



CC-BY

*Apuntes Universitarios*, 2021: 11(4), octubre-diciembre  
ISSN: 2304-0335 DOI:<https://doi.org/10.17162/au.v11i4.758>

## Evaluation of pre-service teachers' views regarding the use of museums as an educational environment

### Evaluación de las opiniones de los profesores en formación sobre el uso de los museos como entorno educativo

Didem Islek<sup>1a</sup>

Near East University, Ataturk Faculty of Education, Division of Curriculum and Instruction, Nicosia, North Cyprus, Turkey<sup>1</sup>

 Orcid ID: <https://orcid.org/0000-0002-4056-8894><sup>1</sup>

**Recibido:** 05 de marzo de 2021

**Aceptado:** 04 de junio de 2021

#### Abstract

In this study, pre-service teachers' views about the use of museums as an educational environment were evaluated. The research was carried out with case study design, one of the qualitative methods. Pre-service teachers (n = 35) were the subjects of the study. In the first phase, the views of the pre-service teachers about the teaching activities before, during and after the museum training were taken. In the second phase, museum education activities were implemented to pre-service teachers in classroom and St. Barnabas Archeology and Icon Museum (Cyprus) for 4 weeks. At the last stage, it was tried to reveal the effectiveness of the training by re-evaluating the views of the pre-service teachers about the activities carried out in the museum. As a result, the pre-service teachers stated that after the training, they had information about what activities they could do before, during and after the museum education.

**Keywords:** Museum education, pre-museum activities, during museum activities, post-museum activities, case study, pre-service teachers' views.

#### Resumen

En este estudio, se evaluaron las opiniones de los profesores en formación sobre el uso de los museos como entorno educativo. La investigación se realizó con diseño de estudio de caso, uno de

<sup>a</sup>Correspondencia al autor:  
E-mail: didem.islek@neu.edu

los métodos cualitativos. Los profesores en formación ( $n = 35$ ) fueron los sujetos del estudio. En una primera fase, se tomaron las opiniones de los profesores en formación sobre las actividades docentes antes, durante y después de la formación del museo. En la segunda fase, se implementaron actividades de educación museística para profesores en formación en el aula y en el Museo de Arqueología e Iconos de San Bernabé (Chipre) durante 4 semanas. En la última etapa, se intentó revelar la efectividad de la formación reevaluando las opiniones de los profesores en formación sobre las actividades que se desarrollan en el museo. Como resultado, los profesores en formación declararon que después de la formación, tenían información sobre las actividades que podían realizar antes, durante y después de la formación museística.

**Palabras clave:** Educación en el museo, actividades previas al museo, durante las actividades del museo, actividades posteriores al museo, estudio de caso, opiniones de los profesores en formación.

### Introduction

Museums, which are one of the effective teaching environments that enable learning by doing and living today, play an important role in the protection of the material and spiritual works of civilisations, education of individuals and ensuring the development of societies (Dilli, 2014). In literature review, it was stated that museums started to be used for education since the end of the 20th century, and they were also adopted by many educators as one of the important educational venues used in the teaching of courses (Abacı & Usbas, 2010; Okvuran, 2012; Onder, Abacı & Kamaraj, 2009; Soare & Popescu, 2013; Altintas & Yenigül, 2020).

It was stated that museums can be effective in gaining long term information by interacting with real objects, analysing the differences and similarities between today's objects and the ones used in the past, creating historical consciousness and gaining cultural awareness for students starting from pre-school (Akman, et al., 2015; Marcus, 2007; Onder, Abacı & Kamaraj, 2009; Altintas & Yenigül, 2020). In addition, it was also mentioned in the literature that students' motivation and interest can increase, abstract concepts can be more easily concreted, cognitive, affective and psychomotor skills can be acquired, observation and aesthetic appreciation skills can be improved with educational activities in museums (Aydogan-Bolat, 2017; Dagal & Bayındır, 2016; Onder, Abacı & Kamaraj, 2009; Ruso & Topdal, 2014; Soare & Popescu, 2013).

In this context, it was seen that museums have been used as an educational environment within the scope of education programs, and teaching activities are organised at regular intervals for many years in preschool and primary schools in many countries (Abasa & Liu, 2008). The

implementation of the teaching activities organised in museums from an early age is effective for students to gain not only information but also skills.

It is thought that teachers have an important role in the implementation of teaching activities in museums (Behrendt & Franklin, 2014; Mannion, Fenwick & Lynch, 2013; Trouli, 2020). It is also important for teachers to develop their knowledge and skills regarding the use of museums as an educational environment, especially from the pre-service period when they are pre-service teachers, and to practise it (Dilmac, 2016; Gonen, Aydos & Erdem, 2016; Mentis-Tas, 2012; Dibitonto et.al., 2020). In addition, it is believed that there is a need for researches that can develop the knowledge and skills of pre-service teachers for the planning and implementation of museum education activities starting from the pre-service period. It was thought that planning the teaching activities according to the pre-museum, during museum and post-museum stages and allowing the candidates to design activities in which they could play active roles in the applications would be effective for pre-service teachers. Thus, it is important to note that teachers need to develop their skills in their subjects, and increasing the level of knowledge in designing preparatory activities, obtaining the necessary permissions, determining educational goals and activities before the museum activities. Also, producing two and three dimensional works during the museum activities, acquiring information such as creating stories about the artefacts in the museum, writing composition, making evaluations based on process-oriented evaluation methods as post museum activities are necessities (Dogan, 2010; Memisoglu & Kamcı, 2013; Okvuran, 2012; Selanik-Ay & Fidan-Kurtdede, 2014; Goulding, 2020).

When the literature was examined, most of the studies conducted on pre-service teachers revealed the views of the pre-service teachers about the teaching activities carried out in the museum, however, there has been no study that will improve the knowledge level of the pre-service teachers about the museums activities applied before, during and after (Gogebakan, 2012; Gonen, Aydos & Erdem, 2016; Mentis-Tas, 2012; Corradini, 2020). Thus, with this research, it was aimed to eliminate this deficiency in the literature and to increase the knowledge level of pre-service teachers about the teaching activities carried before, during and after the museum experience.

### **The purpose of the study**

In this study, it was aimed to evaluate the teaching activities carried out in line with museum education practices according to the views of pre-service teachers. Answers to the

following questions were sought within the scope of the research: What are the views of pre-service teachers about the teaching activities held before the museum before and after the training? What are the views of pre-service teachers about the teaching activities carried out during the museum before and after the training? And, what are the views of pre-service teachers about the teaching activities carried out after the museum before and after the training?

## Methodology

### Design of research

The case study design, one of the qualitative methods, was used in the study. The purpose of the case study is the in-depth examination of any event or phenomenon (Ekiz, 2013; Glesne, 2006). In this context, in this study, the views of pre-service teachers regarding the teaching activities carried out in line with museum education practices and the problems they experienced were examined in depth, and the selected activities and subjects were limited to the random sample determined by the researcher (volunteer pre-service teachers).

### Participants

The pre-service teachers studying in the preschool teaching department in the 2017-2018 academic year participated to the study. Demographic information about the pre-service teachers (n = 35) was given in Table 1.

**Table 1**  
Information on the Demographic Characteristics of Pre-service teachers

| Demographic Characteristics                          | f  | %    |
|--|----|------|
| Female   | 19 | 54.2 |
| Male   | 16 | 45.7 |
| Museum Educational Practices Course Receiving Status |    |      |
| I took   | 5  | 14.2 |
| I did not take                                       | 30 | 85.7 |

### Data instruments

In this part of the study, information about the research process and the semi-structured interview form used in collecting research data was presented.

## **Research process**

The research was first started by creating museum education practices according to the views of pre-service teachers. After that, the stages of museum education practices were set. The practical stages were revised in line with the views of the education program experts, museum education experts and measurement and assessment experts, and rearranged in line with their recommendations. After this stage, the implementations of the museum education activities was held in St. Barnabas Archaeology and Icon Museum. Museum education practices lasted for 4 weeks, 4 hours a week, and a total of 16 hours to use the classroom and museum. In the study, a semi-structured interview form was applied to determine the views of the pre-service teachers about the teaching activities before, during and after the museum.

### ***Semi-structured interview form developed for museum education practices***

A semi-structured interview form was developed in order to determine the views of the pre-service teachers about the teaching activities before, during and after the museum. In forming the questions to be included in the interview form, the questions were determined in draft form by scanning the literature on the subject. In the next stage, necessary arrangements were made by referring to experts opinion. In the interview form, questions as “What are your views on the teaching activities carried out before the museum?”, “What are your views on the teaching activities carried out during the museum?”, “What are your views on the teaching activities carried out after the museum?” were posed pre-service teachers. The interview form was administered twice, before and after the training.

## **Statistical analysis**

Content analysis was used to analyse qualitative data. At this stage, codes with “Consensus” and “Disagreement” were determined. The reliability calculation of qualitative data was carried out by Miles and Huberman’s (1994) formula [Agreement Percentage = Consensus / (Consensus + Disagreement) x 100]. As a result of this research, 25 of the 28 codes determined by the researcher were approved, and 89% consensus was reached on the suitability of the codes.

A consensus of 80% of the content analysis of a person other than the researcher and the comparison of the results indicate that the reliability of the coding is high (Miles & Huberman, 1994). The result obtained reveals that the encoding performed is reliable. Thus, it was aimed to ensure the reliability of the coding processes and themes of the data obtained from the semi-structured interview form by obtaining expert views during the interpretation of qualitative data. In addition, sample quotations from the views of pre-service teachers were included in order to increase the reliability.

### Results

In this section, pre-service teachers' views on teaching activities before, during and after the museum were given before and after the training.

#### Pre-service teachers' views regarding the teaching activities held before the museum, before and after the training

The pre-training views of the pre-service teachers about the teaching activities before the museum were presented. As seen in Table 2, pre-service teachers shared their views about the selection of museum environments (n = 11) before the museum training. “I think we can randomly choose the museum where we will train before the museum education.” (TC, 4). This statement reveals that before the application, pre-service teachers think there is no need to look for any criteria in the selection of museums.

**Table 2**  
Pre-service teachers' views regarding the teaching activities held before the museum

| Order Number |   | f  |
|--------------|---|----|
| 1            | The museum environment can be chosen randomly, not based on a specific criterion.   | 11 |
| 2            | It is enough to inform only the school administration for the education to be held in the museum.                                   | 9  |
| 3            | Before the museum, only giving general information about the museum will be sufficient for the activities to be held in the museum. | 8  |
| 4            | I have no idea what can be done before the museum.  | 7  |

Pre- service Teachers' Views Regarding the Teaching Activities Held Before the Museum After the Training

| Order No |   | f |
|----------|---|---|
| 1        | Before the training to be held in the museum, necessary permissions should be obtained from the ministry of culture, the school principal and parents respectively. | 9 |
| 2        | The museum environment should be chosen in accordance with the content of the subjects to be taught.  | 8 |
| 3        | Preparation activities (puzzle activities, museum sketch studies, etc.) can be done before the museum education.  | 7 |
| 4        | Drama activities related to the rules to be followed in the museum should be held prior to museum education.  | 6 |
| 5        | Teaching activities should be designed by determining the learning outcomes before the museum education.  | 5 |

The pre-service teachers expressed their views as obtaining permissions from the school administration is sufficient for the education to be held in the museum. Participants reveals that before the application the pre-service teachers think that it will be sufficient to obtain permissions only from the school principals regarding the education to be carried out in the museum at the pre-museum stage. In addition, before the application pre-service teachers stated that giving general information about the museum before the museum application is sufficient for the activities to be held in the museum. The pre-service teachers believe that only general information about the museum to be visited should be given prior to the training to be held in the museum, and they think that no activity should be organized. However, some of the pre-service teachers stated that they did not have any idea about what could be done before the museum.

This reveals that the pre-service teachers did not have any information about museum activities. It is thought that the pre-service teachers' expressing their views in this direction is due to their lack of training in this field. Table 2 shows the post-training views of the pre-service teachers about the teaching activities before the museum. According to this, the pre-service teachers emphasize the necessity of obtaining the necessary permissions first from the ministry of culture and then from the school principal and parents before the training to be held in the museum.

As can be seen from the given opinion above, pre-service teachers, they were able to follow the permissions procedures for the education to be carried out in the museum after the training they received on museum education practices. In addition, pre-service teachers stated that the museum environment should be chosen according to the subjects to be taught in the museum. The opinion expressed reveals that the pre-service teachers learned that after the training they received on museum education, museums should be selected according to the subjects and content to be taught. It was also stated in Table 2 that the pre-service teachers expressed their views about the

preparation activities before the museum training. Participants opinion proves that pre-service teachers have begun to find designing preparatory activities effective after the training. In addition, pre-service teachers stated that drama activities regarding the rules, which must be obeyed in the museum, can be done before the museum education. The pre-service teachers found the use of the drama technique effective before the activities to be held in the museum after the training they received. Again, in Table 2, it was seen that the pre-service teachers gave their views about the learning outcomes and designing teaching activities before the museum training. After the training of the pre-service teachers, it was understood that they learned that it is first necessary to create learning outcomes and then to plan the teaching activities before the museum.

***Pre-service teachers’ views regarding the teaching activities before and after the museum training***

Pre-service teachers' views about the teaching activities during the museum were presented in Table 3.

**Table 3**  
Pre-service teachers’ views regarding the teaching activities during the museum education before the training

| <b>Order</b>   |   | <b>f</b> |
|--|---|----------|
| <b>No</b>  |   |          |
| 1  | Only drawing can be done for the artefacts exhibited in the museum.   | 11       |
| 2  | All artifacts in the museum should be promoted.   | 9        |
| 3  | Activities in the museum can be done in large groups.   | 7        |
| 4  | There is no need for teaching materials in the training to be carried out in the museum.  | 5        |
| 5  | I do not have any information about what kind of activities will be held during the museum training.  | 3        |
| <b>Pre-service Teachers' Views about the Museum Teaching Activities After the Training</b> |   |          |
| <b>Order</b>   |   | <b>f</b> |
| <b>No</b>  |   |          |
| 1  | Activities like for the purposes of use of today's objects, the purpose of using the artefacts, drama activities related to the production stages of the artefacts, and two or three dimensional workshop activities can be designed. | 12       |
| 2  | Activities should be planned based on some artefacts in the museum.   | 9        |
| 3  | In the activities held at the museum, students should be divided into small groups and activities should be designed accordingly.   | 6        |
| 4  | Teaching materials, such as clue paper and discovery records, should be prepared for the activities in the museum.  | 4        |



---

The pre-service teachers stated that they considered it was sufficient to do drawing related to the artefacts in the teaching activities during the museum education. The given view reveals that the pre-service teachers thought that only drawing could be done during the museum education. Regarding Table 3, the preservice teachers thought that all the artefacts in the museum should be introduced during the museum education. Before the training, the pre-service teachers found it necessary to give information about all the artefacts in the museum during the activities to be done in the museum. In addition, it was also clear in Table 3 that the preservice teachers believed that the museum training had to be done in large groups. Before the training, it was clear from the pre-service teacher views that they thought it was right to divide the class into large groups in activities during the museum training. It was also understood that the pre-service teachers believed that there was no need for teaching materials for the activities to be held in the museum.

Before the training, the pre-service teachers did not have any information about the usability of the teaching materials used in museum education, therefore, they did not find it necessary to use these materials. In addition, some of them stated that they did not have any information about what kind of activities could be done in the museum. It is clear that the pre-service teachers did not receive any training for museum education, therefore, they did not have any information about what kind of activities could be organized in the museum. Table 3 shows the post-training views of the pre-service teachers about the teaching activities during the museum. They expressed their views that many activities could be done during the education in the museum.

This reveals that with the training they received, the awareness level of the candidates that many teaching activities can be organized in the museum environment has increased. Again, in Table 3, it was stated that the pre-service teachers expressed their views about the necessity of activities on certain artefacts during museum education. From the given view, it was understood that the pre-service teachers learned that they do not need to use or teach all the artefacts in the museum in their education after the training. In Table 3, it is clear that pre-service teachers consider it necessary to design activities by separating students into small groups during the activities held in the museum. This view after the training shows that the groups started to think that the effectiveness of the teaching activities in the museum was important. Candidates believe that dividing students into small groups will improve the quality of teaching at the museum.

In Table 3, it can be seen that the pre-service teachers expressed their views about the use of teaching materials during museum education. In this context, it is understood from the given view that the knowledge level of the pre-service teachers about the use of teaching materials increased after the training. However, in Table 3, it can be seen that pre-service teachers mentioned the importance of museum hunt activities within the scope of teaching activities to be held in the museum. Mentioned view after the training reveals that they had information about the museum hunt activity, and that they started to see this activity as an active teaching activity that increases the motivation of teaching in the museum.

***Pre-service teachers’ views on post-museum teaching activities before and after the training***

The pre-training views of the pre-service teachers about the teaching activities after the museum were presented in Table 4. According to this, it is believed that the majority of the pre-service teachers expressed their views about giving theoretical-balanced lessons (n = 17) in the classroom after the museum.

**Table 4**  
Pre-service teachers’ views regarding post-museum teaching activities before the training

| <b>Order No</b> |   | <b>f</b> |
|-----------------|---|----------|
| 1               | After the museum education, theoretical lessons must be done in classroom.            | 17       |
| 2               | It is sufficient to only have a meeting with the students after the museum education. | 10       |
| 3               | I do not have any information about what to do after the museum education.            | 8        |

Views of Pre-service Teachers about Post-Museum Learning Activities After the Training

| <b>Order No</b> |   | <b>f</b> |
|-----------------|---|----------|
| 1               | Activities such as creating composition activities, designing posters promoting the museum, creating a story can be done in the classroom environment after the museum.                 | 15       |
| 2               | Different assessment methods (peer evaluation, artefact files evaluation) should be used in order to evaluate the activities performed in the museum in the classroom after the museum. | 11       |
| 3               | The effectiveness of the training conducted with the question-answer technique can be assessed by creating discussion platforms.  | 9        |

“I think that after the education in the museum, a theoretical lesson can be done again in the classroom environment.” (TC, 32). The given view of the pre-service teacher before the training shows that they thought that the activities that could be done after the museum education were only theoretical, and they did not have any knowledge about the practical activities. Also, some of the preservice teachers stated that only interviews could be held in post-museum activities (n = 10). “After the activity we will do at the museum, we can determine and evaluate the views of the students only through interviews.” (TC, 29). This view indicates that the pre-service teachers did not have sufficient information about evaluation methods other than interview technique. In addition, some of the pre-service teachers stated that they did not have information about what kind of activities could be done after the museum training (n = 8). “I do not know what kind of activities can be organized in the classroom environment after the museum training.” (TC, 21).

It is understood from the view stated that some of the pre-service teachers did not have any information about what could be done after the museum. Table 4 shows the post-training views of the pre-service teachers about the teaching activities after the museum training. In Table 4, it can be seen that most of the pre-service teachers stated their views about the practical activities (n = 15) that can be done after the museum “After the training, I learned that not only theoretical knowledge can be taught after the museum, but also activities such as composition studies , designing posters for the museum, and creating stories for the activities held in the museum.” (TC, 2).

As can be seen from the given view, while the pre-service teachers argued that only theoretical information can be given after the museum before the training, they learned that practical activities such as composition studies, designing promotional posters for the museum, and creating stories can be done after the training. Also, most of the pre-service teachers stated that different evaluation methods could be used to assess the activities performed in the museum in the classroom after the museum training(n = 11). “In the assessment of post-museum activities, rather than classical methods, contemporary methods should be preferred. The use of methods such as peer evaluation and evaluating product files will make the evaluation process more effective.” (TC, 32). As can be understood, pre-service teachers found contemporary methods more effective in evaluating post-museum activities after the training. Some of the pre-service teachers stated that the effectiveness of the education carried out by using the question-answer

technique after the museum training can be assessed by using discussion platforms (n = 9). “We can evaluate all post-museum activities by creating discussion platforms in the classroom.

After the training we received, we realized that post-museum activities can be assessed in different ways (TC, 19). It is understood that the pre-service teachers learned after the training they received, they could evaluate the effectiveness of education better by creating discussion platforms. All the findings obtained reveal that the museum teaching activities carried out had an effect on the views of the pre-service teachers. At this point, it can be said that the museum activities developed and implemented within the scope of the research affected the views of the pre-service teachers positively.

### **Discussion**

In parallel with the views obtained, the study of Onder, Abacı and Kamaraj (2009) shows the importance of selecting the museums to be organized according to the subjects of the course to be taught and obtaining permissions for museum education from the relevant ministry and schools were mentioned. Again, Thessaloniki-Ay and Kurtdele-Fidan (2014) mentioned that different activities could be organized before the museum. In Unal and Pinar's study (2017), it was stated that it is important to determine the learning outcomes related to the activities to be held in museums and that using the drama method in pre-museum activities can be effective. As can be understood, the findings found in the studies are parallel with the findings obtained from this study.

In the studies conducted by Dogan (2010) and Memisoglu and Kamcı (2013), it was mentioned that animations can be made with different drama activities in the museum, and also 2 and 3 dimensional works can be produced. Again, in the researches of Çakır et al. (2011) and Wells (2014), views about the importance of organizing activities with small groups, carrying out a museum hunt activity and designing clue papers and discovery records were expressed. As can be seen, these findings are in parallel with the results of the research.

In parallel with the findings of the study, in Turnbull (2012) and Fagerstam's (2014) studies, it was indicated that process-oriented evaluation methods can be more effective in evaluating the activities related to museum education. For its part, Argyropoulos, & Kanari (2019) argues in their work that concrete objects in museums can be associated with many lessons, and that these revive knowledge. In the study, it was stated that teacher candidates believed that learning became interesting and more effective with museum practice. Borg and Mayo (2010)

found that teachers used museum trips to diversify their teaching strategies, to increase students' motivation and to socialize, and their findings support the findings of the study.

In the study of Marcus (2008), teacher candidates stated that the information learned through museum visits was reinforced and became meaningful, positively affected the change of their thoughts and helped them gain some affective awareness. In addition, in the study of Griffin (2011), it was found that museum education improves students' skills such as observation, critical thinking, creativity and inference. Kratz and Merritt (2011) stated that museum visits give students skills such as historical thinking and empathy in their study. They also drew attention to the fact that different methods and techniques can be used during museum visits.

In the study of Hein (2005), prospective history and social studies teachers stated that museum visits increased interest in the lesson, aroused a sense of curiosity and reinforced knowledge. Stoddard, Metzger, and Harris, (2018) found that museum education practices in social studies lesson had an effect on students' attitudes towards the course and their academic success. In Winstanley's study (2018), it was seen that a significant difference was obtained in favour of the experimental group students in terms of achievement, permanence and attitude to the lesson of a scheduled museum visit. It was also seen that the results of the studies in the literature support the findings obtained from this study. Therefore, it can be said that museum education practices have positive effects on students, learning-teaching process and teachers.

For his part, Çakır-İlhan (2012) stated that museums are fun and enjoyable educational environments for children, embody information, keep history and past narratives alive, and provide a link between the past and the present. In this study, it was mentioned that museums are seen as an educational environment and the contributions these applications will provide to students. In the study of Mujtaba et al. (2018), it was observed that the variables of social studies teachers' visits to the museum and the faculty and school location variables differed significantly. This is important in terms of showing that the applicability of museum visits for teachers may vary depending on the school and department they graduated from.

According to Henderson and Atencio (2007), environments that include games are very important in learning because they believe that the role of educators is to support environments that allow students to gain experience, play, discover, and gain skills, and to benefit from these environments effectively in education. Museums are one of these environments. It is important for

teacher candidates to make historical objects similar to those seen in the implementation phase of museum visits with play dough and to take care that the trip serves the specified purpose.

They expressed their views that drama studies about historical periods or people in the museum should be done. Okvuran (2012) also emphasizes learning drama in a concrete way, researching, experimenting, problem solving, etc. in the museum. He stated that he improved his skills. He also stated that drama activities in the museum embody the concepts of past present and future and facilitate education. This view is in parallel with the results obtained from the views of the teacher candidates. Stating that drama enables learning with the simulation technique, he stated that the abstract learning in the school becomes concrete with the learning practices in the museum. Moreover, according to the research results of Kristinsdóttir (2017), it was determined that visual elements and sound elements in the museum give the students the knowledge and targeted behaviours more quickly and easily. In this context, historical films, slides and visual elements can also be included in the application phase.

In the study of Ruso and Topdal (2014), it was concluded that the majority of students stated that the reason for going to the museum was to improve their general culture, and that they could establish a relationship between the exhibition in the museum and the lessons at the school. Most of the teacher candidates think that the museums are very rich in terms of educational competence, but they are not used enough in terms of education and there are no museum officials who provide information in accordance with the level of the students. This finding is consistent with the result of Falk and Dierking, (2002) that the excursion-observation method was not applied sufficiently. As it was found out in this study, museum visits can be decided in accordance with curriculum.

The opinion of the teacher candidates who stated that they think there are deficiencies in providing school-museum coordination is in accordance with the results of Ascenzi, Brunelli, and Meda, (2019) obtained from teachers. Teacher candidates stated that the number and variety of museums should be increased (science museums, art museums, toy museums, aviation museums, telecommunication museums, etc). According to Heering (2017), it is seen that science museums, which have shown great progress in recent years, also play a very important role in education. Although these museums are aimed at children, there are also sections where learners at any age can learn by playing and experimenting on their own. In some science museums, there are also departments where scientific and technological subjects are studied and where they conduct

experiments alone. In this context, it can be said that the number of different types of museums should be increased and museums should be used in education. Almost all of the teacher candidates stated that they expect the museum authorities to provide information about their expectations in accordance with their students' level.

As it was found in this study, pre-service teachers had difficulty in completing the permission process in order to take their students to a museum, however, after the application they were able to do it successfully. As the above-mentioned studies and this study found out some help from the authorities would make museum visits much easier. In this case, Talboys (2005) stated that the education of museum personnel in museum education is of great importance in terms of benefiting from museums effectively. In this context, he stated that in order to benefit from museums in education effectively, museum personnel should be informed about their responsibilities as a museum educator. In parallel with this view, in this study, teacher candidates should be equipped with the knowledge of the museum authorities to provide information in accordance with the students' level regarding their expectations from the museum authorities during their museum visits. They also stated that they expect them to share the knowledge they have.

It is worth mentioning Hooper-Grenhill (1999), who determined that the majority of teachers do not participate in any in-service training about museum education and do not feel themselves competent in guiding children in the museum. The researcher stated the first three reasons why history teachers could not take students to museums are that the weekly course curriculum does not give any free time for sightseeing, the classes are crowded, and the course schedule is intense. In addition, teachers who participated in the research stated that the procedure for museum visits was also very difficult. Teachers frequently expressed the inadequacy of guidance services in museums and bureaucratic difficulties that make museum-school cooperation difficult. These results were supported by the study done by Leftwich, and Haywood (2016). In this study, the researchers determined that the educational facilities of the museums are not sufficient, in this sense; there are no education, service, equipment and expert personnel in museums.

It is a clear fact that the effectiveness of real life learning like using artefact in museums and combining them with curriculum ensures better learning. All the activities applied during the training revealed that museum teaching activities affect both teachers and learners positively.

### **Conclusion**

The results obtained from the study revealed that the views of pre-service teachers about museum education activities differed after the training. It was determined that the views of the pre-service teachers differed on the subjects such as choosing the museum environment, obtaining the necessary permissions for the education to be carried out in the museum, and designing preparatory activities before the museum. It was determined that the candidates had insufficient knowledge on these subjects before the training, and their level of knowledge about what they could do before the museum increased after the training. In addition, it was observed that the awareness of pre-service teachers on determining activities in line with their learning outcomes and teaching museum rules with drama activities increased.

In addition, it was determined that the views of the pre-service teachers about post-museum activities after the training also differed and the level of awareness about the activities that could be done increased. After the application, the pre-service teachers learned that instead of providing theoretical information in the classroom environment in line with the activities after the museum, they could do activities such as creating composition works for the activities held in the museum, designing posters promoting the museum, and creating stories. Therefore, the teachers have gained awareness that different evaluation methods (peer evaluation, product files evaluation, question-answer technique) can be used after the museum regarding the assessment of the activities held in the museum.

All the results obtained showed that the views of pre-service teachers differed positively after the training and their knowledge level about the subjects increased. Findings revealed that the training carried out in the study was effective on the views of the pre-service teachers. In this context, it is recommended for future researchers to carry out museum education training practices to meet the educational needs of teachers and pre-service teachers in different disciplines. Thus, the effectiveness of the developed practices can be evaluated according to the views of teachers and pre-service teachers in other subjects. In addition, making experimental studies and observations in line with the researches, analysing the views of both teachers and pre-service teachers about museum education more can be more effective.



## References

- Abacı, O., & Usbaş, H. (2010). Investigation of the effects of the program utilization of the museum for pre-school education on 6 year old children. *Procedia Socail and Behavioral Sciences*, 2, 1205-1209. <https://doi.org/10.1016/j.sbspro.2010.03.173>
- Abasa, S.F., & Liu, W. (2008). An overview of school education programmes in Chinese Museums. *Museum Management and Curatorship*, 22 (4), 391-408. <https://doi.org/10.1080/09647770701757757>
- Akman, B., Ozen-Altınkaynak, S., Erturk-Kara, G., & Can-Gul, S. (2015). The views of preschool teachers on museum education. *Uludag University Journal of Education*, 28 (1), 97-115. <https://doi.org/10.7575/aiac.ijels.v.9n.1p.33>
- Altintas, İ. N., & Yenigül, Ç. K. (2020). Active Learning Education in Museum. *International Journal of Evaluation and Research in Education*, 9 (1), 120-128. <https://doi.org/10.11591/ijere.v9i1.20380>
- Argyropoulos, V., & Halder, S. (Eds.) (2019). *Inclusion, equity and access for individuals with disabilities*. Singapore: Palgrave Macmillan.
- Ascenzi, A., Brunelli, M., & Meda, J. (2019). School museums as dynamic areas for widening the heuristic potential and the socio-cultural impact of the history of education. A case study from Italy. *Paedagogica Historica*, 1-21. <https://doi.org/10.1080/00309230.2019.1660387>
- Behrendt, M., & Franklin, T. (2014). A review of reserach on school field trips and their value in education. *International Journal of Environmental and Science Education*, 9, 235-245. <https://doi.org/10.12973/ijese.2014.213a>
- Bolat-Aydogan, K. E. (2017). Museum education and practices course in the context of the visual arts teacher candidates' opinions. *Anadolu Journal of Educational Sciences International*, 7 (1), 72-106. <https://doi.org/10.18039/ajesi.292586>
- Borg, C., & Mayo, P. (2010). Museums: Adult education as cultural politics. *New Directions for Adult and Continuing Education*, (127), 35-44. <https://onlinelibrary.wiley.com/doi/epdf/10.1002/ace.379>
- Burke, E. (2020). Intuition and Vulnerability: A Queer Approach to Museum Education. *Journal of Museum Education*, 45 (4), 403-413. <https://doi.org/10.1080/10598650.2020.1812286>

- Corradini, E. (2020). Educating to the scientific method and culture in the Italian university museums. *Universal Journal of Educational Research*. <https://doi.org/10.13189/ujer.2020.081061>
- Çakır-İlhan, A. (2012). Yaratıcılık Eğitimi Bağlamında Çocuk Müzeleri. İ. San (Ed.), *Çocuk Müzeleri ve Yaratıcı Drama*. Ankara: Naturel Yayınları.
- Çalışkan, E., Onal, N., & Yazıcı, K. (2016). What do social studies pre-service teachers think about virtual museums for instructional activities? *Turkish Studies: International Periodical for the Languages, Literature and History of Turkish or Turkic*, 11 (3), 689-706. <http://dx.doi.org/10.7827/TurkishStudies.9275>
- Dagal, A. B., & Bayındır, D. (2016). The effects of museum visits on preschoolers' positive emotions and knowledge levels towards museums. *The Journal of International Education Science*, 3 (6), 264-281. <http://dx.doi.org/10.16991/INESJOURNAL.222>
- Dibitonto, M. & Leszczynska, K. & Cruciani, E. & Medaglia, C. (2020). Bringing Digital Transformation into Museums: The Mu.SA MOOC Case Study. In: Kurosu M. (eds) *Human-Computer Interaction. Human Values and Quality of Life. HCII 2020. Lecture Notes in Computer Science*, vol 12183. Springer, Cham. [https://doi.org/10.1007/978-3-030-49065-2\\_17](https://doi.org/10.1007/978-3-030-49065-2_17)
- Dilli, R. (2014). The role of natural history museums on education. *Journal of Social Sciences*, 40, 81-95. <https://doi.org/10.12973/ijese.2016.292a>
- Dilmac, O. (2016). The effect of active learning techniques on class teacher candidates' success rates and attitudes toward their museum theory and application unit in their Visual Arts course. *Educational Sciences: Theory & Practice*, 16, 1587-1618. <https://doi.org/10.12738/estp.2016.5.0108>
- Dogan, Y. (2010). Primary school students' benefitting from museums with educational purposes. *International Journal of Social Inquiry*, 2, 137-164. <https://www.acarindex.com/dosyalar/makale/acarindex-1423904061.pdf>
- Dussel, B. J. (2020). *Field Trips to American Museums: A Historical Perspective* [Unpublished doctoral dissertation]. Long Island University.
- Eguz, Ş., & Kesten, A. (2012). Teachers and students' opinions regarding learning with museum in social studies course: Case of Samsun. *Inonu University Journal of the Faculty of Education*, 13 (1), 81- 103. <https://dergipark.org.tr/tr/download/article-file/92357>

- Ekiz, D. (2013). *Scientific research methods*. Ankara: Anı Yayıncılık.
- Fagerstam, E. (2014). High school teachers' experience of the educational potential of outdoor teaching and learning. *Journal of Adventure Education Outdoor Learning*, 14 (1), 56-81. <https://doi.org/10.1080/14729679.2013.769887>
- Falk, J. & Dierking, L. (2002). *Learning from museums visitor experiences and the making of meaning*. Itamira: Walnut, CA.
- Glesne, C. (2006). *Becoming qualitative researchers: An introduction*. Boston: Pearson Education, Inc. <https://www.pearson.com/uk/educators/higher-education-educators/program/Glesne-Becoming-Qualitative-Researchers-An-Introduction-3rd-Edition/PGM753450.html>
- Gogebakan, Y. (December, 2012). The importance of museums in education sector and the historical development of their utilization in Turkish Education system. In Proceedings of the 1st Cyprus International Congress of Education Research. Kyrenia, North Cyprus. <https://doi.org/10.18844/ijire.v1i1.118>
- Gonen, M., Aydos, E., H. & Erdem, A., U. (2016). Experiences of candidate preschool teachers on art education and implementations. *International Journal of Innovative Research in Education*, 3 (1), 42-49. <https://doi.org/10.18844/ijire.v1i1.118>
- Griffin, D. (2011). *Museums and education: learning, the visiting experience and the art museum as educator*. Understanding Museums. [https://nma.gov.au/research/understanding-museums/Museums\\_education\\_introduction.html](https://nma.gov.au/research/understanding-museums/Museums_education_introduction.html)
- Heering, P. (2017). Science museums and science education. *Isis*, 108 (2), 399-406. <https://www.journals.uchicago.edu/doi/full/10.1086/692689>
- Hein, G. E. (2005). The role of museums in society: Education and social action. *Curator*, 48 (4), 357. <https://onlinelibrary.wiley.com/doi/10.1111/j.2151-6952.2005.tb00180.x>
- Hooper-Grenhill, E. (1999). *Müze ve Galeri Eğitimi*. Ankara: Ankara Üniversitesi Çocuk Kültürü & Uygulama Merkezi Yayınları.
- Ilhan-Çakır, A., Artar, M., Okvuran, A., & Karadeniz, C. (2011). Museum education's activities book. Ankara: MDGF UNICEF. <http://muzecilik.gsf.ankara.edu.tr/wp-content/uploads/sites/581/2017/10/EDUCATION-IN-THE-MUSEUM-AND-HISTORY-OF-MUSEUM-EDUCATION-THROUGH-SAMPLES-AND-PRACTICES.pdf>

- Karadeniz, C., & Okvuran, A. (2014). A night at the museum: Museum education with Ankara University Students at Çorum Museum of Archeology. *Elementary Education Online*, 13 (3), 865-879. <http://ilkogretim-online.org.tr/index.php/io/article/viewFile/2151/1974>
- Kaschak, J. (2014). Museum visits in social studies. The role of a methods course. *Social Studies Research and Practice*, 9 (1), 107-118. <http://www.socstrpr.org/wp-content/uploads/2014/04/MS-06433-Kaschak.pdf>
- Kratz, S., & Merritt, E. (2011). Museums and the future of education. *On the Horizon*, 29 (3), 188-195. <https://doi.org/10.1108/10748121111163896>
- Kristinsdóttir, A. (2017). Toward sustainable museum education practices: confronting challenges and uncertainties. *Museum Management and Curatorship*, 32 (5), 424-439. <https://doi.org/10.1080/09647775.2016.1250104>
- Leftwich, M. and Haywood, C. (2016). The littlest historians: Early years programming in history museums. *Journal of Museum Education*, 41 (3), 152- 164. <https://doi.org/10.1080/10598650.2016.1198132>
- Marcus, A. S. (2008). Rethinking museums' adult education for K-12 teachers. *Journal of Museum Education*, 33 (1), 55-78. <https://www.jstor.org/stable/40479605?seq=1>
- Mannion, G., Fenwick, G., & Lynch, J. (2013). Place-responsive pedagogy: Learning from teachers' experiences of excursions in nature. *Environmental Education Research*, 19 (6), 792-809. <https://doi.org/10.1080/13504622.2012.749980>
- Marcus, A. S. (2007). Representing the past and reflecting the present: Museums, memorials and the secondary history classroom. *Social Studies*, 98 (3), 105-110. <https://doi.org/10.3200/TSSS.98.3.105-110>
- Memisoglu, H., & Kamı, S. (2013). Museum of social studies in education students attitudes and views. *International Journal on New Trends in Education and Their Implications*, 4 (3), 121-138. <http://www.ijonte.org/FileUpload/ks63207/File/14.memisoglu.pdf>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis*. London: Sage Publication. <https://us.sagepub.com/en-us/nam/qualitative-data-analysis/book246128>
- Mujtaba, T., Lawrence, M., Oliver, M., & Reiss, M. J. (2018). Learning and engagement through natural history museums. *Studies in science education*, 54 (1), 41-67. <https://www.tandfonline.com/doi/full/10.1080/03057267.2018.1442820>

- Norodahl, K., & Johannesson, I.A. (2015). Children's outdoor environment in Iceland educational policy. *Scandinavian Journal of Educational Research*, 59 (1), 1-22.  
<https://doi.org/10.1080/00313831.2013.821091>
- Okvuran, A. (2012). Development of creative drama in the museum as a teaching method in Turkey. *Education and Science*, 37 (166), 170-180.  
[https://www.researchgate.net/publication/291236295\\_Development\\_of\\_Creative\\_Drama\\_in\\_the\\_Museum\\_as\\_a\\_Teaching\\_Method\\_in\\_Turkey](https://www.researchgate.net/publication/291236295_Development_of_Creative_Drama_in_the_Museum_as_a_Teaching_Method_in_Turkey)
- Okvuran, A. (2012). Müzede dramanın bir öğretim yöntemi olarak Türkiye'de gelişimi. *Eğitim ve Bilim*, 37 (166). <http://egitimvebilim.ted.org.tr/index.php/EB/article/view/1420/449>
- Onder, A., Abacı, O., & Kamaraj, I. (2009). The project of "Employing the museums for educational goals": Example of Marmara. *Pamukkale University Journal of Education*, 1 (25), 103-117.  
<http://pauegitimdergi.pau.edu.tr/DergiTamDetay.aspx?ID=291&Detay=Ozet>
- Ovigli, D. F. B., & Colombo Jr, P. D. (2020). Information and communication technologies (ICT) in educational research in science museums in Brazil. *International Journal of Education and Development using Information and Communication Technology*, 16 (2), 272-286.  
<http://ijedict.dec.uwi.edu/viewissue.php?id=58>
- Ruso, L., & Topdal-Bayram, E. (2014). The use of museums for educational purposes using drama method. *Procedia: Social and Behavioral Sciences*, 141 (25), 628 – 632.  
<https://doi.org/10.1016/j.sbspro.2014.05.110>
- Sandell, K., & Ohman, J. (2010). Educational potentials of encounters with nature: Reflections from a Swedish outdoor perspective. *Environmental Education Research*, 16 (1), 113-132.  
<https://doi.org/10.1080/13504620903504065>
- Selanik, A., T., & Kurtdele-Fidan, N. (2014). Teacher candidates' views about using museums in social studies. *Electronic Journal of Social Sciences*, 13 (48), 69-89.  
<https://doi.org/10.17755/esosder.39452>
- Soare, A., & Popescu, E. (2013). The effects of education led through practical museum programs for school children. *Procedia: Social and Behavioral Sciences*, 76, 739-743.  
<https://doi.org/10.1016/j.sbspro.2013.04.197>
- Stoddard, J. D., Metzger, S. A., & Harris, L. M. (2018). Learning history beyond school: Museums, public sites, and informal education. *The Wiley international handbook of history teaching*

- and learning*, 631-656.  
<https://onlinelibrary.wiley.com/doi/pdf/10.1002/9781119100812.ch24>
- Tas-Mentis, A. (2012). Primary-Grade teacher candidates' views on museum education. *US-China Education Review*, 6, 606-612. <https://files.eric.ed.gov/fulltext/ED535482.pdf>
- Thorburn, M., & Allison, P. (2010). Are we ready to go outdoors now? The prospects for outdoor education during a period of curriculum renewal in Scotland. *The Curriculum Journal*, 21 (1), 97-108. <https://doi.org/10.1080/09585170903560824>
- Trouli, S. (2020). Museum education in Greece: histories, ideas and the realities behind the words we use. *ICOM Education*, 29, 115.  
[https://www.academia.edu/45222941/Museum\\_education\\_in\\_Greece\\_histories\\_ideas\\_and\\_the\\_realities\\_behind\\_the\\_words\\_we\\_use](https://www.academia.edu/45222941/Museum_education_in_Greece_histories_ideas_and_the_realities_behind_the_words_we_use)
- Turnbull, M. (2012). *Go outside: Engaging elementary art students in outdoor exploration* [Unpublished Master Thesis, The University of Florida].  
[https://ufdcimages.uflib.ufl.edu/AA/00/01/33/93/00001/Turnbull,\\_Melinda\\_final.pdf](https://ufdcimages.uflib.ufl.edu/AA/00/01/33/93/00001/Turnbull,_Melinda_final.pdf)
- Unal, F., & Pinar, Y. (2017). The crucial role of museum-experience in early childhood education. *Idil Journal of Art and Language*, 6 (38), 2899- 2917. <https://doi.org/10.7816/idil-06-38-18>
- Uztemur, S., Dinc, E., & Acun, I. (2019). Teaching social studies in historic places and museums: an activity based action research. *International Journal of Research in Education and Science*, 5 (1), 252-271. <https://www.ijres.net/index.php/ijres/article/view/490/pdf>
- Wells, S.Y. (2014). Active art education in a university museum: The example of the Barber Institute. *Journal of Social Studies Education Research*, 5 (1), 20-37.  
<https://dergipark.org.tr/tr/download/article-file/179059>
- Winstanley, C. (2018). Learning experiences in museums: harnessing Dewey's ideas on continuity and interaction. *Education*, 46 (4), 424-432.  
<https://doi.org/10.1080/03004279.2018.1445476>
- Yapıcıoğlu, A. E., Atmaca, S., Akbulut, A., Ceyhan, G. D., Durmuş, Y., Akaydın, G., & Demirsoy, A. (2017). Journey to natural history museum in perspective of children. *European Journal of Science and Mathematics Education*, 5 (4), 365-375.  
<https://www.scimath.net/download/journey-to-natural-history-museum-in-perspective-of-children-9517.pdf>

Zucker, M. & Simon, D. (2020). *Mass Violence and Memory in the Digital Age*. Suiza: Palgrave Macmillan. [https://doi.org/10.1007/978-3-030-39395-3\\_7](https://doi.org/10.1007/978-3-030-39395-3_7)