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DIGITALIZATION IN MUSEUMS AND THE IMPACT ON THE USE OF MEDIATION DEVICES ON CUSTOMER SATISFACTION AND LOYALTY WITH EXPERIENTIAL MARKETING APPROACH. A CASE STUDY IN MUSME – PADOVA

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Abstract

The emergence of digital technologies has fundamentally transformed the way organizations operate and therefore adjusting strategic business outlook and operational practises is inevitable in order to stay competitive in challanging environment. Businesses have been impacted by rapid changes culturally, socially and technologically, consequently, adaptation to the new technological era is a crucial fort he success of the organizations. Cultural institutions in this context, can not be separated from the other organizations, considering the rapid changes in exhibition concepts following the technological advancements. In recent years, digital technologies have altered the way cultural content is created, distributed and consumed, pushing institutions to reevaluate their traditional role, shifting away from merely preserving artifacts and focusing more on the audiences in order to create efficient engagement and unique experiences.

In recent years, museums have recocnized the significant influence of visitors on their strategic planning. As a result, museums have been adapting ‘’customer-centered’’ and ‘’marketing-oriented’’ approaches by dedicating their resources on improving customer experiences and delivering efficient services. Considering the whole process of a museum visit, the experiences that consumers have play a crucial role in their decision making process and influence their loyalty towards the museum and the level of spreading positive Word-of-mouth. In this context, experiential marketing specifically emphasizes the intangible and emotional aspects valued by consumers and therefore recognition of this phenomenon in museum management and strategic planning is very crucial for museums and their professionals.

In the new digital era, digital elements have become new tools for individuals for expressing their feelings, attitudes and actions since they are exposed to digital factors at mostly every stage of their Daily lives. For this reason digital elements affect individuals' way of thinking and decision making. Introduction of interactive digital devices in museums, therefore, enhances visitor engagement with the exhibition and induces positively the total museum experience. In this context, since the focus of experiential marketing on consumers is irrational and emotional, it makes possible for this study to focus on visitor experiences in five different strategic modules. On the basis of these considerations, this study aims to identify and analyse the importance of digitalization in museums and the use of interactive mediation devices interms of creating visitor satisfaction and loyalty. To do so, a theoretical model was applied to the case study in this thesis. The case study was conducted in MUSME – Padova, and the museum contains several interactive digital devices with various features. As the survey was conducted with 104 participants, the survey was composed of three distinct scales and a socio-demographic information section, moreover the brand experience scale was adapted and tailored to fit the context of museum. The scale that is used in this thesis encompasses four dimensions: sensory, affective, intellectual and behavioral. Moreover, the consumer satisfaction scale and loyalty scale were adapted to the study in order to highlight the impact of digitalization and the use of interactive digital devices in MUSME to evaluate the overall satisfaction and the loyalty levels of the visitors. Furthermore, the present work sets future research directions for exploring the relationships in various context and to consider other potential factors that could influence consumer satisfaction and loyalty.

Chapter – 1

1.0 INTRODUCTION

Technology has brought enormous changes to our daily life. We are exposed to it during shopping or booking a vacation, and transferring money to another account digitally. For this reason, we are in need of adapting ourselves to digitalization in many of the aspects of this new era. Moving from individual view to organizations, the need of change is inevitable to stay alive in a competitive business environment. As the whole world witnessed what the COVID-19 Pandemic brought to the way organizations work, it changed the dynamics of institutions and working conditions in most of the industries. Millions of people moved to work from home, and

it showed organizations the importance of being agile to the changes in technology. Cultural organizations are institutions that have the mission to engage in communicating, interpreting and spreading cultural, scientific and peripheral knowledge. Such organizations are involved in promoting activities to educate and inform people on common aspects of culture, heritage, history and science (OMC, 2014). On the other hand, postmodern circumstances in the modern era have been significantly triggered the transformation of the nature of museums. Originally, museums were primarily dedicated to safeguarding artifacts, gathering collections and conducting scholarly researches, however, in the 21st century, museums' essential emphasis has shifted towards prioritizing visitors and providing public services. In this context, the main functions of museums have been reshaped from collecting, documenting, preserving and researching towards a visitor-centered and marketing-oriented approach. Consequently, museums have been transformed into interactive institutions in which interaction between artifacts and visitors takes place through the exhibition collections (Schubert, 2004). Cultural heritage organizations now adopt new technologies to captivate and inspire visitors during exhibitions. These technologies have been commonly accepted as additional avenues to connect, involve, and engage visitors with objects, collections and exhibits. Such technologies are used as mediation devices in museums to facilitate connections between visitors and foster shared experiences (Othman, Petrie & Power, 2011). Furthermore, through human-computer interaction, the creation of more intuitive and user-friendly systems is possible which enhances visitors' experiences. This makes possible for the reimagining of the past and the stimulation of reality (Mohd Noor Shah & Ghazali, 2018). Moreover, recent studies show that introduction of engaging and immersive technological devices can boost museums' attractiveness for the younger generation who possibly perceives museums as an improper place to spend their leisure time. Considering the responsiveness of the younger population towards technology, utilizing media-rich exhibitions serves as a means to cultivate a sense of comfort in museums by targeting the future audience who will visit these institutions (Burmistrov, 2015). Within this context, the present study aims to examine the impacts of technological mediation devices on visitor satisfaction and loyalty with experiential marketing approach. The empirical study was conducted in ‘’MUSEO DI STORIA DELLA MEDICINA IN PADOVA (MUSME)’’ which is a very well-known museum in terms of medicine and its history. The museum places the human body at the center of a scientific and historical journey along with

ancient specimens, interactive showcases, videos and multimedia games, explaining the specimens and illustrating the themes of each room which unfolds along three floors. The introduction of virtual, human-size doors along the exhibition itinerary offers excellent guides who are the protagonists of Padova's past science, explaining the crucial themes of the room he/she is assigned, through an impressive dialogue. Furthermore, introduction of touch screens, kiosks, and virtual reality devices in each floor of the museum provides an interesting museum experience. Through the touch screen, visitors are allowed to play games which enhances their knowledge in terms of medicine and history. On the other hand, the introduction of biomedical equipments which are integrated to big screens enable visitors to measure their blood pressure and electrical activity of the heart. Thanks to the use of virtual reality applications in MUSME, visitors are enabled to see the human muscles, bones in every detail which is simulated on a big human-shaped, model and the information provided through speakers that are located all over the floor. Another interesting virtual reality application in the museum enables visitors to stand in front of a sensor which simulates visceral organs on visitors' body in real time. For this reason, the museum is very valuable in terms of analyzing the impacts of digitalization and the use of mediation devices on visitor satisfaction and loyalty which is the focus on this study. With respect to the aim of this study, the thesis includes 4 chapters: The first chapter is the ''Introduction'' which states briefly the aim, describing fundamental points and importance of the study in terms of technology, digitalization and museum experience. The second chapter highlights the conceptual framework and literature review tracing the recent studies on the relevant topic. The main focus in this chapter is Exhibition, Museum and Experience concepts toward their relation with technology and visitor. In this context, the role and importance of digitalization and the use of interactive devices in museums are defined and highlighted including detailed focus on different types of mediation devices. The third chapter consists of the definition of experiential marketing phenomenon and its application in museums. The main focus in this chapter to show the association and feasibility of experiential marketing approach in terms of museum experience design and visitor satisfaction and retention. Lastly, the fourth chapter provides the analysis, findings and discussion. The analysis consist of different types of breakdowns and each analysis highlight different types of methods. The research methodology used in this study was a survey method, utilizing a 7-point Likert scale to measure responses. The survey was conducted within

the museum environment and in the university campus for the students who have experienced the museum exhibition. Moreover, the study is based on an extensive examination of scholarly publications in the field of cultural heritage institutions, digital technologies, art, museology and experiential marketing.

Chapter – 2

Conceptual Framework and Literature Review

2.0 Exhibition in Museums and Technology

Traditional museums in the past centuries had a simpler way of operation which is collecting the information, then processing and transferring it to the audience. Now, these museums are replaced by the modern ones, still disseminating information but also acting as entities that provide memorial experiences by providing joy and excitement to the visitors. The modern museums have been transformed into entities that bring new adventures and experiences to the society and individuals' perception towards these cultural organizations also have been evolved to a point that museums create social spaces which allows people to run away from daily-life routines and struggles. Considering the technological advancements in today's global world, technology has become another escape point to the society. For this reason, the modern museums have been adapting themselves to the technological changes and improvements which allows them to reach out to bigger and different crowds both physically and virtually. Consequently, by the adaption to the digital technologies, the modern museums are now entities which are globally reachable through internet without any time or space limitations (Boyraz, 2013).

The use of emerging technologies in cultural spaces has become a bridge which stimulate the visitors and increase the engagement levels towards exhibitions. Such technologies allow museums to stimulate visitors in various content types, not only through audio commentary but also in other forms such as image, video and multimedia. Considering the use of mobile technologies in cultural spaces, museums now are entities which do not only convey information to the society, but these spaces turned out to be platforms that connect people with each other through shared experiences (Othman, Petrie and Power, 2011).

Adaption of multimedia devices enlarged the effectiveness of museums' venue in terms of interpretation of the exhibits and learning. Interactive use of the multimedia technologies induced

positively the amount of time visitors spend in museums while socializing with others (Lehn and Heath, 2005). Considering the society that is familiar with technologies in Daily-life, the use of such technologies in museums, which are multidimensional, inevitably induces visitor experience towards cognitive absorption. Consequently, creating engagement and experiences leads visitors to feel satisfaction and achievement at the point the experience is complete and the technological devices in museums are used as a bridge which pulls them into the interaction with the exhibition (Othman, Petrie and Power, 2011).

In this context, modern museums have been using technology to provide better exhibitions. Moreover, exhibition techniques have been evolving and becoming variable, aligning with technological improvements for creating better engagement between the visitors and collections. In this section, the main focus is to identify the concept and types of exhibitions.

2.1 Exhibition Concept

Exhibition and its function are the foundation elements for museums by its nature. Exposition of objects and performances is an activity that exists in human nature. Such objects are shown, revealed and suggested because they have a story to be told, they carry a meaning to be exposed (Demir, 2008). Furthermore, exhibitions were not suddenly created or established in a specific place just like artworks, they have been existed in a continuing process under historical conditions. For this reason, as the artworks have evolved by centuries, the evolution of exhibitions have been inevitable (Coşkun, 2017)

Figure 1: UM, Chinese National Academy of Arts, contemporary arts exhibition in Macao. (Source: University of Macao, UM)

The history of withholding and exhibiting valuable objects reaches out back to the starting point of humanity but, however the exhibition concept has been evolved radically starting from the late 1980s with the involvence of digital media in our lives. Modern exhibitions are no longer limited to be performed in confined spaces, instead they are presented anytime, anywhere freely to the society. The involvence of digital technologies in exhibitions make it possible to shape physically existing tangibles into virtual spaces. Therefore, curators of exhibitions are more free in terms of transmitting the subjectivity and thoughts that they possess into the way of exhibiting. Consequently, having such freedom turns out to affect the creativeness and uniqueness of museums (Coşkun, 2017).

The developments in exhibitions regarding the increased degree of freedom and expressions provided new and unique thoughts and opportunities to artists. An artwork is way more understandable, and it creates engagement when the way of exhibiting is right and effectively executed. At this point, it is very important for museums to use the right way of exhibition by taking into consideration the visitor type and collection classification. The exhibition classifications in general depend on the visitors or objects (Boyraz, 2013).

One of the most important duties of museums is to define and classify the objects that will be exhibited, since exposing these collections is a historical function of museums (Hein, 2004).

The contemporary museology grounds on process and experience notions, and therefore it prioritize establishing mutual relationship and recognizing differences (Hooper-Greenhill, 2000). Therefore, such exhibitions are more effective, community oriented and they convey aesthetic experiences. Moreover, the objects and collections are not considered as an end-result but an intermediary providing the museum experience to visitors. Recently, museums do not ignore collecting and preserving objects, but the goal is not to create an end but to create a process. At the end, museums provide a realistic experience by defining its limits (Hein, 2004).

2.1.1 Exhibition Types

Since museums carry a desire to alter attitude, adjust behaviour and increase the level of knowledge revealing conformity, their motivation on the exhibition design also increases. These goals of museums come from an institutional mission and are very crucial in terms of engaging with the society through the exposed collections, affirming experiences and public trust and enlightening people by increasing the knowledge availability. As the museum goals change or emerge with one another, the way an exhibition differs. In general, people tend to think that museum exhibitions organize objects and collections to be presented or represented as the primary means of communication. However, it is possible to see some exhibitions displaying a few or no objects at all. The initial medium of communication in a museum for the visitor is the exhibit environment and content, moreover, these environments change and vary depending on the exhibition types which means the purpose of an exhibition lies with the exhibit curator (Dean, 2002). The author David Dean presents the exhibit content scale (Figure 2)

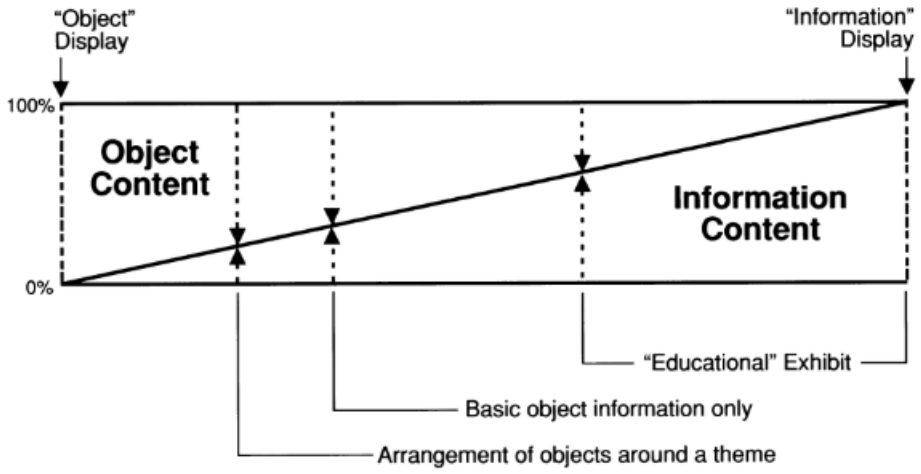

Figure 2: Exhibit Content Scale (Dean, 2002)

Dean 2002 explains the diagram as follows:

- The left top corner is the object display. There is no information involved to be interpreted. The object is positioned in the way to allow revealing itself, it's attractiveness.

- Moving to the right top corner there is information display which is extremely the opposite since the importance of the objects are minimal or do not exist. The purpose here is to transfer or communicate the messages and ideas which has determined by the exhibitor, through graphics or texts.

- Moreover, the diagonal line on the diagram represents where a visitor finds most exhibitions.

- Speaking of the object-oriented exhibitions it is possible to say that collections are more central and didactic information is limited. Since the main focus of the exhibition curator is to directly expose the object's aesthetics, the exhibitor avoids to convey a message for the objects relationships, values or meanings.

On the contrary, in concept-oriented exhibitions didactic materials such as text, pictures, graphic play a crucial role for transmitting a message since the essential focus of the exhibitor is to transfer of information.

Exhibition types have been classified into 3 categories by considering the way visitors perceive the objects and collections (Belcher, 1991) These types are:

- Emotive Exhibitions
- Didactic Exhibitions
- Exhibitions as Entertainment

2.1.1.1 Emotive Exhibitions

Emotive Exhibitions are established with the goal of affecting visitors' feelings. Such exhibitions are separated into two different forms.

- *Aesthetic Exhibitions*: The essential aim is to make visitors appreciate the beauty of the selected object. For this reason, usage of any visual or interpretive supportive tools and graphics is kept to be at a minimum level and therefore the selected object is prioritized by itself (Atasoy, 1999).

Figure 3: Installation view of the new Modern Art presentation on BCAM, Level 3, June 13, 2021–ongoing, photo © Fredrik Nilsen

- *Evocative Exhibitions*: These types of emotive exhibitions are also known as romantic exhibitions and the main focus is touching to emotions with a theoretical style of presentation. In evocative exhibitions participation of visitors takes place through pieces of collections that represent human being and the identification of visitors with these pieces that they represent is the essential goal (Belcher, 1991).

Figure 4: Evocative Surfaces. Beverly Barkat at Palazzo Grimani – Venezia.

2.1.1.2 Didactic Exhibitions

These types of exhibitions are intended to explain and transfer information, for this reason the essential goal is to educate. Various materials are used to interpret the characteristics of objects, and the education function of those objects are revealed through communication tools (Atasoy, 1999). Many researches show that every type of exhibitions are educational even though some of them are less and some are more depending on their type but however, in didactic exhibitions the educational function is undertaken by interpretive tools and is not left on the object itself (Belcher 1991).

Figure 5: Museo Di Storia Della Medicina – Padova.

2.1.1.3 Exhibitions as Entertainment

In this form of exhibition visitors are engaged with the museum content and collections which results to establish experiences through joy feeling. By the end of nineteenth century, a discussion took place between researchers and museum professionals about the fact that museums do not take attention of the society and people do not enjoy visiting them. For this reason it was accepted that museums do not only carry an educative mission, but they should also provide joyful, pleasing exhibitions emerging with technology. The museum content and collections are therefore created by the help of technology, computers and visual tools in order to provide a pleasing education to visitors (Belcher, 1991).

Figure 6: At "Beyond King Tut: The Immersive Experience," images of art from Tutankhamun's tomb are projected on screens that surround visitors. Photo: Clifford A. Sobel.

In this paper, the main focus is to understand the technological advancements in museums and its effects on visitors engagement and satisfaction. For this reason, the main focus is on the 'Visitor Oriented' Exhibitions.

As represented in the exhibition content scale (Figure 2) of David Dean in 2002, there are different focuses and intentions for the curators while they establish exhibitions. In exhibitions which are collection oriented, the information is transferred to visitors through the proffered objects. Moreover, the objects are prioritized since the exhibition primarily focuses on the object's attribution, and it's history. On the other hand, the focus of information oriented exhibition is vice versa. In this type of exhibitions, the main focus is to inform visitors and interpret the objects. One of the importances in such exhibitions is providing museum educations to the target crowd of visitors for catching their interest (Boyraz, 2013). The scope and method of such exhibitions in museums depend on various different parameters.

1- Visitor Oriented - Emotive - Didactic - Exhibitions as Entertainment
2- Collection Oriented
3- Information and Education Oriented

Figure 7: Classification of Exhibition Orientation (Dean, 2002)

2.2 CULTURAL HERITAGE INSTITUTIONS

Cultural heritage is defined as the legacy of tangible handiworks and intangible features that belong to people which are rooted from previous generations, preserved today and entrusted for the future generations' benefit (UNESCO). Cultural heritage is not restricted to collections of objects and monuments, it also includes the expressions that are rooted from our ancestors and represents a common wealth related to nature, universe and to all humankind by being a tremendous knowledge source.

Consequently, cultural organizations are institutions that have the mission to engage in communicating, interpreting and spreading cultural, scientific and peripheral knowledge. Such organizations are involved in promoting activities to educate and inform people on common aspects of culture, heritage, history and science. Example of these institutions are: museums, libraries, theatres, opera houses, historical and cultural centres which can not be separated from technology (OMC, 2014). For this reason, cultural institutions carry a crucial importance in connecting experiences, knowledge and skills within different societies and also to among generations which position them in a very important place for human development according to UNESCO.

Missions of cultural heritage organizations are highly associated with the sustainable development by maintaining development which full fills current needs and at the same time protecting the capacity of the next generations to full fill their own needs. Considering the components of sustainable development such as economic, environmental and social, cultural institutions maintain awareness towards their role in sustainable development. Furthermore, the term known as ‘’cultural sustainability’’ is another important pillar for cultural institutions since such organizations carry the mission of preserving and presenting tangible and intangible heritage, cultural production and also various knowledge and skills belonging to different communities, societies, social groups and nations (Stylianou-Lambert, Boukas & Christodoulou-Yerali, 2014).

The professionals who work in cultural organizations (historic sites, libraries, museums etc.) are significantly concerned with three crucial and interesting areas of study inside cultural heritage subject. These areas are defined as culture, techniques and institutions. The core purpose of museums, archives, libraries and other cultural organizations is to support in the progression of the mutual comprehension of the history and cultural legacy of the society they serve. For this reason, such institutions and their professionals bear a responsibility to recognize the demands of this mission and determine the most efficient means of fulfilling it. These missions include responsibilities to the heritage, audience and network simultaneously (Buckland, 2015).

According to the ISTAT Report 2016, Italy boasted a total of 4,976 museums and comparable

establishments, encompassing both public and private entities that were accessible to the public. These figures encompassed 4,158 museums, galleries or collections, 282 archaeological sites and parks and 536 monuments or architectural complexes in 2015. The country possesses a rich cultural heritage with an extensive presence of approximately 1.7 museums or similar institutions per 100 square kilometres and roughly one museum for every 12,000 residents. It is noteworthy that one out of every three municipalities in Italy has at least one museum within its boundaries. In 2015, there was a significant increase in the number of visitors to museums and other cultural organizations, reaching a record high of 11.6 millions admissions. This number can be further broken down into 59.2 million admissions for museums, 33.9 million admissions for monuments and lastly 11.9 million admissions for archaeological sites.

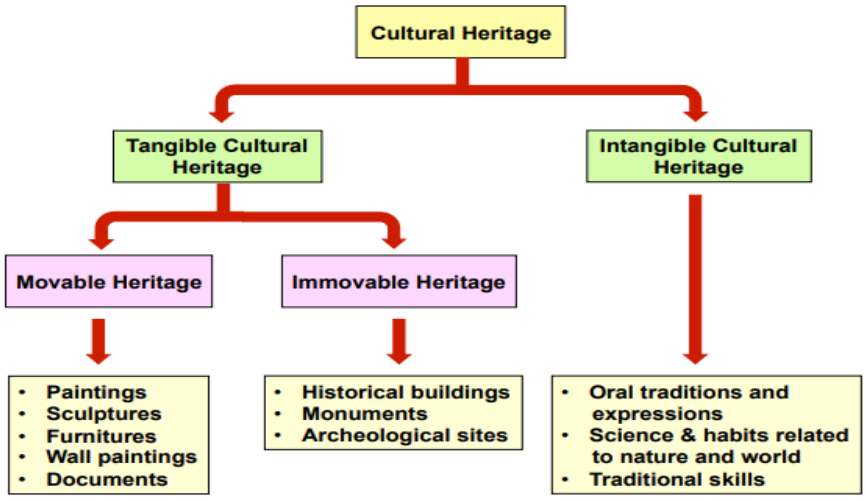

Figure 8: Cultural Heritage Classification from UNESCO (Kurniawan et al., 2011).

According to UNESCO, cultural heritage is divided into two categories: tangible and intangible cultural heritage. Tangible cultural heritage is separated into movable and immovable heritage. Movable heritage includes paintings, sculptures, furnitures, wall paintings and documents, on the other hand immovable heritage contains historical buildings, monuments and archeological sites. Lastly, intangible cultural heritage consists of oral traditions and expressions which include language, rituals, festivals, performing arts; science and habits are asscoiated to world and nature; and traditional skills (Kurniawan et al., 2011).

2.3 MUSEUM CONCEPT AND DEFINITON

To start with, it is required to focus on the clear definition of museums, since they are the object of this study. According to this subject, a regular definition of museum that is widely recognized recently is made by the International Council of Museums (ICOM). The ICOM is a non-governmental and international organization of museums and museum professionals. The council determines standards for museum activities both professional and ethical, and it gives suggestions for the issues on cultural heritage, therefore it creates public cultural awareness. In addition, the ICOM is dedicated to the research, conservation, communication and continuation of world's natural and cultural heritage through global networks and programmes. Since there is no other global organization in this field, the ICOM is an unquestionable instrument for museum activities by containing 44.686 professionals in over 138 countries within the organization.

Therefore, as provided in the Statutes of ICOM of 2022:

''A museum is a non-profit and permanent institution in the services of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage which is accessible by the public for educational and knowledge sharing purpose."

Being a permanent institution, museums are physical places that are created by human beings to offer various experiences in order to maintain a relationship in presence. As previously mentioned in the museum definition, this relationship includes research, interpretation, communication and exhibition of various collections. These collections are described as objects of a museum carrying aesthetic importance and maintaining potential value due to their reference material or appreciation of beauty or educational importance (Burcaw ,1997). For this reason, museums are institutions that preserve social communications by producing or composing ideas, meanings and interpretations through these sources and objects therefore they can be seen as heritage factories in which we witness regional, national, confessional, social etc. formation of identity and also function as establishment of complex contexts of meaning (Vajda, 2020). The author also states that since museums safeguard the past and discover, generate meanings through exhibitions, they carry various roles such as bringing cultures closer, building identities, teaching, inducing positively the tourism of certain places and therefore helping to boost the economy.

UNESCO classifies museums into 12 macro-categories by considering their characteristics of contents or collections. According to UNESCO's classification, the categories correspond to the following definitions:

- *Fine Arts Museums:* Contains works of art (architecture, sculpture, painting, drawing, engraving etc).
- *Decorative Arts Museums:* Contain artistic works of a decorative nature.
- *Contemporary Art Museums:* Contains works of art created in the 20th and 21st centuries. It includes film and photography.
- *Museum*-House: A museum located in the birthplace or residence of a famous person
- *Arhaeological Museums:* Contains objects with historical and/or artistic value from archaeological surveys, excavations and discoveries.
- *On*-Site Museums: These museums are created by turning certain historical places or locations into museums.
- *Historical Museums:* Museums and Collections that illustrate historical events or periods, personalities, military museums etc.
- *Natural Science Museums:* Containts objects related to biology, botany, geology, zoology, anthropology, physics, palaeontology, mineralogy, ecology etc.
- *Science and Technology Museums:* Contains objects that are representative of the evolution of history, science and technology.
- *Anthropology and Ethnography Museums:* Dedicated to history of man, cultural and geographical elements belonging to the recent past.
- *Specialized Museums:* Dedicated to a particular area of cultural heritage which is not covered in any other category
- *General Museums:* When a museum includes the characteristics of more than one of above-mentioned categories.

Tangible and intangible heritage that inspire the acknowledgement of specific values in humanity and therefore they are at the center of cultural heritage organizations. These assets contain aesthetic, historical, scientific and social values and determining the value of these

objects do not solely depend on the intrinsic quality but on the way they are disseminated and experienced by the society since it is always necessary to consider the differences between various cultures (Vecco, 2010). The cultural heritage is a common legacy of the humanity and therefore society and social value are crucial factors for cultural institutions. These concepts are fundamental for museums, their foundation and activities since the initial mission of museums are to servet o society and contribute to its development. In this regard, museums have the responsibility of providing access to cultural heritage and the knowledge attached in it to the community. Without the dissemination and public appreciation of the cultural heritage they preserve, museums would only fulfill a partial role. In addition to preserving cultural artifacts, museums also interpret them for the general public (ICOM, 2004).

In recent years, the dynamic between museums, archives and visitors has undergone a significant transformation. One-way communication has shifted to a multiple simultaneous dialogues and mediation shifted to be a collaboration with the emergence of new digital technologies and media enabling interactive connection between visitors, content and collections. The digital revolution has transformed every facet of social life and cultural heritage organizations as being social entities themselves (Jensen, 2013). For this reason, visitors' expactations have been evolved from demanding an educational visit to an interactive, involving activities by feeling part of the museum's history and heritage. In this way, co-creating value with the exhibition through hands-on approach provides visitors a unique experience. Consequently, cultural institutions face a transformation from being object-centered to visitor-centered entities enhancing public engagement (Zollo et al., 2022).

2.4 Museum Experience

Experience phenomenon has been studied by several different researchers in different fields, for this reason it has lots of different meanings and definitions. Since the researchers have focused on experience in different concepts, this notion was resulted in diversed components in consumer experience. According to Pine and Gilmore (1999) customer experience has 4 components, such as: educational, entertainment, esthetic and escapist. For Aho (2001): practice, transformation, emotional, informative, for Kim, Ritchie, McCormick (2012): refreshment, involvement, meaningfulness, hedonism, knowledge and novelty (Godovykh and Tasci, 2020).

Starting from the middle 1980s, experience phenomenon has been interpreted with customer behavior and consumers have been commonly accepted as individuals who prioritize feelings, imagination and fun rather than being solely a rational creature. Therefore, with the shift from a traditional approach to the experiential one, the value of goods and services have been evaluated from the degree of experience intensity and the feelings connected to it. Consequently, consumers purchase experiences that they can engage in consumption activities or events. In this context, museum experience, design, performance evaluation is highly connected to experiential marketing approach since the main focus is customer experience in a holistic way and visitors are both rational and emotional in nature and creating special links with them is possible affectively and emotionally (Liu & Chen, 2006).

In the recent years, visitors'/customers' have great influence to organizations' strategy planning consequently firms put effort in customer experiences to provide an efficient service. The experience received by consumers affect the decision-making process and customer retention and experiential marketing focuses on intangible, emotional values of the consumers (Gentile, Spiller and Nocci, 2007). Providing a service with experience centered focus differs from a traditional view by being holistic and enhancing the customer as emotional and a rational individual. It is not surprising that consumers tend to purchase services/products that fits to their life-styles and values and consequently organizations use technology and brand image in order to provide unique experiences to customers (Yıldız, 2012). A research shows that, 85% of senior managers expect something different in the service they receive rather than being just a classical one. The findings of the research states that the expected difference is actually a unique experience which can create competitive advantage for the companies (Shaw & Ivens, 2002). The table below represents the progression of economic value by providing experience in the products/services (Pine and Gilmore, 1999)

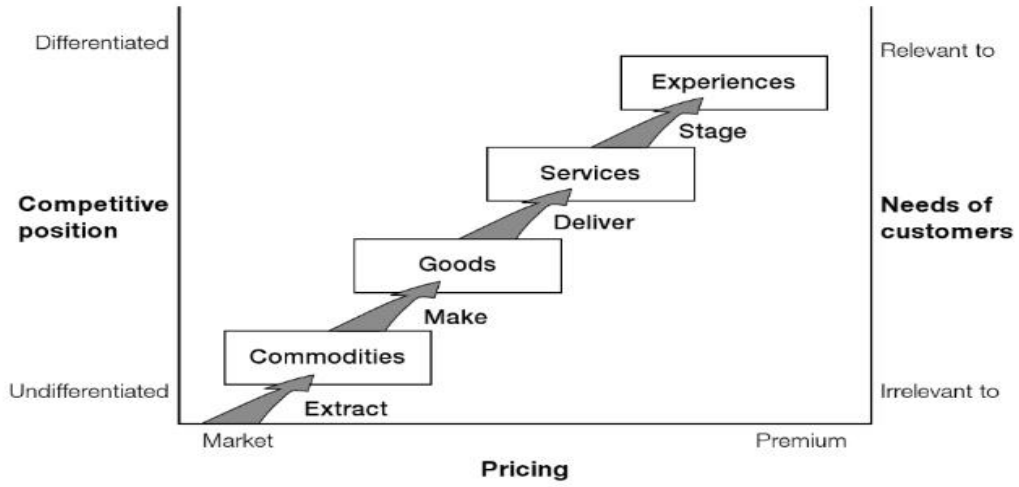

Figure 9: Progression of Economic Value (Pine and Gilmore, 1999).

An experience changes for each individual and is something inner. The authors (Boswijk,Thijssen and Peelen,2007; Çeltek, 2010) state the features of the experience from an individualistic point of view as follows:

- An individual that receives and experience feels it emotionally
- Experience contains interaction
- Experience contains joy
- Experiences have inner values and they can change over time
- Individuals tend to have more focus on the products/services that they have experienced and tend to feel higher tendency to control over these products/services
- An experience provides a clear purpose

2.5 Visitors' Experiene Dimensions in Museums

Visitors in the museums can be seen as interpreters, depending on their predispositions and personal values. Additionally, while establishing a relationship with the historical objects and cultural products of a museum, visitors create emotions and thoughts by their own consciousnesses towards the overall experience. The transformation of the museums from being object-centered to visitor-centered increased the ability of museums to understand and conceptualize the experiences of the customers, and it resulted to establish visitor-experience

models (Onur, 2014).

Fraser (2007) states that, visitors of museums can be categorized in four models. One of the models which is knows as ‘’Contextual Model of Learning'' points out that the learning process exists in a series of contexts and individual learning depends on the interaction between the person’s individual, sociocultural and environmental contexts (Falk and Dierking, 2000). Moreover, time as a context is also integrated in to the model and learning is conceptualized as never ending interaction (Kandemir and Uçar, 2015). Learning as an individual is explained as the visitors’ pre-owned information and expectations towards the museum, the sociocultural characteristics and the interaction of the visitor groups within the museum, the degree of relatedness to art of the person and lastly the post-visit evaluation of the exhibition. However, environmental learning depends on the objects, exhibition and the features of the products (Falk and Dierking, 2000; Onur, 2012; Riedler, 2016; Kirchberg and Tröndle, 2015)

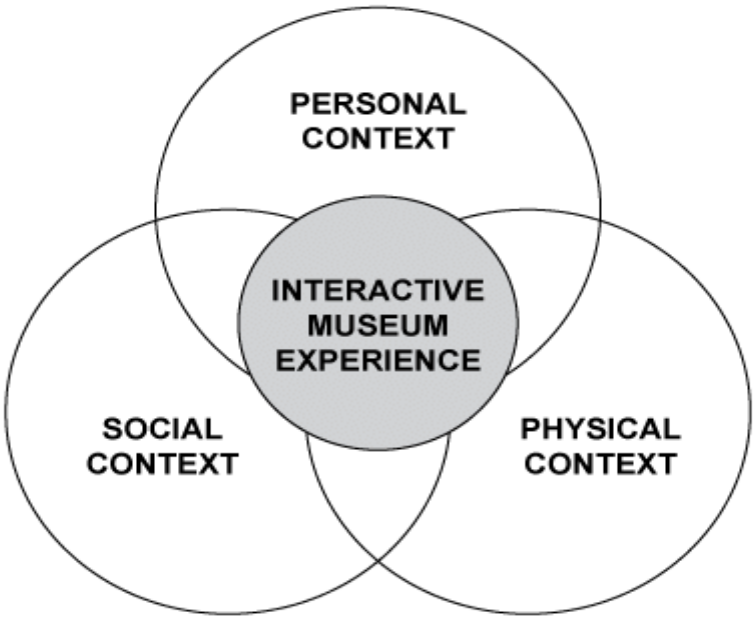

Figure 10: Interactive Museum Experience (Falk and Dierking, 2008)

Furthermore, Lois Silverman has established a model towards visitor experience and the author states that the communication established by the museums create aesthetic satisfaction to the visitors and there is a strong interaction between the visitors’ interaction to each other, the memory of the visitors and the connection that is created with the creations withing the museum

(Onur, 2014). Apart from this, Jem Fraser (2007) has represented the fourth model in which the notions of power-authority-knowledge create ‘’Identity’’, ‘’Power’’, ‘’Ritual’’, and ‘’Meaning’’. He explains these notions as:

- Identity: The visitor confirms and constructs his/her identity.
- Meaning: The visitor performs processing with the objects.
- Power: Negotiation of ownership of the meaning.
- Ritual: The museum as a scenery and scripted in space and time

The visitor experience dimensions for the museums can be classified into 4 areas which are: ‘’Entertainment’’, ‘’Educational’’, ‘’Aesthetic’’ and ‘’Escapist’’ (Pine and Gilmore, 1999). The most important common characteristic between these dimension is that they give joy to the observer/visitor.

This notion is explained as the excitement and all the emotions that give pleasure to the visitors during a touristic activity, consequently it comprises most of the goods and services (Demir and Ülker Demirel, 2019). After the determination of the activity for visitors to attend, they establish a pre-owned expectation, and therefore they have the demand to receive it during the activity. And this experience as known as hedonic consumption results customers to leave the destination with happiness and excitement. Cultural organizations, and specifically museums on our focus, must provide such experiences for visitor satisfaction and retention. For this reason, importantly, ‘’joy’’ notion is a phenomenon that should be studied and focused very well for the destinations and museums should enrich their offerings accordingly (Keskin, Sezen and Dağ, 2020).

Museums are organizations that provide complex services. Since the decision-making in core product determination (e.g a collection) and allocation of support services for the visitors are ensured by the museum itself. However, recent researches showed that the visitors’ satisfaction is highly affected by non-core services provided by the museums. Which shows the importance to establish a better management and customer engagement by also exclusively focusing on non-core services for the cultural organizations. For this reason, enriching the environment of the museums that provides joy to their visitors is crucial (Zanibellato, Rosin & Casarin, 2018).

2.5.1 Aesthetic Dimension

Touristic activities enable individuals to run away from monotone-daily-life loop and create adventure, curiosity and also provide unique experiences. In this sense, the aesthetic dimension of experience notion carries a crucial role for the tourists/visitors to decide on a destination to visit, evaluate and experience it (Cavlak & Cop, 2019).

Classical approaches mainly focus on evaluating the aesthetics of the object, however, visitors also receive the aesthetic process in the 'museum context'. The first person who came up with an empirical touch on aesthetic appreciation was known as Fechner (1876), who was a psychologist, established a model which is known as ''aesthetic from below''. The author states with his model that the observer perceives structural features and characteristics and these aesthetic qualities are classified as symmetry, proportion, complexity which induces the individual/observer to have a reaction and preference (Annechini et all., 2020).

The aesthetic dimension steps forward within the four dimension types because visitors take into account, in the decision-making process for their touristic activity, whether the destination will provide aesthetic joy or not. Aesthetic dimension can be versatile, since recreational activities differ from each other and the aesthetic judgement is also hard to be separated between objective and subjective point of view (Annechini et all., 2020; Pine and Gilmore, 1999).

2.5.2 Entertainment Dimension

Another dimension within the classification is known as entertainment, which is explained by Pine and Gilmore (1999) as the degree of an individual to enjoy his/her time by having fun during a touristic activity such as in museums. In the past times, museums had different primary roles such as protecting the artifacts as a big authority, being the intermediary between society and a culture of art but over the years, inevitably, museums have been transformed into organizations that put visitors at the center. For this reason, the relationship between museums and visitors was also evolved to be more engaging and interactive. The entertainment dimension steps forward at that point for museums to engage with the visitors by promoting the fun and interactive character of the organization. Which can be defined as the degree to which a museum provides a ''pleasant'' experiential state that visitors can enjoy, this experiential state contains physiological, affective and cognitive elements (Agostino & Arnaboldi, 2020).

2.5.3 Escaping Dimension

Escaping dimension is defined as the phenomenon in which individuals seek to run away from their daily-life-loop (Pine and Gilmore, 1999). The important characteristics of this dimension provide absorbing experiences and require active participation. The difference feature of this dimension is that it provides areas for adventure and spaces for simulation such as: theme parks with attractions, simulated destinations and adventure terrains. Since touristic activities provide enormous options for customers, museums are at the center to provide such opportunities to enable visitors to run away from everyday activities (Hosany & Witham, 2010).

2.5.4 Educational Dimension

Education is one of the most important things for the humankind which contains active participation of the person. In order to induce an individual towards increasing his/her knowledge and ability, an educational incident must efficiently connect the mind and/or body. Although education and events towards it are very crucial and serious, it does not mean that an educational experience can never be fun (Pine and Gilmore, 1999). The educational feature of museums is very convenient to society, for both adults and children, since it distinguishes the applied and fine art by educating the society's aesthetic perception (Costantino, 2004).

2.6 DIGITAL TRANSFORMATION IN MUSEUMS

2.6.1 Definition of Digitization

Digitization is a process in which a correlative material is transformed into a dual electronic configuration for the main purpose of preservation and usage in computers. The purpose of this is that an analog material can be read by people but transforming it into a binary form allows machines to read it digitally. These machines are used to digitize information contents and devices like scanners, cameras and other tools are some of the examples. Moreover, digitization is a very important technological process of information technology by improving access to information resources. It allows enormous numbers of users to reach the same document simultaneously at any time and very rapidly without an obstacle. Digitization process can be seen as a tool that transforms invisible document to a visible one by removing the distance problems to reach a hard copy of documents and materials (Khan & Aftab, 2015).

The digitization concept can be seen as the most crucial technological advancement, considering

that it has boosted and contributed to the latest developments in many industries. Since it makes possible to convert words, letters,pictures, sound recordings into signals that are enabled to be processed into electronic forms, the storage and protection of these materials become easier which was not possible before. Furthermore, digitalization keeps evolving by the technological improvements, and it should not be seen only as a telecommunication tool. The features bring amenities that allow users to process different types of materials together such as video, text and audio, consequently provides enormous numbers of multimedia sources and applications for computers (Ormanlı, 2012).

The Digitization concept has brought significant changes and improvements in the new media. The internet had a significant role in the conceptualization of digitization, since it is adapted to the society by being personalized rather than being massively standardized. In the beginning, the internet was considering as a tool to separate people from the mass culture that television collimates by engaging individuals together. Nevertheless, the internet was first used in military activities and in universities then later it was spread to commercial and political area with financial and advertising functions. These functions lead the internet to become a tool in which control and consumption are massed, instead of being than a ‘’cyber utopia'' (Başlar, 2013).

The concepts of ‘’digitization'' and ‘’digitalization'' have major impacts in the technological advancements, especially in the new media age, by enabling communication and information technologies to be used in the media domain. Digitization of the operations delivers very important efficiencies and also reduces mistakes, it makes possible to gather data and the use of them in different communication forms on the basis of information lead organizations to take movements that generate change in the operations. The concept of digitization can be considered as a domain of digitalization, the difference can be explained according to the fact that digitization is basically about systems of record, progressively, systems of engagement but on the other hand, digitalization is concerned on the use of digitized data and the processes which leads to digital transformation, and it can be seen as systems of insight and engagement (Gobble, 2018).

Another crucial benefit of digitalization is the ability to convert data in different format. Since digitalization is one of the technological components of the new media, it makes possible the

circulation of information through various communication channels, which leads to the creation of the convergent media. This means that all the inputs that delivered by the traditional communication tools to readers such as; texts, audios, pictures are able to be provided through a one single communication vehicle. Consequently, the creation of a net in which these inputs are packaged together happened to be sufficient. Whereby the digital language is universal and the ability of communication system to create network, the creation of global communication became technologically ready (Değirmencioğlu, 2016).

2.6.2 Digitization on Daily Life

Considering the degree of people's involvement with technology in the past, it was very restricted. People were not closely engaged with the technology nor knowledgeable about the advancements much. Nevertheless, in the current process the technological improvements on our daily lives are increasing day by day, and we are able to observe the developments. The adoption of ICT technologies by both private and public sectors explains the rapid digitalization into our everyday life, e-shopping, e-government applications, online money transfers are one of such examples (Mammadli and Klivak, 2020).

Thanks to the use of social, mobile, analytic and cloud computing which is called SMAC technologies, has triggered the increase and improvement of digitalization which then leads to innovation in many of the business industries and withing society. For this reason, the need of engagement into digitalized era has risen including organizations, policymakers, managers and even individuals since accessibility to digital world is easy and the use of digital products increase in our everyday life (Legner et all., 2017).

Moreover, in today's world, there is no sector that has not been affected by digital technologies. The involving of technology into economics field resulted creating a new economy which is called as the digital economy. This new form of economy has brought changes to business activities by being data-centered in production and service operations, the data on the level of information are processed, and the outputs are analyzed in various ways. The main advantages of this digital economy compared to past is to apply more effective solutions in terms of providing goods and services, offering better quality with the use of technology and enabling better storage and easier distribution of products. Since the digital economy is related to computer-base technology, it influenced the sectors to be compatible in online operations

(Narzieva, Boltyeva & Kudratov, 2021).

As digitalization increased the accessibility to products and services by one click online, through various communication channels and vehicles, it resulted for people to reach out to their needs as quick as possible. Imagine an individual, suddenly decided to make a weekend trip but having no personal car, now is freely able to rent a car by using a mobile device, reaching out to a car rental firm's website. Another examples can be booking a vacation online, buying a cinema or museum ticket, easier and faster, does not matter where you are as long as having an internet connection, without being forced to leave home. The ability of completing operations online brought lots of advantages in terms of information and communication. For instance, buying a printed book can be more expensive than buying the electronic form of it (Narzieva, Boltyeva and Kudratov, 2021).

According to the authors, we can list the advantages of digitalization and its creation of digital economy as:

- Rising up the labor efficiency in terms of production activities
- Increasing the competitiveness of organizations
- Enabling to reduce the cost associated with production
- Originating new job opportunities, consequently reducing poverty and social inequality
- Connecting the new professions together

After examing the above mentioned effects of digitalization, we can conclude that some of the areas have significant influence generated by the digitalization, such as:

- Sociocultural structure: One of the most discussed effects of the digitalization is about social relationships and sociocultural structure. The society is engaged with the cross-cultural, economic, political etc. practices which can be seen as digital elements of the digital world that delivered by ICT. In this context, there is an established digital environment including sociological imaginations, culture, contradictions, inequalities and individuals are exposed to these digital landscapes (Orton-Johnson and Prior, 2013). The technological improvements increase very quickly and these changes induce our daily life very rapidly, which results to change us and our relationships with the social and digital environment. Thanks to the digitalization, it enables the worldwide communication

through digital media, for instance by internet, consequently the way an individual thinks has been evolving accordingly, as global culture and society is influenced (Gere, 2009).

- Communication: The creation of new communication structures, platforms and domains by the digitalization process resulted in the digital era. By the introduction of new media infrastructures which are digitized systems, the way that people and organizations communicate has changed and most of the aspects of our daily life are connected to each other (Brennen and Kreiss, 2016). Moreover, digital elements such as networked multimedia systems connect texts, animations, graphics, moving pictures and audio and therefore the representation of information becomes accessible globally. For this reason, these digital elements are very effective way of communication for expressing the information (Sendov, 1997).

- Education: Another influence that digital technologies bring into our daily life is about education. These improvements made possible to create new knowledge infrastructure and educational elements have transformed into digital world. The term of knowledge infrastructure can be defined as a credible network of people and corporations which has the purpose of constituting and preserving resources for informational use to society. The new generation is very engaged with the digitalized world and consequently with the internet, they use this tool not only as an entertainment vehicle but also as a source for self-improvement and therefore the tools withing the digitalized world are used for educational purposes (Frolova et all., 2020).

- Health: Medicine is an industry which has been rapidly developing by the help of technological advancements. Users now are available to access the information by the advantages generated from the satellite technologies simultaneously. Patients therefore easily reach out to treatments and any other relative details, moreover mobile health (mHealth) technologies allow doctors to be more patient-centric by its nature in terms of design, consequently doctors provide more effective results to medicine. In addition, since information are gathered digitally and the visual systems of digital technologies provide astonishing opportunities to the health sector, customers result in engaging more in the process while the healthcare costs are decreased and outcomes are improved

(Bhavnani, Narula and Sengupta, 2016). Besides, new technology increases the tendency to which patients are more likely to better check their health situation and take necessary actions accordingly, therefore it makes it possible to receive a care with higher standards with less physical care appointments (Blix and Levay, 2018).

- Business World: The rapid developments in the technology inevitably influenced the business world and working life, especially in terms of work structure and labor qualification. Considering the basic business operations like production, sales, marketing and employment, these functions have been transformed into digital environments. Since the digitalization provides important advantages to companies, to give instances; increasing work quality and production, providing flexible working system to employees etc., it is not surprising that organizations move their business functions/operations to digital platforms. Consequently, organizations are able to change the form and content of their operations by the ability provided by digitalization (Şahin, Aydın & Güler, 2015).

As explained above, digitalization has brought changes in every aspect of our life and inevitably the society is engaged and oriented with these changes. Considering the involving of the new generation in the digital world since they have been grown up with computers and technological tools, the new generation is more skillful in terms of using new technologies and the digital world has effects in their identities (Jones et al., 2010). If we examine the effects of digitalization in our daily life, considering the elements listed above, communication phenomenon triggers the innovations in digitalized world. The active participation of the society in the new media shows us that communication within digital world connects people and society together in terms of exchange of information.

The Internet is considered as the starting point of the new media which brings new characteristics to the daily life of the society in terms of communication, education, entertainment and in many other aspects. It made possible to connect digital networks through digital devices (computers, mobile technologies) in different levels such as; personal, regional, national and worldwide and internet is the widest multimedia itself that uses digital data by its own special language. Since the internet provides a worldwide digital network, it is used by people in terms of information exchange and in many other purposes. Moreover, internet is a very important and

useful multimedia by its ability to provide access from all over the world which are connected, so that any individual has access to almost endless source of information network, unlimitedly (Ergüney, 2017).

As digitalization provides easiness into the society's daily life to better fulfill their needs, there are reasons that enable digitalization to bring these effects in terms of individuals' way of perception. Considering the rapidly changing world, the society's habits also evolve and individuals establish new expectations inevitably. At this point, digital life responds to these expectations and provides improved life conditions through digital elements in terms of services. The digital world is created by human beings, and therefore it keeps evolving and enlarging as the curiosity of individuals increases. This curiosity induces positively to create and innovate the digital technologies or new digital elements which results to the creation of new work branches, new areas to fill with employees, therefore the society is now more engaged with technology, and they have high tendency to follow the developments in the digital world to utilize what is beneficial for them (Bal, 2010).

In today's word, from the most simple daily tasks up to the complex ones, people are assisted by digital technologies such as data pooling and Artificial Intelligence. These technologies are used in agriculture and health industries, for instance, to track and define issues respectively. They are also used to perform daily, more simple tasks, for example as navigation in traffic or paying a bill (UN). Furthermore, the new media as the internet and social media platforms change the way people shop, socialize and entertain themselves. The innovation of smart machines, such as vacuum cleaners and humanoid robots, are in different parts of the society's life (Musik and Bogner, 2019). Considering these, digital world is highly engaged in people's daily lives and is very important since technology has become an unavoidable part of human life.

When we focus on the digital society, one of the most important elements which influences people is the virtuality concept. In a virtual world, there is a creation of a sense of reality, something that existed in the real life of individuals which is reflected into digital spaces and therefore creates a relationship between the person and technology. The relationship is very similar comparing with video games and is very direct. Consequently, integration of the digital world directly occurs into human life, which is virtual in its nature (Carr and England, 1995). Since human beings are defined as social creatures, it is not surprising that they encounter social

interactions through work life, education and social life in which they highly engage with the digital world's effects. More importantly, the room for people to express themselves in today's world is created through digital elements in terms of communication (Sayar, 2016).

Additionally, as discussed in the previous pages, in terms of new media and digital elements that digitalization brought to our daily life, the new communication process has been radically changed. Implementation of the virtual reality has created virtual experiences with disables the need of physical dimension creation in terms of communication. Instead, in today's new era, the communication is based on inscription and visual components on digital platforms. The important matter here is that individuals highly tend to prefer digital tools and platforms in which they are more active by expressing themselves and socializing (Turhan, 2017).

It is possible to state that the new digital world has become a new tool for individuals to express themselves, actively sharing their feelings, attitudes and actions. It is not surprising, since as mentioned earlier, individuals are exposed to digital elements at almost every stage of their daily lives. Therefore, because of this intensive exposure to the digital world people strongly have become dependent on these digital components and at the same time, to the digitalization, which has become a daily routine of our life. For this reason, it is possible to imagine the digital elements as a fact that affect individuals' way of thinking and decision-making.

2.6.3 Digitalization Need of Museums

In the previous decades, the need of business transformation has been widely discussed and studied in various areas. As a result, it is commonly accepted that the drivers of this transformation occurs by internal and external factors. Speaking of external factors, organizations face social transitions which affect the way of communication and information access. Institutions can be considered as entities which are legal persons, for this reason any change in the environment leads organizations to adapt themselves to the changes to avoid societal pressures. Internally, such transformations may occur from the management bodies when the organization structure and style do not respond to the needs and goals of the external environment. In conclusion, one of the biggest and important organizational transformation drivers is the technological impacts on individuals and businesses in common (Bearman and Geber, 2008).

Technological progress in the last decades has been impacting every area of life to use the

technology as a necessity. Consequently, it is inevitable to people for taking advantage of digital facts in their every day life, which has become a routine. The use of technology and its elements is unavoidable, and the way it has been used depends on the areas that it is used. It can function as an assistant on one hand but on the other hand, most importantly, now technology is at the center of decision-making mechanisms. In this context, museums and other cultural heritage organizations are valuable examples of this decision mechanism (Uslu and Uysal, 2017).

Museums are an organization that is concerned with preserving cultural resources of societies as well as collecting and researching. The recent results of researches show that museum visits are not only cultural activities limited to be informative, but the consumer behavior on these visits reveals the intention of experience seeking. Therefore, museums have been increasingly competing with other cultural organizations and educational institutions such as; amusement parks, theaters, malls etc. This situation, inevitably creates a necessity for museums to establish a customer-oriented approach or improve the existing one (Dirsehan and Yalçın, 2011)

Considering the fact that museums are key organizations for the society as a whole, museum professionals have been increasingly relying on ICT to support communication as a mediation between visitors and museums, moreover ICT plays a crucial role to develop innovative practices for museum management (Ke´fi and Pallud, 2011). Representation and exhibition terms are core notions of any cultural organization, most importantly for museums. Digitalization, in this regard, appears as a crucial tool to provide better representation to museums' audience. Emerging such digital technologies into museology creates huge possibilities in terms of information collecting, source collecting and maintaining, public mediation and enabling the information available to be accessed for everyone, anytime (Lescop, 2021).

In conclusion, museums need to use digital elements or improve the existing technology they possess according to the current visitor needs. This action will make possible to provide a better developed concretion between real and virtual contents, which results the contents to be coactive and harmonious with the museum environment and with the needs of audience. Human nature tend to feel satisfied when an experience provides symbolized, emotionally involving and multisensory feelings. For this reason, providing an exhibition through different types of medias

by co-operating them with one another leads visitors to a very inclusive, engaging museum experience and therefore establishes customer satisfaction (Pietroni, 2019).

2.6.4 Digital Transformation of Museums

After having described the digitalization and its characteristics by focusing on the different aspects, this section seeks to explore the digital transformation process in museums.

In the era of technology and innovation, companies in both profit and non-profit industries have become obliged to adapt their business models in accordance to the digital world, since digitalization is no longer an opportunity but is a mandatory phenomenon to create value in today's world. In the last decades, the use of digital technologies has changed the way of operations, structures and business processes of the organizations (Raimo et al., 2021). After the digital innovations, customers started to use their mobile phones and other tools that make possible the participation in the digital marketplaces where they can make purchases interactively. Consequently, this situation has driven organizations to focus on the new trends in digitalization, what customers value and what to change in the value proposition through restructured business models by the digital transformations in order to catch the competitive advantage and to differentiate the organization from the others (Berman, 2012).

Since the beginning of the 21st century, digital transformation influenced the way organizations do sales and marketing. In addition, digitalization of these operations and the communication channels became a mandatory change rather than being an opportunity. For this reason, it had a crucial importance to engage with consumers. Since the digitalization changed the company's offerings by replacing the physical products and services, this transformation initiated firms to take strategic business decisions and tactical movements through insights generated by data collection to create value. Consequently, establishing digital business models had an essential role for differentiation of the organizations' offerings and value propositions to create competitive advantage (Raimo et al., 2021). To support the discussion, the IBM's vice president (Berman, 2012) states that in order to be successful in digital transformation, firms must focus together on two activities which are complementary: remodeling value propositions for the customers and using digital technologies in the operations for a wider and greater customer interaction and collaboration.

Improvements in technology have boosted the productivity in different type of industries by the

beginning of the Industrial Revolution. In the 19th century the mechanization and the use of steam engine, in the 20th century the use of electricity in manufacturing lead to mass production turned the industry into an automated one by 1970s (Rüßmann et al., 2015) These technological advances are followed by the third industrial revolution which is called as ‘’The Digital Revolution'' with the invention of computers which provided autonomous order to industry, backed up by data, smart systems and machine learning (Marr, 2018). The Digital Revolution in the 1970s, established a structure of technology that enabled innovations in communications and the distribution of information which was revolutionary. Consequently, it was followed by the fourth revolution, a new digital industrial technology that is known as Industry 4.0 in which Information and Communication Technologies (ICT) were introduced. Satellite and cellular networks and broadcasts are broad examples of ICT, moreover, after all these technological advances, IT systems are connected and interacted with one another on internet-based-protocols. Industry 4.0 Revolution, consequently induced positively the productivity in manufacturing, shifted economies and inevitably changed the way that companies compete to each other since their operations needed to be restructured by the innovations that brought by 4.0 such as: data analysis through machines, faster and more efficient way of producing good quality products with lower costs (Rüßmann et al., 2015)

As informatics affected different types of industries, cultural heritage institutions significantly faced with the same reality, the need of change in their value chain turned out to be a must (Bearman and Geber, 2008).This transformation has driven cultural organizations to change the way of communication with people and the interaction between the individuals and organization and its contents (European Commission, 2016). According to the authors (Bearman and Geber, 2008), the improvements in new technologies can have an important role to support museums especially, to meet social expectations. To give some instances:

- Reaching the young generation, new immigrants and disabled online users gets easier.
- Enlarging the online tourism by rich forms of broadband and bodily tourism by wireless broadband.
- Providing a universal online space for potential visitors and buyers of museum services through museum programs and creating a tremendous source of valuable information.

- Enabling individuals from all over the world to involve into the museum's content without the necessity to come physically into the museum's space

2.6.5 Digitalization Methods and Museum Management

In recent years museums have been organizing enormous events with a very high level of technology and innovations invested to provide breathtaking exhibitions and scenes. Besides, museum professionals concentrate on technological elements and resources to be invested which enables museum accessibility to reach a greater audience. Such effective investments help museums to find new sponsors which gives some museums the possibility to adjust their organizational structure by recruiting new staff with high variety of background such as; marketing, history, business development or management. Consequently, adapting technological and institutional innovations boost the innovativeness level by inducing positively the accessibility of the museums and originality of the collections and exhibits (Camarero, Garrido & Vicente, 2011).

Moreover, as every organization has an administration body, decisions over the investments, exhibition, collections and digitalization methods depend on the museum professionals by nature. Such decision therefore connected to each other. The objects, collections, whole content of an exhibition consequently affect the determination of the digitalization methods to be conducted. For this reason, the decision over the digitalization process is taken mutually with museums, artists and the exhibition curators. However, there is possibility to use a standardized method to the work as well (Silier, 2010).

Considering the active participation of museum professionals, exhibitor curators and artist in the exhibition design, the relationship between the technology choice and the museum and exhibition type should be examined with examples. Since each exhibition is prepared and conducted depending on the museum type, the museum technologies consequently have to align with the type of the exhibition. For instance, when we examine the exhibitions prepared for the science museums, such exhibitions prefer museums technologies that posses common interests, audience and targets. These types of exhibitions aim to convey scientific data, and therefore they require the use of special simulators and kiosks. Simulators make possible visitors to understand the scientific concepts easier and better while providing an engaging experience (Boyraz, 2013).

ICT adoption in cultural heritage organizations facilitates a powerful source of development and innovation. Using these types of technologies affects the management of collections, depending on the museum's organizational structure. It is possible to say that application of such methods and technologies into the organization are conducted in relation with the mission statement of the museum. Naturally, it is very similar with any other types of businesses, museums also prefer to choose the way of adoption in terms of technologies and digitalization methods that are close to their practices. When a new technology is established, cultural organizations tend to wait for another similar institution to adopt the new technological practices to receive good feedback, consequently the more a digitalization method or innovation is adopted by museums, the lower the associated risk is. At this point, museum professionals, managers and administrative require being following the current trends, technologies, tools which can be useful to adapt to meet the needs of their audience (Gombault et al., 2018).

Since digitalization provides many advantages to museums, it also requires to be used efficiently by the museum professionals to catch the trends, reach audience and impress them online and convince the targets for visiting the museum. The power of social media is undeniable. Twitter is associated with texts, but it is able to provide a good source of profiles who follow cultural heritage pages to get information from the art galleries, museums, theaters etc. Another powerful social media source is Instagram, which supports visitor experience in museums. Considering the huge power that museum management has by exposing images, videos, live streams and special events through the museum's Instagram page. Museum management structure is now different since the means of communication has changed radically and an efficient communication strategy requires a good planning based on different social media combinations (Pedrosa et al., 2022).

2.7 Digital Mediation Devices and Interactive Applications in Museums

2.7.1 Touchscreens

As information technologies have been developing rapidly, the creation and implementation of new technological models and equipments are now involved in our lives. Such technologies make possible the transfer of information through screens to the users and the environment, and therefore they create interaction. Creation of such interaction occurs through assessing and

intervening the information provided by information technologies and finally transforming it to a visual form. This visual transformation makes the presentation of information more efficient, easier and engaging to the users. Consequently, by the use of such devices, it is possible to reach out to the information by one click (Deniz, 2008).

Figure 11: Interactive Towers and Multi-touch screen station at the Native American Voices, Penn Museum. Credit Picture: (Mason, 2015).

Considering the fact that museums are cultural centers by containing, maintaining and providing information, improving the involvement and attendance of visitors to museum exhibitions are affected by presenting the information. For this reason, information technologies are crucial to catch visitor attention and inducing their engagement. Recent researches show that visitors feel more engaged in museum exhibitions which offer interactive applications, and therefore the amount of time a person spends in a museum increases. Creating such engaging and interactive exhibits boosts the level of learning, understanding and remembering of the exhibition content. As a result, museums put effort on introducing such mediation devices in their exhibitions to attract especially younger people who are more respondent to technological advancements (Burmistrov, 2015).

Touch screens are very rich sources by providing images, texts, maps, sounds and using these devices do not require deep thinking or extra work space. Introduction of such devices provide various types of options to visitors in terms of engagement through combined audio and video

exhibitions. Another advantage of touch screens is to support high traffic usage while being long-lasting. In light of providing a customized, personal experience, touch screens are one of the tools to be used. To give an instance, the Cleveland Museum of Art has introduced a huge touch screen which has a capacity to display around 3000 images of collections with detailed information, in this sense visitors are free to create a personalized museum tour by themselves (Ting et al., 2013).

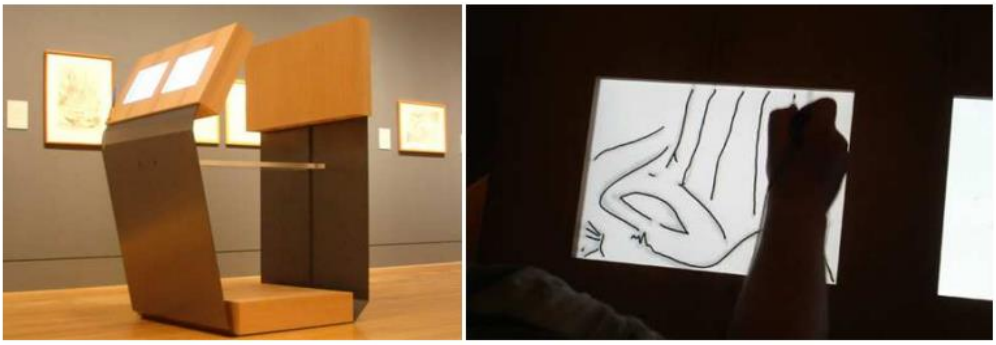

Figure 12: AllOfUs's kiosk for the William Blake and John Flaxman exhibition at the Tate Britain Museum. Interactive drawing tool at the Tate Britain Museum.

Figure 13: The Grove Museum – Tallahassee, FL.

Moreover, by carrying interactivity in its nature, touch screens are able to offer the possibility of comparing artworks of other museums. Besides, technological advancements in the recent years made possible the creation of devices that sense gestures and eye movements as a mean of command, then providing the necessary information accordingly. As a result, these improvements

do not only provide engagement and information to visitors but also offer entertainment (Erbay, 2016).

Figure 14: Understanding abstract painting styles in Gallery One's painting lens. Photo courtesy of Local Projects.

Additionally, the interaction between a person and a touch screen occurs in three ways. The first way is when a single user interacts with one device, then the second option consists of the interaction of multiple users with the same device at the same time. Lastly, multiple users interact with a single device asynchronously (Ting et al., 2013). In museums which lack such interactive devices and applications, visitors more likely to struggle to engage with the exhibition. Since the ability to convey information with supporting elements such as; sound, image and videos, the visitors perceive information easier and in a more pleasant way. On the other hand, without these interactive mediation devices, learning process becomes harder and less efficient to visitors (Akçaova, 2016).

2.7.2 Simulations

A simulation is defined as a way of representing a real scenario over time. Simulations can be considered as systems containing relationships between the objects or models of processes. For this reason, the simulation technology provides relevant information of today's actions and importantly possible actions of the future. One of the reasons that simulations have been used

in museums is the impossibility of moving back in time to see what happened, consequently simulations make it possible to represent the reality of the past at the current time (Banks and Carson, 1984).

Moreover, simulations can be considered as a way of representing the living history. The other time is in the past but by the involvement of simulations in museums now visitors have the opportunity to see, understand and feel how other people once did back then (Anderson, 1982). Simulations which have been adapted to museums are technological systems in which sound and scenes are used. These simulated information reveal the past time and represent its reality (Akçaova, 2016).

Figure 15: MORI Building, Digital Art Museum, Tokyo 2018. TeamLAB Borderless World.

Simulations are not limited to represent a physical environment, they have been highly used in museums to exhibit imaginary environments as well. Following the technological improvements in multimedia technology, different types of concepts and tools have been introduced. There are different types of digital technologies enabling 3D interactive environment in which multiple users interact in the same space. The characteristics of simulations are similar to Artificial Intelligence and Virtual Reality applications (Pietroni, 2019).

Considering the importance of interaction design, devices simulating a physical object or environment, even also an imaginary view, are crucial to create interest and establish a link

between the person and the exhibition. One of the good examples of the simulation usage in exhibitions is The New York hall of Sciences providing a unique multi-user experience which is called Connected Worlds in 2015. The exhibit comprises huge projection screens and floor space which are connected to each other, contributing to a continuous simulation of an ecosystem. The simulated ecosystem has four habitats (the Grasslands, Jungle, Desert and Wetlands) and it consists of three sources of water (Reservoir, Waterfall and Mountain Valley) (Mallavarapu et al., 2019).

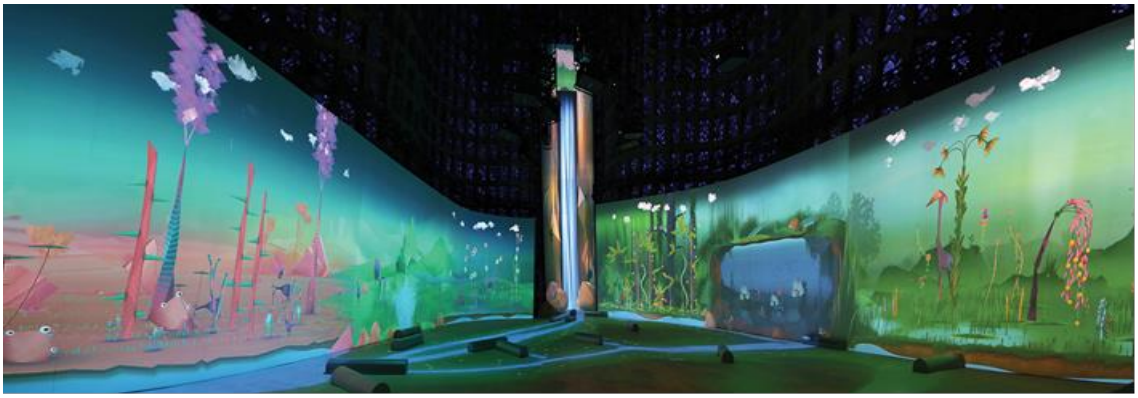

Figure 16: View of the Global View touchscreen, as installed in front of the entrance to the Connected Worlds exhibit (Mallavarapu et al., 2019).

The simulation mechanism of the exhibit is very well planned in terms of creating interaction with the environment and visitors. The gallery floor is used to project the water flow, furthermore the planting seeds in biomes are projected on the walls. The interaction design of the exhibit allows visitors to plant seeds by standing in front of the screens, holding their hand up until the type of the seed they want to pick appears on the screen. Whether the seed will sprout or not depends on the sufficient water level and the presence of soil in the habitat. Moreover, the process is designed in the way representing the ecosystem in real life, for instance different plants attract different animals in terms of food or shelter source. The different water types are used by visitors to supply in to the biomes when needed by dragging large ‘’logs’’ around the floors in the exhibition area. The whole process is designed in detail by considering the ecosystem and real world water cycle. The simulation of this exhibition is considered as a good source of learning in an exhibition (Mallavarapu et al., 2019).

2.7.3 Hologram Technology

Holography is defined as a modern imaging technique facilitating the light and sound co-creation by recording and storing them at the pre-determined time and space. This technique was initially used in scientific researches and applications but starting from 1960s it was commonly accepted by many artists that holography is a suitable technique to be used in the field of art in different countries. When it comes to define the hologram technology, it is possible to see different point of views since the form of visuals are created through light-sensitive emulation with support of lasers and these visuals can have a 2D or 3D form. Apart from the usage of laser, X and UV rays are very important resource components in this technology (Işık, 2013).

Following the improvements in multimedia technologies, the holographic techniques have been affected positively to be better known in terms of possible usage to increase innovativeness of exhibitions in museums. It is possible to separate the usage of holograms in museums following these two trends known as; display holography and technical holography. These two applications are distinct and therefore cover different needs depending on museums. Display holography commonly used for 3D images of exhibitions in terms of consequent demonstration and optical replication. Another suitable usage of this application is to represent an object which is lost or damaged so that the hologram makes possible for synthesis viewing. On the other hand, technical holography is concerned with the detection of very small and hidden defects and related quality control for the restoration, demonstration of the objects as well as storage and preservation, classification and identification of objects in museums (Markov, 2011).

The primary difference between holographic projection technology and other emerging media is that hologram technology has a better ability to achieve an optimal blend of virtual and real elements by being able to present supernatural image states, movements and reorganized sequences of speech and behavior. In this context, various limitations and boundaries of reality are avoided and creation of innovative and unrestricted expressions are enabled. Adoption of such technologies make possible to interact with the audience through three-dimensional illusion, which avoids habitual thought processes of real world to a significant extent and creates an immersive experience. Introduction of holographic projection technology in cultural heritage organizations enables to optimize exhibition types and effects within a limited space. Moreover, its characteristics include high display effectiveness, fast communication and relatively low marketing costs (Yu & Yao, 2023).

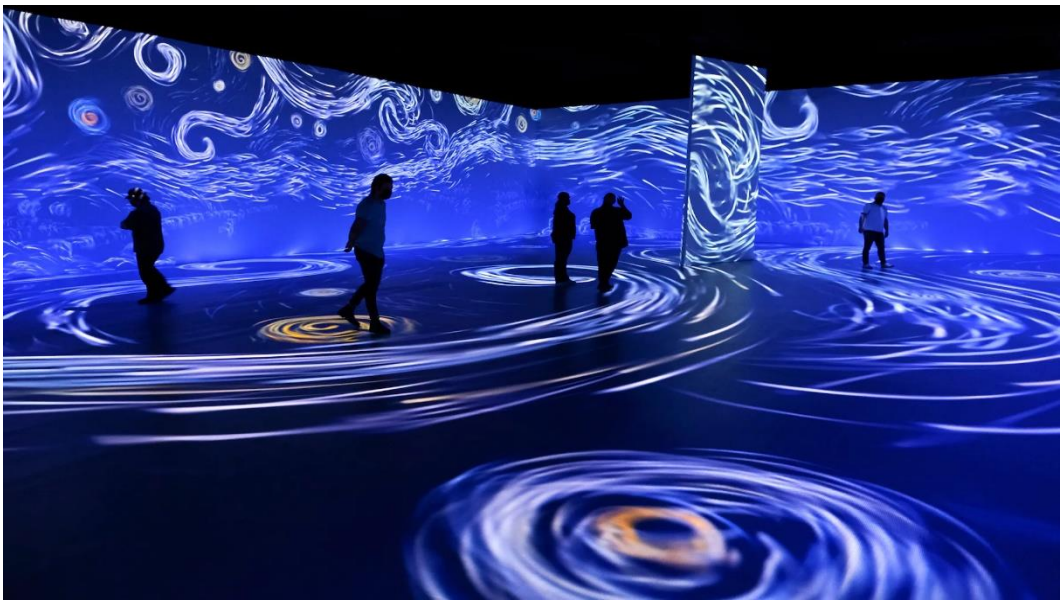

Figure 17: ‘’Beyond Van Gogh’’ Exhibition – Austin, TX. 2021.

Figure 18: *Holographic Art Grant* project, *CELESTIAL BALLERINA* (2016)

2.7.4 Kiosks

In the past years, effectivity of museum visits were used to depend on the knowledge of individuals and availability of a guide who supports visitors to explore the exhibition. However, in current times, this guidance has been shift from a person to multimedia devices by emerging digital technologies in the museums. This resulted visitor experience to be more flexible with the introduction of kiosks and touch screen devices in cultural heritage institutions. Introducing such applications especially has a crucial role to attract the younger generation to visit museums, considering their link to the new technologies and interests (Ting et al., 2013).

Figure 19: Interactive Kiosks in Museo De La Naturezza Y El Hombre – Spain.

Museum visitors feel more satisfied and engaged with exhibitions when there are opportunities for interaction, and therefore they create unique experiences. In this context, kiosks are considered as a secondary means of exhibition exploration. According to a few researches and observations of visitor behavior, the usage of interactive media depends on the type of museums, demographics and so on, consequently it is highly self-selected. When we focus on the visitor behavior towards kiosk usage in terms of museum types, it is possible to say that interactivity need increases in science museums for instance, consequently visitors seek to actively use kiosk or other interactive devices (Burmistrov, 2015).

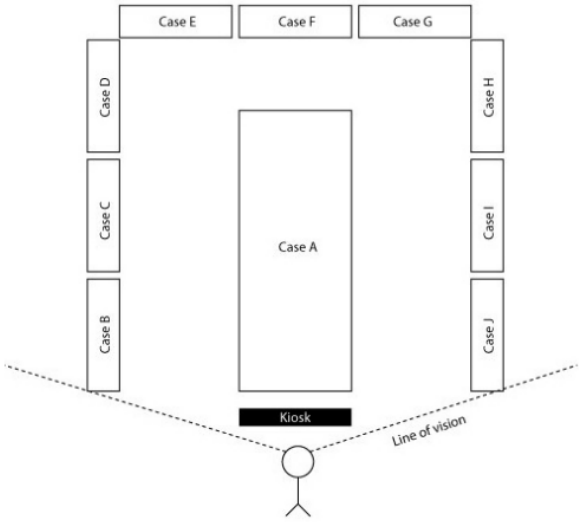

Figure 20: Example of kiosk placement within a particular museum exhibition (Burmistrov, 2015).

Burmistrov (2015) classifies different types of kiosk use in museums:

- Museum directories and conceptual pre-organizers: In this use, the purpose is to position kiosks on the key locations near the museum or inside to transfer introductions and information about museum concepts and facilities. Kiosk applications also display the museum plan to familiarize visitors about the exhibition.

- Electronic Labeling System for Museum Exhibitions: The main goal is to allow exhibition curators to convey minimal information in museum cases, generally near the specimens. Usually, kiosk screens contain digital images and graphics displaying the scheme of the specimens, showing the areas that are touch-sensitive. This allows visitors to get both textual and visual information about an object in active areas, and it allows visitors to personalize their visit depending on interest through perceived information from the kiosk applications.

- Background Information about the museum exhibition content and their general context: This approach basically has a focus on the artist whose works are in the exhibition, the kiosks convey information about artistic movement or introduce characteristics of the culture that the exhibition is affected by.

- Reference Point: Kiosks are positioned on spaces where visitors have the possibility to get in depth information to satisfy their curiosity after the exhibition. The main goal is to avoid intervening the visit flow so that when the visit is done the kiosks become a reference point to give longer interactions about the objects, content, displays and collections.
- Resource of Post-Visit: Lastly, kiosks are used to provide QR codes or web links which directs visitors to a mobile app or to a website so that individuals can continue their museum experience online after leaving the exhibition.

2.7.5 Virtual Reality

Virtual Reality is defined as an artificial and computer generated environment making it possible for individuals to interact in a real environment through five sensory channels: hearing, touch, sight, taste and smell. However, the achievement of current technological progress is limited to the visual channel considering the fact that sight is generally the most developed sense of a human being, and secondly the hearing channel. The simulated environment has three-dimensional worlds which are experienced through immersive devices, allowing users to interact with the visual world as if they were physically present (Pietroni, 2019).

Figure 21: Detail of the digital rendering for the model of Mont-Saint-Michel. Microsoft – Iconem – Musée des Plans-Reliefs

The use of VR in museums dates back to the early 1990s, but it was not until the early 2000s that it gained mainstream popularity. VR technology offers museums the opportunity to recreate

lost or inaccessible artifacts, provide immersive experiences, and facilitate educational programs. Museums such as the British Museum, the Smithsonian American Art Museum, and the Louvre Museum have integrated VR technology into their exhibits (Choi, Lee, & Chung, 2018).

Figure 22: Project Zeitreise | Städel Museum in 19th century | Photo: Städel Museum. Virtual Reality Headset.

In the last decades, VR has been increasingly adopted in cultural heritage organizations in order to provide visitors an interactive, engaging and immersive experience in an authentic way which would not be possible through traditional museum exhibitions. Involving of VR technologies makes possible individuals to better explore cultural, historical or scientific artifacts through virtual environments (Lee et al., 2019). The benefits of using VR in museums include enhanced educational experiences, and the recreation of inaccessible or lost artifacts. The use of VR can also facilitate virtual tours, which can increase access to museums for people who cannot visit in person. However, the drawbacks include the high cost of VR technology, the potential for VR experiences to distract from the physical artifacts, and the risk of over-reliance on technology (Choi, Lee, & Chung, 2018).

Current researches on VR and its adoption into museums shows an effective influence over attracting new audiences and improving the experience towards exhibitions. However, museum professionals have a broader point of view towards technology when it comes to adopt digital applications to museums. The researches emphasize that museum professionals importantly focus on the role of technologies to provide new interpretation ways, improving personal involvement of the visitors in interpretation process. This can result visitors to have various new ways to understand the art, objects, collections and concepts and to better and deeper explore their own ideas over these concepts. For this reason, it is commonly accepted by museum

professionals that the incorporation of VR in museums is not to replace a gallery experience, but to allow visitors a new and unique way to enhance his/her overall museum experience. Consequently, when an experience becomes meaningfully by the involving of such devices, then incorporation of technologies can contribute to attract new audiences (Shehade & Lambert, 2020).

Figure 23: Rendering of the rebuilt *USS Nightingale* in Mel Chin's *Unmoore*. Image courtesy of Mel Chin.

2.7.6 Augmented Reality

Augmented Reality (AR) is defined as a technology imposing digital information (virtual content) on the real-world environment, consequently creating an interactive, engaging and immersive experience. Accessing to the stimulated environment by computer generated images is possible through the use of tablets and smartphone devices by the visitors at an appointed point. The use of AR has been gaining popularity in various fields, including education, entertainment, gaming and tourism. In the museum sector, personalized digital mediation and personalized learning are two universal trends in the past years, and AR applications has the potential to offer solutions to these trends. Researches show that 69% of visitors brought a mobile device to their last museum visit, and people tend to take pictures during their visit. For this reason, museums have been increasingly experimenting and updating their AR apps because these applications on mobile phones are very easy to use by the visitors (Ding, 2017).

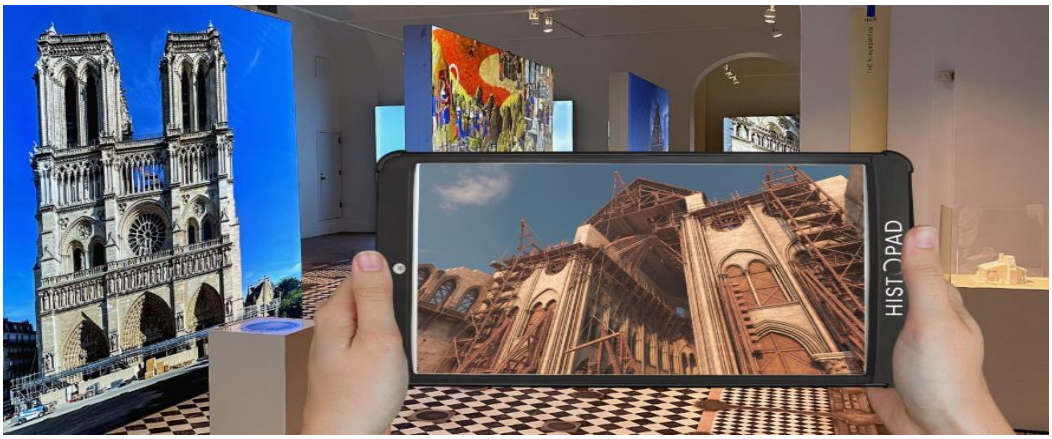

Figure 24: National Building Museum – Washington, D.C. Interactive Exhibition about Notre-Dame de Paris, 2019.

Use of AR in cultural heritage organizations enriches the exhibitions by combining virtual spaces and physical scenes, thus offers a multidimensional experience through involving of rich virtual elements known as ‘’digital augmentations''.
This superimposing effect is generated by digital augmentation and in general occurs through mobile devices containing a camera view or smart glasses with see-through display. Introduction of these mobile devices in museums make possible to capture and recognize a real-world object, then overlaps this object’s digital representation with extra text, video audio or virtual elements. Another feature of AR is to project digital virtual objects directly in the physical space, for instance a volcano displayed in a classroom and students experience it in a way that is not possible without AR technology. For this reason, AR applications are very crucial for experiential museum learning since they give easy access to unobservable phenomena or digital information on exhibits (Zhou, Chen & Wang, 2022).

Figure 25: Virtual Restoration of a Vase.

Moreover, The use of AR in museums has been growing in recent years, with many museums implementing AR to enhance the visitor experience. Introduction of AR as a mediator tool boosts the visitor learning/understanding of a large amount of information towards the collections when there is no need for museums to provide additional information. In this context, the design of interactive AR tools in museums are basically focused on the visitor satisfaction and continuing intention, information quality and richness. When the design supports a high interaction quality, then the information quality also increases as perceived playfulness of AR applications affects positively the continuing intention of visitors (Jiang et al., 2022).

Following a research demonstrating the AR applications in museums considering their functions are various. In China, The Old Summer Palace have introduced a software that uses AR technology for reconstructing the ruins of the Palace digitally, including visual effects to effectively restore the scene previously. On the other hand, Museo Diocesano of Milan in Italy uses Ar as a digital guide, explaining the collections and artworks, providing 3D models of exhibitions to visitors while offering an online communication area for tourists. Another interesting use of AR in museums is provided in Cairo, by the Egyptian Museum. The application of AR was introduced as ‘’Horus'' game, the visitors engage with Ancient Egypt, its historical and cultural background through a shooting game. In conclusion, the application design of AR in museums has become a very rich tool in terms of customer engagement and with different approaches of the implementation of such technologies in different countries, museum exhibitions are now unique and interesting for the visitors (Wand and Zhu, 2022).

Figure 26: Harvard Semitic Museum, Cambridge – England. Sphinx and its Dream Stela in 3D Augmented Reality

2.7.7 Mixed Reality

Introduction of VR (virtual reality), AR (augmented reality) and MR (mixed reality) in recent years have radically impacted the exhibitions in cultural heritage institutions. These applications have been widely used in museums with a guiding role to enhance engagement and interaction between visitors, consequently they play a crucial role to increase the attendance and visitor attention of cultural heritage institutions. Considering the nature of museums by being multidimensional environments, introduction of such technologies with holographic content improved guidance in museums through integrated navigation and information. Moreover, the above-mentioned holographic technologies enhanced accessibility and immersion of the museum content in a personalized way to visitors' desires (Hammady et al., 2021).

Figure 27: Revealing flashlight, Keys to Rome exhibition at Trajan Markets in 2015. The color is directly projected on the physical & original artifacts through a virtual flashlight controlled by the user's finger, enabled by the Leap Motion sensor (Hammady et al., 2021).

Mixed Reality (MR) is defined as an experience where both the virtual and physical environments require co-presence and are closely aligned. By this alignment, the existence of a constant correspondence of points of view between the physical site and its virtual reconstruction is ensured. MR applications enable users to switch in between the virtual and real worlds, the two spaces are coincident and comparable by their nature, and therefore they are punctual and systematic at the same time. Furthermore, the real and virtual spaces communicate to each other ''physically'' and conceptually, which lead them to become dependent components of the present time and space (Pietroni, 2019).

(Hammady et al., 2021) introduces a Mixed Reality Spectrum with regards to Physical and Virtual Environments and allocation of Holographic and Immersive devices as shown below (Figure 28)

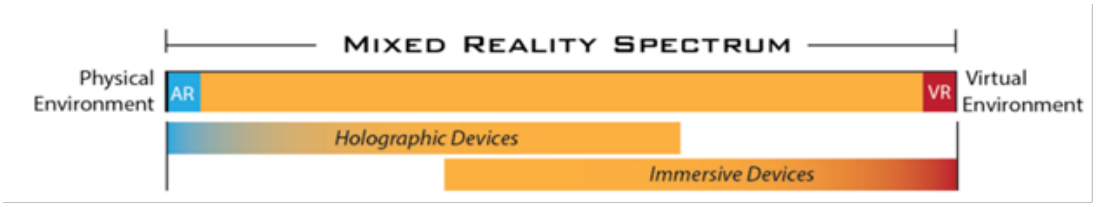

Figure 28: Mixed Reality Spectrum (Hammady et al., 2021).

The devices used in Mixed Reality mediates visitors to establish an immersive experience. Visitors can use a tablet or an immersive helmet depending on the context of use, but at the end the essential concept does not vary. Three different modes are introduced in terms of the use of MR, regarding the technology used. The first two modes are highly associated with the use of displays and the possibility of allowing to be seen through, these modes are defined as ''See-through AR Display'' or ''Monitor-based AR Display''. Lastly, the third mode is defined as ''Projector-based AR'' (Pietroni, 2019). The author defines these modes as following:

- *See-through AR Display*: In this system the surrounding of physical world is directly sighted through a semi-transparent display.

- *Monitor-based AR Display*: However, in this system the real world surrounding is not actually sighted like in see-through AR Display systems but the reality is displayed on a monitor thanks to the video campture camera that is used on the device.
- *Projector-based AR:* Involvance of projection mapping in this mode enables to project virtual contents such as images, lights or videos overlapping on physical/real surfaces. There is no need of using viewer devices since the virtual contents are superimposed and projected directly on the real world.

2.7.8 Video Projection Mapping

Video projection mapping is another multimedia technology utilized in museums, generating digital representations of cultural heritage artifacts. Video projectors are used to project digital images onto real-time surfaces. The projection brings a realistic sense of depth by utilizing three-dimensional shapes, and consequently it makes possible for the projected image to appear dynamically on the target surface. Adoption of this method of digital exhibition in museums allow multiple users simultaneously view and interact with the three-dimensional virtual objects without the need of any other device. For this reason, in recent years this approach is commonly accepted by museum professionals and researches as an ideal method to be utilized where numerous visitors frequently and simultaneously observe objects and collections (Lee et al., 2020).

Furthermore, although projection mapping is still in its early stages of development, it promises various improvements and applications to shape and expand its role in aesthetics, technology and mediation. In cultural heritage institutions, adoption of such approach makes possible to transform artifacts, heritage or to update memory traces while efficiently highlighting the content of exhibition that enhances the medium. Consequently, projection mapping plays a role as an educational tool that boosts memorization and self-observation, thus it offers interactive and engaging gaming experiences in museums by broadening visitor perceptions by audiovisual techniques (Paquin, 2020).

Figure 29: National Museum of Qatar Art Films. Image credit: Anthony Pagano.

The features of video mapping technology are suitable in different types of industries. It has been used in advertisements, art shows, festivals, concerts, stage shows to enhance visitor experience by increasing interactivity level of the individuals (Özgül, 2018). However, when it comes to the practical implementation of such technologies, there are a few challenges associated to it. Achieving high-quality projection outcomes depends on various variables, for instance a controlled lighting environment is necessary. When it comes to the implementation of video mapping technology in museums, it is crucial to take into consideration the hall settings with ambient lighting, since the color range of the projected image is restrained due to the influence of external light. Furthermore, the objects and collections have to be arranged in the way to avoid blocking the projection area, there must be no obstructions between the projection surfaces and projectors. Lastly, it is important to increase the freedom of movement of the physical projection surface to generate more dynamic, efficient and dramatic digital content (Lee et al., 2020).

2.8 The Role of Mediation Devices and Interactive Applications in Visitor Experience

‘’The Customer Experience'' is established from various interactions between a customer and a product, a company, evoking a response. This experience various from a person to another one, so is strictly personal and furthermore indicates the individual’s involvement at different levels. Each customer experience is unique and multidimensional by carrying sensory, cognitive and emotional experience components, for this reason customer’s expectations and the

perceived stimuli from the interaction with the company plays a crucial role to evaluate the established experience (Gentile, Spiller & Noci, 2007.)

To continue with, the experience dimensions are various and carry different attributes, these dimensions are defined as: entertainment, learning, escapism, fellowship and novelty which are very relevant with cultural heritage organizations and museum exhibitions. Some of these dimensions has relatively higher influence over another in terms of cultural heritage organizations in order to create a better experience for the visitors (Kim et all., 2018). Considering museums, the experience arises from an interaction between the visitor and the content exhibited in the exhibition space and therefore the value of the experience depend on the efficiency of that interaction. In recent years, museums have been increasingly use digital mediation devices to create unique interactions with the content and therefore focusing on the role of mediation is now very crucial for museums to recognize the experience (Roederer, Revat & Pallud, 2020).

Customer experiences have four stages: anticipation, purchase, the actual experience and recollection, and all of these stages apply to museum visit as well. The impact of mediation devices in museums is associated with the last two stages – the actual experience and memory. Mediation devices have become strong and useful tools utilized in museums to enhance, whether individually or collectively the visitors and museum's audience (Jarrier & Bourgeon-Renault, 2012). Following the rapid changes in technologies, exhibition concepts have been influenced and now museums increasingly focus on improving interactivity level of their exhibitions to create sense of wonder towards visitors. In this way, museums like ''The Metropolitan Museum of Art'', ''Louvre Museum'' and ''British Museum'' maintain their brand awareness and increase the visitor numbers of museums' audience. Use of digital interactive devices also help museums to catch the young generation's attention through gaming applications in exhibitions and therefore promoting and advertising of the cultural heritage organization becomes way more efficient and easier (Dodge, 2016).

Furthermore, informational and technological dimensions in museums affects positively the cognitive participation of visitors with the exhibition and therefore boosts up learning and understanding of individuals (Pallud, 2017). Since art experiences contain education dimension, visitors acquire or improve new skills and knowledge, multimedia mediation devices remove the

barriers when the target audience do not have similar knowledge compared to the exhibition curator or when the exhibited object/collection is too complex, not existing anymore or some parts of an object is missing (Petkus Jr, 2004).

Multimedia devices adopted in museums such as ‘’Augmented Reality'' plays a crucial role on visitor’s aesthetic appreciation. The term known as ‘’mental imagery'' plays a significantly important role in visitors’ art perception and appreciation. Mental imaginary is associated with AR and VR applications and described as a nonverbal, quasi-perceptual representation of sensory information kept in memory referring as ‘’visualizing'' or ‘’seeing in the mind’s eye. Engaging in mental imagery of visitors is way more effective through AR&VR devices by creating mental images and providing aesthetic experiences. Moreover, these devices make possible to combine sensory input, emotional perception and semantic knowledge and then integrate information and sensations of visitors. In this sense, it helps visitors to reinterpret their feelings and understanding and creates engagement with the artworks and the artist’s point of view and perspective (He, Wu & Li, 2018).

Online platforms, websites, social media applications and information technologies are used by museums to promote their events and exhibitions for attracting visitors to actual museum sites. These tools have been used as an online marketing channel by the museums and involving of AR and VR applications in museum exhibitions started to be mediation devices, increasing re-visit intention of visitors. Immersive and sensory experiences are created by the support of these multimedia technologies and therefore creating rich exhibitions through such technologies enables visitors to make more informed decisions towards their museum visits (Lee et al, 2020).

2.8.1 The interactive Application Dimensions

The emergence of the information age has brought new ways in terms of communication and cognition. The utilization of digital information for cultural and artistic dissemination in cultural organizations and the integration of technologies and concepts such as the Internet, ICT, digital media, interactive mediation tools and design have expanded museum's role. Now, cultural organizations increasingly recognize the importance of facilitating online communication, safeguarding of intangible cultural heritage and dissemination thanks to the availability of well-developed multimedia technologies. This results museums to offer personalized search availability through virtual displays and tools with instant information reaching opportunity, and

therefore temporal dimensions of exhibitions are reshaped in order to interact more efficiently with the audience. In this way, it is possible to state that museums have transformed their approach from exclusively being object-centered to prioritizing visitor experience (Wu et al., 2022).

As technology evolves, its dimensions also change and vary when it comes to the adoption in an organization. Many recent studies have widely accepted the Technology Acceptance Model (TAM) as a theoretical ground to explain customer behavior and experiences towards technological tools and applications. Technologies are adopted in the organizations by considering the terms called ‘’perceived usefulness'' and ‘’ease of use'' and the TAM provides a way to describe this process and design (Huang et al., 2023). In this sense, perceived usefulness and ease of use are important components in Technology Acceptance Model since they are used to predicting whether the technology adoption is promising or not. The recent studies explored a relationship between customer intention and behavior and therefore customer intention plays an important role as a factor affecting the technology use (Alshurideh et al., 2023).

Furthermore, to understand the relationship between behavioral intention and technology usage, defining and focusing on the key predictors of technology adoption is crucial:

- *Perceived Usefulness*: One of the technology adoption predictor is known as perceived usefulness, and it refers to the degree to which a user thinks the performance of a job will be improved by using a specific system. In this regard, perceived usefulness also has a significant effect on the user attitude towards the system and therefore visitors tend to use technologies or systems when they think the usage will be effective and helpful (Herrero & Martín, 2012). It is important to consider that an individual’s attitudes are affected by external factors when it comes to use a technology, and users tend to feel more comfortable when a particular system is easy to be used and fits to the task (Davis, 1989).
- *Perceived Ease of Use*: On the other hand, perceived ease of use refers to the degree of difficulty when visitors use a specific system or technology, web and interfaces, internet functions, multimedia technologies etc. The recent studies show that there is a positive but

indirect effect of perceived ease of use on an individual's attitudes towards adopting new technologies. One of the best examples can be the e-learning environment, if students perceive positive effects of e-learning system in terms of its functionality then they tend to believe that e-learning is helpful and operative (Wu et al., 2022). Consequently, both perceived usefulness and perceived ease of use have positive effects towards multimedia technologies and mediation devices in museums like VR, AR, MR etc. (Huang et al., 2023).

2.8.2 Ambiance in Museums

Exhibitions establish different ambiances in museums and exhibition design in terms of creating a unique ambiance has been a very important topic for museum professionals. The ambiance affects visitors' behaviors and feelings, for this reason it is important to create an interesting environment both visual and audial. Exhibitions that are conducted with the multimedia technologies and interactive mediation devices provide entertaining experiences to visitors and increase satisfaction. Furthermore, touch screens have been increasingly used in museums to improve the engagement with exhibition objects and collections, which support to create a better ambiance to visitors. Immersive mediation devices such as: kiosks, video projection mapping, VR, AR, MR, hologram technology have been adopted in museums to satisfy rapidly changing needs of the society and therefore these devices offer a unique atmosphere in exhibitions especially for the younger generation. Considering contemporary societies, museums are commonly accepted as a sign of development and culture and with this regard ambiance has a crucial role in museums in terms of first impression. Consequently, the ambiance design is very important to create visitor retention and post-visit behavior (Dıvrak, 2020).

Furthermore, ambiance in museums is not only limited to visual background conditions, but it also includes different elements such as temperature, scent, lighting and music which influence customers' behavior, mood and purchase intention. Therefore, design of museum ambiance is very crucial to create positive emotions and perceptions in visitors' minds. The environment conditions have been a great focus for museum professionals and exhibition curators to provide better museum experiences to visitors. In this context, museum ambiance plays a crucial role as a mediator to attract visitors and to create incentive for the re-visit intention (Hyun et al., 2018). Thus, ambiance factors and the staff interaction have significant effect on visitor satisfaction,

which leads visitors to spread out positive Word-of-mouth, increasing the museum visits and post-visit intention (Zanibellato, Rosin & Casarin, 2018).

To continue with, the recent researches point out the importance of exhibition design as a key factor in terms of impacting visitors' whole museum experience. The atmosphere created in the museum environment influences visitor engagement with the exhibition and therefore when it comes to design the exhibition, harmony of the colors and lighting is crucial (Alparslan & Alparslan, 2019). Furthermore, the efficiency of exhibitions highly depends on the lighting ambiance considering that aesthetics of the museum route since the general image of an exhibition is often determined by the museum surroundings (floors, ceilings, working levels etc.). In this context, distribution of lighting has a crucial impact on the atmosphere and efficiency of an exhibition (Saraoui et al., 2019). In recent years, a case study was conducted in terms of visitor complaining at Istanbul Topkapı Palace and the author (Alrawadieh, 2021) points out that within the complaining of visitors there were also problems about the ambiance including lightning. Consequently, ambiance is accepted as one of the key factors to provide a good museum experience.

Chapter – 3

Experiential Marketing

3.0 Experiential Marketing

In the last years, organizations have been evolving their strategies on customer-based approach. In the globalized world, organizations and customers now have enormous communication channels to get in touch with, consequently increasing attention to the customer creates a crucial importance on analyzing and interpreting customer experiences that are derived from the contact points between the organizations and consumers. According to this perspective, the main purpose is to create repeatedly purchasing behavior concept of customer experience and improve the performance of the organization (Gentile, Spiller & Noci, 2007). For this reason, the necessity of analyzing and interpreting customer behavior arises, and it brings a need to focus on consumer experience phenomenon.

In its short history, the researches on consumer behavior has been thrived from the rational point of view (classical decision-making theory) to another route, which is on the contrary concerning

and focusing on irrational buying needs (Howard and Sheth, 1969). Holbrook and Hirschman (1982) introduced consumer experience in a full context by demonstrating the emotional and irrational perspective of the customer behavior. They point out that when individuals happen to have an experience, they in fact create an interaction with the particular experience and react to it. Thus, an experience is unique for every individual (Abrahams, 1986), fort his reason individuals can not perceive the same experience since it depends on each person's state of mind (Pine and Gilmore, 1998).

Holbrook and Hirschman (1982) clarified the experiential approach by underlying the prominence of initially process thinking and adding pleasure fact to the center of it. Process thinking includes hedonic response and therefore the consumption pursues enjoyment, fun, amusement, fantasy, sensory stimulation and arousal. The authors placed crucial importance on analyzing and highlighting the subjective notions of customer behavior.

Beginning from the second half of the 90s, the researches made by Pine and Gilmore in 1998 the experience concept became more relevant. Pine and Gilmore (1998) claimed about the changes in the economy and represented ‘’Welcome to the Experience Economy''. They point out the transition and progression of economic value by distinguishing it into 4 stages that are: Commodities, Goods, Services and Experiences. According to the authors, experience is a different economic offer that is separated from the services, as services are also different from products, consequently experiences exist as the fourth stage in the progression of economic value even though economists have recently defined experiences within services.

Moreover, Schmitt (1999) focused on analyzing the customers' state of mind, and he provided a strategic framework for experiential marketing which demonstrates five different types of experiential modules. The author states that the above-mentioned experiential modules can create sensory, emotional, cognitive, behavioral and relational value to the consumers. According to Schmitt (1999), traditional marketing takes customers as rational individual who are the decision-makers and who solely tend to focus more on the benefits gained from the features and functions of the products and services. However, experiential marketing is fundamentally focuses on customer experiences in a holistic way from the beginning of the process and even after the consumption is completed. The methods and tools of experiential marketing depend on the objective, these can be either qualitative, quantitative or visual since the tools and methods are

eclectic. For this reason, according to Schmitt (1999), experiential marketing differs from the traditional approach in 4 more ways: categorization of the product and competition, characteristics of the customers and the focus on the content.

Starting from the 2000s, experiential marketing approach was studied by more researchers, by their focus on this phenomenon, more researches conducted respectively. Chou (2009) focused on the notion of customer satisfaction and realized by his research that customer satisfaction induces positively the repurchase behavior, and it boosts the degree for the consumer to promote the brand, product or service to the other people. According to the author, experience is built on the relationship between the customer and the brand, for this reason he initiated experiential marketing with relationship marketing, and he described this type of marketing as experience-based relationship marketing. The author points out that the experiential marketing approach is an opportunity for the companies to differentiate themselves and respectively their offers, which can result to create competitive advantage and to bypass recent challenges since customers are now more knowledgeable and experienced.

On the other hand, Prahald and Ramaswamy (2004) focused on the topic by a different point of view, and they focused mainly on value creation term for analyzing and explaining the experience trend. The authors initially described the company-centered traditional market concept where the value-creation process takes place. While, according to the authors, the sources of value creation process are derived from the connection and interaction between the organizations and customers. Consequently, companies and customers jointly create the customer experience value through active participation (Prahalad and Ramaswamy, 2004).

According to Poulsson and Kale (2004), experience is created as an outcome through the interaction between the subject that is the customer and object which is the experience provider like an organization. The authors further state that marketing experience should contain:

- *Personal Relevance:* For the consumers, personal relevance has a huge impact in terms of involvement with the experience, and it induces the degree of engagement.
- *Novelty:* This principle stresses the importance of providing something unique and new to the customer.

- *Surprise:* When an experience brings something that is not expected by the consumer it is perceived as surprising, that can result to attract consumers if they witness a positively unexpected outcome.
- *Learning:* This principle enriches experience when learning environment is taken under the control of the consumers. Then it turns out to be a tool for engagement towards the experience by providing motivation, cues, response fortification in its nature.
- *Engagement:* The business environment is globalized, highly competitive and is very tight, organizations struggle to satisfy customers by entertaining them only. The need of customer engagement arises from that point, so companies need to create experiences by interacting with the consumers and moreover to provide inputs and effective feedback mechanisms to make customers participating actively.

3.1 Experiential Marketing Application Stages

Schmitt (2010) presented 5 steps of Customer Experience Management Framework which can be used by the managers in order to apply experiential marketing on a stage:

I. Analyzing the Experiential World of the Customer: This step provides deep insight into the customer's world. It is crucial to analyze and understand the sociocultural structure in which customer's needs, wants and lifestyle is shaped. On the other hand, for B2B markets, it is very important to analyze the business context which contains requirements and solutions that can affect customer experience.

II. Building the Experiential Platform: Experiential Platform is the key that links strategy and implementation. Furthermore, it specifies experiential positioning and experiential value promise. The implementation of marketing and communication strategy takes place here, including the activities of future innovation.

III. Designing the Brand Experience: When the decision is done on the experiential platform by the management, next step is to implement it into brand experience. The aim here is to appeal in a unique and good way in logos, packaging, retail spaces and so on. Finally, experiential messages and imagery in advertising activities will be ready to be addressed to targeted market.

IV. Structuring the Customer Interface: Experiential Platform must be implemented into Customer Interface as well. It includes all the dynamic contact points so that it is crucial to structure these points appropriately and content so that customers will be able to get any desired information from these interactive points.

V. Engaging in Continuous Innovation: When the first 4 steps are done and experience project is finished, the experience should be implemented on a continuous basis by upgrading and updating it for further innovation. Organizations should institutionalize the experience according to their organizational structures and processes.

So that, by using these 5 steps provided and explained by Schmitt (2010), managers can improve the marketing activities of the company through experiential marketing approach. He points out the key activities to follow step by step for the managers to give them the advantages of experiential marketing approach in order to let them differentiate offerings and provide memorable experiences.

These advantages can be gained through focusing on five different types of experiences that was established by Schmitt (1999). The author established five different strategic modules:

- Sensory Experiences (Sense): The main focus here is to provide sensory experiences that appeal through sight, smell, taste, touch and sound of a product or a service. It may be used by the companies to differentiate the offering or the company itself and let customers add value into the service or the product that they purchase.
- Affective Experiences (Feel): This module focuses on customer's emotions and feelings in order to link the brand, service or product to individual's feelings of joy and pride. To do so, companies need to understand customers world by closely analyzing their needs and desires and find the stimuli that may make an individual to engage with his/her emotions towards a product or service and increase the willingness to make purchase.
- Creative Cognitive Experiences (Think): Think module appeals to create cognitive experiences such as problem-solving to engage creative experiences to the customers.

It aims to create a way of thinking through the brand, product or service in the customer's mind in a surprising, positive and engaging way.

- Physical Experiences, Behaviors and Lifestyles (Act): Act module focuses on customer's physical experiences and provides enriched alternative lifestyles, interactions by motivating, inspiring and encouraging them for different behavioral options.

- Social-identity Experiences (Relate): Relate is another strategic module that contains all the other four module's aspects in it. This module, however, does not focus on inner feelings of consumers, but it focuses on individual's desire and relate it outside of his/her own state. It creates a link between an individual to a broader social system and provide a way for individuals to relate themselves to it (Schmitt, 1999).

3.2 Visitors' Intention to Revisit Museums

Re-visit intention of a place is generated from a positive feeling towards the experience and satisfaction. It is possible to define satisfaction as a cognitive process in which customers emotionally react towards their last purchase of a good or service with regard to their actual experience and expectations. When customers' expectations are not full filed then there is a negative impact on the satisfaction and re-visit intention. On the other hand, adventurous, unique and interactive activities positively induce the feeling of satisfaction (Sevim & Güçer, 2019). For this reason, re-visit intention is highly associated with satisfaction phenomenon and just like the other organizations, cultural heritage institutions focus on increasing the satisfaction level of the visitors to lead them for continuous visit and spread of positive Word-of-mouth (Suhud, Dew, & Allan, 2023).

Visitors in touristic destination have high tendency to consider their experiences when it comes to decide for the next purchase of a visit. Therefore, cultural organizations essentially focus on customer-centric approach to create positive memorable experiences to induce customers' re-visit intention (Kim et al., 2012). Museums are very influential on visitors in terms of being attractive organizations with their image. Advancements in media and technologies in recent years has provided a very efficient source for museums to enhance their image and brand awareness towards the exhibitions, collections and objects. Cultural organizations now provide

way more engaging and hands-on experiences to visitors with the involving of multimedia technologies and therefore creating satisfaction and memorable experiences for the visitors influence individuals positively to revisit the museum again (Malinka & Saragih, 2023).

Furthermore, exhibitions of cultural heritage organizations are multidimensional and therefore visitors highly experience multisensory stimuli that are captured from the museum environment. In this context, the total ambiance created by exhibitions has a significant impact on visitors' intention to revisit. The fascination feeling created by touristic destinations is highly related with visitor's attention to details and interest to explore the environment, consequently creating multidimensional exhibitions has a crucial role to establish memorable experiences and induces positively visitors' behavioral intention to spread out electronic Word of mouth (Pessoa, Oliveira & Souza, 2022).

On the other hand, service quality is also very crucial to all cultural and tourism activities. Visitors evaluate the overall experience of an exhibition in terms of the design, process, organization and program execution and the judgement shows the quality of a particular exhibition in visitors' point of view. In this context, determining the success of an exhibition depends on visitors satisfaction and therefore service quality is highly associated with satisfaction of visitors. Considering such events, the quality and performance based on visitors' perception and therefore is very subjective. For this reason, cultural heritage organizations have been offering personalized interactive tools in their exhibitions to influence the visitors. Furthermore, for museums and curators marketing activities are now even more important, considering the fact that the cultural heritage institutions reach out to their audience increasingly through social media, the perceived quality of a visitor towards an exhibition through these channels directly affects visitors' intention to visit the event (Chen et al., 2014).

Chapter – 4

Research Design and Methodology

4.0 Method of Research

The research methodology employed in this study was a survey method, utilizing a 7-point Likert scale to measure responses. The survey was composed of three distinct scales and a socio-demographic information section.

The brand experience scale was adapted from the work of Brakus, Schmitt, & Zarantonello (2009), and tailored to fit the context of museums. This scale encompasses four dimensions: sensory, affective, intellectual, and behavioral. The sensory dimension pertains to the physical sensations and aesthetic aspects experienced by the visitor. The affective dimension measures the emotional responses elicited by the museum experience. The intellectual dimension assesses the cognitive engagement and stimulation provided by the museum. Lastly, the behavioral dimension gauges the actions and behaviors influenced by the museum experience.

The consumer satisfaction scale, adapted from Oliver (1980), was designed to evaluate the overall satisfaction of the museum visitors. This five-item scale assesses the extent to which the museum experience met or exceeded the visitors' expectations.

The consumer satisfaction scale, adapted from Oliver (1980), was designed to evaluate the overall satisfaction of the museum visitors. This five-item scale assesses the extent to which the museum experience met or exceeded the visitors' expectations.

The consumer loyalty scale, adapted from You and Donthu (2001), measures the likelihood of the visitors to return to the museum and recommend it to others. This five-item scale is indicative of the long-term relationship between the museum and its visitors.

The socio-demographic information section collected data on the visitors' gender, age, education level, income level, and occupation. This information was used to examine whether the scores obtained from the scales differed significantly based on these socio-demographic factors. Independent t-tests and one-way analysis of variance (ANOVA) were used for this purpose.

Two models were constructed to test the relationships between these scales and dimensions. In the first model, consumer satisfaction served as the dependent variable, with the four dimensions of the brand experience scale as independent variables. In the second model, consumer loyalty was the dependent variable, again with the four dimensions of the brand experience scale as independent variables.

Reliability analyses were conducted for the scales used in the study to ensure their consistency and accuracy. Following this, correlation analysis was performed to examine the existence of relationships between the variables.

The data collected from these scales and the socio-demographic information section were analyzed to test the proposed relationships. The findings from these analyses provide insights into the complex interplay between brand experience, consumer satisfaction, consumer loyalty, and socio-demographic factors in the context of museums.

This study contributes to the understanding of digitalization and the use of mediation devices in museums towards customer engagement and satisfaction, with an experiential marketing approach. It builds upon the work of Brakus, Schmitt, & Zarantonello (2009), Oliver (1980), and You and Donthu (2001), extending their concepts to the museum context and exploring their impact on consumer satisfaction and loyalty.

4.1 Limitations of Research

Potential limitations of the research can be listed as:

Sample Size: With a sample size of 104, it may be difficult to generalize the findings to the broader population of museum visitors. Larger sample sizes typically provide more accurate estimates and allow for greater generalizability.

Sampling Method: If the sample was not randomly selected, it may not be representative of the entire population of museum visitors. This could limit the ability to generalize the findings.

Self-Report Bias: As the data was collected via a survey, it may be subject to self-report bias. Participants may not accurately remember or may misrepresent their experiences, satisfaction, or loyalty.

Digital Bias: Since the survey was conducted via Google Forms, it may have excluded potential participants who are not comfortable with or do not have access to digital technology. This could skew the results towards a more tech-savvy demographic.

Lack of Longitudinal Data: The study appears to be cross-sectional, meaning it captures a snapshot of a single point in time. This design may not account for changes in visitor experiences, satisfaction, or loyalty over time.

Reliance on Adapted Scales: While the scales used in the study were adapted from validated measures, there may be nuances specific to the museum context that these scales do not capture.

Single Source of Data: All data were collected from the same source (the visitors) via the same method (a survey). This could potentially introduce common method bias.

Limited Demographic Variables: While the study collected some demographic information, there may be other relevant demographic or personal factors (e.g., previous museum experiences, cultural background, personal interests) that were not accounted for.

4.2 Analysis and Findings

4.2.1 Reliability and Normality Analysis

The descriptive statistics and normality test results of the scales and their sub-dimensions are given below.

Table 1 Descriptives and Normality Test Results of Scales

	n	Mean	SD	Skewness	Kurtosis
Sensory experience	104	5,89	0,76	-1,26	3,04
Affective experience	104	5,33	0,77	-0,42	0,70
Behavioral experience	104	5,74	0,81	-1,13	2,20
Intellectual experience	104	5,78	0,93	-0,99	0,79
Museum experience	104	5,69	0,67	-0,97	2,47
Consumer satisfaction	104	5,96	0,90	-1,93	4,28
Consumer loyalty	104	3,93	0,88	0,02	0,59

In order to meet the normality assumption, the skewness and kurtosis values of the scales must be within a certain range. Kline (2011) states that an absolute value of Skewness greater than 3 and a Kurtosis value greater than ten may indicate a problem, and values above 20 may

indicate a more serious problem. As seen in the table, all data are within the desired range. After the data met the necessary conditions for parametric tests, analyses were started.

Then, the reliability tests of the scales were carried out. Cronbach's alpha reliability (Cronbach, 1951) is one of the most widely used reliability measures in the social sciences. Cronbach Alpha value (α),

- 0,00≤α<0,40 not reliable,
- 0,40≤α<0,60 low reliability,
- 0,60≤α<0,80 quite reliable,
- 0,80≤α<1,00 interpreted as highly reliable. (Uzunsakal and Yıldız, 2018).
- Table 2 Reliability Test Results of Scales

Scales and Sub-dimensions	Cronbach Alfa	Number of Items
Sensory experience	0,770	3
Affective experience	0,497	3
Behavioral experience	0,572	3
Intellectual experience	0,696	3
Museum experience	0,854	12
Consumer satisfaction	0,802	5
Consumer loyalty	0,778	5

As seen in the table, Cronbach's alpha values of sensory experience and intellectual experience, which are museum experience sub-dimensions, and consumer loyalty are quite reliable. The Cronbach alpha values of affective experience and behavioral experience scales have low reliability scales. Consumer satisfaction and museum experience scales are at a highly reliable level.

4.2.2 Demographic Characteristics

The study collected data from a total of 104 participants. The gender distribution was fairly balanced, with 54 participants (51.9%) identifying as male and 48 participants (46.2%) identifying as female (Table 3).

Table 3 Demographic Characteristics of Participants

	Groups	n	%
Gender	Male	54	51,9
	Female	48	46,2
Age	18-25	34	32,7
	26-35	39	37,5
	36-45	20	19,2
	46-55	8	7,7
	56-65	3	2,9
Education	College	14	13,5
	Bachelor's	50	48,1
	Master's	36	34,6
	PhD	2	1,9
	Missing	2	1,9
Occupation	Student	36	34,6
	Employed	47	45,2
	Unemployed	11	10,6
	Self-Employed	7	6,7
	Retired	3	2,9
Income	<500 Euro	34	32,7
	500-1000 Euro	13	12,5
	1001-2000 Euro	10	9,6
	2001-3000 Euro	27	26,0
	3001 Euro >	18	17,3
Museum Visit (in a year)	Never or once	8	7,7
	2-3 times	62	59,6
	4-5 times	23	22,1

	More than 5 times	11	10,6
Total		104	100,0

The age of participants ranged from 18 to 65, with the majority falling within the 18-35 age range. Specifically, 34 participants (32.7%) were aged 18-25, and 39 participants (37.5%) were aged 26-35. The remaining participants were aged 36-45 (20 participants, 19.2%), 46-55 (8 participants, 7.7%), and 56-65 (3 participants, 2.9%).

In terms of education, the majority of participants held a Bachelor's degree (50 participants, 48.1%) or a Master's degree (36 participants, 34.6%). A smaller number of participants had a college degree (14 participants, 13.5%) or a PhD (2 participants, 1.9%). There were 2 participants (1.9%) who did not provide information about their education level.

Regarding occupation, the largest groups were students (36 participants, 34.6%) and employed individuals (47 participants, 45.2%). The remaining participants were unemployed (11 participants, 10.6%), self-employed (7 participants, 6.7%), or retired (3 participants, 2.9%).

Income levels varied among participants. The largest group earned less than 500 Euro (34 participants, 32.7%), followed by those earning 2001-3000 Euro (27 participants, 26.0%), and those earning more than 3001 Euro (18 participants, 17.3%). Smaller groups earned 500-1000 Euro (13 participants, 12.5%) and 1001-2000 Euro (10 participants, 9.6%).

Finally, when asked about the frequency of museum visits taken in a year, the majority of participants reported taking 2-3 museum visits (62 participants, 59.6%). Other participants reported taking 4-5 museum visits (23 participants, 22.1%), more than 5 museum visits (11 participants, 10.6%), or never or only once taking a museum visit (8 participants, 7.7%).

4.2.3 Correlation Analysis

The table presents the Pearson correlation coefficients between the four dimensions of museum experience (sensory, affective, behavioral, and intellectual), overall museum experience, and two outcome variables: consumer satisfaction and consumer loyalty.

Table 4 Correlations Between Variables

		Sensory experience	Affective experience	Behavioral experience	Intellectual experience	Museum experience
Consumer satisfaction	Pearson Correlation	0,691	0,408	0,683	0,612	0,733
	Sig. (2-tailed)	0,001**	0,001**	0,001**	0,001**	0,001**
Consumer loyalty	Pearson Correlation	0,31	0,382	0,285	0,365	0,412
	Sig. (2-tailed)	0,001**	0,001**	0,003**	0,001**	0,001**

**:Correlation is significant at the 0.01 level (2-tailed).

For consumer satisfaction:

Sensory experience had a strong positive correlation ($r = 0.691$, $p < 0.01$).

Affective experience had a moderate positive correlation ($r = 0.408$, $p < 0.01$).

Behavioral experience had a strong positive correlation ($r = 0.683$, $p < 0.01$).

Intellectual experience had a strong positive correlation ($r = 0.612$, $p < 0.01$).

Overall museum experience had a strong positive correlation ($r = 0.733$, $p < 0.01$).

For consumer loyalty:

Sensory experience had a low positive correlation ($r = 0.31$, $p < 0.01$).

Affective experience had a moderate positive correlation ($r = 0.382$, $p < 0.01$).

Behavioral experience had a low positive correlation ($r = 0.285$, $p < 0.01$).

Intellectual experience had a moderate positive correlation ($r = 0.365$, $p < 0.01$).

Overall museum experience had a moderate positive correlation ($r = 0.412$, $p < 0.01$).

In summary, all dimensions of museum experience and the overall museum experience were significantly positively correlated with both consumer satisfaction and consumer loyalty. However, the strength of these correlations varied, with stronger correlations observed for consumer satisfaction than for consumer loyalty.

4.2.4 Independent Sample T-Test

The independent sample t-test is used to test whether there is a statistically significant difference between two independent groups by looking at the means. This is a parametric test, and some assumptions (pre-requisites) must be fulfilled in order to report the results of the test. As a result of the normality test, it was understood that the necessary conditions were met. The results of the independent sample t-test for the gender variable are given below.

Table 5 Independent Sample T-Test Results

				Levene's Test for Equality of Variances		t-test for Equality of Mean		
	Gender	N	Mean	F	p	t	df	p
Sensory experience	Male	54	5,79	8,28	0,01	-1,46	97,44	0,15
	Female	48	6,01					
Affective	Male	54	5,29	0,98	0,32	-0,42	100,00	0,68

experience	Female	48	5,35					
Behavioral experience	Male	54	5,56	2,55	0,11	-2,33	100,00	0,02**
	Female	48	5,92					
Intellectual experience	Male	54	5,64	0,03	0,86	-1,46	100,00	0,15
	Female	48	5,91					
Museum experience	Male	54	5,57	0,13	0,72	-1,74	100,00	0,09
	Female	48	5,80					
Consumer satisfaction	Male	54	5,77	5,86	0,02	-2,28	96,03	0,03**
	Female	48	6,16					
Consumer loyalty	Male	54	3,40	9,45	0,00	0,47	91,17	0,64
	Female	48	3,31					

**:Difference is significant at the 0.01 level (2-tailed).

Table 5 presents the results of independent sample t-tests comparing the means of different variables between male and female participants. The variables include sensory experience, affective experience, behavioral experience, intellectual experience, overall museum experience, consumer satisfaction, and consumer loyalty.

For each variable, the table provides the number of participants (N), the mean score for each gender, the results of Levene's test for equality of variances (F and p values), and the results of the t-test for equality of means (t, df, and p values).

Here's a summary of the key findings:

Sensory Experience: There was no significant difference between males (M = 5.79) and females (M = 6.01) in terms of sensory experience (p = 0.15).

Affective Experience: There was no significant difference between males (M = 5.29) and females (M = 5.35) in terms of affective experience (p = 0.68).

Behavioral Experience: There was a significant difference between males (M = 5.56) and females (M = 5.92) in terms of behavioral experience (p = 0.02).

Intellectual Experience: There was no significant difference between males (M = 5.64) and females (M = 5.91) in terms of intellectual experience (p = 0.15).

Museum Experience: There was no significant difference between males (M = 5.57) and females (M = 5.80) in terms of overall museum experience (p = 0.09).

Consumer Satisfaction: There was a significant difference between males (M = 5.77) and females (M = 6.16) in terms of consumer satisfaction (p = 0.03).

Consumer Loyalty: There was no significant difference between males (M = 3.40) and females (M = 3.31) in terms of consumer loyalty (p = 0.64).

In summary, there were significant gender differences in behavioral experience and consumer satisfaction, with females scoring higher on both. There were no significant gender differences in sensory experience, affective experience, intellectual experience, overall museum experience, or consumer loyalty.

Afterwards, one-way analysis of variance (ANOVA) was used.

4.2.5 One-Way Analysis of Variance (ANOVA)

A. Age Groups

Table 6 presents the mean scores for different age groups across various scales: sensory experience, affective experience, behavioral experience, intellectual experience, overall museum experience, consumer satisfaction, and consumer loyalty.

Table 6 Scale Score Distribution by Age Groups

Scales	**Age**	N	Mean	**Min.**	**Max.**
Sensory experience	18-25	34	5,80	2,67	7,00
	26-35	39	5,79	3,67	7,00
	36-45	20	6,12	5,00	7,00
	46-55	8	6,17	5,67	6,67
	56-65	3	6,11	5,33	6,67
	Total	104	5,89	2,67	7,00
Affective experience	18-25	34	5,21	4,00	6,33
	26-35	39	5,23	3,00	7,00
	36-45	20	5,75	4,33	7,00
	46-55	8	5,42	4,33	6,33
	56-65	3	5,11	4,33	5,67
	Total	104	5,33	3,00	7,00
Behavioral experience	18-25	34	5,56	4,00	6,67
	26-35	39	5,62	2,33	7,00
	36-45	20	6,17	5,00	7,00
	46-55	8	6,00	5,00	6,67
	56-65	3	5,89	5,00	6,33
	Total	104	5,74	2,33	7,00

Scales	**Age**	N	Mean	**Min.**	**Max.**
Intellectual experience	18-25	34	5,56	3,33	7,00
	26-35	39	5,67	2,67	7,00
	36-45	20	6,10	4,33	7,00
	46-55	8	6,33	5,67	6,67
	56-65	3	6,22	5,33	6,67
	Total	104	5,78	2,67	7,00
Museum experience	18-25	34	5,53	3,58	6,67
	26-35	39	5,57	3,00	7,00
	36-45	20	6,03	4,92	6,83
	46-55	8	5,98	5,17	6,42
	56-65	3	5,83	5,00	6,33
	Total	104	5,69	3,00	7,00
Consumer satisfaction	18-25	34	5,81	2,40	7,00
	26-35	39	5,77	2,60	7,00
	36-45	20	6,36	4,80	7,00
	46-55	8	6,40	6,00	6,80
	56-65	3	6,13	5,80	6,40
	Total	104	5,96	2,40	7,00
Consumer loyalty	18-25	34	3,28	1,75	6,00
	26-35	39	3,35	1,00	5,75
	36-45	20	3,65	2,50	5,75

Scales	Age	N	Mean	Min.	Max.
	46-55	8	3,16	2,25	4,50
	56-65	3	2,92	2,50	3,25
	Total	104	3,36	2,67	7,00

Sensory Experience: The mean scores ranged from 5.79 (26-35 age group) to 6.17 (46-55 age group).

Affective Experience: The mean scores ranged from 5.11 (56-65 age group) to 5.75 (36-45 age group).

Behavioral Experience: The mean scores ranged from 5.56 (18-25 age group) to 6.17 (36-45 age group).

Intellectual Experience: The mean scores ranged from 5.56 (18-25 age group) to 6.33 (46-55 age group).

Museum Experience: The mean scores ranged from 5.53 (18-25 age group) to 6.03 (36-45 age group).

Consumer Satisfaction: The mean scores ranged from 5.77 (26-35 age group) to 6.40 (46-55 age group).

Consumer Loyalty: The mean scores ranged from 2.92 (56-65 age group) to 3.65 (36-45 age group).

In general, older age groups (36-45, 46-55, and 56-65) tended to have higher mean scores across most scales compared to younger age groups (18-25 and 26-35). The only exception was consumer loyalty, where the 36-45 age group had the highest mean score.

Table 7 ANOVA Test Results for Age

	Test of Homogeneity of Variances		ANOVA	
Scales	Levene Statistic	Sig.	F	p
Sensory experience	0,69	0,60	1,07	0,38
Affective experience	0,31	0,87	2,01	0,10
Behavioral experience	0,79	0,54	2,38	0,06
Intellectual experience	1,49	0,21	2,21	0,07
Museum experience	0,31	0,87	2,65	0,04*
Consumer satisfaction	2,71	0,03	2,23	0,07
Consumer loyalty	1,28	0,28	0,70	0,60

As a result of the test, it is seen that the pre-acceptance of homogeneity test is provided, excluding Consumer satisfaction. When the ANOVA test results are examined, it is seen that there is no significant difference between the groups in other scales except Museum experience. Posthoc analyzes give more detail whether the differences between the groups are at a significant level. However, there was no difference between the groups for the Museum experience.

Table 8 Posthoc Results for Museum Experience Between Age Groups

Age Groups		Mean Difference (I-J)	Std. Error	Sig.
18-25	26-35	-0,043	0,152	0,999
	36-45	-0,501	0,183	0,054
	46-55	-0,447	0,255	0,405
	56-65	-0,301	0,390	0,938

Age Groups		Mean Difference (I-J)	Std. Error	Sig.
26-35	18-25	0,043	0,152	0,999
	36-45	-0,459	0,178	0,084
	46-55	-0,404	0,252	0,496
	56-65	-0,259	0,388	0,963
36-45	18-25	0,501	0,183	0,054
	26-35	0,459	0,178	0,084
	46-55	0,054	0,271	1,000
	56-65	0,200	0,401	0,987
46-55	18-25	0,447	0,255	0,405
	26-35	0,404	0,252	0,496
	36-45	-0,054	0,271	1,000
	56-65	0,146	0,439	0,997
56-65	18-25	0,301	0,390	0,938
	26-35	0,259	0,388	0,963
	36-45	-0,200	0,401	0,987
	46-55	-0,146	0,439	0,997

B. Educational Level

Table 9 presents the distribution of scale scores by education level for various scales: sensory experience, affective experience, behavioral experience, intellectual experience, overall museum experience, consumer satisfaction, and consumer loyalty.

Table 9 Scale Score Distribution by Education

Scales	Education	N	Mean	Min.	Max.
Sensory experience	College	14	6,33	6,00	7,00
	Bachelor's	50	5,99	4,33	7,00
	Master's	36	5,65	2,67	7,00
	PhD	2	6,00	5,67	6,33
	Total	102	5,92	2,67	7,00
Affective experience	College	14	5,45	4,67	6,33
	Bachelor's	50	5,34	3,00	7,00
	Master's	36	5,28	3,00	7,00
	PhD	2	5,67	5,33	6,00
	Total	102	5,34	3,00	7,00
Behavioral experience	College	14	5,98	5,00	6,67
	Bachelor's	50	5,85	4,00	7,00
	Master's	36	5,49	2,33	7,00
	PhD	2	6,00	5,67	6,33
	Total	102	5,75	2,33	7,00

Scales	Education	N	Mean	Min.	Max.
Intellectual experience	College	14	6,02	3,33	7,00
	Bachelor's	50	5,89	3,67	7,00
	Master's	36	5,53	2,67	7,00
	PhD	2	6,33	6,00	6,67
	Total	102	5,79	2,67	7,00
Museum experience	College	14	5,95	5,42	6,67
	Bachelor's	50	5,77	4,83	7,00
	Master's	36	5,49	3,00	6,83
	PhD	2	6,00	5,67	6,33
	Total	102	5,70	3,00	7,00
Consumer satisfaction	College	14	6,37	5,60	7,00
	Bachelor's	50	6,07	2,60	7,00
	Master's	36	5,64	2,40	6,80
	PhD	2	6,60	6,40	6,80
	Total	102	5,97	2,40	7,00
Consumer loyalty	College	14	3,23	2,00	4,75
	Bachelor's	50	3,22	1,50	5,75
	Master's	36	3,67	1,00	6,00
	PhD	2	3,25	3,00	3,50
	Total	102	3,38	1,00	6,00

Sensory Experience: The mean scores ranged from 5.65 (Master's degree holders) to 6.33 (College degree holders).

Affective Experience: The mean scores ranged from 5.28 (Master's degree holders) to 5.67 (PhD holders).

Behavioral Experience: The mean scores ranged from 5.49 (Master's degree holders) to 6.00 (PhD holders).

Intellectual Experience: The mean scores ranged from 5.53 (Master's degree holders) to 6.33 (PhD holders).

Museum Experience: The mean scores ranged from 5.49 (Master's degree holders) to 6.00 (PhD holders).

Consumer Satisfaction: The mean scores ranged from 5.64 (Master's degree holders) to 6.60 (PhD holders).

Consumer Loyalty: The mean scores ranged from 3.22 (Bachelor's degree holders) to 3.67 (Master's degree holders).

In general, the mean scores varied across different education levels. However, there was no consistent pattern indicating that a particular education level consistently scored higher or lower across all scales. The minimum and maximum scores also varied across different education levels for each scale.

Table 10 ANOVA Test Results for Education

	Test of Homogeneity of Variances		ANOVA	
Scales	Levene Statistic	Sig.	F	p
Sensory experience	2,76	0,05	3,36	0,02*
Affective experience	0,73	0,54	0,29	0,84
Behavioral experience	4,94	0,00	1,95	0,13

Intellectual experience	1,91	0,13	1,71	0,17
Museum experience	1,73	0,17	2,25	0,09
Consumer satisfaction	3,40	0,02	3,24	0,03*
Consumer loyalty	3,27	0,03	1,61	0,19

As a result of the test, it is seen that the pre-acceptance of homogeneity test is provided for affective experience, intellectual experience, and museum experience, but not for sensory experience, behavioral experience, consumer satisfaction and consumer loyalty. When the ANOVA test results are examined, it is seen that there is no significant difference between the groups in other scales except sensory experience and consumer satisfaction. Posthoc analyzes give more detail whether the differences between the groups are at a significant level. On this result, Games-Howell posthoc analysis, which is used when the variances are not homogeneously distributed, was performed (Hilton & Armstrong, 2006).

Table 11 presents the results of a post-hoc analysis for sensory experience scores across different education levels: College, Bachelor's, Master's, and PhD. The analysis provides the mean difference between each pair of education levels, the standard error of this difference, and the significance level (p-value).

Table 11 Posthoc Results for Sensory Experience For Education Level

Education Level		Mean Difference (I-J)	Std. Error	Sig.
College	Bachelor's	0,347	0,219	0,392
	Master's	0,685	0,228	0,017*
	PhD	0,333	0,547	0,929

Education Level		Mean Difference (I-J)	Std. Error	Sig.
Bachelor's	College	-0,347	0,219	0,392
	Master's	0,339	0,158	0,148
	PhD	-0,013	0,522	1,000
Master's	College	-0,685	0,228	0,017*
	Bachelor's	-0,339	0,158	0,148
	PhD	-0,352	0,526	0,908
PhD	College	-0,333	0,547	0,929
	Bachelor's	0,013	0,522	1,000
	Master's	0,352	0,526	0,908

College vs. Bachelor's: There was no significant difference in sensory experience scores between these groups (mean difference = 0.347, p = 0.392).

College vs. Master's: There was a significant difference in sensory experience scores between these groups (mean difference = 0.685, p = 0.017).

College vs. PhD: There was no significant difference in sensory experience scores between these groups (mean difference = 0.333, p = 0.929).

Bachelor's vs. Master's: There was no significant difference in sensory experience scores between these groups (mean difference = 0.339, p = 0.148).

Bachelor's vs. PhD: There was no significant difference in sensory experience scores between these groups (mean difference = -0.013, p = 1.000).

Master's vs. PhD: There was no significant difference in sensory experience scores between these groups (mean difference = -0.352, p = 0.908).

In summary, the only significant difference in sensory experience scores was found between College and Master's degree holders, with Master's degree holders scoring higher on average. There were no significant differences in sensory experience scores between any other pairs of education levels.

Table 12 presents the results of a post-hoc analysis for consumer satisfaction scores across different education levels: College, Bachelor's, Master's, and PhD. The analysis provides the mean difference between each pair of education levels, the standard error of this difference, and the significance level (p-value).

Table 12 Posthoc Results for Consumer Satisfaction For Education Level

Education Level		Mean Difference (I-J)	Std. Error	Sig.
College	Bachelor's	0,303	0,265	0,663
	Master's	0,733	0,276	0,045*
	PhD	-0,229	0,663	0,986
Bachelor's	College	-0,303	0,265	0,663
	Master's	0,429	0,192	0,120
	PhD	-0,532	0,632	0,835
Master's	College	-0,733	0,276	0,045*
	Bachelor's	-0,429	0,192	0,120
	PhD	-0,961	0,637	0,436
PhD	College	0,229	0,663	0,986
	Bachelor's	0,532	0,632	0,835
	Master's	0,961	0,637	0,436

College vs. Bachelor's: There was no significant difference in consumer satisfaction scores between these groups (mean difference = 0.303, p = 0.663).

College vs. Master's: There was a significant difference in consumer satisfaction scores between these groups (mean difference = 0.733, p = 0.045).

College vs. PhD: There was no significant difference in consumer satisfaction scores between these groups (mean difference = -0.229, p = 0.986).

Bachelor's vs. Master's: There was no significant difference in consumer satisfaction scores between these groups (mean difference = 0.429, p = 0.120).

Bachelor's vs. PhD: There was no significant difference in consumer satisfaction scores between these groups (mean difference = -0.532, p = 0.835).

Master's vs. PhD: There was no significant difference in consumer satisfaction scores between these groups (mean difference = -0.961, p = 0.436).

In summary, the only significant difference in consumer satisfaction scores was found between College and Master's degree holders, with Master's degree holders scoring higher on average. There were no significant differences in consumer satisfaction scores between any other pairs of education levels.

C. Occupation

Table 13 presents the distribution of scale scores by occupation for various scales: sensory experience, affective experience, behavioral experience, intellectual experience, overall museum experience, consumer satisfaction, and consumer loyalty.

Table 13 Scale Score Distribution by Occupation Groups

Scales	Occupation	N	Mean	Min.	Max.
Sensory experience	Student	36	5,82	2,67	7,00
	Employed	47	5,84	3,67	7,00

Scales	Occupation	N	Mean	Min.	Max.
	Unemployed	11	6,15	5,67	7,00
	Self-Employed	7	6,14	5,33	7,00
	Retired	3	6,11	5,33	6,67
	Total	104	5,89	2,67	7,00
Affective experience	Student	36	5,22	4,00	7,00
	Employed	47	5,41	3,00	6,67
	Unemployed	11	5,09	3,00	6,67
	Self-Employed	7	5,86	4,33	7,00
	Retired	3	5,11	4,33	5,67
	Total	104	5,33	3,00	7,00
Behavioral experience	Student	36	5,44	3,67	7,00
	Employed	47	5,88	2,33	7,00
	Unemployed	11	5,85	5,00	7,00
	Self-Employed	7	6,10	5,00	6,67
	Retired	3	5,89	5,00	6,33
	Total	104	5,74	2,33	7,00

Scales	Occupation	N	Mean	Min.	Max.
Intellectual experience	Student	36	5,52	3,33	7,00
	Employed	47	5,96	2,67	7,00
	Unemployed	11	5,42	4,00	6,67
	Self-Employed	7	6,29	5,67	7,00
	Retired	3	6,22	5,33	6,67
	Total	104	5,78	2,67	7,00
Museum experience	Student	36	5,50	3,58	7,00
	Employed	47	5,77	3,00	6,75
	Unemployed	11	5,63	4,83	6,75
	Self-Employed	7	6,10	5,17	6,83
	Retired	3	5,83	5,00	6,33
	Total	104	5,69	3,00	7,00
Consumer satisfaction	Student	36	5,67	2,40	7,00
	Employed	47	6,03	2,60	7,00
	Unemployed	11	6,25	4,80	7,00
	Self-Employed	7	6,43	5,80	6,80
	Retired	3	6,13	5,80	6,40
	Total	104	5,96	2,40	7,00
Consumer loyalty	Student	36	3,37	1,25	6,00
	Employed	47	3,32	1,50	5,00
	Unemployed	11	3,41	1,00	5,75

Scales	Occupation	N	Mean	Min.	Max.
	Self-Employed	7	3,64	2,25	5,75
	Retired	3	2,92	2,50	3,25
	Total	104	3,36	1,00	6,00

Sensory Experience: The mean scores ranged from 5.82 (Students) to 6.15 (Unemployed).

Affective Experience: The mean scores ranged from 5.09 (Unemployed) to 5.86 (Self-Employed).

Behavioral Experience: The mean scores ranged from 5.44 (Students) to 6.10 (Self-Employed).

Intellectual Experience: The mean scores ranged from 5.42 (Unemployed) to 6.29 (Self-Employed).

Museum Experience: The mean scores ranged from 5.50 (Students) to 6.10 (Self-Employed).

Consumer Satisfaction: The mean scores ranged from 5.67 (Students) to 6.43 (Self-Employed).

Consumer Loyalty: The mean scores ranged from 2.92 (Retired) to 3.64 (Self-Employed).

In general, the mean scores varied across different occupation groups. However, there was no consistent pattern indicating that a particular occupation group consistently scored higher or lower across all scales. The minimum and maximum scores also varied across different occupation groups for each scale.

Table 14 ANOVA Test Results for Occupation

	Test of Homogeneity of Variances		ANOVA	
Scales	Levene Statistic	Sig.	F	p
Sensory experience	0,72	0,58	0,70	0,59
Affective experience	0,46	0,77	1,46	0,22

Behavioral experience	1,30	0,28	2,02	0,10
Intellectual experience	1,69	0,16	2,41	0,06
Museum experience	0,28	0,89	1,63	0,17
Consumer satisfaction	2,10	0,09	1,83	0,13
Consumer loyalty	4,01	0,01	0,30	0,88

As a result of the test, it is seen that the pre-acceptance of homogeneity test is provided, excluding consumer loyalty. When the ANOVA test results are examined, it is seen that there is no significant difference between the groups in the scales.

D. Monthly Income

Table 15 presents the distribution of scale scores by monthly income for various scales: sensory experience, affective experience, behavioral experience, intellectual experience, overall museum experience, consumer satisfaction, and consumer loyalty.

Table 15 Scale Score Distribution by Monthly Income

Scales	Monthly Income	N	Mean	Min.	Max.
Sensory experience	<500 Euro	34	5,88	2,67	7,00
	500-1000 Euro	13	5,69	3,67	7,00
	1001-2000 Euro	10	5,67	4,33	7,00
	2001-3000 Euro	27	6,14	5,33	7,00
	3001 Euro >	18	5,83	3,67	7,00
	Total	102	5,90	2,67	7,00
Affective	<500 Euro	34	5,22	3,00	7,00

Scales	Monthly Income	N	Mean	Min.	Max.
experience	500-1000 Euro	13	5,21	4,00	6,00
	1001-2000 Euro	10	5,23	4,33	6,33
	2001-3000 Euro	27	5,52	4,33	7,00
	3001 Euro >	18	5,39	3,00	6,67
	Total	102	5,33	3,00	7,00
Behavioral experience	<500 Euro	34	5,55	4,00	7,00
	500-1000 Euro	13	5,26	3,67	6,33
	1001-2000 Euro	10	5,77	5,00	6,67
	2001-3000 Euro	27	6,10	5,33	7,00
	3001 Euro >	18	5,89	2,33	7,00
	Total	102	5,74	2,33	7,00

Scales	Monthly Income	N	Mean	Min.	Max.
Intellectual experience	<500 Euro	34	5,71	3,33	7,00
	500-1000 Euro	13	5,18	3,33	7,00
	1001-2000 Euro	10	5,43	4,33	7,00
	2001-3000 Euro	27	6,11	4,33	7,00
	3001 Euro >	18	6,00	2,67	7,00
	Total	102	5,77	2,67	7,00
Museum experience	<500 Euro	34	5,59	3,58	7,00
	500-1000 Euro	13	5,33	3,75	6,42
	1001-2000 Euro	10	5,53	4,75	6,33
	2001-3000 Euro	27	5,97	5,17	6,83
	3001 Euro >	18	5,78	3,00	6,67
	Total	102	5,68	3,00	7,00
Consumer satisfaction	<500 Euro	34	5,90	2,40	7,00
	500-1000 Euro	13	5,22	2,60	6,80
	1001-2000 Euro	10	5,80	4,80	6,80
	2001-3000 Euro	27	6,31	5,20	7,00
	3001 Euro >	18	6,12	3,00	6,80
	Total	102	5,95	2,40	7,00
Consumer loyalty	<500 Euro	34	3,42	1,00	6,00
	500-1000 Euro	13	3,19	1,25	5,25
	1001-2000 Euro	10	3,10	1,75	4,75

Scales	Monthly Income	N	Mean	Min.	Max.
	2001-3000 Euro	27	3,56	2,50	5,75
	3001 Euro >	18	3,19	1,50	4,50
	Total	102	3,36	1,00	6,00

Sensory Experience: The mean scores ranged from 5.67 (1001-2000 Euro income group) to 6.14 (2001-3000 Euro income group).

Affective Experience: The mean scores ranged from 5.21 (500-1000 Euro income group) to 5.52 (2001-3000 Euro income group).

Behavioral Experience: The mean scores ranged from 5.26 (500-1000 Euro income group) to 6.10 (2001-3000 Euro income group).

Intellectual Experience: The mean scores ranged from 5.18 (500-1000 Euro income group) to 6.11 (2001-3000 Euro income group).

Museum Experience: The mean scores ranged from 5.33 (500-1000 Euro income group) to 5.97 (2001-3000 Euro income group).

Consumer Satisfaction: The mean scores ranged from 5.22 (500-1000 Euro income group) to 6.31 (2001-3000 Euro income group).

Consumer Loyalty: The mean scores ranged from 3.10 (1001-2000 Euro income group) to 3.56 (2001-3000 Euro income group).

In general, the mean scores varied across different income groups. However, there was no consistent pattern indicating that a particular income group consistently scored higher or lower across all scales. The minimum and maximum scores also varied across different income groups for each scale.

Table 16 ANOVA Test Results for Monthly Income

	Test of Homogeneity of Variances		ANOVA	
Scales	Levene Statistic	Sig.	F	p
Sensory experience	1,07	0,38	1,16	0,33
Affective experience	1,21	0,31	0,72	0,58
Behavioral experience	2,33	0,06	3,31	0,01*
Intellectual experience	1,44	0,23	3,09	0,02*
Museum experience	0,57	0,69	2,63	0,04*
Consumer satisfaction	3,01	0,02	3,82	0,01*
Consumer loyalty	2,72	0,03	0,65	0,63

As a result of the test, it is seen that the pre-acceptance of homogeneity test is provided for sensory experience, affective experience, behavioral experience, intellectual experience and museum experience, but not for consumer satisfaction and consumer loyalty. When the ANOVA test results are examined, it is seen that there is no significant difference between the groups in sensory experience, affective experience and consumer loyalty. There is a significant difference between the groups in behavioral experience, intellectual experience, museum experience and consumer satisfaction. Posthoc analyzes give more detail whether the differences between the groups are at a significant level. On this result, Games-Howell posthoc analysis, which is used when the variances are not homogeneously distributed, was performed (Hilton & Armstrong, 2006).

Table 17 presents the results of a post-hoc analysis for behavioral experience scores across different monthly income groups: <500 Euro, 500-1000 Euro, 1001-2000 Euro, 2001-3000 Euro, and 3001 Euro and above. The analysis provides the mean difference between each pair of income groups, the standard error of this difference, and the significance level (p-value).

Table 17 Posthoc Results for Behavioral Experience Monthly Income

Income Level		Mean Difference (I-J)	Std. Error	Sig.
<500 Euro	500-1000 Euro	0,293	0,256	0,783
	1001-2000 Euro	-0,218	0,282	0,938
	2001-3000 Euro	-0,550	0,202	0,059
	3001 Euro >	-0,340	0,229	0,574
500-1000 Euro	<500 Euro	-0,293	0,256	0,783
	1001-2000 Euro	-0,510	0,330	0,536
	2001-3000 Euro	-0,842	0,265	0,017
	3001 Euro >	-0,632	0,286	0,183
1001-2000 Euro	<500 Euro	0,218	0,282	0,938
	500-1000 Euro	0,510	0,330	0,536
	2001-3000 Euro	-0,332	0,291	0,783
	3001 Euro >	-0,122	0,310	0,995
2001-3000 Euro	<500 Euro	0,550	0,202	0,059
	500-1000 Euro	0,842	0,265	0,017
	1001-2000 Euro	0,332	0,291	0,783
	3001 Euro >	0,210	0,239	0,904
3001 Euro >	<500 Euro	0,340	0,229	0,574
	500-1000 Euro	0,632	0,286	0,183
	1001-2000 Euro	0,122	0,310	0,995

Income Level		Mean Difference (I-J)	Std. Error	Sig.
	2001-3000 Euro	-0,210	0,239	0,904

<500 Euro vs. 2001-3000 Euro: There was a trend towards a significant difference in behavioral experience scores between these groups (mean difference = -0.550, p = 0.059).

500-1000 Euro vs. 2001-3000 Euro: There was a significant difference in behavioral experience scores between these groups (mean difference = -0.842, p = 0.017).

For all other pairs of income groups, there was no significant difference in behavioral experience scores.

In summary, the only significant difference in behavioral experience scores was found between the 500-1000 Euro and 2001-3000 Euro income groups, with the latter scoring higher on average. There was also a trend towards a significant difference between the <500 Euro and 2001-3000 Euro income groups.

Table 18 presents the results of a post-hoc analysis for intellectual experience scores across different monthly income groups: <500 Euro, 500-1000 Euro, 1001-2000 Euro, 2001-3000 Euro, and 3001 Euro and above. The analysis provides the mean difference between each pair of income groups, the standard error of this difference, and the significance level (p-value).

Table 18 Posthoc Results for Intellectual Experience Monthly Income

Income Level		Mean Difference (I-J)	Std. Error	Sig.
	500-1000 Euro	0,526	0,292	0,377
<500 Euro	1001-2000 Euro	0,273	0,322	0,915
	2001-3000 Euro	-0,405	0,231	0,405
	3001 Euro >	-0,294	0,261	0,792

Income Level		Mean Difference (I-J)	Std. Error	Sig.
500-1000 Euro	<500 Euro	-0,526	0,292	0,377
	1001-2000 Euro	-0,254	0,376	0,961
	2001-3000 Euro	-0,932	0,302	0,022
	3001 Euro >	-0,821	0,326	0,095
1001-2000 Euro	<500 Euro	-0,273	0,322	0,915
	500-1000 Euro	0,254	0,376	0,961
	2001-3000 Euro	-0,678	0,331	0,252
	3001 Euro >	-0,567	0,353	0,497
2001-3000 Euro	<500 Euro	0,405	0,231	0,405
	500-1000 Euro	0,932	0,302	0,022
	1001-2000 Euro	0,678	0,331	0,252
	3001 Euro >	0,111	0,272	0,994
3001 Euro >	<500 Euro	0,294	0,261	0,792
	500-1000 Euro	0,821	0,326	0,095
	1001-2000 Euro	0,567	0,353	0,497
	2001-3000 Euro	-0,111	0,272	0,994

500-1000 Euro vs. 2001-3000 Euro: There was a significant difference in intellectual experience scores between these groups (mean difference = -0.932, p = 0.022).

For all other pairs of income groups, there was no significant difference in intellectual experience scores.

In summary, the only significant difference in intellectual experience scores was found between the 500-1000 Euro and 2001-3000 Euro income groups, with the latter scoring higher on average.

Table 19 presents the results of a post-hoc analysis for museum experience scores across different monthly income groups: <500 Euro, 500-1000 Euro, 1001-2000 Euro, 2001-3000 Euro, and 3001 Euro and above. The analysis provides the mean difference between each pair of income groups, the standard error of this difference, and the significance level (p-value).

Table 19 Posthoc Results for Museum Experience Monthly Income

Income Level		Mean Difference (I-J)	Std. Error	Sig.
<500 Euro	500-1000 Euro	0,255	0,213	0,752
	1001-2000 Euro	0,063	0,235	0,999
	2001-3000 Euro	-0,378	0,168	0,171
	3001 Euro >	-0,190	0,190	0,856
500-1000 Euro	<500 Euro	-0,255	0,213	0,752
	1001-2000 Euro	-0,192	0,274	0,956
	2001-3000 Euro	-0,633	0,220	0,039
	3001 Euro >	-0,444	0,237	0,339
1001-2000 Euro	<500 Euro	-0,063	0,235	0,999
	500-1000 Euro	0,192	0,274	0,956
	2001-3000 Euro	-0,441	0,241	0,364
	3001 Euro >	-0,253	0,257	0,862
2001-3000 Euro	<500 Euro	0,378	0,168	0,171

Income Level		Mean Difference (I-J)	Std. Error	Sig.
	500-1000 Euro	0,633	0,220	0,039
	1001-2000 Euro	0,441	0,241	0,364
	3001 Euro >	0,188	0,198	0,877
	<500 Euro	0,190	0,190	0,856
3001 Euro >	500-1000 Euro	0,444	0,237	0,339
	1001-2000 Euro	0,253	0,257	0,862
	2001-3000 Euro	-0,188	0,198	0,877

500-1000 Euro vs. 2001-3000 Euro: There was a significant difference in museum experience scores between these groups (mean difference = -0.633, p = 0.039).

For all other pairs of income groups, there was no significant difference in museum experience scores.

In summary, the only significant difference in museum experience scores was found between the 500-1000 Euro and 2001-3000 Euro income groups, with the latter scoring higher on average.

Table 20 presents the results of a post-hoc analysis for consumer satisfaction scores across different monthly income groups: <500 Euro, 500-1000 Euro, 1001-2000 Euro, 2001-3000 Euro, and 3001 Euro and above. The analysis provides the mean difference between each pair of income groups, the standard error of this difference, and the significance level (p-value).

Table 20 Posthoc Results for Consumer Satisfaction Monthly Income

Income Level		Mean Difference (I-J)	Std. Error	Sig.
<500 Euro	500-1000 Euro	0,685	0,281	0,130

Income Level		Mean Difference (I-J)	Std. Error	Sig.
	1001-2000 Euro	0,100	0,310	1,000
	2001-3000 Euro	-0,411	0,222	0,491
	3001 Euro >	-0,222	0,251	0,989
	<500 Euro	-0,685	0,281	0,130
500-1000 Euro	1001-2000 Euro	-0,585	0,363	0,676
	2001-3000 Euro	-1,096	0,291	0,002
	3001 Euro >	-0,907	0,314	0,045
	<500 Euro	-0,100	0,310	1,000
1001-2000 Euro	500-1000 Euro	0,585	0,363	0,676
	2001-3000 Euro	-0,511	0,319	0,650
	3001 Euro >	-0,322	0,340	0,983
	<500 Euro	0,411	0,222	0,491
2001-3000 Euro	500-1000 Euro	1,096	0,291	0,002
	1001-2000 Euro	0,511	0,319	0,650
	3001 Euro >	0,189	0,262	0,998
	<500 Euro	0,222	0,251	0,989
3001 Euro >	500-1000 Euro	0,907	0,314	0,045
	1001-2000 Euro	0,322	0,340	0,983
	2001-3000 Euro	-0,189	0,262	0,998

500-1000 Euro vs. 2001-3000 Euro: There was a significant difference in consumer satisfaction scores between these groups (mean difference = -1.096, p = 0.002).

500-1000 Euro vs. 3001 Euro and above: There was a significant difference in consumer satisfaction scores between these groups (mean difference = -0.907, p = 0.045).

For all other pairs of income groups, there was no significant difference in consumer satisfaction scores.

In summary, significant differences in consumer satisfaction scores were found between the 500-1000 Euro group and both the 2001-3000 Euro and 3001 Euro and above groups, with the latter groups scoring higher on average.

E. Frequency of Museum Visit

Table 21 presents the distribution of scores for different scales (Sensory experience, Affective experience, Behavioral experience, Intellectual experience, Museum experience, Consumer satisfaction, and Consumer loyalty) across different frequencies of museum visit (Never or once, 2-3 times, 4-5 times, More than 5 times). For each scale and frequency of museum visit, the table provides the number of observations (N), the mean score, and the minimum (Min.) and maximum (Max.) scores.

Table 21 Scale Score Distribution by Frequency of Museum Visit

Scales	Frequency of Museum Visit	N	Mean	Min.	Max.
Sensory experience	Never or once	8	5,92	5,33	6,33
	2-3 times	62	5,78	2,67	7,00
	4-5 times	23	6,26	5,33	7,00
	More than 5 times	11	5,76	3,67	7,00

Scales	Frequency of Museum Visit	N	Mean	Min.	Max.
	Total	104	5,89	2,67	7,00
Affective experience	Never or once	8	4,79	3,00	6,33
	2-3 times	62	5,31	4,00	6,67
	4-5 times	23	5,74	4,33	7,00
	More than 5 times	11	5,03	3,00	6,33
	Total	104	5,33	3,00	7,00
Behavioral experience	Never or once	8	5,42	4,33	6,33
	2-3 times	62	5,69	3,67	7,00
	4-5 times	23	6,04	4,00	7,00
	More than 5 times	11	5,64	2,33	6,67
	Total	104	5,74	2,33	7,00

Scales	Frequency of Museum Visit	N	Mean	Min.	Max.
Intellectual experience	Never or once	8	5,71	4,33	6,67
	2-3 times	62	5,69	3,33	7,00
	4-5 times	23	6,17	4,00	7,00
	More than 5 times	11	5,52	2,67	7,00
	Total	104	5,78	2,67	7,00
Museum experience	Never or once	8	5,46	4,83	6,42
	2-3 times	62	5,62	3,58	6,75
	4-5 times	23	6,05	4,75	7,00
	More than 5 times	11	5,48	3,00	6,50
	Total	104	5,69	3,00	7,00
Consumer satisfaction	Never or once	8	6,10	4,60	6,80
	2-3 times	62	5,83	2,40	7,00
	4-5 times	23	6,34	5,00	7,00
	More than 5 times	11	5,78	3,00	7,00
	Total	104	5,96	2,40	7,00
Consumer loyalty	Never or once	8	3,05	2,25	4,67
	2-3 times	62	3,25	1,00	6,00
	4-5 times	23	3,76	2,50	5,75
	More than 5 times	11	3,34	1,50	5,75
	Total	104	3,36	1,00	6,00

Sensory experience: The highest mean score (6.26) was observed for those who visit museums 4-5 times, while the lowest mean score (5.76) was observed for those who visit museums more than 5 times.

Affective experience: The highest mean score (5.74) was observed for those who visit museums 4-5 times, while the lowest mean score (4.79) was observed for those who visit museums never or once.

Behavioral experience: The highest mean score (6.04) was observed for those who visit museums 4-5 times, while the lowest mean score (5.42) was observed for those who visit museums never or once.

Intellectual experience: The highest mean score (6.17) was observed for those who visit museums 4-5 times, while the lowest mean score (5.52) was observed for those who visit museums more than 5 times.

Museum experience: The highest mean score (6.05) was observed for those who visit museums 4-5 times, while the lowest mean score (5.46) was observed for those who visit museums never or once.

Consumer satisfaction: The highest mean score (6.34) was observed for those who visit museums 4-5 times, while the lowest mean score (5.78) was observed for those who visit museums more than 5 times.

Consumer loyalty: The highest mean score (3.76) was observed for those who visit museums 4-5 times, while the lowest mean score (3.05) was observed for those who visit museums never or once.

In summary, the frequency of museum visit seems to have an impact on the different scales, with those who visit museums 4-5 times generally scoring higher on average.

Table 22 ANOVA Test Results for Frequency of Museum Visit

	Test of Homogeneity of Variances		ANOVA	
Scales	Levene Statistic	Sig.	F	p
Sensory experience	1,88	0,14	2,48	0,07
Affective experience	0,68	0,56	4,39	0,01*
Behavioral experience	0,72	0,54	1,67	0,18
Intellectual experience	0,90	0,45	1,93	0,13
Museum experience	0,25	0,87	3,41	0,02*
Consumer satisfaction	1,50	0,22	2,06	0,11
Consumer loyalty	0,36	0,78	1,78	0,16

As a result of the test, it is seen that the pre-acceptance of homogeneity test is provided for all of the scales. When the ANOVA test results are examined, it is seen that there is no significant difference between the groups in other scales except affective experience and museum experience. Posthoc analyzes give more detail whether the differences between the groups are at a significant level.

Table 23 presents the posthoc results for the Affective Experience scale across different frequencies of museum visit (Never or once, 2-3 times, 4-5 times, More than 5 times). For each pair of museum visit frequencies, the table provides the mean difference in scores, the standard error of this difference, and the significance (Sig.) of this difference.

Table 23 Posthoc Results for Affective Experience For Frequency of Museum Visit

Frequency of Museum Visit	Mean Difference (I-J)	Std. Error	Sig.

Frequency of Museum Visit		Mean Difference (I-J)	Std. Error	Sig.
Never or once	2-3 times	-0,515	0,278	0,254
	4-5 times	-0,947	0,303	0,012
	More than 5 times	-0,239	0,343	0,899
2-3 times	Never or once	0,515	0,278	0,254
	4-5 times	-0,433	0,180	0,084
	More than 5 times	0,276	0,242	0,664
4-5 times	Never or once	0,947	0,303	0,012
	2-3 times	0,433	0,180	0,084
	More than 5 times	0,709	0,271	0,049
More than 5 times	Never or once	0,239	0,343	0,899
	2-3 times	-0,276	0,242	0,664
	4-5 times	-0,709	0,271	0,049

Never or once vs. 2-3 times: The mean difference in scores is -0.515, but this difference is not statistically significant (p=0.254).

Never or once vs. 4-5 times: The mean difference in scores is -0.947, and this difference is statistically significant (p=0.012).

Never or once vs. More than 5 times: The mean difference in scores is -0.239, but this difference is not statistically significant (p=0.899).

2-3 times vs. 4-5 times: The mean difference in scores is -0.433, but this difference is not statistically significant (p=0.084).

2-3 times vs. More than 5 times: The mean difference in scores is 0.276, but this difference is not statistically significant (p=0.664).

4-5 times vs. More than 5 times: The mean difference in scores is -0.709, and this difference is statistically significant (p=0.049).

In summary, the frequency of museum visit seems to have a significant impact on the Affective Experience scale between those who visit museums never or once and 4-5 times, and between those who visit museums 4-5 times and more than 5 times.

Table 23 presents the posthoc results for the Museum Experience scale across different frequencies of museum visit (Never or once, 2-3 times, 4-5 times, More than 5 times).

Table 24 Posthoc Results for Museum Experience For Frequency of Museum Visit

Frequency of Museum Visit		Mean Difference (I-J)	Std. Error	Sig.
Never or once	2-3 times	-0,159	0,243	0,914
	4-5 times	-0,596	0,265	0,118
	More than 5 times	-0,027	0,300	1,000
2-3 times	Never or once	0,159	0,243	0,914
	4-5 times	-0,437	0,158	0,033
	More than 5 times	0,132	0,211	0,924
4-5 times	Never or once	0,596	0,265	0,118
	2-3 times	0,437	0,158	0,033
	More than 5 times	0,570	0,237	0,083
More than 5 times	Never or once	0,027	0,300	1,000
	2-3 times	-0,132	0,211	0,924

Frequency of Museum Visit		Mean Difference (I-J)	Std. Error	Sig.
	4-5 times	-0,570	0,237	0,083

Never or once vs. 2-3 times: The mean difference in scores is -0.159, but this difference is not statistically significant (p=0.914).

Never or once vs. 4-5 times: The mean difference in scores is -0.596, but this difference is not statistically significant (p=0.118).

Never or once vs. More than 5 times: The mean difference in scores is -0.027, and this difference is not statistically significant (p=1.000).

2-3 times vs. 4-5 times: The mean difference in scores is -0.437, and this difference is statistically significant (p=0.033).

2-3 times vs. More than 5 times: The mean difference in scores is 0.132, but this difference is not statistically significant (p=0.924).

4-5 times vs. More than 5 times: The mean difference in scores is -0.570, but this difference is not statistically significant (p=0.083).

In summary, the frequency of museum visit seems to have a significant impact on the Museum Experience scale only between those who visit museums 2-3 times and 4-5 times.

4.2.6 Regression Analysis

Two models were constructed to test the relationships between these scales and dimensions. In the first model, consumer satisfaction served as the dependent variable, with the four dimensions of the museum experience scale as independent variables. In the second model, consumer loyalty was the dependent variable, again with the four dimensions of the brand experience scale as independent variables.

Table 25 ANOVA Results of Models and Model Summary

Model	Model Summary			ANOVA	
	R	R Square	Adjusted R Square	F	Sig.
1	,787	,619	,604	40,223	,000
2	,341	,116	,080	3,246	,015

Both models seem to be significant. When evaluating the analysis results given in the table, the adjusted R^2 value should be considered, since there is more than one independent variable in the regression model. Accordingly, it is understood how much the independent variables can predict the change in the dependent variable. According to these results, the biggest explanatory feature is the first model. The least value belongs to the second model.

Table 26 Coefficient Table of Variables in the Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	p
		B	Std. Error	Beta		
1 (Consumer Satisfaction)	(Constant)	,319	,489		,652	,516
	Sensory ex.	,439	,102	,370	4,301	,000**
	Affective ex.	-,159	,095	-,136	-1,678	,096
	Behavioral ex.	,460	,102	,414	4,504	,000**
	Intellectual ex.	,217	,079	,223	2,750	,007**
2 (Consumer Loyalty)	(Constant)	1,128	,826		1,366	,175
	Sensory ex.	,028	,172	,021	,163	,871
	Affective ex.	,446	,160	,345	2,786	,006**

Model		Unstandardized Coefficients		Standardized Coefficients	t	p
		B	Std. Error	Beta		
	Behavioral ex.	-,191	,172	-,155	-1,106	,272
	Intellectual ex.	,135	,133	,125	1,013	,313
**p<0,01, *p<0,05						

The tables present the results of two regression models. In the first model, the dependent variable is consumer satisfaction, and the independent variables are the four dimensions of the museum experience scale: sensory experience, affective experience, behavioral experience, and intellectual experience. In the second model, the dependent variable is consumer loyalty, and the independent variables are the same four dimensions.

Model 1 (Consumer Satisfaction):

The model explains 61.9% of the variance in consumer satisfaction (R Square = 0.619), and this is statistically significant ($F = 40.223$, $p < 0.001$).

All four dimensions of the museum experience scale are positively associated with consumer satisfaction. However, the affective experience is not statistically significant ($p = 0.096$).

The strongest predictor of consumer satisfaction is the behavioral experience (Beta = 0.414, $p < 0.001$), followed by the sensory experience (Beta = 0.370, $p < 0.001$), and the intellectual experience (Beta = 0.223, $p = 0.007$).

Model 2 (Consumer Loyalty):

The model explains 11.6% of the variance in consumer loyalty (R Square = 0.116), and this is statistically significant ($F = 3.246$, $p = 0.015$).

Only the affective experience is positively associated with consumer loyalty and this is statistically significant (Beta = 0.345, $p = 0.006$).

The sensory experience, behavioral experience, and intellectual experience are not statistically significant predictors of consumer loyalty ($p > 0.05$).

In summary, the four dimensions of the museum experience scale are important predictors of consumer satisfaction, with the behavioral experience being the strongest predictor. However, only the affective experience is a significant predictor of consumer loyalty.

4.2.7 Discussion

Generally, research in the field of consumer behavior has consistently pointed out the importance of sensory, affective, behavioral, and intellectual experiences in influencing consumer satisfaction and loyalty.

For example, studies have shown that sensory experiences are crucial in shaping consumer perceptions and satisfaction, particularly in experiential settings like museums, theme parks, or restaurants (Hultén, Broweus, & Van Dijk, 2009). This aligns with our first model, where sensory experiences were found to be a significant predictor of consumer satisfaction.

However, in line with our second model, some researchers have highlighted the centrality of affective experiences in fostering consumer loyalty. An emotionally engaging experience can create a deep emotional bond and a sense of attachment between the consumer and the brand, leading to higher loyalty (Bagozzi, Gopinath, & Nyer, 1999).

The findings concerning behavioral and intellectual experiences reflect the emphasis of existing literature on the need for active consumer participation and cognitive engagement to enhance satisfaction (Carù & Cova, 2007).

Nonetheless, the results should be interpreted in light of their context-specific nature. The importance of each dimension can vary depending on the nature of the product or service, the context, and individual consumer differences. For instance, in a context like a museum, intellectual experiences might be expected to play a more significant role. However, the first model reveals that behavioral experiences outperformed intellectual experiences in predicting satisfaction, which might suggest a shift in consumer expectations towards more interactive and participatory museum experiences.

In conclusion, while the findings of this study align well with the general understanding in the existing literature, they also provide nuanced insights that contribute to a deeper understanding of consumer behavior in the specific context of museum experiences. Future research should continue to explore these relationships in various contexts and consider other potential factors that could influence consumer satisfaction and loyalty.

References:

- Abrahams, D. (1986). *Complicity and Imitation of Storytelling: A Pragmatic Folklorist's Perspective.* Cultural Anthropology. 1.2, 223-237.
- Agostino, Deborah., Arnaboldi, M, 2020. From preservation to entertainment: Accounting for the transformation of participation in Italian state museums. Accounting History 1–21. https://doi.org/10.1177/1032373220934893
- Akçaova, A. (2016). Çağdaş Müzecilik Anlayışında Sergileme Teknikleri, Selçuk Üniversitesi, Sosyal Bilimler Enstitüsü, Basılmamış Yüksek Lisans Tezi, Konya.
- Allan, M., Suhud, U., & Dewi, M. A. (2023). Revisiting Royal Tourism: Tourists' Intention to Revisit the Yogyakarta Palace in Indonesia. *Academica Turistica-Tourism and Innovation Journal*, *15*(3).
- Alparslan, C. ve Alparslan, Ö. (2019). Bir Mirasın Yönetim Merkezi Olarak Müze. Ankara: Gazi Kitabevi
- ALRAWADIEH, D. D. (2021). Tarihi Müzelere Yönelik Ziyaretçi Şikayetlerinin İncelenmesi: Topkapı Sarayı Üzerine Nitel Bir Araştırma. *Turizm Çalışmaları Dergisi*, *3*(1), 15-30.
- Alshurideh, M., Abuanzeh, A., Kurdi, B., Akour, I., & AlHamad, A. (2023). The effect of teaching methods on university students' intention to use online learning: Technology Acceptance Model (TAM) validation and testing. *International Journal of Data and Network Science*, *7*(1), 235-250.
- Anderson, J. (1982). Living History: Simulating Everyday Life in Living Museums. American Quarterly, Vol. 34, No. 3 (1982), pp. 290-306.
- Annechini, C., Menardo, E., Hall, R., Pasini, M., 2020. Aesthetic Attributes of Museum Environmental Experience: A Pilot Study With Children as Visitors. doi: 10.3389/fpsyg.2020.508300
- Atasoy, S. (1999). Müzelerde sergileme. *Tomur Atagök. İstanbul: Yıldız Teknik Üniversitesi Yayınları*, 175-179.
- Bagozzi, R. P., Gopinath, M., & Nyer, P. U. (1999). The role of emotions in marketing. *Journal of the academy of marketing science*, *27*(2), 184-206.
- Bal, O. (2010). Teknolojinin Sosyo-Ekonomik Yapiya Etkileri. Akademik Bakiş Dergisi, (20), 1-23.
- Banks J., Carson J.S., (1984), "Discrete-Event System Simultion", Prentice Hall.

- Başlar, G., 2013. Development in New Media and Digitalised Capitalism. Akademik Bilişim 2013 – XV. Akademik Bilişim Konferansı Bildirileri 23-25 Ocak 2013
- Bearman, D., Geber, K., 2008. Transforming Cultural Heritage Institutions through New Media. Museum Management and Curatorship, 23:4, 385-399, DOI: 10.1080/09647770802517431.
- Belcher, M. (1991). Exhibitions in Museums. London: Continuum International Publishing Group, Limited.
- Berman, J, S., 2012. Digital transformation: opportunities to create new business models", Strategy & Leadership, Vol. 40 Iss 2 pp. 16 – 24.
- Bhavnani, S. P., Narula, J., & Sengupta, P. P. (2016). Mobile technology and the digitization of healthcare. *European heart journal*, *37*(18), 1428-1438.
- Blix, M., Levay, C., 2018. Digitalization and Health Care - a Report to the Swedish Government's Expert Group on Public Economics.
- Boswıjk, A. Thijssen, J. P. ve Peelen, E.: 2007 A New Perspective on the Experience Economy: Meaningful Experiences. Amsterdam: Pearson Education.
- Boyraz, B. 2013. Müze Teknolojileri ve Sergileme Farklılıkları. Akademik Bakış Dergisi, no(39): 1-14.
- Brakus, J. J., Schmitt, B. H., & Zarantonello, L. (2009). Brand experience: what is it? How is it measured? Does it affect loyalty?. *Journal of marketing*, *73*(3), 52-68.
- Brennen, S.J., Kreiss, D., 2016. Digitalization. The International Encyclopedia of Communication Theory and Philosophy. DOI: 10.1002/9781118766804.wbiect111.
- Buckland, M. K. (2015). *Cultural Heritage (Patrimony): An Introduction*.
- Burcaw, G.E., 1997. Introduction to Museum Work, 3rd ed., 20-23
- Burmistrov, I. (2015). Touchscreen Kiosks in Museums. Talinn interUX 2015.
- Camarero, C., Garrido, M. J., & Vicente, E. (2011). How cultural organizations' size and funding influence innovation and performance: the case of museums. *Journal of cultural economics*, *35*, 247-266.
- Carlos de las Heras-Pedrosa, Patricia P. Iglesias-Sánchez, Carmen Jambrino-Maldonado, Pilar López-Delgado & Emelina Galarza-Fernández (2022): Museum communication management in digital ecosystems. Impact of COVID-19 on digital strategy, Museum Management and Curatorship.
- Carr, K., England, R., 1995. Simulated and Virtual Realities. Elements of Perception. P: 215-221
- Caru, A., & Cova, B. (2007). Cap. 1 Consuming Experiences: an introduction. In *consuming experience* (pp. 3-16). Routledge.
- Cavlak, N., Cop R., 2019, Yerli ve Yabancı Turist Deneyimi: Gelibolu Yarımadası Tarihi Milli Parkı Milliyet Temelinde Bir Analiz, Anatolia: Turizm Araştırmaları Dergisi, Cilt 30, Sayı 3, Güz: 163 – 173
- Çeltek, E.: 2010 Deneyimsel Pazarlama Unsurlarının Otellerin Bakış Açısı İle Değerlendirilmesi: Türkiye'deki 4 ve 5 Yıldızlı Otel İşletmelerinde Bir Uygulama,

(Yayımlanmamış Doktora Tezi). Eskişehir: Anadolu Üniversitesi Sosyal Bilimler Enstitüsü Turizm ve Otel İşletmeciliği Ana Bilim Dalı
- Chen, P. J., Singh, D., Bulent Ozturk, A., & Makki, A. (2014). Can fundraising be fun? An event management study of unique experiences, performance and quality. *Tourism Review*, *69*(4), 310-328.
- Choi, H., Lee, J., & Chung, N. (2018). Virtual Reality in museums: Towards a new museum experience. Journal of Travel & Tourism Marketing, 35(8), 1073-1085.
- Chou, H.J. (2009). *The Effect of Experiential and Relationship Marketing on Customer Value: A Case Study of International American Causal Dining Chains in Taiwan.* Social Behavior and Personality: An International Journal. 37.7, 993-1008.
- Coşkun, C. 2017. Bir Sergileme Yöntemi Olarak Artırılmış Gerçeklik. Sanat ve Tasarım Dergisi, no(20): 61-75
- Costantino, E, T., 2004. TRAINING AESTHETIC PERCEPTION: JOHN DEWEY ON THE EDUCATIONAL ROLE OF ART MUSEUMS. EDUCATIONAL THEORY, Volume 54, Number 4
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *psychometrika*, *16*(3), 297-334.
- Davis, F. D. (1989). "Perceived usefulness, perceived ease of use, and user acceptance of information technology". MIS quarterly, 319-340.
- Dean, D. (2002). *Museum exhibition: Theory and practice*. Routledge.
- Değirmencioğlu, G. (2016). Dijitalleşme Çağında Gazeteciliğin Geleceği ve İnovasyon Haberciliği. TRT Akademi, 1(2), 590-606
- Demir, Ç. "Günümüz Sergileme Tasarımı, Türleri ve Londra'dan Sergileme Tasarımı Örnekleri", Sanat ve Tasarım Dergisi, sayı 2, Gazi Üniversitesi, 2008: 51-67.
- Demir, S., Ülker. Demirel., E., Bir Deneyimi Unutulmaz Kılan Unsurlar Nedir? Unutulmaz Turizm Deneyimi Üzerine Kavramsal Bir Değerlendirme, Trakya Üniversitesi Sosyal Bilimler Dergisi, Aralık 2019, Cilt 21, Sayı 2 (661-682)
- Deniz, M. (2008). Müze Sergileme Mekânlarında Güncel Gösterim Teknikleri İle Mimari Tasarım İlişkisi Üzerine Bir İnceleme, Yıldız Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Basılmamış Yüksek Lisans Tezi, İstanbul.
- Ding, M. (2017). Augmented reality in museums. *Museums & augmented reality–A collection of essays from the arts management and technology laboratory*, 1-15.
- Dirsehan, T & Yalçın, A.M. (2011). Comparison between Holistic Museum Visitors and Utilitarian Museum Visitors. International Journal of Marketing Studies, Vol. 3, No. 4; November 2011
- DIVRAK, M. MÜZE ATMOSFER FAKTÖRLERİ BAĞLAMINDA BİR ÖLÇEK ÇALIŞMASI: İSTANBUL OYUNCAK MÜZESİ ÖRNEĞİ. *UNIMUSEUM*, *3*(1), 23-29.
- Dodge, W. Ryan. (2016). "Are Museums Keeping Pace?" Canadian Museums Association Magazine, MUSE: The Voice of Canada's Museum Community, Vol. 35, Iss. 1: 40 – 45

- Erbay, C.O. (2016). Bilişim Çağının Müzecilik Çalışmalarına Etkileri, İstanbul Üniversitesi, Sosyal Bilimler Enstitüsü, Basılmamış Yüksek Lisans Tezi, İstanbul.
- Ergüney, M. (2017). İletişimin Dijitalleşmesi Ve İletişim Fakültelerinde Yeni Medya Eğitimi. ulakbilge, 5(15), 1475-1486.
- European Commission, 2016. RICHES "RENEWAL, INNOVATION AND CHANGE: HERITAGE AND EUROPEAN SOCIETY". The Cultural Heritage Institution: Transformation and Change in a Digital Age
- Falk, J.H., Dierking, L.D., 2000, Visitor Experiences and The Making of Meaning, Altamira Press, Walnut Creek
- Falk, J.H., Dierking, L.D., 2008. Re-envisioning success in the cultural sector.
- Fraser, J., 2007, Museums-Drama, Ritual And Power, S.J. Knell, S. Macleod ve S. Watson (yay) Museum Revolutions içinde, Routledge, London, 291-302
- Frolova, V, E., Rogach, V, O., Ryabova, M, T., 2020. Digitalization of Education in Modern Scientific Discourse: New Trends and Risks Analysis. European Journal of Contemporary Education. DOI: 10.13187/ejced.2020.2.313
- Gentile G., Spiller N., Noci G., 2007. How to Sustain the Customer Experience: An Overview of Experience Components that Co-create Value With the Customer. European Management Journal Vol. 25, No. 5, pp. 395–410, 2007.
- Georgescu Paquin, A. (2020). Heritage Mediation through Projection Mapping. *Image Beyond the Screen: Projection Mapping*, 177-197.
- Gere, C. (2009). *Digital culture*. Reaktion Books.
- Gobble, M. M. (2018). Digitalization, digitization, and innovation. *Research-Technology Management*, *61*(4), 56-59.
- Godovykh M., Tasci DA A., 2020. Customer experience in tourism: A review of definitions, components, and measurements. Tourism Management Perspectives 35 (2020) 1006964
- Gombault, A., Allal- Chérif, O., Décamps, A. (2018). ICT adoption in heritage organizations: Crossing the chasm. Journal of Business Research, Volume 69, Issue 11, November 2016, Pages 5135-5140
- Hammady, R., Ma, M., Al-Kalha, Z., Strathearn, C. (2021). A framework for constructing and evaluating the role of MR as a holographic virtual guide in museums. Virtual Reality (2021) 25:895–918.
- He, Z., Wu, L., & Li, X. R. (2018). When art meets tech: The role of augmented reality in enhancing museum experiences and purchase intentions. *Tourism Management*, *68*, 127-139.
- Hein, H. (2004). Museums: From Objects to Experience. C Blackwell Publishing, 103-115.
- Herrero, Á., ve San Martín, H. (2012). "Developing and testing a global model to explain the adoption of websites by users in rural tourism accommodations". International Journal of Hospitality Management, 31 (4), 1178-1186.
- Holbrook, B.M., Hirschman, E.C. (1982). *The Experiential Aspects of Consumption: Consumer Fantasies, Feelings and Fun.* Journal of Consumer Research, Vol. 9, 132-140

- Hooper-Greenhill, E. (2000). Museums and the Interpretation of Visual Culture (Museum Meanings) . London : Routledge.
- Hosany, S., & Witham, M. (2010). Dimensions of cruisers' experiences, satisfaction, and intention to recommend. *Journal of Travel Research*, *49*(3), 351-364.
- Howard, J.A., Sheth, J.N. (1969). *The Theory of Buyer Behavior.* Journal of the American Statistical Association. pp. 467-485
- Huang, Y. C., Li, L. N., Lee, H. Y., Browning, M. H., & Yu, C. P. (2023). Surfing in virtual reality: An application of extended technology acceptance model with flow theory. *Computers in Human Behavior Reports*, *9*, 100252.
- Hultén, B., Broweus, N., Van Dijk, M., Hultén, B., Broweus, N., & van Dijk, M. (2009). *What is sensory marketing?* (pp. 1-23). Palgrave Macmillan UK.
- Hyun, H., Park, J., Ren, T., & Kim, H. (2018). The role of ambiances and aesthetics on millennials' museum visiting behavior. *Arts and the Market*, *8*(2), 152-167.
- ICOM International Council of Museums (2004). Running a Museum: a practical Handbook. ICOM
- ICOM International Council of Museums. Statutes from 1974 and 2007 retrieved from: https://icom.museum/en
- ICOM, 2022 retrieve from: https://icom.museum/en
- International Journal of Arts Management , SPRING 2005, Vol. 7, No. 3 (SPRING 2005), pp. 11-21
- Işık, V. (2013). "Holografik Sanat", Elektronik Sosyal Bilimler Dergisi, Cilt 12, Sayı 47, 212- 231.
- ISTAT (2016). I Musei, le Aree Archeologiche e i Monumenti in Italia. ISTAT
- Jarrier, E., & Bourgeon-Renault, D. (2012). Impact of mediation devices on the museum visit experience and on visitors' behavioural intentions. *International Journal of Arts Management*.
- Jensen, B. (2013, October). Instagram as cultural heritage: User participation, historical documentation, and curating in Museums and archives through social media. In *2013 digital heritage international congress (DigitalHeritage)* (Vol. 2, pp. 311-314). IEEE.
- Jiang, Q., Chen, J., Wu, Y., Gu, C., & Sun, J. (2022). A study of factors influencing the continuance intention to the usage of augmented reality in museums. *Systems*, *10*(3), 73.
- Jones, A., Ramanau, R., Cross, S., Healing, G., 2010. Net generation or Digital Natives: Is there a distinct new generation entering university? Computers & Education 54 (2010) 722–732
- Kandemir, Ö. ve Uçar, Ö., 2015, Değişen Müze Kavramı ve Çağdaş Müze Mekanlarının Oluşturulmasına Yönelik Tasarım Girdileri. Sanat ve Tasarım Dergisi, 5 (2), 17-47
- Kefi, H. & Pallud, J. (2011). Digital Heritage, The role of technologies in cultural mediation museums: an Actor-Network Theory view applied in France. Museum Management and Curatorship. Vol. 26, No. 3, August 2011, 273-289.
- Keskin, E., Sezen, N., Dağ. T., 2020, Unutulmaz Turizm Deneyimi, Müşteri Memnuniyeti Tekrar Ziyaret ve Tavsiye Etme Niyeti Arasındaki İlişkiler: Kapadokya Bölgesini Ziyaret

Eden Turistlere Yönelik Araştırma, Journal of Recreation and Tourism Research /JRTR 2020, 7 (2), 239-264
- Khan, S., Aftab, M., 2015. DIGITIZATION AND ITS IMPACT ON ECONOMY. International Journal of Digital Library Servicesi Volç5, Issue-2.
- Kim, J. H., Ritchie, J. B., & McCormick, B. (2012). Development of a scale to measure memorable tourism experiences. *Journal of Travel research*, *51*(1), 12-25.
- Kirchberg, V., Tröndle, M., 2015. The Museum Experience: Mapping the Experience of Fine Art. Volume 58, No 2.
- Kline, R. B. (2011). Principles and practice of structural equation modeling (3. Baskı). *New York, NY: Guilford*, *14*, 1497-1513.
- Kurniawan, H., Salim, A., Suhartanto, H., & Hasibuan, Z. A. (2011, March). E-cultural heritage and natural history framework: an integrated approach to digital preservation. In *International Conference on Telecommunication Technology and Applications (IACSIT)* (pp. 177-182).
- Lee, H., Jung, T. H., tom Dieck, M. C., & Chung, N. (2020). Experiencing immersive virtual reality in museums. *Information & Management*, *57*(5), 103229.
- Lee, Y. Y., Lee, J. H., Ahmed, B., Son, M. G., & Lee, K. H. (2019). A new projection-based exhibition system for a museum. *Journal on Computing and Cultural Heritage (JOCCH)*, *12*(2), 1-17.
- Legner, C., Eymann, T., Hess, T., Matt, C., Böhmann, T., Drews, P., Madche, A., Urbach, N., Ahlemann, F., 2017. Digitalization: Opportunity and Challenge for the Business and Information Systems Engineering Community. Bus Inf Syst Eng 59(4):301–308.
- Lescop, L. (2021) Expanding Museums : new tools and concepts for mediation and virtualization. Move international Conference : Museums environments : challenges and opportunities (MECO), Faculty of Engineering, Ain Shams University, Dec 2021, Cairo, Egypt. ffhal-03523024f
- Liu, J. C.-C. ve Chen, J. (2006). Virtual Experiential Marketing on Online Purchase Intention. 11th Annual conference of Asia pacific Decision Sciences Institute Hong Kong, June 14-18 (ss. 325– 333).
- Malinka, N. D., & Saragih, D. R. U. (2023). Tourism Attractiveness in Improving Re-visit Decisions through the Destination Image, Accessibility and Word of Mouth. *J-CEKI: Jurnal Cendekia Ilmiah*, *2*(6), 448-463.
- Mallavarapu, A., Lyons, L., Uzzo, S., Thompson, W., Levy-Cohen, R., Slattery, B. (2019). Connect-to-Connected Worlds. Piloting a Mobile, Data-Driven Reflection Tool for an Open-Ended Simulation at a Museum. CHI 2019, May 4–9, 2019, Glasgow, Scotland, UK.
- Mammadli, E., Klivak, V., 2020. Measuring the effect of the Digitalization. The University of Tartu FEBA.
- Markov, V. B. (2011). Holography in museums. The Imaging Science Journal, 59(2), 66–74.
- Marr, B. (2018). What is Industry 4.0? Forbes

- Mohd Noor Shah, N. F., & Ghazali, M. (2018). A systematic review on digital technology for enhancing user experience in museums. In *User Science and Engineering: 5th International Conference, i-USEr 2018, Puchong, Malaysia, August 28–30, 2018, Proceedings 5* (pp. 35-46). Springer Singapore.
- Musik, A., & Bogner, A., (2019). Digitalization & Society. A sociology of technology perspective on current trends in data, digital security and the internethttps://doi.org/10.1007/s11614-019-00344-5 Österreich Z Soziol (2019) (Suppl 1) 44:1–14
- Narzieva, D.M., Boltayeva, Sh.B., Kudratov, A.D., 2021. The Importance Digitalization of the Ecoomy and Priorities in Uzbekistan. Wordl Economics & Finance Bulletin (WEFB), Vol.2
- Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of marketing research*, *17*(4), 460-469.
- OMC 2014, The Role of Public Arts and Cultural Institutions of Cultural Diversity and Intercultural Dialogue
- Onur, B., 2012, Çağdaş Müze Eğitim ve Gelişim Müze Psikolojisine Giriş, İmge Yayınevi, Ankara
- Onur, B., 2014, Yeni Müzebilim: Demokratik Toplumu Yaratmak, İmge Yayınevi, Ankara Otto, E.T. ve Brent Ritchie, J.R., 1996, The Service Experience İn Tourism, Tourism Management, Vol:17, No:3, 165-174
- Ormanlı, O. (2012). Dijitalleşme Ve Türk Sinemasi. The Turkish Online Journal of Design, Art and Communication – TOJDAC, 2(2), 32-38.
- Othman, M. K., Petrie, H., & Power, C. (2011). Engaging visitors in museums with technology: scales for the measurement of visitor and multimedia guide experience. In *Human-Computer Interaction–INTERACT 2011: 13th IFIP TC 13 International Conference, Lisbon, Portugal, September 5-9, 2011, Proceedings, Part IV 13* (pp. 92-99). Springer Berlin Heidelberg.
- Özgül, E. (2018). Projeksiyon Haritalama Teknikleri, Alanlarının İncelenmesi ve Bir Uygulama Çalışması, Hacettepe Üniversitesi, Güzel Sanatlar Enstitüsü, Basılmamış Yüksek Lisans Tezi, Ankara
- Pallud, J., 2017. Impact of interactive technologies on stimulating learning experiences in a museum. Information & Management, 54(4), 465-478.
- Pessoa, R.A., Oliveira, O.O., & Souza, L.L.F. (2022). Facotrs that make a destination fascinating and motivate (re)visit. Spanish Journal of Marketing – ESIC, 26(2).
- Petkus Jr, E. (2004). Enhancing the application of experiential marketing in the arts. *International Journal of Nonprofit and Voluntary Sector Marketing*, *9*(1), 49-56.
- Pietroni, E. (2019). Experience Design, Virtual Reality and Media Hybridiation for the Digital Communication Inside Museums. *Appl. Syst. Innov.* **2019**, *2*, 35
- Pine, B., Gılmore, J.: 1999 The Experience Economy: Work is Theatre & Every Business, Boston: Harvard Business School Press

- Poulsson, S., Kale, S. (2004). *The Experience Economy and Commercial Experiences.* The Marketing Review, Vol. 4, 267-277
- Prahalad, C.K., Ramaswamy, V. (2004). *Co-creating Unique Value with Customers.* Journal of Interactive Marketing. 12.3.
- Raimo, N., Turi, D, I., Ricciardelli, A., Vitolla, F., 2021. Digitalization in the cultural industry: evidence from Italian museums. Department of Management, Finance and Technology, LUM University, Casamassima, Italy.
- Riedler, M., 2016. Sanat Müzelerinde Öğretme ve Öğrenme Kuramları ve Bu Kuramların Müze Uygulamalarını Oluşturma Şekillendirme ve Dönüştürmeye Yönelik Etkileri. Mediterranean Journal of Educational Research, Issue 19, Year 2016, pp. 61-78.
- Roederer, C., Revat, R., Pallud, J. (2020). Does Digital Mediation Really Change the Museum Experience? Museomix in the Lyon-Fourvière Archaeological Museum. International Journal of Arts Management. Montréal Vol. 22, Iss. 3, (Spring 2020)
- Rüßmann, M., Lorenz, M., Gerbert, P., Waldner, M., Justus, J., Engel, P., Harnisch, M., 2015. Industry 4.0: The Future of Productivity and Growth in Manufacturing Industries.
- Şahin, L., Aydın, E., Güler, M., 2015. EFFECTS OF TECHNOLOGICAL IMPROVEMENTS OVER THE STRUCTURE OF WORK AND CHARACTERISTICS OF LABOR: A RESEARCH STUDY OVER THE HOSPITAL EMPLOYEES.
- Saraoui, S., Belakehal, A., Attar, A., & Bennadji, A. (2019). The Topological Reading of Ambiances in the Built Environment: The New Methodology for the Analysis of the Luminous Ambiance in the Museum Space. In *SHS web of conferences* (Vol. 64, p. 03004). EDP Sciences.
- Sayar, K. (2016). Dijital Toplum. TRT Akademi, 1(2), 762-775.
- Schmitt, B (2010). *Experiential Marketing: A New Framework for Design and Communications.* Design Management Journal. 5.2, 55-112
- Schmitt, B. (1999a). *Experiential Marketing.* Journal of Marketing Management. 15.1, 53-67.
- Schmitt, B. (1999b). *Experience Marketing: Concepts, Frameworks and Consumer Insights.* Foundations and Trends in Marketing. 10.2, 10-16
- Schubert, Karsten. Küratörün Yumurtası: Müze Kavramının Fransız İhtilalinden Günümüze Kadar Olan Evrimi. İstanbul: İstanbul Sanat Müzesi Vakfı, 2004.
- Sendov, B., 1997. TOWARDS GLOBAL WISDOM IN THE ERA OF DIGITALIZATION AND COMMUNICATION. Prospects, vol. XXVII, no. 3.
- Sevim, K. Ü. L., & Güçer, E. (2019). Determining the leisure satisfaction levels of individuals having hot air balloon ride as an adventurous recreational activity. *Journal of multidisciplinary academic tourism*, *4*(2), 63-69.
- Shaw, C., Ivens, J.: 2002 Building Great Customer Experience, New York: Palgrave Macmillan.
- Shehade, M., Lambert, T.S. (2020). Virtual Reality in Museums: Exploring the Experiences of Museum Professionals. Appl. Sci. 2020, 10, 4031.
- Silier, O. (2010). Dünyada ve Türkiye'de Kent Müzeleri. Ege Mimarlik, Temmuz 2010, 16-21.

- Stylianou-Lambert, T., Boukas, N., & Christodoulou-Yerali, M. (2014). Museums and cultural sustainability: stakeholders, forces, and cultural policies. *International Journal of Cultural Policy*, *20*(5), 566-587.
- The Pallagrave Macmillan Digital Sociology, Critical Perspectives. Kate Orton-Johnson and Nick Prior 2013, 1-3
- Ting, Z.L.K., Lim, Y.P., Sharji, E.A. (2013). Young Visitors' Preferences for Touch Screen Design in Museums. 2013 International Conferene on Informatics and Creative Multimedia.
- Turhan, D. G. (2017). Dijital Aktivizm. Süleyman Demirel Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, (26), 26-44.
- UNESCO (https://whc.unesco.org/en/world-heritage-and-museums/)
- United Nations, The Impact of Digital Technologies (https://www.un.org/en/un75/impact-digital-technologies)
- Uslu, A. & Uysal, M. (2017). E-Müze İçin Kültürel Mirasın 3 Boyutlu Modellenmesi ve Gösterimi. Afyon Kocatepe Üniversitesi Fen ve Mühendislik Bilimleri Dergisi, (Special Issue), 79-85.
- Uzunsakal, E., & Yıldız, D. (2018). Alan araştirmalarinda güvenilirlik testlerinin karşilaştirilmasi ve tarimsal veriler üzerine bir uygulama. *Uygulamalı Sosyal Bilimler Dergisi*, *2*(1), 14-28.
- Vajda, A. (2020). Museums and Online Spaces. The Society-Building Role of the Museums during the Pandemic. Acta Universitatis Sapientiae, Communicatio, 7 (2020) 42–53. DOI: 10.2478/auscom-2020-0004
- Vecco, M. (2010). A definition of cultural heritage: From the tangible to the intangible. *Journal of cultural heritage*, *11*(3), 321-324.
- Wang, C., & Zhu, Y. (2022). A Survey of Museum Applied Research Based on Mobile Augmented Reality. *Computational Intelligence and Neuroscience*, *2022*.
- Wu, Y., Jiang, Q., Liang, H. E., & Ni, S. (2022). What drives users to adopt a digital museum? A case of virtual exhibition hall of National Costume Museum. *SAGE Open*, *12*(1), 21582440221082105.
- Yıldız A., 2012. Çevre Yönetimi Uygulayan Yeşil Otel İşletmelerinde Yeşil Müşteri Deneyimi Üzerine Bir Araştırma. Yüksek Lisans Tezi.
- Yoo, B., & Donthu, N. (2001). Developing and validating a multidimensional consumer-based brand equity scale. *Journal of business research*, *52*(1), 1-14.
- Yu, D., & Yao, W. (2023, February). Research on holographic display and technology application of art museum based on immersive design. In *Journal of Physics: Conference Series* (Vol. 2425, No. 1, p. 012048). IOP Publishing.
- Zanibellato, F., Rosin, U., & Casarin, F. (2018). How the attributes of a museum experience influence electronic word-of-mouth valence: an analysis of online museum reviews. *International Journal of Arts Management*, 76-90.

- Zhou, Y., Chen, J., & Wang, M. (2022). A meta-analytic review on incorporating virtual and augmented reality in museum learning. *Educational Research Review*, 100454.
- Zollo, L., Rialti, R., Marrucci, A., & Ciappei, C. (2022). How do museums foster loyalty in tech-savvy visitors? The role of social media and digital experience. *Current Issues in Tourism*, *25*(18), 2991-3008.

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