

Cross Boundary Virtual Museum Experiences of Pre-service Social Studies Teachers during the Pandemic

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Abstract

The present study aimed to examine the experiences of the 18 senior class pre-service social studies teachers based on virtual tours of the Hermitage, Louvre, and British museums in the scope of the online “Museum Education and Historical Places” course during the COVID-19 Pandemic. The study investigated their views on the benefits of their experience with the aforementioned museums for the purposes of social studies courses. The study design was based on a holistic single case method. Accordingly, the study data was collected by means of the reports of the pre-service teachers, online forum comments, and focus group interviews. Content and descriptive analysis techniques were used to assess the study data. The findings show that pre-service teachers see the virtual collections of the specified museums as an alternative source for social studies lessons, and that if these collections are integrated with the lessons, they will support the learning outcomes and provide students with many skills. On the other hand, it is possible to say that virtual museum experiences contribute to teacher candidates from an individual point of view beyond their professional contributions and change their perspectives. Therefore, the research suggested that an awareness about virtual museum activities should be raised in the undergraduate level to foster a wider and productive use of virtual museums in the educational environment.

Keywords: Covid-19 Pandemic, museum education, social studies education, teacher education, virtual museum.

Sosyal Bilgiler Öğretmen Adaylarının Covid-19 Pandemisi Döneminde Sınır Ötesi Sanal Müze Deneyimleri

Öz

Bu araştırmada COVID 19 virüsü kaynaklı küresel salgın döneminde “Müze Eğitimi ve Tarihi Mekânlar” dersini çevrimiçi alan 18 son sınıf sosyal bilgiler öğretmen adayının ders içinde Ermitaj, Louvre ve British müzelerine ilişkin sanal müze deneyimleri ve bu müzelerden sosyal bilgiler derslerinde yararlanma potansiyeli ile ilgili görüşlerinin incelenmesi amaçlanmıştır. Bütüncül tek durum desenine uygun olarak kurgulanmış olan bu nitel araştırmanın verileri öğretmen adaylarının raporları, çevrimiçi forum yorumları ve odak grup görüşmelerinden elde edilmiştir. Veriler betimsel analiz ve içerik analizi teknikleri kullanılarak değerlendirilmiştir. Bulgular, öğretmen adaylarının belirtilen müzelerin sanal koleksiyonlarını sosyal bilgiler dersleri için alternatif bir kaynak olarak gördüklerini, bu koleksiyonların derslerle bütünleştirilmesi durumunda kazanımları destekleyeceği ve öğrencilere pek çok beceri kazandırabileceği görüşünde olduklarını göstermektedir. Diğer yandan sanal müze deneyimlerinin öğretmen adaylarına mesleki katkıların ötesinde bireysel açıdan da katkılar sağladığını ve bakış açılarını değiştirdiğini söylemek mümkündür. Bu nedenle sanal müzelerin eğitim ortamında daha yaygın ve verimli kullanımı için lisans düzeyinde öğretmen adaylarının sanal müze etkinliklerine ilişkin farkındalıklarının ve becerilerinin artırılması gerektiği önerilmektedir.

Anahtar kelimeler: COVID 19 Pandemisi, müze eğitimi, sosyal bilgiler eğitimi, öğretmen eğitimi, sanal müze.

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INTRODUCTION

Museums are the places that serve as a reconstruction of the image of the former times in authentic and true terms, providing the visitors with the opportunity to have an emotional experience about an event that happened in the history and to attribute a personal meaning (Clutterbuck, 2008). Therefore, museums are among the most convenient spaces that keep a record of and teach the world through the real artefacts in their collections (Buyurgan, 2006). Museum collections are a rich source of diverse experiences with the narratives and information that embody in the pieces. The visitors' experience is further enhanced by the thoughts they create in individuals, which promotes creativity by stimulating their imagination (Gartenhaus, 2000). Museums serve a cultural and social function, including inspiring individuals, improving their quality of life, developing a sense of identity and community solidarity (Karadeniz & Çıldır, 2012), and facilitating lifelong learning (Hawkey, 2004). Therefore, due to these qualities of museums, discussions focusing on the educational function of the museum have mostly been on the agenda of museum experts and educators.

In the meantime, educational units were established in museums in developed countries, including the USA, Germany, France, and the UK. Specialists were trained to work in those units, and programs were created for schools and educators. In addition, museums in the aforementioned countries assumed certain duties such as providing services to schools inside museums or introducing itinerant museums (Buyurgan, 2017). Despite the practical interruptions today, it is possible to say that the education and training contents of a larger part of the courses at different education levels in many states are associated with museums. However, it is not possible to mention that there is a widespread museum-school cooperation in Turkey. Schools and teachers are responsible for organization of museum tours in the academic year. Therefore, the decisive factor for actual museum tours is the willingness of the teachers. Relevant researches indicated that museums could not be utilized sufficiently in education due to bureaucratic obstacles in the process of obtaining permission, concerns about not being able to complete the curriculum, cost, and physical distance (Çengelci, 2013; Demir, 2015; Egüz & Kesten, 2012; Ekmekçi, 2015; Karataş et. Al., 2016; Kırksekiz et al., 2020; Kısa, 2012; Şentürk, 2019). It was suggested that above concerns of the school administrators and teachers would be eliminated should the ministry of National Education and its local directorates assumed a responsibility with regard thereto (Avcı-Akçalı, 2015; Güler & Alkış, 2003). On the other hand, virtual museums are considered an alternative solution to the difficulties associated with physical museum tours (Ata, 2010).

A virtual museum is an organized collection and presentation of artifacts and information resources by means of electronic media (McKenzie, 1995). In other words, virtual museums feature multimedia exhibits on the Web that simulate a spectrum of experiences an individual can have during a physical museum visit (Christal, 2003). Although the virtual museum as a concept and term dates back to a period prior to the introduction of worldwide web, or Internet, the same recently became popular with the proliferation, acceptance, and enhanced access to virtual reality technologies (Schweibenz, 2019). In a 2010 report by the Council of Europe Directorate of Culture and Cultural and Natural Heritage, it was suggested that the roles of museums changed due to certain difficulties that arose in the last 20 years. Technological developments are at the forefront of the factors that urged museums to move towards a rapid process of change. Thanks to the possibilities of novel technologies, it is no longer necessary to be confined to the walls of building or the fence of a site, and further, images are accessible to visitors across the world (Torch, 2010). With the digital opportunities, museum collections are now on display via the web and 360° panoramic virtual tour are available (Mamur et al., 2020). Virtual museums provide convenience at times the visitors are not able to physically visit the museums due to cost, distance, and physical disability. Virtual museums also help with overcoming two problems; i.e., safety of the artifact and physical limitations that hinder larger artifacts put on show inside the exhibition halls. Furthermore, while it is limited to interact with original artifacts in a physical museum setting, visitors can see the artifacts from all sides and interact with them virtually (Tsichritzis & Gibbs, 1991). In other respects the opportunity to see important objects, buildings and environment that have lost their originality or no longer exist, by reconstruction technology that virtual museums provide is quite valuable (Skamantzari & Georgopoulos, 2016). In summary, as McKenzie (1997) puts it, "The beauty of virtual museum is the capacity to connect the visitor with valuable information across the entire globe."

In an environment of rapid and comprehensive technological developments, it is important to use digital means in educational activities to keep up with the times. As regards the teaching process, there has been an increase in museum visits using 360-degree imaging technology, augmented reality, second life museums, and designing activities using Web 2 tools in virtual environments. Certain studies indicated that if augmented reality included in traditional methods in learning environments, the gains were higher (Garzón & Acevado, 2019) and

that had a positive impact on academic success (Koca & Daşdemir, 2018). In addition, second live museum environments and museum education activities are very effective for accommodating various teaching methods (Baker et. al., 2009). Studies with different courses and grade levels suggested that the inclusion of various virtual museum applications in the teaching process created a positive environment, made learning fun, and increased students' interest in the lesson (Çalışkan & Çerkez, 2012; Çınar et.al., 2021; Yıldırım & Tahiroğlu, 2012). Results of various studies demonstrated that virtual museum applications contributed to the success of the course, supported the targeted cognitive and affective achievements (Demirboğa, 2010; Kampouropoulou et.al., 2013; Ulusoy, 2010; Ustaoglu, 2012; Turgut, 2015), helped with concretization of the conceptions, fostered permanent learning, and created an active teaching environment (Işlek & Danju, 2019; Işlek 2021). Along with the digitalization as a result of rapid technological developments in the 21st century, the COVID -19 pandemic, which affected the world since its very beginning in the late 2019, made it almost a necessity to take advantage of digital opportunities in the field of education and culture.

Pandemic has caused the use of virtual museums to become widespread across the world and thus in Turkey. According to a report by ICOM, almost all the museums were closed in April 2020 and in the meantime, the museums focused their activities on virtual tours, virtual exhibitions, social media shares, remote interactions with public, and migrating their collections to virtual environment. The use of digital means during the first stage of pandemic increased by at least 15% (ICOM, 2020). Despite the fact that the museums strived to adapt further to the requirement of the digital world of the 21st in the process of the COVID-19 pandemic, educational institutions and teachers need to improve themselves in that respect. Daniella (2020) argued that the use of virtual solutions in the exhibition of museum collections was no longer a novelty and underlined that the use of museum collections for distance learning was not yet popularized in educational environments. In addition, upon a review of a number of virtual museums as educational tools, she concluded that virtual museums were not adequate to assume the educational function alone and believed that the teachers should step in as guide in educational process.

Kırca (2008) suggested that the rate of conscious museum visits was low in Turkey and the largest segment among the visitors were students. Accordingly, schools have an important function to serve in the learning of museum culture. However, relevant studies reported that there were also teachers, who did not have a museum culture. A study by Görmez (2020) indicated that 86 out of 209 social studies teacher candidates had never been to a museum before, and 34 visited a museum only once or twice in their lifetime. The research of Öztürk - Kömleksiz and Gökmenoğlu (2020) reported that some of the students of two schools located near the Natural History and Archeology Museum in the Turkish Republic of Northern Cyprus never visited the museum, while seven out of 16 teachers did not have the habit of visiting a museum. The results of virtual museum visits are also similar. İlhan et al. (2021) reported that 23 out of 37 participant social studies teacher candidates had no previous virtual museum experience. The results of respective studies by Kaya and Okumuş (2018), by Karakaya (2015) and by Canlı (2016) with students from various age groups indicated that 85%, 80%, and 94% of the participants had no previous experience of virtual museum tours. Çınar et. al. (2021) reported that secondary school students who had low habits of visiting a museum with their families also had a low awareness of virtual museums, and they didn't take virtual museum tours even during the Pandemic style.

Virtual Museum as an Alternative Source for Teaching Social Studies

Social studies have been taught as a course in the primary and secondary schools of certain countries since the beginning of the 20th century. Based on the perspectives offered by various social sciences, understanding the world, the past and present societies, recognizing, protecting, and transferring cultural heritage are some of the themes included in social studies education. In this context, there is a strong correlation between teaching social studies and the mission of museums. As Kahn (2020) suggested, many people are in an effort to make sense of the world. Because of their role in compiling and sharing knowledge and cultural heritage, museums are in an excellent position to support those efforts.

Studies reported that the use of museums in social studies courses made significant contributions. In the USA, a special and free virtual history museum featuring contents from American and world history was developed to improve students' understanding of social studies. It was aimed with the virtual history museum to contribute to students' ability to use evidence, analyze and interpret artefacts, explore multiple perspectives, and develop their own interpretations, so that all students would understand the content of the course, and increase the participation and success of disadvantaged students in the course (Bouck et. al., 2009). Above all, interacting with the objects in the museum creates a source of curiosity, interest, and motivation in students, improves their interest in the lesson, and supports effective and meaningful learning by fun. It increases social interaction by encouraging active participation and collaboration among peers (Çalışkan & Çerkez, 2012; Filiz, 2010). Furthermore relevant

studies in the literature reported that the same was associated with increased success in teaching social studies (Stinson, 2001); historical thinking, critical thinking (Nunez, 2021), questioning, using evidence, developing empathy, perceiving change and continuity (Filiz, 2010); raising awareness of historical artifacts and cultural heritage, recognizing sub-disciplines of social sciences, and contributing to raise the general culture of the students (Kısa, 2012; Şentürk, 2019; Uztemur, et al., 2019; Yılmaz & Şeker, 2011). Core competencies, special objectives, field-specific skills and values, many achievements that can be associated with almost all the fields of learning, and especially culture and heritage in the social studies teaching program in Turkey are suitable for accommodating almost all the virtual museum activities. In addition, the program also prescribed that virtual museum activities should be used in lessons. Furthermore, the National Council for Social Studies (NCSS, 2016) promoted the effective use of technology for effective social studies teaching and learning.

In the light of the studies briefly mentioned above, the social studies lesson that students take at an early grade is important in raising awareness about physical or virtual museums, and it is important that especially social studies teachers should be adequately equipped as regards thereto. However, certain studies reported that social studies teachers' or teacher candidates' awareness of virtual museum activities was low (Aktaş, 2017; Kırksekiz et al., 2020; Peker, 2014), that virtual museum practices were not adequately included in social studies courses (Aladağ, et al., 2014; Egüz, & Kesten, 2012; Karakaya, 2015; Memişoğlu & Kamçı, 2013), and that, teachers and prospective teachers should receive training on the said subject or improve their practice skills (Çalışkan et al., 2016; Görmez, 2020; Islek & Danju, 2019; Yeşilbursa & Uslu, 2014; Yıldırım & Tahiroğlu, 2012). As explained above, in the field of social studies, which is open to cooperation with museums by its nature, it is a major shortcoming that teachers do not benefit from virtual museums, which eliminates the legal procedure, time, distance, and cost limitations of organizing a physical visit to a museum.

The low awareness of social studies teachers about virtual museums, the suggestions that their awareness should be raised during undergraduate education, the need to increase the number of studies on virtual museums in teacher training, and especially the conditions mandated by the COVID-19 pandemic require more practice and research in this field. The subject of this study is the practices of Museum Education and Historical Places, which is an optional course for senior students of the faculty of education, social studies teaching program during the spring term. However, the practical part of the course (Mach to June 2020) could not be conducted due to the closures associated with COVID-19 pandemic and therefore, the course had to be carried out asynchronously for a period of time upon sudden transition to online teaching. Thus, students were encouraged to explore virtual museums and associate them with social studies curriculum by making use of the museums' opening to the public for the purposes of the practical part of the course. Accordingly, the virtual museums offered by the reputable British Museum, the State Hermitage Museum, and Louvre Museum, were chosen for their rich collections in the field of social sciences.

The importance of this research is to question the potential of benefiting from the Hermitage, Louvre and British museums virtual collections in social studies lessons from the perspective of pre-service teachers and to reveal how this experience will affect them. In addition, the study has the potential to provide new insights for educators and researchers.

The question "What are the opinions of the pre-service social studies teachers on experiencing the Hermitage, the British and Louvre museums virtual tours and the potential of benefiting from these museums in the social studies lessons?" was the starting point of the study. The aim of research was to investigate the experiences of pre-service social studies teachers with the British Museum, the State Hermitage Museum, and Louvre Museum, who took the online "Museum Education and Historical Places" course during the COVID-19 pandemic and review their views on how to benefit from those museums in social studies courses. Accordingly, answers to the following questions were sought:

1. What are the views of the pre-service social studies teachers regarding the potential of benefiting from virtual tours to the State Hermitage Museum, the British Museum, and Louvre Museum?
2. What are the views and thoughts of the pre-service social studies teachers about the effect of virtual museum tour experiences on themselves?

METHOD

Research Design

The present study, which aimed to investigate for a given period of time and in the real-life setting the experiences of pre-service social studies teachers with virtual museum tours and their views on the potential of

benefiting from those museums for the purposes of social studies courses, was designed as a qualitative case study. According to Merriam and Tisdell (2016), in-depth investigation of a particular phenomenon in a limited system (in terms of number of participants, process, etc.) is convenient with the case study research design. The research is suitable for the holistic single-state pattern, one of the patterns that Yin (2013) grouped according to the number of situations and analysis units. Pre-service teachers, who took the Museum Education and Historical Places course via distant and asynchronous education during the COVID-19 pandemic were considered a case in this research. The virtual museum experiences, associated assessments, and views of the pre-service teachers constituted the analysis unit of the research.

Study Group

Considering that it will provide various advantages to the researcher in pandemic conditions, convenience sampling technique was preferred in the determination of the participants. The participant group of the study consisted of the senior class pre-service teachers, who took the Museum Education and Historical Places elective course during the spring term of the 2019-2020 academic year in the Social Studies Teaching program of the Faculty of Education. Participants were composed of 18 teacher candidates, twelve female and six males. Figure 1 shows the information about whether the participants had any previous virtual museum tour experience or not and figure 2 shows previous virtual museum experience, and their prior knowledge of the museums they studied within the scope of the course. The pre-service teachers, who did not take a course of museum education before, were informed about the concept and applications of virtual tour in the Special Teaching Methods course they took in the previous class.

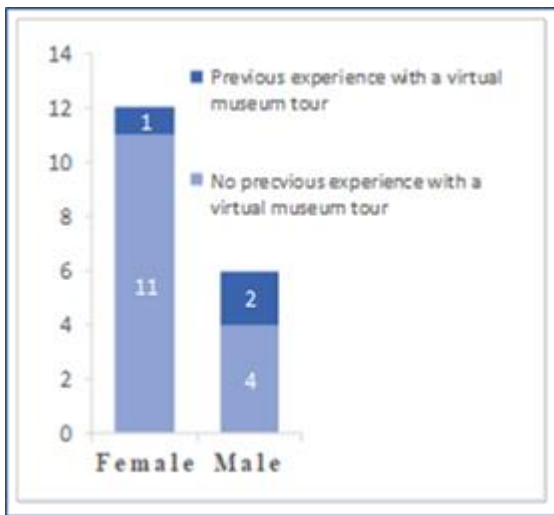


Figure 1. *Experiencing Virtual Museum Tour According to the Gender of the Participants*

As seen in Figure 1, only three of the participants have experienced a virtual museum tour before the course. One of them is female and two are male.

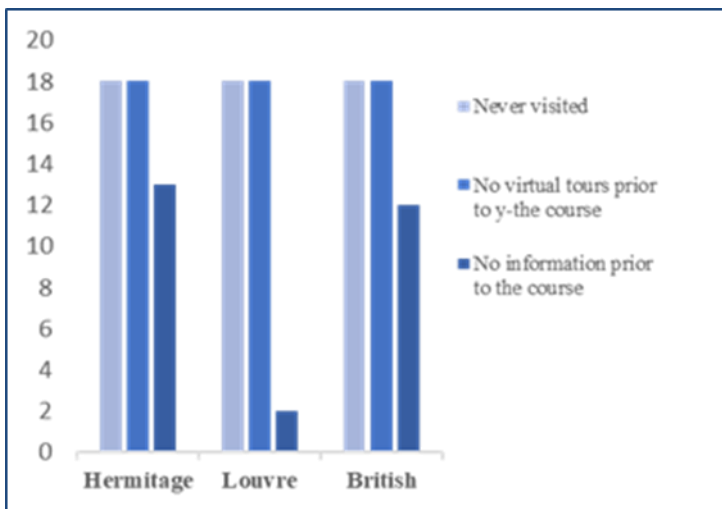


Figure 2. *Participants' Previous Virtual Museum Experience and Their Prior Knowledge of the Museums*

Figure 2 shows that none of the participants had visited these museums, real or virtually before. In addition, while most of the participants do not have prior knowledge about the State Hermitage and the British museums, most of them know Louvre Museum.

Data Collection

Research data was collected between April and June of 2020. The pre-service teachers were asked to individually investigate the three museums and prepare reports and share their virtual museum experiences in an online forum for about 15 days subsequent to the submission of the reports within the scope of the course. Furthermore, online focus group interviews were made with 16 volunteer teacher candidates. Focus group interviews were conducted by dividing the participants into two equal groups. After analyzing the research findings, individual phone interviews were made with 10 students to confirm the unclear data. Activity reports, forum comments, and semi-structured interview forms were used to collect data.

1. Activity reports: The pre-service teachers were asked to write their activity report subsequent to each virtual museum tour to include the following information.
 - Thoughts and experiences about museums, collections on display, and virtual tours,
 - At least two examples for each museum that associate museum collections or galleries with the learning domains and achievement of social studies course,
 - Feeling and thoughts about the impact of virtual museum tours experiences.

2. Forum comments: Upon completion of the virtual tours and submission of the activity reports, the digital forum platform, provided by the university system was used for a period of 15 days for sharing experiences and creating group interaction. Three separate forums were created with the following headlines, and no restrictions or criteria were imposed on the content of the comments.
 - My experiences and opinions about the virtual tour of the State Hermitage Museum
 - My experiences and opinions about the virtual tour of Louvre Museum
 - My experiences and opinions about the virtual tour of the British Museum

The researcher did not post any comments on this platform. After 15 days a data set of 159 pages in total, including 127 comments about the State Hermitage Museum (H), 132 comments about the Louvre Museum (L), and 142 comments about the British Museum (B) were compiled.

3. *Semi-structured interview form*: As prepared by the researcher upon consulting with two field experts the form was used in the focus group interviews. Interviews questions were similar to those included in other data collection tools.

Data Analysis

Content analysis and descriptive analysis techniques were used in combination for the evaluation and interpretation of the study data. Descriptive analysis technique helps to summarize and interpret based on previously determined themes. Content analysis technique requires creating concepts and relationships with an aim to explain the new data to be investigated in the scope of the study (Yıldırım & Şimşek, 2018). Data collection tools were designed to explore new themes as well as predetermined themes. During the analysis process, first the written activity reports were reviewed, and the statements related to the study questions were hand coded. Thereafter, the output of the forum comments and the transcripts of the interview recordings were compared to the codes obtained above. Therefore, repetitive instances, consistent instances with existing codes and new code instances were determined. Finally, the statements of each participant in the data collection tools (report, forum comments, interviews) were compared again to the generated code list. The codes were grouped under certain themes and interpreted in tables. The number of repetitions (f) of the codes, the examples of expressions of the participants are given as they are in the tables. The names of the pre-service teachers were expressed in the study with abbreviations (AK, BS, YK...) consisting of the initials of their names and surnames.

Data triangulation and participant confirmation techniques were used to increase the validity of qualitative research. Data triangulation means that themes and descriptions are supported by findings obtained from different individuals or different data collection techniques. Participant confirmation is taking the opinions of the participants on whether the descriptions and themes in the research report are complete and accurate (Creswell, 2012). For the purposes of the study, it was sought to increase the validity of the findings by using different data collection techniques and sharing the research findings with some participants and taking their opinion.

Research Ethics

Ethical permission (29.07.2020-640) was obtained from Ege University Scientific Research and Publication Ethics Committee for this research. In addition, all the participants were informed about the study and their consent was obtained.

FINDINGS

All the pre-service social studies teachers expressed their opinions about museums both in the activity reports and in the forum platform. In particular, the forum environment gave the opportunity to experience further interaction with each museum. Accordingly, 13 pre-service teachers (AK, AS, BKU, EAK, EE, EGS, EM, ID, MOY, NA, SO, YD, and YK) revisited the museums, reviewed new artifacts, and shared their findings on museums and artifacts with their friends. Mutual comments were made on certain topics, including the phantom of Louvre Museum, the Russian Ark movie, the video clip of Aphetit by the Carters, the meaning of and associated stories from certain paintings exhibitions in the museums etc. The teacher candidates, who did not take a virtual tour of museums previously, had a prior knowledge mostly about the Louvre Museum compared to the other two. They knew the Louvre Museum mostly due to Mona Lisa portrait on display, the pyramid structure at the entrance of the museum, or the novels they have read. Some knew the State Hermitage Museum because of the Pazyryk rug they were familiar from the history courses.

The Potential Of Benefiting From Virtual Tours Of The Museums In Social Studies Lessons

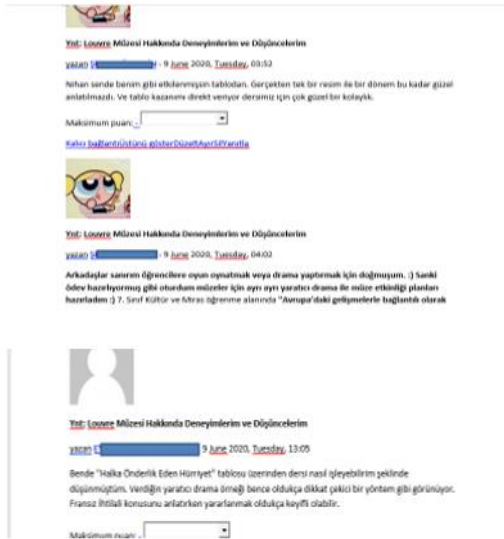
In their reports, the pre-service teachers associated the collections in each museum with at least two learning domains and achievements of social studies lesson. Related data are available in Table 1. Some of the pre-service teachers associated museum's collections with more than two learning domains or achievements. Furthermore, there were also participants, who expressed their views about the effects of museums on the learning environment and the set of skills they can develop in students. Related data about the effect of museums on the course setting are given in Table 2.

Table 1. Learning domains and achievements of social studies lesson that the pre-service teachers associated with the museums

Learning domains and achievements (learning outcomes)	H <i>f</i>	L <i>f</i>	B <i>f</i>
1. Individual and society	-	-	1
6.1.2. Analyzes the place of social, cultural, historical connection to the formation of social coherence.	-	-	1
2. Culture and Heritage	18	18	17
5.2.1. Realizes the important contributions of Anatolian and Mesopotamian civilizations to the history of humanity based on their concrete ruins.	4	12	14
5.2.4. Analyzes the role of cultural elements in the coexistence of people.	-	1	-
5.2.5. Evaluates the historical development of cultural elements in daily life.	2	-	4
6.2.1. Makes an inference about the geographical, political, economic, and cultural characteristics of the first Turkish states established in Central Asia	11	-	-
6.2.2. Interprets the emergence of Islam and the changes it caused.	-	4	-
6.2.3. Realizes the political, social, and cultural changes after the Turks' conversion to Islam.	1	2	-
6.2.4. Analyzes the process of the Turks settlement in Anatolia between XI. - XIII. centuries.	-	-	1
6.2.5. Explains the role of historical trade routes in political, cultural, and economic relations between societies.	-	-	1
7.2.1. Explains the emergence process of the Ottoman Empire as a political power and the factors affecting this process.	1	-	-
7.2.2. Analyzes the conquest policy of the Ottoman empire through examples.	1	-	-
7.2.3. Comprehends the processes that forced the Ottoman Empire to change in line with the developments in Europe.	4	7	-
7.2.5. Gives examples of the Ottoman culture, art, and aesthetics.	11	2	3
3. People, places, and environments	-	1	3

6.3.4. Makes inferences about climate characteristics based on human experiences in different natural environments of the world.	-	1	3
4. Science, technology, and society	1	5	6
4.4.3. Researches the inventors of the technological products it uses and the development of these products over time.	-	-	2
6.4.1. Gives examples of the effect of social sciences on social life based on studies and findings in social sciences.	1	1	-
7.4.1. Examines change and continuity in the preservation, dissemination, and transfer of knowledge.	-	3	4
7.4.3. Analyzes the effects of the developments in Europe between the XV. and XX. centuries and the formation of today's scientific knowledge.	-	1	-
6. Active citizenship	-	1	-
6.6.1. Compares different forms of government in terms of the basic principles of democracy.	-	1	-
7. Global connections	3	1	3
4.7.3. Compares the cultural elements of different countries with the cultural elements of Turkey.	-	-	1
4.7.4. Respects different cultures.	-	-	1
5.7.3. Explains the importance of tourism in international relations.	1	-	1
5.7.4. Gives examples of substantial common heritage items in various countries.	3	1	1
7.7.3. Develops ideas for the solution of global problems with one's friends.	-	-	2

In Turkey, the social studies course starts at fourth grade of primary school and taught for four years. There are a total of seven learning domains and four to six achievements related to those learning domains at each grade level in the current social studies curriculum (MEB, 2018). Total number of achievements is 131. A review of Table 1 indicated that pre-service teachers associated museums with six learning domains and 24 achievements. Only the fifth learning domain, i.e., "production, distribution and consumption" was not associated with any museum. All three museums were mostly associated with the "culture and heritage" learning domain and a number of associated achievements. "Science, technology and society" and "global connections" were the associated learning domains for all the three museums, albeit less. The State Hermitage Museum was associated with a number of achievements within the "culture and heritage" learning domain. The Art of Islamic Middle East-The Ottoman Empire (15), Pazyryk finds (13), Ottoman arms and armor (9), Renaissance artifacts (5), the Urartu Room (4), Culture and Art of Central Asia -Antiquity and Early Middle Ages (2) galleries were the preferred resources of pre-service teachers in the museum. Whereas as regards the Louvre Museum, the Near Eastern Antiquities, Islamic arts, Renaissance works galleries, and paintings and sculptures from different periods were indicated as related to the "culture and heritage" learning domain. The most referred to collection pieces included the code of Hammurabi and "Liberty Leading the People" by Eugène Delacroix. A pre-service teacher designed an activity using this painting by the drama method and shared it on the forum platform with her friends. Teacher candidates exchanged views on this issue (Figure 3).



June 9th, 2020, Tuesday, 3:52 AM “.... you were impressed by the painting like me. Indeed, a period could be described so well with a single painting. It is directly related with the achievement. A great convenience for our lesson.” SO

June 9th, 2020, Tuesday, 4:00 AM “Guys, I think I was born to play games with students. :) I started planning drama activities for each museum as if it were homework :)...” SO

June 9th, 2020, Tuesday, 1:05 PM “I also thought about how I could use the painting ‘Liberty Leading to People’ in the class. I think the example of creative drama you gave seems to be a very interesting method. It can be quite enjoyable to use the table while teaching the French Revolution.” EGS

Figure 3. Part of the forum records containing comments of two participants

In the British Museum, mostly the artifacts on display at the Ancient Turkey, Ancient Mesopotamia and Egyptian galleries were associated with the “culture and heritage” learning domain by the pre-service teachers. “Science, technology and society” learning domain was mostly associated with the collections of Louvre and British museums. The learning domain of “people, places and environment” was associated with the British and Louvre museums by a few participants, while clothing of different cultures from the British Museum were indicated by 2 pre-service teachers as a source. A teacher candidate referred to the statue “Raherka and Meresankh” from Louvre Museum as a source that could be used for that learning domain. The “individual and society” learning domain was associated with the Standard of Ur in the British Museum by the EAK. On the other hand, the learning domain of “active citizenship” was associated by YD with the painting of “Henry IV bringing food into Paris” from Louvre Museum. YD stated that concept of monarchy could be associated with that painting. As regards the learning domain of the “global connections”, the British, Italian, Spain, Japanese, and Indian artifacts from the Sate Hermitage Museum, the Apollon gallery and Castiglione’s Square Hall from the Louvre Museum, and Japanese artifacts from the British Museum were indicated as a source by a few pre-service teachers.

In Table 2, there are views of pre-service teachers on the benefits of virtual tours of the museums in question for the purpose of the social studies lessons. Most of the pre-service teachers suggested that all the three museums were important resources for the lesson and could make the lesson interesting and fun. Although the Louvre was accepted as a museum that supported the achievements of the course, there were also pre-service teachers who expressed their reservations that the very limited virtual access to galleries posed a disadvantage. Museums artifacts were associated with concretization the concepts, reinforcing knowledge, contributing to permanent learning, and developing certain skills. The highest number of comments by the pre-service teachers was made for the British Museum, which, was associated with a number of skills and values, especially perceiving change and continuity. The State Hermitage Museum was especially indicated for supporting course achievements, concretizing concepts, and recognizing cultural heritage, where the Louvre Museum was associated with skills and values in the context of art, aesthetics, and creativity.

Table 2. Views of participants on the benefits of the virtual museums for social studies courses

Views	H	L	B	Related expression examples
<u>In the teaching process</u>	<i>f</i>	<i>f</i>	<i>f</i>	
Making course entertaining	12	10	14	<i>"I think the museum [L] will be of great interest to the students and help us a lot in our lesson."</i> EE <i>"It is [H] source that can help us in many subjects in the social studies course and will make our course more fun and jazz up."</i> BKU
A good resource for social studies teachers/very suitable for the content and achievements of the course	14	11	11	<i>"There are [H] many collections to associate with social studies achievements"</i> GG <i>"I saw many of my friends comment that the museum [L] is suitable for our achievements. Actually, this museum is definitely for our achievements. But the fact that all galleries are not accessible limits us. For the reason, I think we may have difficulties in guiding or students."</i> AS
Concretizing the concepts	11	4	9	(H) <i>"We can evaluate the development of different cultures and different civilizations in the historical process through concrete examples."</i> HKY
Conducive to reinforcement/permanent learning	6	8	3	(B) <i>"In this way, we can teach a lesson in which students are active and make the information permanent."</i> EGS
Active teaching	3	1	7	
<u>In skill and value education</u>				
Perceiving change and continuity	3	3	15	<i>"I think that the money [B] he mentioned can have a great impact on children's understanding of change and continuity as concrete evidence"</i> AS
Analytical and critical thinking	5	8	7	(L) <i>"A question asked about ... will make the students think, learn to criticize, reveal their historical background, and produce original ideas."</i> NA
Evidence- based learning	7	3	5	(B) <i>"Our homeland contains so much value and beauty. It is very important to add this value and awareness to our students."</i> BKU
Recognition and protection of cultural heritage	7	1	4	<i>"It [B] can be very helpful for our students to understand cultural differences and diversity..."</i> ID
Recognizing and respecting different cultures	2	-	9	[H] <i>"Respects and empathy for different cultures can be developed. Values and skills of social studies lesson can be gained."</i> BT
Developing sense of aesthetics, sensitivity to art, and creativity	3	5	3	<i>"For example, we can benefit a lot from engravings [B], especially since they are collections that daily life. This is most important purpose of evidence -based learning."</i> NA
Developing historical empathy	5	3	2	<i>"... these items [B] can be used to immerse students in the atmosphere of the past ant to look at history from their own time."</i> SO
Establishing the relationship between culture and geography	-	-	3	
Total comment	78	57	92	

Effects Of Virtual Museum Tour Experiences on Pre-Service Social Studies Teachers

Table 3. The views and feelings of participants about the impact of the virtual tours to them

Views and feelings	<i>f</i>	Related expression examples
Enjoyable activity	16	<i>"It was one of the funniest activities I've done during my university education."</i> SO
Recognizing different cultures	12	<i>"It was quite an enjoyable experience. While examining the collections in the museum, you have the opportunity to discover different cultures."</i> FC
Gaining professional qualification	12	<i>"I will definitely use it in my lessons in the future, as I think it will immediately attract the attention of students in the 5th and 6th grades."</i> GG
Encouragement to research	12	<i>"I even left the virtual tour and did some research on cylinders [Gudea] for a while."</i> AK
Raising awareness about protecting cultural heritage	10	<i>"We can see the artifacts smuggled out of our country in museums of other countries. If we could preserve our artifacts at that time, we would now have the opportunity to visit them in our own museums."</i> BT
An alternative for those who cannot go to museums	9	<i>"The distance and time between where me and the Hermitage Museum have shortened. Financially economical."</i> BKU
Simplifying devotion, travel, and finance	8	<i>"This is the first time I have heard that Japan has developed in the field of producing porcelain, and they are trading it."</i> BS
My knowledge has increased/ learned new things	8	<i>"This process has been difficult for all of us. I think it as both enjoyable and educational to given such an assignment for this course. I enjoyed... The virtual tour has been extremely useful, as museums visits will not to be possible during the pandemic period."</i> ID
A useful activity during the pandemic period	7	<i>"I added all there of these museums to my places to visit list. I want to go to these museums, see and feel the artifacts, even though I experienced virtual tour."</i> BT
A genuine desire to visit	7	<i>"Especially when we are going through such a different process around the world... Once again, I understood the importance of technological applications such as virtual tour, which replace the activities that are deprived of."</i> EM
Understanding the importance of technology for life	6	<i>"In addition, the most challenging situation for me personally was inadequacy of my foreign language. When I went to visit all these collections in their places. I realized that I must have a certain competence in the foreign language."</i> AS
My general knowledge increased	4	<i>"I became more interested in art, I started to study other museums and works of art, and to read about art history."</i> EAK
Realizing the deficiencies	4	<i>"...while showing that I have deficiencies in history, it helped me to connection the works whose stories I learned with the period they belonged."</i> AK
Acquiring a different viewpoint	4	
Developing an interest in the arts	4	
Developing historical empathy	3	

Table 3 suggested that most of the pre-service teachers enjoyed examining the world's important museums in a virtual way. The two pre-service teachers, who did not express their views on the current subject, were generally more disinterested and made less comments compared to the others. Probably due to the closures associated with the COVID-19 pandemic, the pre-service teachers were more interested in this assignment compared to any other assignments. Apart from being an enjoyable activity, the pre-service teachers stated that

they had the opportunity to get to know different cultures, their professional competences improved, their field knowledge and general culture increased, and they gained awareness about the importance of preserving cultural artifacts. Other issues that pre-service teachers emphasized included the fact that the virtual tour experiences gave the opportunity to visit museums that cannot be visited in real life, saved time, distance, and economy, and showed the importance of technology in life. Certain pre-service teachers stated that they really wanted to visit those museums. In addition, apart from the pre-service teachers, who expressed personal inadequacy in terms of foreign language and knowledge, there were also those, who stated that they developed historical empathy and different perspectives, and showed interest and orientation in art. The following statement of pre-service teacher, who was particularly impressed by Louvre Museum's virtual tour and said that she started painting again, was quite indicative:

I started to paint oil paintings in high school visual art lesson. In fact, the painting I made once was exhibited in a shopping mall. While I was examining the tables in Louvre that memory flood back. I don't know what the virtual visit to the Louvre added to my friends, and what inspired in them, but this experience has a great importance for me to realize myself (YD).



Figure 4. *Painting made by YD after virtual museum experiences*

DISCUSSION & CONCLUSION

The present study investigated the views of social studies pre-service teachers, who took online Museum Education course during the COVID-19 Pandemic period, about the virtual tour experiences with the State Hermitage, Louvre, and the British museums, the potential benefit of these museums in social studies courses, and the effects of this experience on the participants. The study data were collected from the pre-service teacher's reports, comments shared on the online forum, and focus group interviews.

As expected, the museums in question were not physically visited previously by the pre-service teachers due to the distance. However, the results of the study showed that none of the pre-service teachers took the virtual tours of those world-famous museums before, and most of them did not even know about the existence of those museums other than the Louvre Museum. In addition, the rate of social studies pre-service teachers, who did not take a previous virtual museum tour was 83%. This result regarding virtual museum awareness was consistent with the results of previous studies (Canlı, 2016; Çınar et al., 2021; Görmez, 2020; İlhan & Dolmaz, 2020; İlhan et al., 2021) conducted with student groups of different ages in Turkey.

The pre-service teachers first associated the collections/galleries in the museum with the learning domains and achievements of the course with an aim to investigate the potential benefit of the virtual tours of the State Hermitage, Louvre, and British museums in social studies lessons. The collections/galleries in the museum were associated with 6 of the learning domains and a number of achievements. All the three museums were associated with different achievements of the culture and heritage learning domain by almost all the teacher candidates. They identified various items such as paintings, sculptures, and coins as sources. In addition, they provided examples

of how they could benefit from those collections, including making example of the collection for concretization of concepts and using creative drama for interpretation, analysis, and evaluation. Most of the pre-service teachers, who had lower awareness of virtual museums at the beginning, found out that these museums were an alternative source for the social studies lesson. Furthermore, the same stated that the use of virtual museums would have a positive effect on making the lesson fun and interesting, concretizing concepts, supporting permanent learning, and developing critical thinking. Similarly, as reported by certain studies conducted with teachers and teacher candidates (Aladağ et al., 2014; Çalışkan et al., 2016; Islek, 2021; Islek & Danju, 2019; Kafadar, 2020; Kirksekiz et al., 2020; Sungur & Bülbül, 2019) the participants considered the virtual museums as a valuable resource for the course.

Utilizing technological solutions in the learning process helps students to analyze, assimilate, contextualize, and synthesize their knowledge by positively affecting their motivation. Although most virtual museums support students' conceptualization process, they are insufficient on promoting their knowledge and cognitive development. In this case, it is important for a teacher to participate in the process and provide effective guidance (Daniela, 2020). Naturally, the 3D museum images, and museum collections included in the learning process are not enough to achieve the expected efficiency in the social studies course. It is necessary to activate students, to increase classroom interaction, and to support skills and value development by using various web tools and teaching techniques together. Although an exemplary classroom practice was not presented to the social studies pre-service teachers in this study, they were encouraged to think and discuss how they could use virtual museums in lessons upon their undergraduate education knowledge. In the present study, social studies pre-service teachers presented examples of evidence based learning and critical thinking, similar to a study by Mamur et al. (2020), which was conducted with teachers, who designed drama activities. In addition, the results are supportive of a study by Turgut (2015) that the inclusion of virtual museum activities in social studies lessons was effective in achieving both cognitive and affective gains, developing different perspectives, increasing the power of interpretation, evaluation, and establishing a connection between artifacts and historical reality. As Yıldırım and Tahiroğlu (2012) stated that including virtual museum activities in social studies lessons can provide a learning environment, where students can develop many of the skills included in the curriculum. Similarly in the present study, the pre-service teachers stated the use of virtual tours of those museums with international collections in the lessons, would help them develop awareness of cultural heritage, intercultural differences and similarities, and respect for different cultures. Most of the pre-service teachers agreed that the virtual design of the British Museum could serve as an important source for gaining the perception of change and continuity in social studies. There were pre-service teachers, who indicated that the Louvre Museum would contribute to the development of the sense of aesthetic and creativity in students.

The second part of the study investigated the views of pre-service teachers about how virtual museum experiences impressed them. Accordingly, 90% of the pre-service teachers performed well above what was expected from them, interacted with friends for about fifteen days, wrote on their experiences for several pages, and encouraged each other to re-examine the works. The foregoing were important indicators for the study, suggestive of the fact that the pre-service teachers did not take virtual museum tours as a compulsory homework, but with real pleasure. The results of the present study suggested that the awareness of pre-service teachers about associating museum collections with the social studies curriculum was raised and went beyond merely realizing that the virtual museum tours could be used as a resource in the lessons. In other words, although it was aimed to improve the professional competencies of the teacher candidates within the scope of museum education, museums had also an important role in supporting creative, cultural, and intellectual development of individuals and facilitating lifelong learning beyond any professional aspect as suggested by Hawkey (2004).

The present study found that the virtual museum experience contributed to the development of pre-service teachers in terms of general culture upon being knowledgeable about different cultures. They were encouraged to do more research. This experiment provided the participants with an improved awareness about the protection of cultural heritage and helped them to question their previous knowledge. Certain pre-service teachers were pleased to see the artifacts of their own culture and homeland in different museums, while the same led to a feeling of sadness in others and led to do discussion on necessity of preserving the cultural heritage. Those results are consistent with Kashack's (2014) suggestion that museums in social studies could serve as a medium, where students could increase their historical and civic understanding by being exposed to artifacts and narratives not found in classroom. Furthermore, previous studies also reported that museums increased interest in cultural issues (Uztemur, et al., 2019), fostered recognition and interpretation of intercultural interactions (Mamur et al, 2020), and provided opportunities to explore different cultures (Ismaeel & Al-Abdullatif, 2016). An individual familiar

with the cultures of different societies as well as one's own culture and comprehends the relationship between them can understand the value of other societies in addition to being able to understand their own culture (Mercin, 2006). Therefore, virtual museums, with their collections from different cultures, may prove to serve as an important tool in developing multicultural education and perspective based on the principle of cultural diversity (Ulvey & Ozkul, 2017).

As suggested by Hein, learning in the museums is a constructivist learning process. Individuals create their own personal meanings according to their own knowledge and experiences (Clutterbuck, 2008). Museums can enable people to acquire qualities associated with empathy, creativity, critical thinking, interest, and curiosity (Seidel & Hudson, 1999). The present study showed that the pre-service teachers, who opened up to different cultures and worlds with their virtual museum experiences, tended to question themselves from various perspectives. While it made some pre-service teachers realize their inadequacies in various aspects, it helped others to discover their own potential in terms of enjoying questioning, looking from a different perspective, critical thinking, and sensitivity to art. These results supported the conclusion by Dilmaç (2016) that museum visits encouraged students to broaden their horizons.

The COVID-19 pandemic urged the use of virtual means at a time when museum professionals were considering balancing physical and virtual museum activities. Thanks to the access opportunities provided by the museums, many visitors had the chance, at least in the virtual way, to see the collections that they had never seen before and perhaps would not be able to see in their lifetime (Kahn, 2020). The suggestion that museums went beyond their physical limits and facilitated the spread of culture thanks to technology (Corona, 2021) gained more meaning in this period. In the present study, the pre-services teachers were satisfied with virtual tour of the museums, which they thought they would not have the opportunity to pay a physical visit due to distance, budget, and lack of time. They appreciated the opportunities that technology provided them in extraordinary times when physical activities were limited. However, the pre-service teachers stated that virtual tours could never replace the physical ones and they wanted to make physical visits to the museums to closely see the collections they were curious about. This result was also reported in previous studies (Ata, 2010; Çalışkan et al, 2016; Kırksekiz et al., 2020; Turgut, 2015). In conclusion, it is possible to say that the desire of visitors to see museums up close would increase if digital connections provide awareness about the collections of real museums, as suggested by Clough (2013).

Recommendations

The important advantages of including virtual museums in the teaching process are obvious, given the difficulties of benefiting from physical tours to museums in the educational environment. In this case, it is important for teachers to have a certain competence in recognizing virtual museums, associating them with curriculum, and increasing student participation with various practices. Since the virtual environment is a different field and requires certain competencies, it is necessary to give a separate place to virtual museum practices in teacher training programs. Furthermore, further studies on examples of virtual museum practices in the classroom setting are required in order to provide the educators with relevant guidance. In addition, as Falk (2022) stated, museums need to find a way to reach more audiences, including socially and economically disadvantaged groups.

Statements Of Publication Ethics

Ethical permission (29.07.2020-640) was obtained from Ege University Scientific Research and Publication Ethics Committee for this research.

Conflict of Interest

There are no conflicts of interest in this study.

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