāriki, the preschool educational program in New Zealand, in which 12 months training with a project-based method about sustainable development was provided for a group of children aged 3-5 years as well as their teachers and parents. The conclusion was that the project-based method greatly supported ESD. Another study addressing the project-based method in ECESD was carried out by Stuhmcke (2012) in Australia. In this study, a project-based method was applied to preschool children for 7 weeks and it was concluded that positive outcomes were observed in children's thoughts and behaviors regarding the dimensions of sustainable development.

Haktanır et al. (2011) carried out a project on recycling with 5- to 6-years-old children, their parents, and teachers in Turkey. In the scope of this project, researchers implied drama, language, science, art, and movement activities. A significant increase was observed in children's knowledge levels regarding the ESD dimensions and their behaviors were more sensitive. Another ESD program for 60- to 66-months-old children was applied by Cengizoglu (2013) over a 4-week period involving different activities comprised of drama, play, science, and language to examine the children's perceptions of deforestation, biological diversity, and human-environment relation in harmony with climate change. As a result, children's perceptions about these issues were modified to a more responsible degree and they are more productive to find solutions for a sustainable future.

It is remarkable in the literature over ECESD that ESD is included in current programs through different types of activities; however, ESD focused bare drama activities are rare. Based on this, the current study on using the drama method only in preschool ESD was found to be necessary to create evidence over use. Drama activities were prepared over a term with pre-service teachers to cover the dimensions of SD for preschool children and aimed to identify opinions of the pre-service teachers and the in-service teacher on using drama in ECESD. There are two main research questions:

- 1) What are the pre-service preschool teachers' experiences and opinions on the drama activities within the scope of Preschool Education for Sustainable Development (ESD)?
 - a) What are the pre-service preschool teachers' experiences and opinions on the process of preparing drama activities about Education for Sustainable Development (ESD)?
 - b) What are the pre-service preschool teachers' opinions on the benefits of drama activities on children about Education for Sustainable Development (ESD)?
 - c) What are the pre-service preschool teachers' opinions on using the drama method in the implementations of Education for Sustainable Development (ESD) in the future?
- 2) What are the preschool teacher's experiences and opinions on the drama activities for Preschool Education for Sustainable Development (ESD)?
 - a) What are the preschool teacher's experiences and opinions on the benefits of drama activities on children about Education for Sustainable Development (ESD)?
 - b) What are the preschool teacher's opinions on using the drama method in the implementations of Education for Sustainable Development (ESD) in the future?

2. Method

2.1 Research Design

This study is qualitative in nature. It is a phenomenography which focuses on determining different ideas and experiences of participants in a shared practice (Patton, 2002; Bodner, 2004). For this purpose, the data were collected through interviews, photos, and field notes. Descriptions regarding the study were provided in the below sections (Ponterotto, 2006).

2.2 Setting

ESD through drama was provided in an independent public preschool. This school is located in the city center of Afyonkarahisar (Mid-sized city in Turkey) and the enrolled children aged 3 to 5 years old were from families with a low socioeconomic status. The 11 staff members at the preschool were a principal, a deputy principal, six teachers, and three other employees. There were six classrooms; one for three years-olds, two for four-years-olds, and three for five-years-olds. Each classroom contained the educational materials in congruent with children's developmental levels. There was an outdoor playground for the children. A used cooking oil collection was being carried out at the preschool to increase the children's environmental awareness and parental participation. For this study, the drama activities were performed in the five-years-old students' classroom with 12 students (8 girls and 4 boys). All the children who participated in the study were 5 years old. There were science, art, and game spots in the classroom. The classroom was randomly chosen for the drama activities.

2.3 Sampling

The study group was composed of 12 pre-service preschool teachers enrolled in the School of Education in Afyon Kocatepe University and a preschool teacher from the above mentioned independent state preschool. The pre-service preschool teachers took a course on drama within the scope of the undergraduate program in previous years. The preschool teacher was a 33-years-old woman who graduated from the undergraduate program of preschool teaching and had 10-years occupational experience. This teacher took the drama course during the undergraduate program and did not participate in any other drama training.

2.4 Drama Training Program

Prior to performing the drama activities, the pre-service teachers were provided with 10-weeks drama training course by two researchers. One of the researchers was a drama training specialist and the other was an expert in science education. The 10-weeks and 20-hours drama training program was implemented in 2-hours sessions once a week. The training was provided in the form of workshops in the drama hall in the school. The general purposes of the drama training were to improve pre-service teachers' levels of knowledge and awareness about drama, to contribute to their personal development as well as their occupational development concerning drama, and to support preparation of drama activities involving the dimensions of ESD for preschool children (7Rs). The scope of the drama training program is given in Table 2.

Table 2. Drama training program

Weeks	Scope of Program
1	Introduction-Theoretical information
2	Harmony activities
3	Drama techniques and applications
4	Drama techniques and applications
5	Concepts-dimensions concerning sustainability education Designating the workgroups
6	Development of the drama activities - workgroups
7	Development of the drama activities - workgroups
8	Presentation and rehearsal of the drama activities
9	Running the pilot study
10	Reviewing the drama activities, final development and evaluation study

The first 4 weeks of the drama training include an introduction, harmony activities and techniques used in drama led by the two researchers. In the fifth week of training, the basic concepts and dimensions of sustainable development were introduced to the pre-service teachers. Also, the workgroups were formed based on the socioeconomic, environmental and economic pillars of ESD. Each group worked within their own pillars and prepared their drama activities in the sixth and seventh week. The pre-service preschool teachers in each group played an active role in the preparation of the drama activities for the preschool children in accordance with the program format. Both researchers followed the groups' process of preparing the activities during the sessions by guiding and providing them with feedback individually. The drama activities prepared by the groups were examined and approved by the researchers, and the groups presented and implemented their drama activities to other groups in the eighth week.

In the ninth week as a pilot study, the earlier versions of the drama activities were implemented to children from low socioeconomic status (SES) in a public preschool. This preschool is similar to the second public preschool

where the study was held in terms of size, SES of families, and physical conditions. Seven total activities were carried out in three days. The first researcher was present in the classroom with the pre-service teachers, guided them during their applications, and took field notes for each activity. The researchers and pre-service teachers worked together on the setbacks experienced in the drama activities during the pilot implementation, and on what could be done to make the current activities more productive and effective.

Designed drama activities. Each group prepared drama activities concerning the pillars in which they were interested. The drama activities were prepared by considering preschool children's individual differences and developmental characteristics in accordance with the attainments and indicators specified in the Preschool Educational Program of Ministry of National Education (2013). Based on the constructivist principles, concrete materials were also prepared to encourage the children to participate actively in the drama activities. When asked to evaluate the activities, the preschool children were presented with affective, descriptive and life associated questions through which they could express themselves easily for attainments. The drama activities designed by the workgroups were developed with the researchers' opinions and recommendations. Next, the activities were submitted to two domain experts for evaluation and redesigned according to their opinions and recommendations. The data on the drama activities prepared within the scope of pillars and stages of ESD are presented in Table 3.

Table 3. Drama activities

<i>Study Groups</i>	<i>Dimensions</i>	<i>(7R's) Stages</i>	<i>Activity order</i>	<i>Activity name</i>
1	Sociocultural	<i>Rethink</i>	1	Junkman
		<i>Rethink-Reflect</i>	2	Children of Different Countries
		<i>Respect</i>	3	Rabbit
2	Environmental	<i>Recycle- Respect</i>	4	Recycling in the Forest
		<i>Redistribute</i>	5	Story of the mermaid
3	Economic	<i>Respect-Reuse</i>	6	Raziye the Log and Şaziye the Nylon
		<i>Respect-Reduce</i>	7	Voyage of Wind to Light

Table 3 shows that seven drama activities were developed with seven dimensions addressing the pillars of ESD. These seven drama activities were performed within three groups in three weeks.

Brief sample drama activity: Recycling in the forest. The preschool teacher asked for the preschool children and their parents to bring some recyclable items such as plastic bottles, newspapers, cardboard boxes, cans, and so forth from home and to distribute these items on the ground of the classroom before beginning the drama activity. Then, children were requested to assume the classroom as the forest ecosystem and some of the children were asked to be a part of this forest ecosystem (e.g. a bird, a tree, a river, a human being etc.). Children were encouraged to imitate their own figures using their bodies. While other children who did not want to be a part of the forest ecosystem were asked to pretend as if recycling truck drivers, who picked up items from the forest and took them to the recycling center. Each child pretended as a part of the forest eco-system and acted as recycling truck drivers who expressed their feelings about living with wastes. Finally, different wastes collected by recycling truck drivers during the drama session were separated into their correct containers by all children and children were encouraged to communicate about benefits of recycling for the ecosystem.

2.5 Interviews

Interviews were carried out with the preschool teacher and the pre-service teachers to get their opinions on the practicality of drama activities for ECESD. Unobservable processes such as experiences, attitudes, and thoughts can be comprehended in a better way through an interview (Patton, 2002). The research data were collected with the focus group interviews with 2 groups, each of whom had 5 pre-service teachers (10 in total) and an interview with the preschool teacher.

The focus group interviews were performed in the drama hall of the school as planned with the pre-service teachers. The interviews lasted approximately 25-30 minutes and were recorded with the consent of the pre-service teachers. The interview with the preschool teacher was performed in the teachers' lounge at the state preschool and lasted approximately 15-20 minutes. It was recorded with the consent of the preschool teacher.

Two semi-structured interview schedules were used; one for the pre-service teachers and the other for the preschool teacher. In the pre-service teachers' interview schedule, there are three themes, which are their opinions on the process of preparing the drama activities for ESD, about the benefits of drama activities on preschool children, and the use of ESD drama activities in the future. The preschool teacher's interview schedule

has two themes which are opinions on the benefits of ESD drama activities for children and the future use of ESD drama activities. Both interview schedules include an introduction that explains the purpose of the research and the questions for obtaining demographic details. Each of the interview schedules contained four open-ended questions in accordance with the themes. Probing questions were also used to support main interview questions to gather further details. An example interview question for pre-service preschool teachers is, "You were being a part of drama based on ESD activities for the last 10 weeks. How do you interpret these experiences?". The other interview question example for the preschool teacher is, "What do you think about the advantages and disadvantages of using ESD drama activities?"

These interview schedules were utilized to acquire in-depth information on the opinions of the pre-service teachers and the preschool teacher. They were submitted for the evaluation of two domain experts to achieve the credibility (internal validity) (Miles & Huberman 1994; Patton, 2002). Necessary corrections and additions were made to finalize the schedules by taking the opinions of the field experts into account.

2.6 Photos and Field Notes

Seven drama activities were performed at the state preschool in three weeks; 42 photographs were taken and were used to observe the involvement of the preschool teacher and the pre-service teachers during the activities. In addition, the first researcher was introduced to the pre-service teachers and took field notes when performing the drama activities at the preschool. Six pages of the field notes were used as an additional evidence in the evaluation of the preschool teacher's and pre-service teachers' opinions.

2.7 Data Analyses

Both deductive and inductive content analysis techniques were used to comprehend the data obtained in the research (Patton, 2002). The data were analyzed in five stages; encoding of data, organization of existing themes, searching for any other available themes that come up from the data, arrangement of codes and themes, definition and interpretation of the findings.

All the recorded interviews were transcribed verbatim. These texts were partially encoded by three researchers to ensure the objectivity of the study and by one researcher as a whole. To achieve consistency among the coders, meetings were held to discuss the partially coded section and to ensure consensus on the codes. The generated codes were used to calculate the inter rater reliability as .90. The codes were placed under the themes already specified in the semi-structured interview schedule, and emerging of new themes was constantly considered. The data obtained from the research were arranged in accordance with the codes and themes and everyone agreed that no other themes than those previously specified would be created. The codes were placed under the themes to achieve the findings interpreted by the researchers later.

The issues of validity and reliability were reported according to the social construction and constructivist points of view (Patton, 2002). The opinions of the preschool teacher and the pre-service teachers were supported with direct citations to increase the credibility (validity) of the research (Patton, 2002). The researchers established a long-term interaction with the data sources to ensure prolonged engagement (Miles & Huberman, 1994). This interaction started in the form of pre-study school visits and continued throughout the study, and the preschool teacher and the school administration were provided with feedback for the evaluation of the study. The researchers worked with the pre-service teachers in the workgroup over the 10-weeks drama training before the implementation. The interview transcripts, photos, and field notes were utilized for source triangulation to increase the credibility. For the transferability of the research, the characteristics of the participants, physical conditions, settings and processes were described in detail above (Ponterotto, 2006).

3. Results

3.1 Results Related to the Pre-Service Teachers: Interview Transcripts, Field Notes, and Photos

The data on the pre-service preschool teachers were presented in three dimensions. Firstly, the pre-service preschool teachers' experiences and opinions of the process of preparing drama activities about ESD were evaluated. Next, their opinions on the benefits of the activities they developed for the children, and whether they would use the drama method in the future were discussed.

Opinions of the pre-service teachers concerning the preparation process of ESD drama activities. The pre-service preschool teachers (PT) emphasized that they had difficulty in preparing the drama activities but the pilot study facilitated the process. The PT 3 and 4 stated their opinions on the preparation process of the drama activities:

PT3: *We had trouble in the idea-generating stage, because we couldn't bring the children anything [concrete] in*

the name of education for sustainable education and it remained at an abstract level. Therefore, we had difficulty in both producing ideas and finding activities.

PT4: *Our subject was the social-cultural pillar and children found it rather abstract to study. We found it pretty hard.*

How the pilot implementation following the drama workshops affected the actual implementation positively was explained by PT1 as follows:

PT1: *As everything in the implementations in the second term stuck in our minds, we saw our shortcomings in the first-term implementations, and accordingly, we made certain corrections to create a better and more effective implementation.*

Based on this explanation, pilot study was effective in evaluating and updating the drama activities and provided a positive effect on real implementation process because pre-service preschool teachers have more experience in the drama after the pilot study. And the pre-service preschool teachers stated that they found the preparation process of the drama activities as productive and the process was effective for learning drama:

PT7: *When we become teachers in the future, we can implement such activities in our own schools, too. We both improved ourselves and gained experience.*

PT9: *I also believe we came a long way individually. For example, I was shier before, but now I manage to express myself with drama and improvisation.*

The pre-service teachers also reported that the drama activities increased their knowledge of the pillars of ESD:

PT3: *Sustainable development education was a concept I didn't know. I learned about it and got an idea about which activities I can use.*

PT4: *When you look at the dimensions of sustainable development, we learned about the things we should know and do as human. Those wouldn't occur to us when it came to sustainable development.*

PT6: *First, we learned what sustainable development is. We noticed how we could look into the subject from socioeconomic, environmental and economic aspects. Moreover, if we have knowledge of a subject, it is more likely that we will find creative ideas about it and creative things what children need.*

Consequently, the pre-service teachers reported that while preparing the drama activities, they had difficulty in this process but it contributed to their learning about drama, getting information about ESD, and the subjects of creativity and assertiveness positively. As emphasized by PT6, the most important problem of the pre-service teachers was that they were not sufficiently informed about SD. In the light of these data, the reason why the pre-service teachers had problems in the preparation process of activities can be explained as not taking an extensive training and course on ESD during their undergraduate education and not including ESD activities in their implementations.

Opinions of pre-service teachers on the benefits of ESD drama activities for the children. The pre-service teachers stated that they achieved attainments by the end of the drama activities. This revealed that it was a productive process for the children and provided concrete examples of the evaluations:

PT2: *We presented an activity about children from different countries. We noticed that the children performed easily the matching activity about different cultures during the evaluation.*

PT3: *First, we talked about environmental pollution and then made toys from waste materials during the evaluation stage. The children saw that those waste materials could be reused. They even said that the bottle caps could become the wheels of the car; the straws could be the other parts of it. We made a toy from very simple materials. We made a car and they liked it very much. Now that they could see the waste materials could be reused, I think the activity was the most useful in this sense.*

PT5: *I think our recycling activity was more productive because when we gave the children mixed materials during the evaluation stage, they managed to separate all of them for the recycle bin. We brought paper, plastic and glass materials, and they could easily separate them. I mean, we understood that in this way they comprehended the idea of recycling.*

PT9: *In the windmill activity, while we were wondering how to tell them about that and how to present it, they found the places of all the parts on their own during the final evaluation stage. I mean, they know how the wind blows and rotate them [the vanes] to transform into electric energy. We were more afraid that they wouldn't understand, but it wasn't the case after all. They could make the assumption.*

PT10: *When I was pretending to be a mermaid, one of them told me not to be sad and they wouldn't pollute the*

sea ever again.

The pre-service teachers also stated that the children participated actively and enjoyed the drama activities:

PT1: *The participation was great: They didn't get distracted, which surprised me. We performed two activities in a row.*

PT3: *The whole class took part; they were even very keen on doing the activity again and again and they enjoyed it very much.*

PT7: *They participated in each activity.*

PT2: *I'm definitely thinking about it because even before finishing one activity and starting another; they would ask 'Can we do it again? Shall we play it again? Come again tomorrow and we'll do the same.*

PT3: *Yes, we're definitely thinking about it.*

Opinions of pre-service teachers concerning the use of ESD drama activities in future. The pre-service teachers said that they were thinking about performing drama activities in their proceeding years which would address the dimensions of ESD in their occupational lives.

PT1: *A subject that the society needs to know about... I mean, people don't know why they shouldn't pollute the environment, what sustainable development is, why we need it. Especially the five-years-olds... It is easy to teach something to a five-years-old. It has an extra advantage, you know. That's why I'll carry out similar activities when I become a teacher.*

PT3: *When writing and investigating this activity, we came across science, art and Turkish activities about environmental education and sustainable development education. It made us worry about how we would do it, how we would teach it. We assumed it would be impossible to teach it through drama. But we got over it in time and saw that it was achievable. It set a very good example for the future.*

PT1: *You know, it was very difficult to adapt ESD into drama at first, thinking about it, designing it and everything. But now that we have managed to do all these about environmental education, sustainable environmental education; we can also adapt other domains to drama.*

PT3: *There is the subject of environmental education which we already need to teach children about. You know, we can teach about aid to the environment, environmental education, and the concept of sustainable development through drama, as the best way. I'm thinking the drama method can be used effectively in future.*

3.2 Results related to the preschool teacher's opinions of ESD drama activities

The opinions of the pre-school teacher on ESD drama activities were evaluated in two aspects; her opinions concerning the reflections of the activities in relation to the children, and using the ESD drama activities in the future.

Teacher's opinions on the benefits of ESD drama activities for children. When giving her opinions on the implementation of the seven drama activities which addressed the dimensions of sustainable development in the classroom, the preschool teacher reported that the attainments aimed for the children were achieved as follows:

It was very impressive that children were walking like Chinese people with fans in their hands and showing me their hats. I think the activity served its purpose. They presented and performed their dances to other classes. We'd addressed the topic of world children on special occasions before. The children would only have watched slides and videos before, but the goal was achieved through drama. The subject became more tangible because they saw the clothes, dances, and movements.

The teacher also added, "Children find the economic dimension to be rather abstract. I think they learned about this dimension because it was more concrete with the drama. They are becoming involved individually with the logic of learning by doing. That's why, they are learning." This addressed the functionality of the drama activities in terms of the children's learning.

Moreover, the teacher stated that ensuring children's active participation had been effective in achieving the attainments of the activities: "The children are included in the process personally, rendered active; therefore, we have the chance to see if the attainments are achieved by the children through those activities and participations." The teacher gave the following example to support her opinions:

The simplest example... children know where to throw batteries, how not to waste paper now and they're practicing it in their own lives. April 23 (National Holiday Children's Festival Day) is ahead of us. I'm sure the children will talk about children of different cultures. They'll explain that 'they're

dressing like this, behaving like that, their music is like this.

The teacher also reported that the children enjoyed the activities and took active role in them:

It was fun. It became more effective using materials. The children took active role in it, too. Some of them even asked 'Will our teachers come again?' on other days... They had fun. The group which didn't participate in the activity asked if they would. We should perform different drama activities now. It was generally nice and fun.

The teacher mentioned the functionality of the activities regarding how the children integrated the procedures about recycling into their daily lives:

We'd been throwing papers into the garbage bin, but now there were children asking if I was going to bring the recycle bin to the classroom. After we brought the recycle bin to the classroom, we started to throw waste paper into it.

About using ESD drama activities in future. When giving her opinions on using drama activities of the dimensions of ESD in the future, the teacher stated that the environmental conditions were appropriate for the performance of the drama activities and they could carry out projects in a partnership with their preschool:

It's possible. Why not? Our school isn't very active in its environment but the children are very active, their parents are so conscious. I feel this is lucky. But doing it at poorly resourced schools... Going to those schools to play out stories or perform such a play may be nice for the students. We can think about it. Maybe we can become sister schools. We can go to them and they can come to us.

In conclusion, when evaluating the data obtained from the pre-service teachers who participated in the research, it was seen that they had difficulty in preparing the drama activities. Yet, they stated that the activity preparation and implementation process gave them the opportunity to learn about SD and drama. As for the opinions of the participant preschool teacher and pre-service teachers on the reflections of preschool ESD drama activities on children, they all thought that the attainments and indicators aimed for the children had been achieved and the children played an active role in the activities and enjoyed them. Furthermore, they all reported that they would include such activities into their education. The researcher's observations and field notes, and the photos also supported these findings:

The children took the most pleasure in the activities and participated in them actively during the day. The fact that the implementation group acted eagerly, efficiently and accurately directed the children in the learning process, which made it easy for the activity to achieve its attainments. It was observed in this activity that the children acted out comfortably, gained information about the features of different countries, and talked about these activities on the following days.

Children's active participation was achieved during the evaluation stage. The fact that every child separated the garbage and put them into the related recycle bin indicated that the learning process was realized in an effective way. Making recycle bins for different materials available in the classroom and keeping this process going would make a contribution to the enhancement of children's awareness levels.

4. Discussion

This study aims to prepare and implement drama activities including the dimensions of SD for preschool children with the pre-service teachers and to evaluate the opinions of the participant pre-service teachers and the preschool teacher within the framework of the related literature.

One of the important data obtained from the interviews with the pre-service teachers concerns the process of preparing drama activities which they found difficult but useful for both their individual and occupational development. Furthermore, the pilot study was found to have a positive impact on the actual implementation. The reason why the pre-service teachers had difficulty in the activity preparation process may be due to the lack of education on SD or of designing any activities on these subjects during their undergraduate education. Agut, Ull & Minguet (2014) state that ESD needs to be included in the content of different courses in undergraduate programs and pre-service teachers should have different experiences about ESD especially in teaching practices. It is obvious that different elective courses would make rich contributions to the programs. Moreover, the pre-service teachers reported that their knowledge of the dimensions of SD improved after the drama training and the activities they performed. Feriver-Gezer (2010) concludes that the teachers' perspectives of the sustainable development concept significantly change after in-service training. This research was carried out to determine the effectiveness of in-service training on ESD for preschool teachers. The pre-service teachers

thinking that they do not have the sufficient knowledge of sustainable development and lacking the self-confidence in preparing ESD activities have a substantial effect on their ESD implementations (Evans, Whitehouse, & Gooch 2012). In their study, Dymont et al. (2014) examined the opinions of the pre-service teachers during ESD in-service training both theoretically and practically and the effect of the training on their self-confidence regarding the implementation. They concluded that the opinions of the teachers on sustainable development markedly changed and they became informed of the sociocultural dimensions of the sustainable development concept. In this sense, including both theoretical and practical courses of ESD in undergraduate and postgraduate programs of the colleges are important. Besides formal education, pre-service teachers should be supported with activities such as workshops and camps so that they can have experience about the implementations of ESD.

Consequently, how the pre-service teachers who formed the study group of this research became informed of drama and ESD after the drama training and they had the opportunity to perform the drama activities they prepared for the integration of these two domains made significant contributions to both their personal and occupational development. According to Mackey (2012), teachers have an occupational responsibility to inform preschool children about the environmental and sociocultural dimensions of SD which would affect their lives later. It is thought that the results achieved in the research will contribute to the pre-service teachers' and preschool teacher's process of taking responsibility for the subject.

Other data obtained from the research is related to the opinions of the pre-service teachers and the preschool teacher concerning the benefits of the drama- based on ESD for preschool children. Both the pre-service teachers and the preschool teacher similarly reported that the children enjoyed the ESD drama activities, they actively participated in, and the related attainments were achieved.

Ärlemalm-Hagsér (2014) examined the activities performed on the sustainable development dimensions in a study aiming to investigate how Swedish preschool educational institutions defined ESD and how children were supported as active participants. It was also emphasized in the study that the children's participation processes were mainly limited by the goals of adults and children that needed to take part in the decision-making procedures within the scope of ESD. Green (2015) stated that methods through which children's active participation could be achieved needed to be used in the ECESD. In a previous study, Green (2013) examined preschool teachers' opinions on sustainable education that the teachers were eager to engage in the integration of sustainable development dimensions with education but they found that topics such as social justice, independence, human rights, and economics were too abstract to teach children. Similarly, Hill et al. (2014) revealed in their research examining the opinions of preschool teachers, pre-service teachers, and parents on the concept of sustainable development that they had knowledge of the environmental dimensions, but the sociocultural and economic dimensions were too abstract for children. On the other hand, the pre-service teachers and the preschool teacher who participated in this research thought that the children took part in the procedure efficiently and this process gave them the opportunity to learn by doing and, thus, to create more concrete experiences for ESD, which is a complex area for children. Cutter-Mackenzie & Edwards (2013) also stated that games could be effectively used in the integration of environmental education and preschool education. Furthermore, it was emphasized that preschool teachers could effectively teach children about the concepts of SD through games.

ECESD has been recently considered as a controversial topic, particularly concerning the way in which this education could be provided for children. Based on the findings of this research, it is thought that activities such as drama and games through which children's active participation is achieved are more useful for their learning (McNaughton, 2004). The importance of the educational procedures in which children actively take part is observed once again. ESD already focuses on the child and the child's active participation, right to speak, and leadership. It can be recommended when considered all these studies that drama can be used efficiently as a method in the implementations of ECESD.

Another result of this research is that the pre-service teachers and the preschool teacher planned to perform the drama activities concerning the dimensions of ESD in their future occupational lives. In their study examining the effects of ESD training provided for preschool teachers, Feriver, Tuncer-Teksöz, Olgan & Reid (2015) stated that group studies, discussions, evaluations, and critical-thinking activities during the training were very effective and the teachers could directly associate the concepts of sustainable development with their own lives. Accordingly, it can be stated that one of the general purposes of the research was achieved since the pre-service teachers said they would continue to perform the drama activities concerning the dimensions of ESD.

Besides thinking that she would use drama activities more, the preschool teacher reported that there could be a

variety in terms of the elements (e.g., different materials encouraging creativity) used during the implementation of the activities. From this perspective, it can be said that teacher's thoughts about the sustainable development dimensions were affected positively during the drama activities in her classroom but she was also aware of the obstacles regarding ESD. In addition, it can be implied that the teacher needed support when performing the ESD drama activities. Similarly, in their research aiming at identifying the importance attached by Finnish preschool teachers to the concept of sustainable development and how they supported the concept in their daily lives, Salonen & Sylvia (2013) reported that the teachers needed support in the process of ESD and listed the factors hindering the sustainable development as being limited time, lack of knowledge, and high costs. Accordingly, attention can be drawn to the importance of the physical conditions necessary for teachers to integrate the ESD drama activities with their programs.

To conclude, this research proposed a possible link between teaching and learning in ECESD. The extensive analysis of the data pertaining to the research questions provided evidence that drama is, indeed, useful in supporting ECESD. In answering the research questions, the findings demonstrated that drama can be effective in helping pre-service teachers to link sustainable development and early childhood education. There was also evidence based on the ideas and experience of the pre-service preschool teachers and the in-service preschool teacher that drama provided a powerful and positive impact on the children's learning about sustainable development. This goes beyond the idea of the adoption of ECE and ESD. It is clear that the teacher and children can explore sustainable development through dramatic contexts and this would encourage the consideration of attitudes and values necessary for a sustainable future. Based on these conclusions, future research can focus on extending the scope of the integration of drama into ECESD by involving preschool teachers as participants in the implementation and analysis of ESD-integrated drama courses. Working in a partnership with preschools and integrating preschool children and their families can be useful for providing an understanding of the actual benefits of ESD-integrated drama for preschool children.

Based on the idea proposed by Braund (1999, p. 81) "*Drama can help students to understand traditionally hard ideas in science*", it is concluded that drama is considered as an inspired way for preschool children's ESD learning. In addition, drama based on ESD practices may powerful tool for the preschool teachers since it provides opportunities for preschool children to be more actively engaged with role plays, pretention, and unintended performances (McNaughton, 2006; Braund, 2015).

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