

## Accessible Museums' Facilities for Visually Impaired Visitors Applicable Project in the Museum of Islamic Art in Cairo

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### Abstract:

Museums are the memory of societies, the veritable images and the mirrors which reflect the heritage values on everyday life. Museums always inspire visitors and send their souls and minds to times and ages that are full of values and authenticity. Visiting museums is always one of the most attractive planned activities of any touristic program especially in a country like Egypt.

Indeed, there are many unique great museums in Egypt where the government is working to apply many plans and strategies to improve these museums and upgrade their displays and facilities which attract visitors, support tourism and by extension increase the national income. *The Museum of Islamic Art* (MIA) in Cairo is one of the greatest Islamic museums in the world (The museum includes various and unique collections of artifacts, which number up to 100,000 pieces). This amazing museum reopened in 2017 after a car bomb attack targeting the Cairo Police Headquarters on the other side of the street which caused considerable damage to the museum and destroyed many artifacts.

This paper is presenting an applicable approach (a current project) to enhance the visit to MIA for visually impaired and blind people by manufacturing copies of many collectibles masterpieces. In fact, there are many technological applications which help visual impaired and blind people when visiting museums, but the majority of these applications are expensive and require many arrangements. The objective of this paper is to describe and discuss the production process of selective masterpieces' copies which are produced to be ready for presenting side by side with the original pieces.

### Keywords:

Design, museum, The Museum of Islamic Art, visually impaired, blind people, tourism.

### ملخص البحث:

تعتبر المتاحف ذاكرة المجتمعات وتمثل نمودجا للصور الحقيقية والمرايا التي تعكس القيم التراثية في الحياة اليومية. تلهم المتاحف دائماً عقول وارواح الزوار وترسلهم بصريا إلى أوقات وازمنة مليئة بالقيم والأصالة. تعد زيارة المتاحف دائماً واحدة من أكثر الأنشطة جاذبية لأي برنامج سياحي خاصة في بلد مثل مصر.

في الواقع هناك العديد من المتاحف العظيمة الفريدة في مصر، حيث تعمل الحكومة المصرية جاهدة على تطبيق العديد من الخطط والاستراتيجيات لتحسين هذه المتاحف وتحديث مرافقها التي تجذب الزوار وتدعم السياحة. يعد متحف الفن الإسلامي

في القاهرة من أعظم المتاحف الإسلامية في العالم حيث اعيد افتتاح هذا المتحف في عام 2017 بعد هجوم بسيارة مفخخة استهدفت مقر مديرية امن القاهرة على الجانب الآخر من الطريق مما تسبب في أضرار جسيمة للمتحف وتدمير العديد من القطع الأثرية.

تقدم هذه الورقة فكرة قابلة للتطبيق لتعزيز زيارة متحف الفن الإسلامي بالقاهرة، خاصة للمكفوفين والمعاقين بصريًا عن طريق تنفيذ نماذج منخفضة التكلفة للعديد من روائع مقتنيات المتحف. في الواقع، هناك العديد من التطبيقات التكنولوجية التي تساعد المكفوفين عند زيارة المتاحف، ولكن غالبية هذه التطبيقات باهظة الثمن وتتطلب العديد من الترتيبات ... وعليه فان الهدف من هذه الورقة البحثية هو مناقشة ووصف عملية إنتاج نسخ مختارة لبعض المقتنيات لتكون جاهزة لتقديمها جنبًا إلى جنب مع القطع الأصلية.

### الكلمات المفتاحية:

تصميم، متحف، متحف الفن الإسلامي، ضعاف البصر، المكفوفين، السياحة.

### Introduction:

Egypt is the land of great museums and unlimited archeological sites. For long time ago (and still) the country was known by its treasures and masterpieces. Even now with the spread of new patterns of tourism, it is difficult for any tourism program to be devoid of visiting a museum here or a tourist site there.

Museums are seen everywhere in Egypt especially in Cairo and the main towns where the government is working to establish many varied museums and innovate many attractive archeological events. Additionally, worldwide is waiting for the Grand Egyptian Museum opening which is expected in 2020. Rashed (2015) mentioned that the number of exhibitions hosted by museums around the country, whether permanent or temporary, doubled in 2014-2015.

Egyptian art faculties' students used to visit many museums to know more about their history and as a part of their curriculum. This idea of paper comes as a result of one of these regular visits, where the author (as a course instructor) in 2019 visited the *Museum of Islamic Art in Cairo* with a group of foundation year students who study a course titled "*Museum Studies*" (Furniture Design Sciences Program, Faculty of Applied Arts, Helwan University). The author noted the museum renovation which happened after the reopened in 2017. The core of this paper started when the author noticed the museum guiding plan where he wondered about the providing facilities for the visually impaired and blind visitors ...

The story followed, where one of the representatives of the museum's admin contacted the author, accordingly the idea began as a **project to produce copies of few selected artifacts in order to enhance the visually impaired visiting experience** through allow them to touch these copies in addition to the recorded explanation ... These facilities will develop visitors' experience and learn them more about the patterns and shapes of Islamic decorations.

The continuous work of this project stopped because of the lack of finance and recently because of the COVID-19 pandemic.

**Worldwide Visual Impairment:**

Visual impairment is decrease in the ability to see to a certain degree that causes problems not fixable by usual means, such as glasses while “Blindness” is the state of being unable to see due to injury, disease or genetic condition. Indeed, visual impairment (VI) is a global concern that is likely to escalate with prolonged life expectancies. Simply, vision impairment means the weakness or low of seeing which is measurable and variable from a case to another. This weakness may be caused by a loss of visual acuity, where the eye does not see objects as clearly as usual. For Mandal (2019) the definition of vision impairment by the Center for Disease Control and Prevention (CDC) says a visually impaired person’s can’t be corrected to a “normal level”.

In more details, Naipal S, Rampersad N. (2018) highlighted that visual impairment (VI) is a condition of reduced visual performance which can’t be remedied by refractive correction (spectacles or contact lenses), surgery or medical methods. Consequently, it results in functional limitations of the visual system that may be characterized by irreversible vision loss, restricted visual field and decreased contrast sensitivity, increased sensitivity to glare as well as decreased ability to perform activities of daily living, such as reading or writing.

According to the World Health Organization report about blindness and vision impairment (2020) “*Globally, at least 1 billion people have a near or distance vision impairment that could have been prevented or has yet to be addressed. The leading causes of vision impairment and blindness are uncorrected refractive errors and cataracts. The majority of people with vision impairment and blindness are over the age of 50 years*”.

The report of the Laser Eye Surgery HUB (2020), mentioned that more than 90% of individuals with VI live in developing countries (countries with low or average income). This geographical disparity may be attributed to a higher prevalence of conditions related to poverty or bad environmental conditions and poor access to health care services in developing countries. In terms of gender, studies confirmed that women are at a higher risk of VI because of longer life expectancies and lack of access to health care services especially in rural areas. Results stated that population growth and ageing are expected to increase the risk that more people acquire vision impairment.

**Truism industry in Egypt:**

Egypt is one of the most important tourist destinations in the Middle East, as it has many characteristics which making it a destination for many tourists worldwide. With the exception of the revolution period (2011) and a few years later, but the government was working hard from 2014 onwards to restore safety, stability, supporting tourism and increase investments to open new markets for many innovative tourism programs.

It stated a published report of The Egyptian Embassy in Washington (June 2015), that “*Egypt’s tourism industry is again on the rise, with promising hotel construction plans, new investment from the Red Sea to Cairo, and millions of tourists from around the world travelling to our shores. As one of the pillars of Egypt’s economy, the travel industry serves as a leading indicator for overall economic progress, stability and modernization. Political stability has returned a sense of safety and normalcy to Egypt, and as a result, tourists are coming back to experience several millennia of ancient cultural heritage and breathtaking geography*”. The

report highlighted that the Egyptian Government has set a target of doubling the tourism sector's size to 15 million tourists to generate \$15 billion in revenue by fiscal year 2017/18 (topping 2010's record year) and to 30 million tourists to generate \$30 billion in revenue by 2020 (The last goal was not achieved due to many variables the most important one is the COVID-19 pandemic).

More recently the journalist Akram Medhat cited that (2019) that Egyptian tourism during the year 2019 was able to attract about 13 million tourists, compared to 11.3 million tourists in 2018, an increase of 15%, who spent about 136 million tourist nights, an increase of 12%. According to these rates, the 2019 succeeded to be the second peak year since the revolution of 25 January 2011, after the first peak year of 2010, which achieved 14.7 million tourists. This consider as a clear positive indication of the return of Egyptian tourism to its global position despite of many challenges.

### **Museum of Islamic Art, Cairo:**

The Museum of Islamic Art (MIA), located in Bab Al-Khalq in the heart of historic Cairo (Figure 1), which is consider as the largest Islamic art museum in the world. The museum houses close to a (100,000) hundred thousand Islamic antique/artifacts of various types collected from India, China, Iran, the Arabian Peninsula, the Levant, Egypt, North Africa and Andalusia. This collection is characterized by its breadth of coverage of all the branches of Islamic Art throughout the ages ...



**Figure (1): Museum of Islamic Art, Cairo. Location and main façade.**

The museum has a long history (different names and locations), in 1903 the museum moved to its current building. In 2003 the museum closed for restoration and renovations, and re-opened in August 2010 where the restoration cost nearly 10 US million. On 24<sup>th</sup> January of 2014, the Museum was the victim of a vicious terrorist attack (Car bomb) which has targeted the Cairo Police Headquarters that stands across the street from it. The museum reconstruction and renovation took a whole year (until the beginning of 2015), where serious steps were taken by the Egyptian government through the Egyptian Ministry of Antiquities to bring the Museum to its original state before the explosion. This was made possible thanks to the generous grants and donations offered by the UNESCO and many other such reputable entities and governments. These cooperative efforts led to a complete revision of the museum's display layout (Figure 2).

According to the mission and the vision of the museum, it aims to display, preserve and interpret Islamic artifacts, and to reach a maximum number of national and international visitors (*For more details see Museum of Islamic Art, Official website*).



Figure (2): Museum of Islamic Art, Cairo. Inner courtyard and one of the interior halls.

### Facilities for visually impaired museums' visitors:

Museums have a responsibility to attract and serve people with a wide range of needs and this includes visually impaired and blind people. As mentioned before, those people are not a small section of society and it is vital that they are not overlooked. Montsho (2020) **agreed with this meaning where he stated that** the international museum day theme for 2020 "*Museums for equality: Diversity and Inclusion*" calls on museums to open doors for diverse audience.

For the *Coordination Unit on Tourism of the German Federation of the Blind and Partially Sighted*, it is important to apply more efforts to integrate the blind, partially sighted and visually impaired in society. This is particularly stressed by Article 30 of the United Nations Convention on the Rights of People with Disabilities, ratified by Germany in 2008 and the EU in 2010. They set out a list of comprehensive recommendations where the more extensively the recommendations are implemented, the more autonomously the blind and visually implied will be able to take advantage of museums. These recommendations should ideally be taken into account from the earliest planning stages. However, if for whatever reason this has not occurred, the recommendations can also be implemented later, step by step (In conjunction with maintenance work and repairs).

In this concern there are many details, but summarily the main recommendation are:

- **Agreement of planning and integration of target group in project execution:** Specialists or accessibility coordinator should be involved in the planning and installation of museums and exhibitions from the outset.
- **Information about the institution/exhibition:** Museum information should be presented by any of the accessible website, Braille, large print or audio CD (with additional information for the blind and partially sighted).
- **Accessibility to outdoor area:** The museum or exhibition ground should be easy to reach by public transport and the route from the nearest stop to the entrance should be marked with tactile guidance stripes.

- **Accessibility to indoor areas (Foyer and Exhibition halls):** It's mainly about entrances, doors, stairs, the tactile and visually contrasting guidance system/s, in addition to labelling and any written information which should be available for each exhibition ...
- **Exhibits:** Exhibits which are too small or too large to be touched, or which cannot be touched for other reasons, should be provided as scaled up or scaled down copies.
- **Guided tours:** Providing guiding tours especially for blind, partially sighted and virtually impaired visitors is an important addition to a museum, but never a substitute for accessibility.
- **Miscellaneous:** It's mainly about audio guides and information terminals... (For more details see, DBSV 2011).

Vaz (2018) mentioned that although the increasing of the worldwide interactive technologies present in museums and galleries exhibitions which aim to attract visitors' attention, make them want to go to its places and enhance their experiences, the most of these solutions don't facilitate neither the cognitive, physical, nor sensorial access for disabled visitors (mainly blind or visually impaired). The lack of these facilities to exhibits or replicas, increased by the inaccessibility to use the digital media technologies designed to provide different experiences for visitors ...

A recent study reported that only 5.5% of blind and visually impaired people visit museums in Europe, what corroborates with the conclusion which stating that research and the application in this field is still scarce ...

Regarding the access to museum collections, namely physical and intellectual access to exhibits, there is a literature consensus about the importance that the sense of touch assumes for somebody with visual disability, as the essence of their access, understanding and construction of mental images of museum artefacts. Although, visitors reveal that they are not always allowed to touch real objects nor sculptures, neither the opportunity for touching replicas is always offered, and when it is possible, the tactile opportunities tend to represent only a very small fraction of the main collection, when compared with all the information available to sighted visitors.

For Coates (2019) who agreed with Vaz (2018) that with the use of digital media (which applied in many museums) the visually impaired having more inclusive available ways to understand and interact in exhibit context, contributing to better experiences during their visit to museums. The developments in technology have the potential to increase access and enable opportunities for blind and visually impaired, besides the fact that offering the possibility to interact with touchable representations of exhibits can bring, as well, non-disabled visitors closer to museum collections, incrementing their sensorial experiences.

Indeed, there are many facilities that the museum can make a visit more interesting for a visually impaired person. Using the audio guides and audio descriptive displays, in addition to using more innovative approaches such as tactile exhibitions and even 3D printing and scanning, like at *The Art Institute of Chicago*, where blind and partially sighted visitors can touch three-dimensional replicas of selected objects from the collection (Figure 3). Museums all over the world are now catering to more than just sight. Multisensory displays appeal to sight, sound (audio description), touch and smell. These projects and facilities can make any displays more attractive and for everyone.





**Figure (3): Using tactile exhibitions, audio description and 3D printed copies are developing and enhancing visually impaired visitors' experience.**

Indeed, being able to touch museum artifacts is not a new concept (Figure 4). The Victoria and Albert Museum in London (V&A) has been offering tactile sessions for visually impaired visitors since 1985. The museum runs special events throughout the year which cater to this audience. The program changes often and focuses on a variety of the museum's collections. This strategy encourages visual impaired visitors to come back for repeating visits and enjoy new experiences (For more details see, Ginley, 2013).



**Figure (4): Being able to touch copied artifacts is not a new concept which is applied in many museums worldwide to help visually impaired visitors.**

In harmony, there are many worldwide museums throws the “Do not touch” signs from few of their halls and allow visitors to explore artifacts with their hands (Sometimes they allow them to touch the originals). These type of museum showcases models of famous buildings, alongside paintings, typography, sculptures and textile art ...

In this context, technology can play a part in making visually impaired people welcome in museums too. There are many museums around the world doing innovative copies using 3D printing. One of the key benefits of this up-to-date technology is that gives visually impaired people a chance to explore museums' artifacts in a real way. Additionally, using the technology in creating virtual reality experience features haptic Avatar VR gloves which gives three-dimensional feedback to mimic the feeling of touch.

### **Discussion:**

In March 2019, during the visit of the author with a group of students within teaching “*Museum Studies*” course ... The author noted the elegant renovations after the museum reopening. Beside the museum entrance to the left side, there was the museum guiding map where the students surrounded the author (their instructor) to identify museum halls and give them a short

brief about the museum and its treasures/artifacts ... This gathering attracted the interest of one of the museum employees, who came and got to know the author/instructor and introduced herself *Dr. Walaa Al-Nabarawy*, the responsible of marketing and public relations in the Museum of Islamic Art ...

Through the discussion, the author indicated his interest as an expert of interior design of the renovations that took place in the museum, especially that he used to visit it a lot before with students, but he did not visit it for a couple of years because of being outside the country. During sharing ideas, the author pointed out the importance of the museum's role and the presented facilitates for the visits. The author highlighted that it's efficient to have the guiding map directly beside the entrance, but it does not provide adequate guidance especially for the visually impaired. *Dr. Walaa* agreed with this point of view and promised to present and discuss with the museum's administrative.

Through many call phones and meetings to sharing ideas between the author and *Dr. Walaa* as a representative of the museum admin, they agreed to establishes a project to produce some copies of the museum artifacts to improve the visually impaired visitors' experience ... These copies will allow visitors to enhance their experience by touching the prepared surfaces to realize the ornaments and the decorative Islamic elements ...

The project become real and the roles were determined. *Dr. Walaa* sent to the author pictures of many museum's artifacts and communicated with many for sponsoring. The author selected the most suitable pieces, then presented and discussed the idea with a group of distinguished students who agreed and worked under his supervision on converting the pictures into technical measurable digital drawings that can be dealt with by digital drilling or cutting ... (Figures 5-14). The project was running with the trials of digital drawing (which modified many times), carving and inlaying where the decision of the author (the project supervisor) is to select the flattest surfaces artifacts (2D objects) as a beginning stage then moving to the 3D objects which needs more efforts, trials and costs.



**Figure (5): The original artifacts (to the left side), Digital drawing (in the middle) and the applied copy (To the right side).**

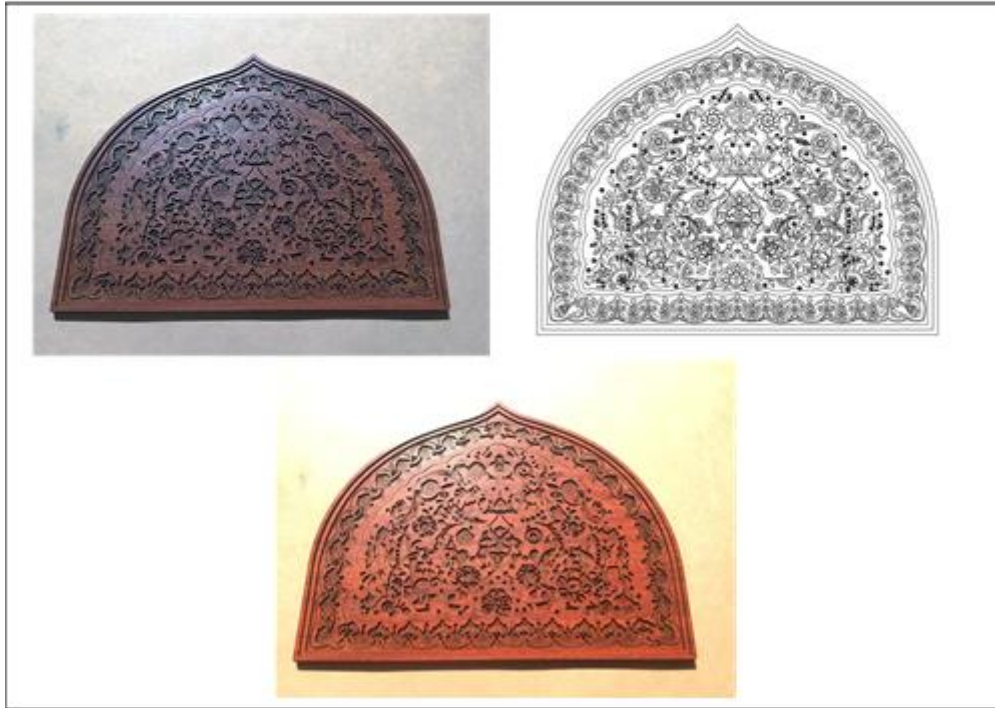
The results were largely satisfactory (See the next figures: The original artifacts are to the left sides, then the digital drawings are in the middle and the copies are to the right sides), but some copies needed repetition to check accuracy and to reach the best outcome. Consequently, the project continued, but the main obstacle was to obtain the necessary financial support (sponsor),



as the author (project supervisor) and his group of students worked as volunteers of time and effort, but materials and the cost of working in addition to transportation costs prevented the transition to the second stage, which is the production of the copies of three-dimensional artifacts.



Figures (6), (7) and (8): The original artifacts (to the left side), the digital drawing (in the middle) and the applied copy (To the right side).



**Figures (9) and (10): The original artifacts, the digital drawing then the applied copy.**

Within the emergence of the COVID-19 epidemic, the project stopped completely, but the idea still exists and the project will be revived at the earliest opportunity. The working team still looking forward the recent future to continue what they started as it was planned to assist and support the Museum of Islamic Art and enhance the experience of the visually impaired visitors ...





Figures (11) - (14): Few other trials to create copies of the selected original artifacts.

## Conclusion:

In a country such as Egypt where the archeological sites and museums are everywhere, it's more important to keep working to present these sites clearly on the worldwide tourism map. Indeed, the Egyptian government through the Ministry of Tourism and Antiquities is doing all its best to develop the sites and update museums, but many efforts still needed specially to support and enhance the experience of special needs and the visually impaired visitors.

In this context, the personal initiatives of specialists, archaeologists, museum display experts and designers are important pillars that work parallel to the increasing government efforts. These continuance efforts are effectively working to activate the tourism and increases the national income. The attempt presented in the research paper is personal efforts of a group of students supported by the motivation and the supervision of their instructor (the author). The trial highlighted that these ambitious motives alone are not enough, but they always need material and in-kind support, which was not sufficiently available to continue the project ...

## Results and recommendations:

Indeed, there are many results and recommendations which summarized in the following:

- Enhancing and developing the Egyptian archeologic sites and museums will support the rise of the Egyptian Economy.
- The worldwide number of visual impairment and blind people are increasing and it's essential to establish many suitable facilities for them.
- Upgrade the Egyptian museum display methodology, not only by renovation and using high technology, but also by developing visitors' experience.
- Addressing museums visitors' senses, especially special needs will develop visitors pleasure, will increase visitors' numbers and will positively reflect on economic rate.

## Acknowledgement:

It is the author's pleasure to appreciate the cooperation of the Museum of Islamic Art admin through its representative Dr. *Walia Al-Nabarawy* (Museum's Marketing & Public Relations) and her team. The deep appreciations to the volunteer students' team (They are graduates now, Interior Design & Furniture Department, Faculty of Applied Arts, Helwan University) Ms. *Heba Allah M. Assem*, Ms. *Hend Mahmoud Elshirpeny*, Ms. *Hala Barakat Abd El-Fatah* and Ms. *Hadeer Emad El-Din Amin*.

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