

# Grandmother, Mother, Daughter: A Nineteenth-Century Egyptian Inheritance

Exploring the Impact of Archival Storytelling through  
a Site-Specific Spatial Augmented-Reality Exhibit in a  
Private Historic House

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## *Introduction: Digital Technology in the Museum*

Museums and cultural institutions are seeking new ways to engage digitally native audiences through interactive and immersive digital technologies as evidenced by the proliferation of digital experiences available today. Traditional methods of displaying artifacts alone may no longer hold as much appeal for audiences who are exposed to digital experience regularly in their daily lives.

According to Loïc Tallon, Chief Digital Officer of the Metropolitan Museum of Art, in the twenty-first century digitization is an integral part of our daily lives. As such, museum audiences do not consider a digital experience to be lesser than or a replacement for a physical experience. In fact, it is just another type of experience that is available today. Consequently, while exhibits should not ignore what makes museum experiences special, which is “their collections, audiences, remits and identities” (Museums and Digital Culture 2019), they should, as exhibits shift their emphasis from being collection-centric to visitor- or user-centric, create interactive, immersive digital experiences that enhance learnings about their collections, through storytelling.

Some museums now believe edutainment is the future as they face competition from various entertainment institutions (Bimber and Raskar 2005, 300). However, there is caution from museum professionals. Ilona Regulski, curator of the Papyrus Collections at the British Museum warns of avoiding the “Disneyfication” of museums. She instead thinks that successful digital museum strategies unfold when interactive technologies

complement the museum's artifact exhibition. Digital installations can be used to encourage learning, contextualize artifacts, and showcase research. Regulski describes one such digital installation from the Egyptian Museum that achieves these goals: A tabletop touch screen that enables visitors to virtually unwrap Egyptian mummies, revealing one layer after another. This exhibit proved engaging and popular with visitors, was a successful learning experience, and presented scientific research to the public in an effective, interactive, and immersive manner. (I. Regulski, N. Elvin, interview, March 8, 2020.)

### Project Aims

This research aimed to design and evaluate an exhibit to contextualize historical archival stories for an audience, through a multi-media, site-specific, projection mapping exhibit. The historical archival narrative and artifacts are curated from the Mahmoud Sabit Archive, a private family archive and collection in Cairo.

The projection mapping site is the 8 by 5 meter intricately ornamented wall in the salon of the fin de siècle villa in Cairo that houses the archive and collection and is still lived in by the owner, Mahmoud Sabit and the author of this research.

In this exhibit, spatial augmented reality is used as a medium to attempt to intensify the narrative, educational, and emotive historical experience. The medium allows several layers of historical knowledge to be revealed, not only the story of these women's family history and fortunes, but being site-specific, the spaces they inhabited and its architectural history as well.

Three-dimensional projection mapping or spatial-augmented reality was used because it evokes greater spatial presence, enjoyment, and satisfaction than 2D projection (Jung et al. 2015, 366). As such, the medium meets one of the aims of this project to evoke an emotional experience for visitors.

Research aims were to reflect on:

1. how visual communication of history through site specific projection mapping augments the experience;
2. the learning and emotional impact of a site specific, projection mapping experience on exhibit visitors; and
3. if this model may be a relatively low cost / high impact solution for private houses to tell historical narratives.

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### *The Mahmoud Sabit Archive and Collection, and the Chosen Artifacts*

A selection of rarely viewed records and artefacts from the Mahmoud Sabit Private Family Archive and Special Collection were curated to use as visual material for the exhibit. These archival records and collection artefacts are housed in their original venue, a nineteenth-century villa in the center of Cairo in Egypt. This villa was originally gifted as part of a dowry to Fatima Moharram Chahin (Fatima Hanem, the “daughter” in the exhibit title) and inherited by her grandson, Mahmoud Sabit. It became a repository for the documents and objects of Fatima Moharram Chahin’s ancestors and visiting relatives throughout a hundred-year period, and little was discarded. Today, the archive is preserved and the villa resided in by her grandson, Mahmoud Sabit and family.

Sabit, a passionate historian, began the task of organizing and categorizing the archive and collection. Spanning two centuries of interrelated Egyptian military and political personalities, it includes both analogue and digital records such as official documents, personal correspondence, personal and official photographs, film footage, audio recordings, and physical objects such as paintings, medals, and furniture. The personalities from between 1830 and 1980 include: General Suleiman Pasha Al Faransawi, founder of the first modern Egyptian army and his wife, Maria Elleithi. Their daughter Nazlah Hanem, who became the wife of Cherif Pasha, former prime minister and author of the Egyptian constitution in 1877. Their children Iskander Bey, Zuhra Hanem, and Gulsen Hanem. Gulsen’s husband, Moharram Chahin, and their daughter Fatima Moharram Chahin, married to Sabit Pasha, one of the last Ottoman diplomats, and their son Adel Sabit.

The extensive personal knowledge and living memory of Mahmoud Sabit add vivid context to the archive. The private archive and collections are not open to the general public, but they have previously been viewed by scholars and interested individuals by appointment through channels such as social networks and word of mouth.

This archive was chosen because private Egyptian archives and collections are important in contributing to Egypt’s historical narrative, for the reason that knowledge of a people’s history plays an important role in the construction of national identity (Anderson 2006). The history of Egypt before the 1952 military coup has been rewritten to the extent that, even today, certain historical facts are omitted from children’s schoolbooks. In an interview with Sabit, he states that, after 1952, “the state came up with an historical version [of events] that is more ideological than it is in anyway

historical.” This has had an impact on Egyptian identity. The period of 1855 to 1961 that the Sabit archive and collection address includes records and artifacts that illuminate this deleted period of history, and they should be preserved and disseminated within the Egyptian community to help in developing an informed contemporary Egyptian perspective of this period. (M. Sabit, personal communication, November 15, 2018).

In the search for a narrative, amid the endless stories the archive conceals, attention was drawn to the fact that the family villa – in which the archive is housed – was gifted as part of a dowry to Fatima Moharram Chahin and remained her property, and not her husband’s, after marriage. Meanwhile in Europe, husbands controlled their wife’s inheritance after marriage during the same period.

Muslim women are often portrayed in media or understood in the West as lacking in rights today, but here was a matrilineal inheritance involving three generations of independently wealthy Muslim women, from as early as 1830. Hence, the archival records chosen as “gateway” objects to the exhibit narrative are the four wills (*hogga* in Arabic) of Nazlah Hanem and their significance in the matrilineal inheritance of her daughter and granddaughter.

Besides the wills, a range of archival records and artifacts were used to tell the story of the matrilineal inheritance in the Sabit family. These records and artifacts included photography of the personalities and their friends in different periods and locations, family mausoleums and their elaborate interior decoration, the interior and exterior shots of the villa, paintings such as the work by John Frederick Lewis commissioned by Suleiman El Fransawi, and official documents such as French military records.

The development of the narrative concept was then further informed by the oral histories of the archive owner and custodian, Sabit, through a series of interviews and discussions. The choice of records and artifacts inspired the narrative and vice versa. A spatial augmented-reality exhibit based on the narrative was designed by the researcher to be projected onto the wall of the grand salon, in the original setting of the archive. This is one of the few residential nineteenth-century villas in Garden City, Cairo, still inhabited by the original owners. The exhibit was presented to visitor groups, from June 12 to June 26, 2021, as the main feature in a multilayered exhibit: *Grandmother, Mother, Daughter: A Nineteenth-Century Egyptian Inheritance*.

Qualitative and quantitative research was undertaken with nine visitor groups to collect data both before and after the audience experience of the exhibit. Pre- and post-experience questionnaires and the post-experience question-and-answer session collected data on the emotional impact

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of the exhibition using the Geneva Emotion Wheel (GEW) as a framework (Fontaine et al. 2013; Scherer, 2005). The informal learning impact was explored through testing fact recall after the exhibition as well as through open-ended responses. The findings of the research indicated that visual storytelling through site-specific 3D-projection mapping, intertwined with authentic artifacts and architecture, can powerfully provoke emotions and convey historical knowledge to a broad audience and may be used as a relatively low-cost and unobtrusive model for bringing private family house museums and the history of their inhabitants to life.

### *The Exhibit: Design Process*

Three frameworks were considered during the design of the exhibit by the researcher: (1) Smithsonian Guide to Exhibit Development; (2) Judy Rand's "Visitors' Bill of Rights," and (3) John Falk's visitor identities. The objective was to convey detailed historical information in a contemporary, relatable, and emotive manner to appeal to broad audiences with diverse ages, knowledge levels, and nationalities.

### Exhibit Interpretive Master Plan

The Smithsonian Guide to Exhibit Development was used as a starting point to design the exhibit. Accordingly, the first step was to create a team that represented different stakeholders (Guide, n.d.). Because this research was being completed within a master's program in digital-media design, the researcher, myself, took on several team-member roles: project manager, exhibit developer, designer, curator. I considered the client in this research project to be the test audiences. The subject matter specialist was the archive owner, Mahmoud Sabit, and the researcher when additional information outside the scope of the archive required further research.

Following the Smithsonian Guide, the researcher developed the interpretive master plan (Guide, n.d.). This was referred to throughout the design process to align project goals. The plan included exhibit market-positioning statement, vision, mission, key values, target, interpretive hierarchy, big idea, key messages, and critical questions, all of which are detailed below.

### Exhibit Market-Positioning Statement

For all adults who are interested in discovering hidden modern Egyptian histories in private archives, the *Grandmother, Mother, Daughter: A Nineteenth-Century Egyptian Inheritance* exhibit from the Mahmoud Sabit Private Archive and Collection is an engaging immersive exhibit that highlights histori-

cal issues with contemporary relevance. It combines seldom seen private artifacts, storytelling, motion graphics, and kinetic typography through spatial augmented-reality in the fin de siècle historical villa of the archive owner to create a memorable, emotional, educational, and immersive digital environment uncommon to historical archival exhibits in private houses, so as to attract a broad audience to re-engage with modern Egyptian history.

### Vision

Inspiring and encouraging local and international interest in the preservation and documentation of Egyptian modern history – often neglected because of the dominance of the Egyptian pharaonic era and political upheaval – and highlighting its ongoing relevance to issues in contemporary society.

### Mission

This exhibit allows diverse audiences to engage with analogue and digital archival historical documents that reveal stories of contemporary interest. It adds an Egyptian perspective to the historical narrative that was documented mainly by Western researchers through an orientalist lens and Islamic stereotypes. The exhibit aims to encourage a renewal of interest in modern Egyptian history from an Egyptian perspective through an Egyptian family archive.

### Key Values

The values of the experience to be communicated seek to be historical yet contemporary and educational yet emotional.

### Target

The exhibit should engage, through the means of (1) the Smithsonian Guide to Exhibit Development, (2) Judy Rand's "Visitors' Bill of Rights," and (c) John Falk's visitor identities, a broad audience of differing knowledge level, nationality, age, and gender.

**Knowledge level:** For beginner-level audiences, the exhibit must: (1) ensure that no specific prior knowledge is required and (2) contain relatable content. For expert-level audiences, the exhibit allows: (1) access to view private archival documents in their original context and (2) access to the archive owner's knowledge.

**Nationality:** Both local Egyptian and foreign visitors should find relevance and interest in the exhibit.

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**Age:** The age range remains broad, but there are two main target segments. The first is Egyptian youth aged 20 to 30, because one of the exhibit aims is to connect to a younger generation. The second target includes Egyptians and international residents and tourists, age 30 and up. Both targets have gaps in their knowledge of modern Egyptian history because of the political upheaval previously discussed.

**Sex:** Both female and male, but with a content bias toward female issues to further develop the narrative regarding Egyptian women's rights.

### Interpretive Hierarchy

After several open-ended interviews with Sabit, the archive owner, the exhibit was focused on specific archival artifacts that illuminate how three generations of Sabit's female ancestors navigated Islamic inheritance laws through the use of Islamic trusts (*awqaf*) to ensure that immediate female family members received their full inheritance instead of their distant male relatives, thus safeguarding and transferring wealth through the female line.

This matrilineal inheritance also acts as a contributing factor to the existence of the archive today, as well as an introduction to the exhibition location. This nineteenth-century historic villa was gifted, due to the matrilineal inheritance, as part of a dowry to Fatima Hanem, and as the repository for family documents and heirlooms it has become the home of the archive.

### Big Idea

How three generations of Egyptian women, Nazlah Hanem (c. 1831-2-1916), Gulsen Mohamed Cherif (1863-1949), and Fatima Moharram Chahin (1898-1988), inherited and controlled their wealth, through Islamic inheritance laws, Islamic trusts and property-ownership laws, and the reasons why they chose to do so.

### Key Messages

Key messages included: (1) challenging the stereotype of Islamic women's inheritance and property-ownership rights being weaker than those of Western contemporaries; (2) challenging this stereotype by highlighting independently wealthy, educated Egyptian women and their important role in society; and (3) showing that although Islamic inheritance, property laws, and divorce laws with regard to women may be considered regressive today, they were progressive for the period (1800s).

### Critical Questions

A series of questions were designed that the exhibition should answer or engage with:

1. What is the stereotype of the economic situation of Egyptian women of the period?
2. Who are the three generations of women, Nazlah Hanem, Gulsen Hanem, and Fatima Hanem?
3. Why did they have to safeguard both their inheritance and their daughter's inheritance?
4. How did they protect the inheritance through the female line?
5. Was this common practice for Egyptian Muslim women?
6. What were the inheritance, divorce, marriage, and property-ownership laws like at the time in Egypt?
7. What were the comparative inheritance laws in Western countries in the same period?
8. Why did Islamic women inherit half of their brother's share?
9. What will the present heiress, the great-great-great granddaughter of Nazlah Hanem inherit today?

### Judy Rand's "Visitors' Bill of Rights"

Used in the planning of the exhibit, Judy Rand's "Visitors' Bill of Rights" led the designer to view the visitor's needs during the intervention in terms of comfort, orientation, welcome/belonging, enjoyment, socializing, respect, communication, learning, choice and control, challenge and confidence, and revitalization. (Rand 2001.)

### John Falk's Visitor Identities

Based on visitor motivations, visitor identities were also used to plan the exhibit to appeal to diverse exhibit visitors with identities such as explorers, facilitators, professional/hobbyists, experience seekers, and rechargers. (Falk 2016.)

### *The Exhibit: Visual Research and Language*

The visual language mirrors the key values of elegance and sophistication of the independently wealthy women. It also communicates nostalgia to create an emotional ambience and connect to the audience.

The graphic elements included Louis XVI stucco and brass ornaments extracted from interior of the salon of the villa. The imagery used was



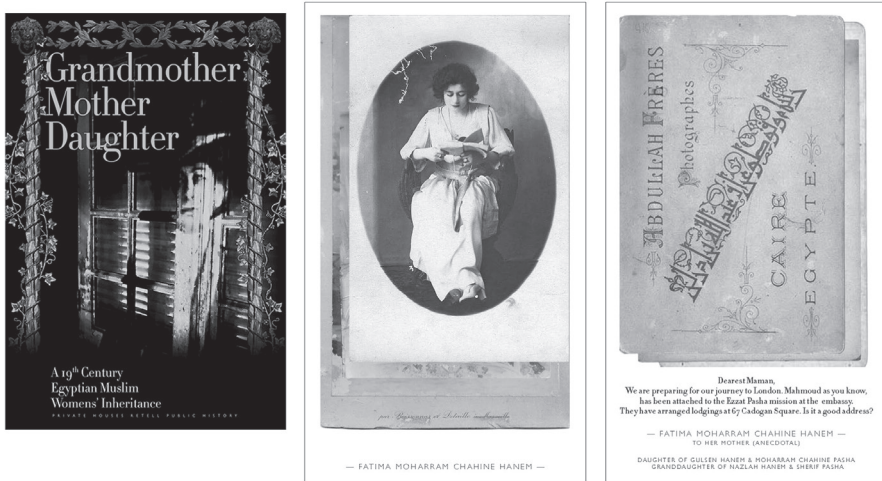
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mainly archival material such as handwritten wills, photographs, paintings, and furniture. The typeface choice was inspired by the era: Didot display typeface, designed by Firmin Didot (1764–1836), a French printer, engraver, and type founder (Linotype, n.d.) and Gill Sans a close match to one of the first sans serif typefaces to be documented in a type sample book in 1816 (The Sans Serif, n.d.). A color palette of black, deep brown, gold, sepia, and a range of grays was combined to communicate luxury, nostalgia, and emotion.

### The Exhibit: Poster Designs

A series of posters (Figure 1) was designed using the developed visual language and featuring archival photography projected onto salon interior and architectural ornament. Posters were displayed at the entrance to the exhibit, as well as used as key visuals to develop social-media campaigns to advertise it.

Figure 1. Poster and personality card designs.



Left: One example of three exhibit posters featuring mother (Gulsen Mohamed Cherif). The other posters featured grandmother (Nazlah Hanem), and daughter (Fatima Moharram Chahin) Center and right: One example of eight historical, double-sided personality cards featuring daughter (Fatima Moharram Chahin). Other cards featured the grandmother, mother, their husbands, and siblings.

### The Exhibit: Archival Narrative

A goal was to create awareness of Islamic trusts and property-ownership laws between 1830 and 1980, as well as to communicate how and why three generations of independently wealthy Egyptian Muslim women inherited and controlled their wealth through Islamic inheritance laws.

The grandmother, mother, and daughter featured in the exhibit were respectively: Nazlah Hanem (c. 1831–2–1916), Gulsen Mohamed Cherif (1863–1949), Fatima Moharram Chahin (1898–1988),

### The Exhibit: Three Phases

The design of each phase of the exhibit considered how to meet the needs of visitors using Falk's visitor identities (Falk 2006, p. 156), Dirk and Falk's interactive experience model (Falk and Dierking 1992) and Rand's visitor bill of rights (Rand, 2001).

**Phase 1:** Entering the entrance hall of the private villa and engaging in a fifteen-minute interactive historical personality-card activity. This provided a warm welcome, socializing, clear communication, choice and control, challenge, confidence, and revitalization. It attempts to appeal to explorers, facilitators, experience seekers, and rechargers.

### The Exhibit Phase 1: Archival personality-cards activity

This phase aimed to provide the visitor with a warm welcome, socializing through a shared activity, clear communication, choice and control, a challenge, confidence, and revitalization (Rand 2001).

When visitors arrive at the villa, the outer gates, main door, and inner door are wide open to enter, removing the barrier of a closed door and any inhibition at entering a private space. Between the main door and the inner door, there are four exhibit posters to lead the visitors inside. Three A1 size posters depict sequentially the grandmother, mother, and daughter, while the final poster depicts the three together. Each poster uses the exhibit visual language, archival images, and visual elements from the architecture to foreshadow the upcoming experience.

In the main entrance hall, visitors participate in a group activity. A facilitator, myself, invites the visitors to the hall table, opens a hexagonal, antique mother-of-pearl and wood box and hands each visitor one of eight historical personality cards (Figure 1, centre and right) printed with an archival image of a personality who will later appear in the exhibit. Each card contains a private message from an archival letter or anecdotal family stories and the familial relationships. This enables the visitors to both inter-

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act socially conveying messages to each other and handle a facsimile of an archival artifact to foster curiosity and create a connection with a historical personality.

Afterward, the doors to the grand salon and main dining room are opened, and visitors are invited to explore and requested to search for the same personality pictured on their card who also appears in either a portrait or photograph in the rooms. The image they find may be the same as their personality card, or it may be in another medium, for example, a painting. The personality might also appear older or younger, or in different attire. This encourages visitor exploration and limits feelings of inhibition (Rand 2001).

This hall also provides refreshment. Several seats are available. There is a coat and bag assistant to make visitors feel comfortable. Visitors are encouraged to take photos, and if this was a private house museum, this may be shared on social media.

**Phase 2:** This phase included a fifteen-minute seated site-specific projection-mapping experience in the Louis XVI salon. It provided comfort, enjoyment, learning, and respect for knowledge levels. It attempts to appeal to professional/hobbyists, experience seekers, rechargers.

The Exhibit Phase 2: Archival narrative through site-specific projection mapping

This phase aims to provide the visitor with comfort, enjoyment, learning, and respect for their knowledge level (Rand, 2001) through a fifteen-minute augmented spatial reality storytelling experience.

After all portraits are discovered, visitors are seated in the original antique chairs of the grand salon, lights are switched off, and the spatial augmented reality begins: *Grandmother, Mother, Daughter: A Nineteenth-Century Inheritance*. The fifteen-minute immersive projection maps the entire salon interior wall (Figure 2) and uses expressive kinetic typography, archival artifacts and objects and information graphics to visually convey the story, complimented by the archive owner's narration and a soundscape with relevant sound effects, intertwining the story of the women with the historic house. Architectural features such as windows, ornaments, and mirrors are used as storytelling elements to emphasize site specificity.

Figure 2. Projection mapping in the grand salon



**Phase 3:** A thirty-minute question-and-answer session with archive owner, Mahmoud Sabit, and exhibit designer/researcher, Sally Ann Skerrett. This provided revitalization, learning, socializing, respect for knowledge levels, and communication. It attempts to appeal to professional/hobbyists.

The Exhibit Phase 3: questions and answers with archive owner and designer/researcher

This phase sought to provide the visitor with revitalization, respect, and communication (Rand 2001). A thirty-minute question-and-answer session with the owner of the archive and villa, Mahmoud Sabit, and the exhibit designer and author of this research, Sally Ann Skerrett, allowed visitors to ask questions about the archive history and exhibit and to give feedback to the exhibit creator. Visitor groups were kept to a maximum of eight because of Covid-19 safety precautions. This was not only beneficial to the visitor experience but also to the research, because these audiences acted as small focus groups.

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### *Research Methodology*

#### Research Methodology: Exhibit Visitors

Qualitative research (a question-and-answer session after the exhibit experience) and quantitative research (pre- and post-experience questionnaires) was undertaken with nine exhibit visitor groups, maximum eight visitors per group, totaling sixty visitors. The questions in pre- and post-experience questionnaires were based on a German study on virtual reality in museums (Heidsiek, 2019) and adapted and added to to suit this experiment. Groups varied in age, profession, and nationality to match the target previously described in the exhibit plan.

#### Research Methodology: Pre- and Post-Exhibit Questionnaires and the Question-and-Answer Session

##### 1. The pre-experience questionnaire

This collected data relating to: (a) demographics; (b) museum habits and visitor types through the Falk visitor motivation types, (c) technology profile; (d) knowledge and interest in the topic of the exhibit.

##### 2. The post-experience questionnaire

This collected data relating to: (a) emotional response measured through the Geneva Emotion Wheel (GEW) (Fontaine et al., 2013; Scherer, 2005); (b) acquisition of historical knowledge through fact recall and open-ended responses; (c) the effect of site-specific projection mapping on an architectural interior.

##### 3. The question-and-answer session

This was designed to collect data on: “First impression” audience feedback on the experience and to discover the audience understanding of the experience based on the questions and comments asked.

#### Pre-Exhibit Questionnaire Results

##### Pre-exhibit questionnaire: Visitor motivation identities in sample

Visitor motivation identities were 70 percent explorers, 52 percent professional/hobbyists, 37 percent experience seekers and rechargers.

##### Pre-exhibit questionnaire: Exhibit preferences in private historic house museums

When asked which type of exhibit visitors preferred, 80 percent preferred historic everyday objects, 76 percent historic photography, 74 percent historic architecture, 63 percent historic artworks, 61 percent historic places, 41 percent historic timelines, 31 audio or visual reenactments, and

20 percent historical dioramas. These data underscore the strong impact of the original artifact, because the majority of visitors expressed a keen interest in viewing authentic objects. The exhibit aims to meet this need through intertwining the experience with an original site, archival records, and collection artefacts.

Pre-exhibit questionnaire: Visitor technology preference

Traditional methods of conveying information such as text panels, timelines, and infographics were equally as popular as interactive technologies, audiovisual experiences, and film clips, as were hybrid combinations such as self-guided tours with staff available to answer questions.

Pre-exhibit questionnaire: Emotional impact

Visitors were asked to consider their feelings to the following prompts before the experience.

1. When I think about Egyptian Muslim women's inheritance rights... I feel: unfair, not egalitarian, frustrated, injustice, embarrassed, frustrated, angry, ashamed, outdated, confused, livid, sorry.
2. When I think about Islamic inheritance laws... I feel: complicated, unfair, ambiguity, lack knowledge, confused, misinformed, don't know, tricky, oppressed.
3. When I think about independently wealthy Egyptian women in history... I feel: proud, empowered, delighted, happy, right, curious, surprised, hopeful, neutral.

Post-Exhibit Questionnaire

Post-exhibit questionnaire: Emotional impact: Geneva Emotion Wheel

After the experience, the following emotions were recorded at the highest intensity of level 5: 67 percent interest, 58 percent admiration, 40 percent pleasure, 31 percent amusement, 28 percent contentment, 25 percent pride, 25 percent love, 25 percent compassion, 14 percent joy, 8 percent sadness, 8 percent contempt, 6 percent relief, 3 percent disappointment, 3 percent anger.

Pre- and Post-Exhibit Comparison

Emotional impact of projection mapping

Of the visitors, 75 percent clearly stated that the projection mapping made the story more emotional.

Projection mapping added value

The audiences were asked about willingness to pay for such an experi-

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ence both before and after: 57 percent were willing to pay for projection mapping pre-exhibit, which increased to 78 percent post-exhibit.

### Exhibit Learning Impact: Further learning

The interest in further learning post-exhibit suggests the content connected with both Egyptian and foreign visitors. Visitors showed particular interest in: lives of the women (78 percent), Egyptian modern history (69 percent), women's rights in Egypt (58 percent), and Islamic inheritance law (39 percent).

### Exhibit Learning Impact: Specific Fact Recall

To research the exhibit's informal learning potential, visitors' recall of specific facts from the projection mapping was tested alongside open-ended questions that allowed visitors to freely state what they recalled most clearly.

Of the participants, 47 percent answered correctly to Q10: What was the value of Nazlah Hanem's estate on her death? 83 percent of participants answered correctly to Q11: Name one charitable architectural work which Nazlah Hanem built? And 86 percent of participants answered correctly to Q12: In what century was the grandmother Nazlah Hanem born?

### Exhibit Learning Impact: Information recall

Visitors were asked to state two learnings from the experience. The answers covered a wide spectrum demonstrating that there were many valuable learnings in the projection mapping. They can be broadly clustered into Islamic trusts, the differences in Islamic inheritance laws for men and women in Egypt and Europe, the family tree of Nazlah Hanem, powerful women in the nineteenth century, matriarchal heritage of Egypt, the story of Nazlah Hanem and how she worked to protect her daughter's inheritance, and how Islamic trusts and the family's wealth were redistributed through changes to laws in the 1950s.

## *Conclusion*

Through the research results, it may be stated that the site-specific, multimedia experience, format, and content provoked strong emotions, conveyed historical knowledge, and appealed to a broad-based audience with diverse levels of historical knowledge. Universal themes such as women's rights, wealth, and inheritance laws engaged all types of visitors. The use of authentic archival records and objects (digital and physical), the original site, and access to the archive owner engaged specialist visitors. In museum studies authenticity and its effect on visitors is an important

research field considering the digital nature of our world today (Watson and Werb 2013).

Limitations included the size, quantity, and type of audiences. A larger sample size and more randomly selected visitors would be beneficial for result verification. Security of the private residence resulted in audiences limited to colleagues, friends, and friends of friends, which influences the data.

The exhibit prototype shows potential as a relatively simple, cost effective, and reusable format with high audience impact that enables private archival histories in historic houses to be interpreted and communicated to the public with minimal invasion of the property and little infrastructure.

Further research would be worthwhile to assess the feasibility and regulatory landscape associated with permitting audiences into private residences in Egypt to view such interventions and to facilitate the recounting of diverse archival narratives. Furthermore, an examination of governmental support for such an endeavor is imperative.

#### *Works Cited*

- Anderson, B. 2006. *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. London: Verso.
- Bimber, O., and R. Raskar. 2005. *Spatial augmented reality: Merging real and virtual worlds*. A K Peters.
- Falk, J.H. 2016. *Museum audiences: A visitor-centered perspective*. *Loisir et Société / Society and Leisure*, 39(3), 357–370. <https://doi.org/10.1080/07053436.2016.1243830>.
- \_\_\_\_\_. 2006. An Identity-Centered Approach to Understanding Museum Learning. *Curator: The Museum Journal*, 49 no. 2: 151–166. <https://doi.org/10.1111/j.2151-6952.2006.tb00209.x>.
- Falk, J. H., and L.D. Dierking. 1992. *The Museum Experience*. Washington, D.C.: Whalesback Books.
- Fontaine, J. J. R., K. R. Scherer, and C. Soriano, eds. 2013. *Components of Emotional Meaning: A Sourcebook*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199592746.001.0001>.
- Guide-to-Exhibit-Development.pdf*. Smithsonian. n.d. Retrieved July 11, 2020. <http://exhibits.si.edu/wp-content/uploads/2018/04/Guide-to-Exhibit-Development.pdf>.
- Heidsiek, K. (2019). Berührt es mich?: Virtual Reality und ihre Wirkung auf das Besucherlebnis in Museen—Eine Untersuchung am Deutschen Auswandererhaus = Does it move you? : Evaluating the impact of virtual reality on the visitor experience at the German Emigration Center. <https://nbn-resolving.org/urn:nbn:de:101:1-2019120911203808187567>.



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- Jung, S., F. Biocca, and Lee, D. 2015. "Effect of 3D Projection Mapping Art: Digital Surrealism." In *Virtual, Augmented and Mixed Reality*, edited by R. Shumaker and S. Lackey vol. 9179: 361–367. Springer International Publishing. [https://doi.org/10.1007/978-3-319-21067-4\\_37](https://doi.org/10.1007/978-3-319-21067-4_37).
- Linotype Font Designer – Firmin Didot*. n.d. Retrieved July 21, 2021. <https://www.linotype.com/370/firmin-didot.html>.
- Museums and Digital Culture*. 2019. Berlin-Heidelberg: Springer.
- Rand, J. 2001. "The 227-Mile Museum, or a Visitors' Bill of Rights." *Curator: The Museum Journal*, 44 no. 1: 7–14. <https://doi.org/10.1111/j.2151-6952.2001.tb00024.x>.
- The Sans Serif*. n.d. Retrieved July 21, 2021. [http://www.designhistory.org/Type\\_milestones\\_pages/SansSerif.html](http://www.designhistory.org/Type_milestones_pages/SansSerif.html).
- Scherer, K. R. 2005. "What are emotions? And how can they be measured?" *Social Science Information*, 44no.4,695–729. <https://doi.org/10.1177/0539018405058216>.
- Watson, B., and S. R. Werb. 2013. "One Hundred Strong: A Colloquium on Transforming Natural History Museums in the Twenty-first Century." *Curator: The Museum Journal* 56, no. 2: 255–265. <https://doi.org/10.1111/cura.12023>.

