

Art. # 1395, 17 pages, <https://doi.org/10.15700/saje.v37n3a1395>

## The effect of a school-based outdoor education program on Visual Arts teachers' success and self-efficacy beliefs

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The aim of this research is to determine the effect of an education programme developed based on the school-based outdoor education approach on the academic achievement of visual arts teachers, as well as their self-efficacy beliefs for using museums and the natural environment. The aim is likewise to explore the views of the teachers on the implementation of the education programme. The study, which utilised a mixed method of qualitative and quantitative data collection, lasted for seven weeks. The results demonstrate that the developed programme is effective. At the end of the study, a significant difference was revealed in terms of the participant teachers' knowledge and skills regarding the approach as well as their self-efficacy belief levels in relation to the use of museums and the outdoors as teaching environments. Face-to-face interviews conducted with the teachers who participated in the experimental practice revealed that they were satisfied with the experience.

**Keywords:** Edmodo; mixed method; school-based outdoor education; teacher's views; visual art

### Introduction

Outdoor education in teaching and learning is being increasingly used as an effective approach for the realisation of activities related to active learning and for the instruction of abstract concepts (Bilasa & Arslangilay, 2016; Çelik & Kasapoğlu, 2014; Öztürk Aynal, 2013; Preston, 2014; Price, 2015). Outdoor education is a confusing term in the educational environment. The related literature on this approach, which is considered to be a comprehensive form of education, includes different educational practices and implications. Outdoor education is most frequently used as a synonym for out-of-school teaching and learning, or for extracurricular activities that occur in outdoor environments. It is also important to note that it is has predominantly been examined in basic education fields; namely, adventure-based education, environmental outdoor education and school-based outdoor education (Harper, NJ & Webster, 2017; Salmi, Kaasinen & Suomela, 2016; Silverman & Corneau, 2017). According to the literature, applied physical activities such as rock climbing, canoeing, sailing, mountain biking, swimming and jungle observing are recognised more as adventure-based outdoor education and environmental outdoor education, whereas school-based outdoor education is understood to be learning that occurs out-of-school. School-based outdoor education is a relatively new term found in the education literature review and is similar in meaning to place-based outdoor education, which is "an experiential approach to student learning in the local environment" (Hein, 2006; Woodhouse & Knapp, 2000:8). These two approaches include conventional outdoor education activities; however, school-based education does not include any extracurricular activities and only conforms to the curriculum established by the Ministry of Education (Cepni & Aydın, 2015; Lloyd & Gray, 2014; Williams & Wainwright, 2016).

Additionally, Hovardas (2016), Karppinen (2012) and Palavan, Cicek and Atabay (2016) found that, in terms of the school-based outdoor education approach (SBOEA), teaching activities have been integrated into the curriculum, particularly in countries such as Finland, Scotland, England, among others. It was also noted that the activities are implemented in the classroom, outside or sometimes in locations such as art galleries, architectural buildings (historical sites), botanical gardens and museums. Cepni and Aydın (2015), as well as Fägerstam (2012) and Remington and Legge (2017), have stated that indoor learning environments such as museums, art galleries and architectural structures are therefore also considered to be outdoor educational environments that can be understood in terms of the school-based outdoor education approach (Hein, 2004).

Furthermore, analysis of the activities implemented based on the SBOEA concept has revealed that practical studies related to subjects could be conducted using outdoor education and it can be effective to facilitate student learning (Behrendt & Franklin, 2014; Ceylan & Kılınc, 2016; Harun & Salamuddin, 2010; Marais, 2016; Mirrahimi, Tawil, Abdullah, Surat & Usman, 2011; Price, 2015; Sulaiman, Mahbob & Azlan, 2011). In accordance with this view, Glackin (2016), Thorburn and Allison (2017) and Warren, Roberts, Breunig, Antonio and Alvarez (2014) also stated that these activities are important in supporting the cognitive, emotional and psychomotor development of the students. Atencio, Tan, Ho and Ching (2015), as well as Cosgriff (2016) and Temel (2014) emphasised that activities could be conducted in a natural environment and when these activities are implemented in accordance with particular subject content, this can improve the development of the students' problem-solving and higher order thinking skills.

## Theoretical Framework

### *Visual Art education supported by SBOEA*

A review of the literature found that, for lessons like art, social sciences and science, for instance, the outdoor education approach could be applied in a manner that was compatible with the required format (Gray & Martin, 2012; Lau & McLean, 2013; Selanik Ay & Kurtdele Fidan, 2014). Additionally, Gray and Birrell (2015), Mannion and Lynch (2016), as well as Preston (2014) suggested that outdoor education activities aimed at improving the visual arts in primary schools could enhance the teaching effectiveness of the subject. It is also thought that it is easier to concrete abstract concepts in visual arts teaching by establishing a relationship between theory and practice, particularly for primary school students who are in the age range of 7–12 years (Açici & Kulak, 2015; Gönen, Aydos & Erdem, 2016; Günes, 2016; Mamur Yilmaz & Bilici, 2016; Modipane & Themane, 2014; Uslu, 2016). Comishin, Dymont, Potter and Russell (2004) and Palavan et al. (2016) found that, when teachers implement school-based outdoor education (SBOE) activities related to the content of the visual arts lesson, the lesson can be understood more clearly.

Bozdoğan (2007) emphasised that museums provide learning opportunities outside the school and that they constitute the basis of education, which allows learners to freely explore, self-learn, communicate effectively within groups, and share their experiences. Similarly, Coşkun Keskin and Kaplan (2012) stated that the objects in museums have powerful features, which can influence the individual, because they reflect the truth. In the literature, it has been demonstrated that museums are effective environments for teaching visual arts and that they present real objects, enable learners to experience reality, and to establish a link between the past and present (Acar, 2014; Bolat Aydoğan, 2017; Lemon & Garvis, 2013; MacQuarrie, 2016; Mamur, 2015; Nedovic & Morrissey, 2013; Özsoy, 2016; Sahrakhiz, 2017; Yıldırım & Akamca, 2017). The objects around us will one day be museum pieces, and it is now possible to view museum artefacts in outdoor as well as indoor settings, such as the roof of an old building, or the surroundings of a castle. Museum objects have artistic, historical, scientific and cultural significance, and can be viewed by the public both indoors and outdoors. Museums also provide understanding and appreciation for different communities and cultures. Consequently, outdoor activities related to museums provide better acquisition of heritage and cultures, since learners can speak about the objects, imitate past communities, and show reflection of them. Doing relevant activities with museum objects outdoors is both necessary and relevant, as they are institutions that cause learners to apprehend how artefacts from the past are protected

and conserved. When they practice them outdoors, they have a better understanding of both the objects and the past communities (Alberti, 2008; Poulot, 2013).

Research has shown that SBOE activities related to visual arts in museum environments have a positive effect on the motivation of learners (Remington & Legge, 2017). It has also been stated that activities in museum environments such as the study of objects, producing sketches and creating 3D works are effective in teaching visual arts (Bolat Aydoğan, 2017; Erickson & Hales, 2014; Hovardas, 2016; Okvuran, 2010).

It can also be noted that SBOE activities in many developed countries are increasingly important in the teaching of visual arts lessons. For example, in New Zealand, Finland and Denmark, outdoor activities that are compatible with the content of the lessons and the observation of works of art are conducted in order to increase the effectiveness of arts education in primary schools. These activities take place under the guidance of teachers in areas outside the classroom, such as the school garden, natural environments and museums (Cosgriff, 2016; Nichols, 2014; Preston, 2014). Moreover, similar activities and programmes have been observed in other countries, like Australia, Scotland and Switzerland (Dymont, Morse, Shaw & Smith, 2014; Norðdahl & Jóhannesson, 2015; Sandell & Öhman, 2010).

Teachers have an important role to play in increasing the performance of students during SBOE activities, and ensuring long-term learning experiences. Lloyd and Gray (2014), Palavan et al. (2016) and Yalçın Wells (2015) have stated that teachers can choose SBOE environments according to the content of the lesson, and can implement activities according to the curriculum. The visual arts teachers' knowledge levels related to the approach and their self-efficacy beliefs about the use of the approach are important factors when teaching lessons (Bozdoğan, 2016; Garvis, 2009; Hovardas, 2016; Lundgren, Scheckle & Zinn, 2015; Schumann & Sibthorp, 2016; Velthuis, Fisser & Pieters, 2014; Yeşilbursa & Uslu, 2014).

However, some studies have shown that teachers have experienced problems related to the implementation phase of the outdoor education approach in terms of visual arts education. This is because they have not acquired a sufficient level of knowledge regarding this specific educational approach in their undergraduate studies (Glackin, 2016; Hovardas, 2016; Joseph & Heading, 2010; Lemon & Gravis, 2013; Seligmann, 2014; Twigg & Garvis, 2010). In addition, Grant and Patterson (2016), Gray and Birrell (2015), MacQuarrie (2016), and Preston (2014) also identified that further research is necessary to determine the educational needs of primary visual art teachers for the SBOEA to be effective.

Thus, it can be said that it is possible to implement the approach for visual arts lessons, and that the development and implementation of a programme for teachers can yield effective results in visual arts education.

In this context, this research was prepared in line with the SBOEA, one of the educational approaches of outdoor education, because it is appropriate to the contents of the subjects taught in the visual arts lesson. Additionally, the educational needs of teachers were influential in the choice of out-of-classroom environment during the implementation phase of the programme. For this reason, this research is limited to teaching activities applied in museums and natural environments, which are out-of-classroom activities.

#### Purpose of the Study

The aim of this research is to develop a programme for the educational needs of visual arts teachers using SBOEA. The aim is also to determine the effect of the programme on the teachers' academic achievement levels related to the approach and their self-efficacy beliefs. Answers were sought in relation to the following questions:

1. What are the views of visual arts teachers' educational needs for SBOEA?

2. Is there a significant difference between the pre-test and post-test scores on the academic achievement levels of the participant group?
3. Does the programme developed using SBOEA make a significant difference in the self-efficacy belief levels of the participant group in terms of using museums and the natural environment?
4. What are the views of visual arts teachers about the effectiveness of the programme developed in line with the SBOEA?

#### Method

This research was conducted with a mixed method in which qualitative and quantitative data are used together.

#### Participants

First, the educational needs of visual arts teachers for the SBOEA were determined. In the research, the deficiencies in the knowledge and skills required for the approach by the teachers from different educational levels were explored. In order to achieve this aim, a needs analysis survey was applied to all (primary and secondary) visual arts teachers ( $n = 146$ ) working in North Cyprus (primary schools for children aged 7–12 and secondary schools for ages 13–18).

**Table 1** Frequency distributions of the demographics of the teachers

Demographics	Valid Percent	
	<i>f</i>	(%)
Gender		
Male	10	28.6
Female	25	71.4
Age		
21–25 years	7	20.0
26–30 years	4	11.4
31–35 years	13	37.1
Over 36 years	11	31.4
Period of Service		
1–5 years	8	22.9
6–10 years	8	22.9
11–15 years	9	25.7
16 years and above	10	28.6
Outdoor Education Teaching Activities		
Yes	19	54.3
No	16	45.7
Total	35	100

From the data obtained in the survey, it was determined that the visual arts teachers working in secondary education did not require any further education, while the primary school teachers demonstrated certain deficiencies (See Table 3). Thus, experimental practice was only conducted with volunteers ( $n = 35$ ) from teachers ( $n = 87$ ) working at primary schools. As shown in Table 1, 25 (71.4%) of the teachers were female and 10 (28.6%) were male in the participant group. Additionally, while seven (20%) of the teachers were in the 21–25 age range, four (11.4%) were 26–30, 13 (37.1%) were 31–35 and 11 (31.4%)

were 36 and over. When the occupational engagement of the teachers is examined, it can be seen that eight (22.9%) of them had 1–5 years of experience, while eight (22.9%) had 6–10 years, nine (25.7%) had 11–15 years and 10 (28.6%) had 16 years and over. It was determined that all of the teachers were Turkish Cypriots, and 19 of them (54.3%) stated that they had performed some form of outdoor education activities, while 16 of them (45.7%) stated that they had not performed educational activities outside the classroom. Additionally, eight out of the 19 teachers (22.9%) conducted out-of-school activities at least once a

month, while 11 (31.4%) stated that they only did so once a year.

#### Research Plan and Design

One group was selected for our study. The research design is given in Table 2. Before starting the experiment, the visual arts teachers' needs and knowledge deficiencies for the SBOEA were explored through the needs analysis survey. Following this, a multiple choice academic achievement test and self-efficacy belief scale for the use of SBOEA environments were applied to

the participant group. The lessons were planned taking into account the needs of the participant group, and these face-to-face lessons were orted by Edmodo, which is an online social learning network. At the end of the experimental study, the multiple-choice academic achievement test and the self-efficacy belief scale for the use of SBOE environments were reapplied to the participant group. Additionally, at the end of the study, face-to-face interviews were conducted with the participants using a semi-structured interview form for approximately 10–15 minutes.

**Table 2** Research design

	Pre-test	Application	Post-test
Participant group	Multiple choice academic achievement test Self-efficacy belief scale for the use of SBOE environments	Extracurricular activities supported by Edmodo	Multiple choice academic achievement test Self-efficacy belief scale for the use of SBOE environments Semi-structured interview

#### Creating an educational environment for Edmodo

Edmodo, which is a social learning network, provides new interaction as well as opportunities between teachers and learners. Furthermore, it takes learners outside the classroom, facilitates collaboration in group projects, removes time and place limits and enables the sharing of various digital resources (Harper, AL 2010; Shockney, 2013; Soykan & Uzunboyly, 2015; Thongmak, 2013; Uzunboyly & Tuncay, 2009). Consequently, it was deemed to be a beneficial tool to use in this scenario. Additionally, Edmodo offers the ability to create small groups, which provides the teacher with the ability to effectively manage and evaluate group work. Access to Edmodo via computers as well as mobile devices running with Android and iOS operating systems incurs no cost, which makes it readily available for all participants (Alemdağ, 2013). In this research, Edmodo was used as a learning environment to support SBOE activities. In addition, the teachers and researchers who

participated in the study shared their views on the activities by conducting online discussions in the virtual environment. It was used not only as a learning environment supported by planned activities but also as a data collection tool to obtain feedback on the effectiveness of the exercises. The researchers formed a group on Edmodo by determining the group name, subject and group size before the experimental implementation. In addition to this, all teachers who participated in the study received two hours of training conducted by the researchers on the use of Edmodo. Then, the teachers used the code specified by the researchers to become members of the group. During the implementation, *the note writing, library, homework, announcement and discussion options* were used on Edmodo. Furthermore, since the participant teachers were native speakers of Turkish, this language was used throughout the implementation. A screen capture showing Edmodo is displayed in Figure 1.



**Figure 1** Screen capture of Edmodo

### Data Collection and Procedure

This research was conducted over seven weeks during the 2015–2016 academic year, where the overall aim was to assist teachers with acquiring knowledge and skills for implementing SBOEA. Lessons were held for three hours, twice a week. During the course, activities included: arranging teaching environments by using SBOE activities; designing preparation activities for SBOEA; developing educational materials for SBOE; designing museum hunting activities; organising activities in the museum and natural environment (outdoors); using process-oriented evaluation methods in line with SBOEA. The activities mentioned above were conducted using cooperative learning, critical thinking, discussions and brainstorming techniques. Additionally, the course was implemented in the classroom, in a museum and outdoors in terms of face-to-face training and Edmodo was also used as a support, which blended learning environments. While seven out of 13 lessons were held in the museum and outdoors, the participants used the Edmodo platform to share their feelings and thoughts on the subjects they learned at the end of each lesson as well as to complete their homework and projects. Again, the environment in which participants communicated with one another and conducted discussions about the activities was provided by Edmodo. Also, the teachers' access to course materials, the researchers' sharing of

educational materials, quizzes, announcements of project and assignment deadlines, and homework and project controls were all conducted through the virtual environment. In this study, by using Edmodo, the continuity of activities throughout the experimental period was ensured.

All of the lessons were planned according to the results obtained from the needs analysis survey. Thus, teaching activities for SBOEA were designed as pre-implementation, during implementation and post-implementation activities. The pre-implementation activities were conducted face-to-face in the classroom and the teachers were consequently prepared and motivated. The participants were asked how learning outcomes of the SBOEA should be determined, what the criteria were when choosing an out-of-school activity, and how preparation activities ought to be designed (See Figure 2). The resulting answers were then discussed. Ultimately, the participants developed exemplary learning outcomes and identified out-of-school settings suitable for these goals. In addition, examples of museum and instructional materials (such as clue papers, observation booklets and exploration notes), which can be used outdoors, were presented by the researchers. Participants were also provided with guidance regarding how and for what purpose these materials could be used. Subsequently, the participants designed a lesson by using the teaching materials.



**Figure 2** Pictures taken in the classroom during implementation

Activities during the implementation were conducted in a museum and in an outdoor environment. The implementation in the museum environment was conducted in Kyrenia Castle and Museum in Northern Cyprus. The museum was chosen after taking into consideration its compatibility with the educational environment during the training. Museum hunting activities were implemented and animations depicting the phases of making the art works in the castle and museum were also created by using dull image and drama techniques. The participants, who were volunteer

primary school teachers, were informed that they could implement the discovery notes and clue papers they had pre-designed in their practice with their students. Subsequently, during the museum hunting activity, the clues and exploration notes prepared by the researchers were given to the participants to guide them in performing the activity. At this stage, participants were asked to find the artwork indicated by the clue paper, and to answer the corresponding questions in the exploration notes (See Figure 3). In this activity, the participant's knowledge about the artwork in

the museum, the production materials, volume and form associations, and their history were reinforced. In the image activity, participants were asked to coordinate exercises that imitated the form of artworks using their own bodies in the outdoor environment. In addition, the participants designed activities using drama techniques to show the production stages of the artwork made of ceramic, glass and stone in the museum. Further to these activities, opportunities to reveal the similarities and differences of the objects in the museum were provided to the participants. Then, the participants formulated teaching materials in order to answer questions about these objects. In addition to this, the participants worked in collaboration to design posters, leaflets and brochures incorporating the museum objects. Subsequent applications were conducted in the outdoor environment. The participants were asked to identify which activities could be designed for teaching the lesson outdoors. After their responses were examined, the activities that could be implemented outdoors were determined. Subsequently, the participants made observations outdoors using the observation booklet that they had previously designed and they were able to practice the activities that they could use in their lessons. They also designed 2D and 3D activities that could be used for teaching a lesson from a sample object. In this activity, the par-

ticipants produced two- and three-dimensional works of some objects outdoors (See Figure 4). Participants carefully selected the objects they could use in lessons, particularly those outdoors, with the objective of design activities that would enable their students to effectively understand the relationship between volume and form.

During post-implementation activities, the participants developed instructional materials in order to determine the effectiveness of the activities they designed by using SBOEA. These materials were designed in line with process-oriented methods according to which active learning can be assessed. The participants prepared checklists, performance assignments, observation booklets, portfolios and student journals to evaluate the success of out-of-school activities on the students.

The researcher's role was as a guide and facilitator, while the teachers in the participant group were encouraged to have an active role. Discussion platforms were created, in which the participants discussed their views and experiences to gather information from their own learning. Apart from this, the participants prepared two-dimensional and three-dimensional designs of their favourite objects from the museum and outdoors, shared it on Edmodo, and made criticisms and suggestions for these activities. The lessons were completed after these stages.



**Figure 3** Pictures taken in museum while carrying out the museum hunting activity



**Figure 4** Pictures taken while carrying out activities outdoors

Quantitative and qualitative data collection tools were used in combination to determine the effectiveness of the programme developed based on the Edmodo-supported SBOEA. The needs analysis survey, multiple choice academic achievement test and self-efficacy belief scale for the use of SBOE were used as quantitative data collection tools. Qualitative data was collected through semi-structured interviews.

#### *The needs analysis survey*

The needs analysis survey was prepared by the researchers to determine the educational needs of visual arts teachers for the SBOEA. The questionnaire itself has three sub-dimensions, including *pre-implementation activities*, *during implementation activities* and *post-implementation activities* and consists of a total of 72 statements. The Cronbach's alpha value (0.95) was calculated from the five-point Likert scale (where five represents *I need it a lot* and one indicates *I do not need it at all*).

#### *Multiple choice achievement test*

The multiple-choice achievement test (test-retest) was developed by the researchers in line with the SBOEA to determine the programme's effectiveness with regard to the academic achievement of the visual arts teachers. The test includes 55 items, and was formed by considering expert opinion. After the pilot implementation, the test's KR-20 reliability coefficient was calculated as 0.92. When a test's KR-20 value is 0.70 or over it is considered to be reliable and, as the value approaches 1, the reliability of the test increases (Bajpai & Bajpai, 2014; Feldt, 1965; Fraenkel, Wallen & Hyun, 2011). Thus, in this case, the

multiple choice achievement test was considered to have high reliability. The average test item difficulty index was calculated to be 0.59, and the items whose difficulty index was not between 0.40 to 0.80 were removed from the test. Also, the test item discrimination index was accepted as 0.30 and the test items below this value were removed. As a result, the final version of the tests consisted of 28 items.

#### *Self-efficacy beliefs scale for SBOE*

The self-efficacy beliefs scale for SBOE, which was developed by Yeşilbursa and Uslu (2014), was used in order to determine the self-efficacy beliefs of visual arts teachers with respect to the use of museums and outdoors as education venues. The scale has only one dimension and consists of 24 items. It is also a Likert-type scale in which 5 is represented as completely sufficient, while 1 is completely inadequate. The Cronbach's alpha value was calculated as (0.94).

#### *Semi-structured interview developed for the SBOEA*

Semi-structured interviews were used in order to determine the effectiveness of the programmes designed in line with the SBOEA. Literature related to the SBOEA was reviewed and expert opinion from programme planners and Outdoor Education Experts ( $n = 10$ ) was obtained. The interview question was 'what are your views on the effectiveness of the education program developed by using the SBOEA?'

#### *Data Analysis*

Percentages, means, standard deviations and paired samples *t*-tests were used during the analysis of the quantitative data. Furthermore, the quantitative data

was interpreted with a significance level of 0.05. In the analysis of the qualitative data, audio recordings of the interviews were transcribed in order to facilitate analysis. The interviews were transcribed by the researchers themselves in order to prevent data loss and mistakes. The obtained qualitative data were interpreted using descriptive analysis techniques. In addition, findings from the qualitative data were supported by direct quotations from the participants' views.

**Table 3** The distribution of scores regarding the needs for training

Dimensions	Teaching years	<i>N</i>	<i>M</i>	<i>SD</i>
Pre-implementation activities	Primary	87	3.38	.680
	Secondary	53	1.84	.403
During implementation activities	Primary	87	3.24	.478
	Secondary	53	1.77	.310
Post-implementation activities	Primary	87	3.47	.766
	Secondary	53	1.98	.878
Total		140		

While it was determined that the visual arts teachers working at the primary schools required training for the SBOEA's first dimension, *pre-implementation activities* ( $M = 3.38$ ,  $SD = .680$ ), the teachers working at the secondary schools did not need any training ( $M = 1.84$ ,  $SD = .403$ ). For example, while the primary school teachers expressed the opinion that there was a training need for *determining learning goals* ( $M = 3.50$ ,  $SD = .900$ ), the teachers at the secondary level stated their knowledge was sufficient ( $M = 1.71$ ,  $SD = .817$ ). Moreover, the primary school teachers expressed that they required a significant amount of training *preparing open-ended questions for observation booklets* ( $M = 4.35$ ,  $SD = .714$ ) while the secondary school teachers expressed that training was not necessary ( $M = 1.41$ ,  $SD = .795$ ).

When the teachers' educational needs for the *activities during implementation* dimension were questioned, the primary school teachers expressed their need for training ( $M = 3.24$ ,  $SD = .478$ ); secondary school teachers stated that it was not required ( $M = 1.77$ ,  $SD = .310$ ). For example, the primary school teachers stated they required considerable training on *preparing information cards for activities* ( $M = 4.45$ ,  $SD = .606$ ), whereas it was found that secondary school teachers had minimal training needs ( $M = 1.41$ ,  $SD = .770$ ). Furthermore, the primary school teachers needed education on *allowing cooperative work for students to create designs like posters, brochures* ( $M = 3.94$ ,  $SD = .956$ ), and the secondary school teachers did not ( $M = 1.54$ ,  $SD = 1.02$ ).

## Results

The results obtained for the purposes of the research are given below.

### Visual Arts Teachers' Educational Needs for SBOEA

Table 3 shows the distribution of the scores obtained from the results of the analyses conducted to determine the needs of visual arts teachers in relation to the SBOEA.

When the teachers' educational needs for the *post-implementation activities* dimension were questioned, similar findings to the other dimensions were determined. According to the findings, the primary education teachers needed training for this dimension ( $M = 3.47$ ,  $SD = .766$ ), while the secondary education teachers had minimal educational needs ( $M = 1.98$ ,  $SD = .878$ ). For example, the primary school teachers stated they needed further education on *evaluation of the lessons' goals with performance homework* ( $M = 3.32$ ,  $SD = 1.19$ ), whereas secondary school teachers stated that they were confident in performing this task ( $M = 1.64$ ,  $SD = .921$ ). Similarly, the primary school teachers stated that they needed training for *evaluation of student diaries* ( $M = 1.75$ ,  $SD = .874$ ), while the secondary school teachers stated that they did not have any educational needs for this activity ( $M = 3.59$ ,  $SD = 1.11$ ). Therefore, the results suggest that the education programme developed in line with the school-based outdoor education approach should be conducted only with teachers of visual arts who work at the primary educational level.

### The Results of the Pre-Test and Post-Test Scores of the Participant Group

A Simple Paired Samples *T*-test was administered to determine whether there was a significant difference between the scores in the pre-test prior to application and the final scores (post-test) of the visual arts teachers. The participant group pre-test and post-test score distributions are given in Table 4.

**Table 4** Comparison of mean pre-test and post-test achievement scores of the participant group

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Pre-test	35	51.85	12.560	21.643	.000
Post-test	35	84.22	8.738		

Note: \* Significant at the .05 level of confidence.

As can be observed in Table 4, the pre-test scores of the teachers prior to the program were ( $M = 51.85$ ,  $SD = 12.560$ ) while the post-test scores were ( $M = 84.22$ ,  $SD = 8.738$ ). The results show a significant difference between the pre-test and post-test scores ( $t = 21.643$ ,  $p < 0.05$ ) in favour of the post-test achievement scores, indicating that the visual arts teachers increased their academic achievement ( $M = 84.22$ ).

**Table 5** Comparison of mean scores of the participant group's self-efficacy beliefs, pre-test and post-test

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Pre-Test	35	2.35	.226	-22.25	.000
Post-Test	35	4.07	.394		

Note. Significant at the .05 level of confidence.

The pre-test and post-test scores (distributions given below in Table 5) were calculated using the self-efficacy belief scale. As can be seen in Table 5, the pre-test mean of the teachers' self-efficacy belief scores was ( $M = 2.35$ ,  $SD = .226$ ) and the post-test mean scores were ( $M = 4.07$ ,  $SD = .394$ ). It was therefore determined that there was a significant difference between the pre-test and the post-test mean scores of the participant group ( $t = -22.25$ ,  $p < 0.05$ ) in favour of the post-test scores.

The results also indicate that the visual arts teachers generally perceived that they were inadequate in terms of the educational use of museums and the natural environment before the application ( $M = 2.35$ ). In this case, it is evident that there is a necessity for visual arts teachers to develop skills and experience that will enable them to use museums and the outdoors as educational environments.

When the post-test teachers' self-efficacy beliefs regarding the use of museums and the natural environment as educational environments were examined, the results revealed that the teachers felt more competent during activities indoors and outdoors after the programme ( $M = 4.07$ ). This indicates that the education programme developed in line with the SBOEA, increased the teachers' self-efficacy beliefs. For example, one of the questions on the Self Efficacy Beliefs Scale for SBOEA concerned using allocated time efficiently during a museum or nature visit. Prior to the programme, the teachers believed that they were not sufficiently competent in using the allocated time efficiently for the museum or nature visit ( $M = 1.62$ ); however, after the programme, they believed their level of competence had increased ( $M = 4.20$ ). Again, the teachers stated that they were not competent in creating work groups that students could use to share their experiences during the museum visit prior to implementation of the programme ( $M = 2.71$ ). However, after the programme, their belief changed in a positive direction ( $M = 3.97$ ). It is clear from the findings that the SBOEA has a positive impact on teachers'

Comparison of the Self- Efficacy Beliefs Scores of the Participant Group who Used the Museum and Nature Educational Environments

A Simple Paired Samples *T*-test was administered to determine whether there was a significant difference between the pre-test and post-test scores of the self-efficacy beliefs of the visual arts teachers following their involvement in the programme. The scores for the self-efficacy beliefs of the participant group are presented in Table 5 below.

self-efficacy beliefs related to the use of museums and natural environments, as well as in terms of their academic success.

#### The Views of the Visual Arts Teachers About the Programme

Semi-structured interviews were conducted with the teachers to determine the effectiveness of the education programme developed based on the SBOEA. After the interviews had been completed, the researchers transcribed the recordings themselves in order to be able to accurately reflect the teachers' feelings and thoughts towards the educational approach. The qualitative data obtained after the interviews was categorised under two headings, which are *effectiveness of education programme* and *applicability of education programme*. In addition, the mentioned headings were further divided into subheadings. The findings from the teacher views are given in Table 6.

As can be observed in Table 6, a large proportion of teachers stated under the first heading that the SBOE-developed programme was relevant to their training needs and that they had acquired vast amounts of knowledge about the educational approach. The teachers, who participated in the research, explained their views. For example, they noted:

Teacher 5: "*Developing and implementing the education programme in line with our educational needs allowed effective learning to be carried out.*"

Teacher 16: "*I believe that it met my needs because of my lack of knowledge of teaching with SBOEA. In particular, when I organise fun activities for my class such as museum hunting, I think my students will be impressed like I was.*"

Teacher 27: "*I think this programme is effective in designing activities related to visual arts based on the SBOEA.*"

The findings show that the developed curriculum has positive effects on the teachers and they are willing to implement the new activities they experience in their lessons. Activities such as museum hunting are demonstrated in Figure 5.

**Table 6** The views of the Visual Arts teachers about the programme developed in line with the SBOEA

Theme	Code
The effectiveness of the programme	The adequacy and effectiveness of the programme To increase the efficiency of art education programme The role of outdoor education in academic achievement
The applicability of the programme	Education programmes should be implemented for other courses The Ministry of Education should make arrangements for the implementation of the programme Implementation of out-of-school activities with students

**Figure 5** Activities done in museums

Some teachers stated that the implemented education programme would be effective in increasing the efficiency in visual arts teaching. These teachers stated, for instance:

Teacher 12: *“I believe I can improve the efficiency of the visual arts class by using SBOE activities I have learned in the course.”*

Teacher 19: *“I believe that the program in which I participated will play an important role in my professional development. Now, I understand better how to design out-of-school educational activities through the activities we have done.”*

Teacher 28: *“From time to time, we experienced significant challenges in teaching three-dimensional works in visual arts. With this programme, we learned how to plan events where our students can produce artworks by using clay materials in a natural environment. It was very effective and enjoyable.”*

The findings from the teachers' opinions reveal that SBOE activities can achieve more lasting and effective learning in visual arts lessons. The

activities performed by teachers are illustrated in Figure 6.

Teachers also expressed the importance of using the outdoors and museums as educational environments and found them to be effective for experiential learning. Some of the teachers stated their appreciation of the programme:

Teacher 35: *“By using the museum and the outdoors as an instructional medium based on the approach, is effective for learning by living.”*

Teacher 26: *“This program motivated us to design activities related to visual arts in groups as well as in museums and the natural environment. I have learned by experiencing, since these activities allowed me to learn by doing and living.”*

Teacher 2: *“Before joining this training, I did not know that I could use SBOE environments like museums to teach visual arts. It is a great development for me to be able to design, especially as an educational environment. Also, the activities I participated in were very fun. Thanks to these trainings, my perspective on visual arts education has changed.”*



**Figure 6** Teacher profiles aiming at achieving more effective visual arts education with SBOEA

Figure 7 supports the fact that teachers performed activities by doing and living. As can be seen from all the statements made, the teachers found the program effective.

Under the second heading, a majority of the teachers stated that the school-based outdoor education programme developed in accordance with the content of other subjects could also be effective in teaching. Some of the teachers who participated in the implementation expressed their views as follows:

Teacher 24: *"I believe that the education programme for the SBOEA regarding the contents of other subjects can also be effective in teaching these subjects."*

Teacher 11: *"I think that the implementation of the programme developed in the SBOEA can be effective in teaching science and social studies."*

Teacher 31: *"The development of the programme for permanent learning through the SBOEA's can also be effective in teaching other subjects."*

The interviews with the teachers reveal that they believe the implemented programme could not only be effective in the field of visual arts, but also in other areas.

Additionally, some teachers stated that the teaching activities for SBOEA could be applied in primary education. They also claimed that it was important for the Ministry of Education to make the necessary arrangements for the programme to be implemented. The teachers stated the following:

Teacher 18: *"I believe that the Ministry of Education should take responsibility for putting the education activities towards SBOEA into practice. I think it would be useful to include additional hours in the visual arts curriculum, which would allow me to use the approach."*

Teacher 3: *"An intensive curriculum is being*

*implemented in the schools where we teach. This makes it difficult for us to perform activities outside the classroom. The Ministry of National Education needs to make modifications to the visual arts curricula so that the teachers have opportunities to do extra-curricular activities."*

Teacher 9: *"I believe it is important for the Ministry of National Education to make new regulations so that the visual arts programme to be developed in using the SBOEA can be implemented in primary education."*

The findings obtained from the qualitative data of the study suggest that the Ministry of National Education ought to be able to develop the visual arts curricula implemented in the primary education levels in line with SBOEA.

The teachers stated that it is important to implement activities in the context of the SBOEA. They also expressed it was enjoyable to learn outdoors and in museums along with their students. Some of the teachers stated:

Teacher 29: *"I believe that the implementation of the extracurricular activities with the students will make teaching more effective and more fun."*

Teacher 1: *"I think that the curriculum developed under the SBOEA will be effective when we acquire new information. I believe that the implementation of the activities related to this approach together with the students will have positive outcomes."*

Teacher 21: *"I think that the SBOE activities will enable us to perform more effective and enjoyable activities with our students in museums and natural environments."*

The positive attitudes of the teachers towards the implemented education programme confirmed the necessity and importance of the programme as a vast proportion of teachers are willing to transfer the knowledge they have gained to their students.



**Figure 7** A group of teachers who perform activities in SBOE environments by doing and living

### Discussion

As a result of the needs analysis conducted within the scope of the research, it was determined that the visual arts teachers working at the primary education levels required education before, during and after the SBOEA. In parallel with these findings, studies conducted by Behrendt and Franklin (2014) and Selanik Ay and Kurtdele Fidan (2014) emphasised that teachers needed to be trained on pre-implementation activities for the SBOEA. It was also stated that the education programmes to be developed in this direction could be effective in increasing the knowledge levels of the teachers regarding the approach. Palavan et al. (2016) and Remington and Legge (2017) also identified that primary school teachers experienced some difficulties while implementing the program. Thus, they needed to increase their knowledge levels in this regard. It was also emphasised in the research by Cosgriff (2016) and Glackin (2016) that the knowledge levels of teachers needed to be increased for the post-implementation activities, during which the effectiveness of the approach is also evaluated. The above-mentioned research seems to support the results obtained within the scope of the present study.

It was found that the education programme developed for the SBOEA created meaningful difference in the academic achievement of the teachers. The findings obtained from this study revealed that teachers increased their academic achievement at the end of the practice. Lau and McLean (2013) indicated that programmes developed in line with the SBOEA would assert a positive impact on academic success. Similarly, Mannion, Fenwick and Lynch (2013) stated in their research that the programmes developed for SBOEA would improve the level of teachers' professional knowledge. These research studies

above support the findings obtained from the current research.

Another finding obtained from the study shows that the programme increased the self-efficacy beliefs of the teachers regarding using museums and nature as learning environments. Prior to the programme, the teachers believed that they were not sufficiently competent to use the museums and the outdoors as teaching environments, whilst after the programme, their perceived levels of competence increase. In this respect, the programme positively influenced the teachers' proficiency in using the school-based outdoor education environment. Grant and Patterson (2016) and Salmi et al. (2016) stated that education programmes implemented based on this approach could be effective for teachers when performing activities related to the visual arts subject in out-of-school settings. Yüksel (2014) conducted similar research, showing that a programme developed in line with teachers' education needs can increase their self-efficacy beliefs. The findings of these studies support the findings obtained from the present research.

Finally, at the end of the implementation phase, the current study aimed to explore the views of the participating teachers as to the effectiveness of the education programme. Qualitative data obtained from the research revealed that the teachers were generally satisfied with the programme. The majority of teachers believed that this programme would improve the efficiency of art classes, and that this would encourage students to make positive progress in their academic achievement. Fägerstam (2014) conducted similar research in which it was shown that the SBOEA for students who learned in a museum and outdoors increased the efficiency of lessons as well as enabled life-

long learning. In this context, Fägerstam's (2014) results support the results of this research.

After analysing the transcripts, it is believed that any program to be developed in the SBOEA direction for other subjects could also be effective in education. Meydan and Akkus (2014) and Öztürk Aynal (2013) stated in their research that the programmes to be developed for the approach can be used within the scope of the subjects, particularly in science and social sciences. The results obtained from these studies support the results of the conducted research. Additionally, it was found that teachers considered it important to implement activities with the students in the implemented programme. Atencio et al. (2015) showed that SBOE activities that visual arts teachers implemented with their students could be effective in teaching the subject.

At the final stage, teachers suggested that the Ministry of Education ought to make new arrangements to its own structure in order to be able to use the SBOEA in visual art lessons. Öner (2015) stated in his research that teachers should be given sufficient time by the Ministry of Education in order to apply the Outdoor Education Approach. The findings of Öner's (2015) research show that teachers find the SBOEA beneficial; however, they believe that the Ministry of Education ought to provide appropriate facilities.

All the findings have shown that the programme developed in line with the SBOEA created a positive effect on the visual teachers' academic achievement and self-efficacy levels. It is expected that this programme will be effective in the teaching of visual arts using activities out-of-school and outdoors, with the aim that primary school students will increase their motivation related to the lesson, and this will consequently affect their learning experiences in a positive way.

### Conclusion and Recommendations

The developed curriculum was designed to demonstrate the effectiveness of the SBOEA in visual arts education and to provide training needs for the teachers' approach. The results obtained from the research show that the developed curriculum for SBOEA meets the educational needs of visual arts teachers and also improved their self-efficacy beliefs in a positive manner. This indicates that teachers reached a level where they are sufficiently competent to design activities in museums and natural environments. In addition, the results obtained indicate that teachers will achieve effective outcomes using the SBOEA in structuring abstract learning in visual arts courses. The teachers who participated in the survey expressed satisfaction with the activities being conducted. In this context, the developed curriculum has shown that teachers are effective in increasing their knowledge levels with regards to the SBOE approach.

However, during the research, it is also thought that the realisation of educational activities SBOEA in museums and natural environments had a positive effect on the results obtained. It is also believed that the Edmodo learning environment is effective in reinforcing teaching activities and enabling the collection of appropriate feedback. It is recommended that researchers investigate the influence of Edmodo on the SBOEA in future research.

Additionally, it is suggested that teachers with different branches should also develop programmes in the SBOEA direction and test the effectiveness of these programmes.

Several of the teachers who expressed their views on the activities applied in the research emphasised that it is necessary for the Ministry of National Education to develop visual arts education programs in line with the SBOEA.

It is also suggested that the Ministry of National Education should conduct activities to integrate SBOE activities into the visual arts curriculum.

### Note

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