The Digital Museum: A Case Study of Digital Applications in the National Palace Museum

Chen-Wo Kuo[1], Michelle Wang[2] and Tracy Lee[3]

[1] National Palace Museum

Abstract

In our current age of information, digitization, democratization, and globalization, technology has changed people?s habits to expect immediately accessible information. Technology is no longer merely a tool, but a ?new? medium capable of instantaneously and seamlessly altering people?s internal consciousness. As the treasure houses of art and artifacts, museums have evolved with the times to establish its presence and accessibility in the information age, digitizing its collection from which new exhibition formats and museum experiences can be created. This paper conducts a literature review of digitization?s impact on the curatorial efforts of major world-renowned national museums as the context for a case study evaluating the fruits of digitization at the National Palace Museum in recent years, with a focus on the most recent new media art exhibition, the Giuseppe Castiglione: Lang Shining New Media Art Exhibition.

Index terms— new media art, digital art, digital curation, digital archive, national palace museum, database, information society.

1 Introduction

here is no stasis in nature, and institutions such as the museum is in constant flux, always bending to the times. Although the traditional function of the museum has revolved around collecting, preserving, researching, and displaying objects, in the last decades, museums have undergone transformation from an object-oriented repository to an increasingly open, public, and participatory social space. Its most recent transformation, brought about by the adoption of digital technology into its institutional infrastructure, public service framework, and ideological self concept, has opened a whole new dimension of museum experience. In the digital dimension, technologies such as mobile applications, interactive table tops, virtual reality, and smart glasses have the power to enliven a static exhibition with an array of stimulating sounds, images, and videos. Aided by digital media, exhibitions can now present source materials from a variety of viewpoints and create multi-layered activities to engage visitors. Such a degree of depth and involvement creates for more enjoyable and more memorable exhibition experiences. Application of creative technology, therefore, has becomes one of the museum's core tasks in the digital age.

The National Palace Museum (NPM) in Taipei, Taiwan, began to systematically digitize its collection under the pressure of the government's National Digital Archives Project, which ran from 2002-2012. Now, with over ten years of experience incorporating technology into its infrastructure, the NPM operates with the core principle of using technology as a platform for marketing its world-class collection to the world. This paper examines NPM's digitization progress since the end of the National Digital Archives Project in 2012 together with that of major national museums as the background for a case study evaluating its most recent new media art exhibition, the Giuseppe Castiglione: Lang Shining New Media Art Exhibition.

2   II.

3   Historical Background a) The Birth of "New" Media

While the presence of digital media did not assume a significant presence in art museums until the 1980s, contemplation of their use appeared much earlier. As early as 1900, Felix-Louis Regnault, a French physician, anthropologist, and physician, proposed the idea that all museums should collect "moving artifacts" for study and exhibition (1). Regnault imagined the museum as not just an artifact repository but a center of teaching in which researchers or members of the general public can retrieve historical documents, sound recordings, still and moving images "at the flick of a switch" (2). Only a year after, in 1901, the Metropolitan Museum of Art in New York City produced a forerunner to our contemporary interactive exhibit when curators installed a display case that allowed visitors to turn the pages of an art book by inserting their hands into its sides (3).

Because of the interdisciplinary nature of digital technology, it quickly became a topic of active discussion when technology entered art and art institutions. The digital revolution in the 1960s marked a period of intense reflection regarding the growing closeness between technology and art. The advent and popularization of photography and film broadened the expressive potential of technology and changed people's habits of seeing. Technologies from the harder sciences, such as computer-assisted design, which was implemented in building engineering, and computer imaging, used in military research, gradually became the tools of artistic expression (4). Since 1969, the

4   b) The Place of Digital Media in Museums

The adoption of digital media as supporting material for traditional art coincided with a shift in the role of museums. Traditionally, museums were the physical manifestations of a nation's cultural heritage. They were vested with the responsibility of forming the identity of a nation and acted as the ritual display of a nation's power and wealth. In the 18th to 19th centuries, large scale national museums arose out of a need to redefine national identity with the fall of monarchies and the redivision of power among newly formed nation states. Private collections of the immensely wealthy or royal families were converted into national museums to showcase a country's cultural prestige. The British Museum was established by an act of Parliament in 1753 converting much of the 80,000 objects in the private collection of Sir Hans Sloane to the public treasury (6). The Louvre, which served as royal residence for over four centuries, was decreed by the National Constituent Assembly to be made into a public museum after the fall of the monarchy in 1792. The collection at the Hermitage, once the private collection of Catherine the Great herself, became available to the public in 1852. The Palace Museum in Beijing was also established in 1925 after the expulsion of Puyi, the last emperor of China. The ensuing Chinese Civil War culminating in the creation of two Chinas, a split remaining to this day, is reflected in the establishment of the National Palace Museum in Taipei in 1965.

While fundamentally, a museum's ability to define a culture has not much changed, in recent decades, a shift has occurred from its being inwardly focused on upholding and preserving the institution itself as a cultural symbol to being outwardly focused on public service. This shift is evidenced across the museum spectrum, be it large scale national museums with an encyclopedia collection and worldview or smaller specialist museums focusing on obscurer subjects. At the 1974 International Council of Museums (ICOM) conference in Copenhagen, a shift in the focus of museums from "self-contained professional units" to "cultural centers for the communities within which they operate" was universally established (7). How museums can better benefit audiences and how museums should take up the burden of educating communities came to the forefront of museum concerns and helped shape their new social function. Hence, when this change in museum need occurred, most museum directors and curators embraced new digital technologies for their ability to contextualize exhibitions, disseminate knowledge, and increase museum attendance.

5   c) The Digital Museum

As seen in how much of the technology of the past half-century have already been replaced by digital communication, the result of growing technological advances and the museum's shift in emphasis to its audience members have made applications of technology integral to museum development. In the midnineties, the concept of the "information society" arose; government attention and public awareness of this idea led to expectations of information access to become the new norm. The top museums of the world were the first to answer this demand. One of the earliest, the Metropolitan Museum of Art on October 13th 1995, two years before Google was registered as a domain, managed to officially inaugurate its website so that users throughout the world can retrieve immediate and up-to-date information (8). In the years after the millenium, the sweeping development of museums across the world was to begin to gradually and systematically digitize its collection to make itself part of the information pool. In 1999, British Museum started to use software developed by System Simulation Ltd. Though technically its different departments did begin to digitize their disparate collections by piecemeal as early as the 1970s, it was after the millennium when the museum as a whole considered an integrated digital collection a core museum responsibility. Starting in 2004, the British Museum began to add digital image files to the collection database, and in 2007 it made the decision to place its database on the museum website (9). Elsewhere, the European Union started in 2008 to create an online portal, Europeana, which made all public

domain masterpieces accessible (10). As of 2016, there are currently almost 50 million items on the portal. Similarly, Google, in 2011, launched the Google Art Project, which cooperated with 17 international museums to combine museum virtual tours with Google's Street View technology. Following the success of the Art Project, the Google Cultural Institute was established in the same year and has since collaborated with its partner museums to create digital exhibitions online every year. The proliferation of these digital platforms for art is, however, not without its critics.

In 2014, Mike Pepi, in a review of the Google Art Project titled, "Is a Museum a Database," seems to lament that the capabilities of multimedia has begun to slowly erode museum institutions and the transformation of its physical assets into its digital assets will somehow destabilize the institution. In his idea of the current state of museums, he perceives that digitization is not just a matter of organization, but it allows the encroachment of Silicon Valley tech logic and entrepreneurial paradigms, which have the potential to further divorce museums from their objects (11). However, it is too soon to clamor when a museum plans its exhibitions to accommodate instruments such as the Google Glass or virtual reality equipment, because these emerging technologies are

6 Digital Curation in National Museums

In recent years, museums of any renown have not just enriched their services and experimented with videos, sound effects, lighting, and other forms of media, but have been expanding and experimenting with its digital dimension.

7 a) The Louvre

The Louvre's website currently features a searchable collection database, a section on thematic selections, virtual gallery tours, and other multimedia features. The "Focus" module allows users to zoom in and out of 15 selected masterpieces. A series of instructional videos, titled "the Elements of Art" teaches art concepts with video demonstrations.

Starting from 2006 to the present, the Louvre collaborated with Dai Nippon Printing (DNP) to establish Louvre-DNP Museum Lab, which is responsible for creating most of the Louvre's multimedia services. Now, the collaboration is in the tenth year of its operation. In recent years, the Museum Lab has organized many new media art exhibitions in Paris and Tokyo. Aside from experimenting with new media display methods, Museum Lab has the two core principles of "changing our view" to "changing our viewpoint," which it tries to achieve with its website, workshops, and other programs.

For example, in 2012, the Museum Lab presented The Boy in Blue, Goya and Spanish Painting in the Louvre. This exhibition uses multimedia materials to allow visitors to approach the art work from the various perspectives of the collector, researcher, curator, artist, and public. Visitors also have the opportunity to create their own art in the exhibition space. A multimedia tour guide in the life sized form of the curator is available at the exhibition entrance to greet visitors and provide explanations in different language settings. Tangible user interface take it a step further by connection visitor behavior to relevant information; visitors can experience hand operated projection mapping, a technology combining 2D videos and 3D technology. At the same time, the lab space in Tokyo exhibited many of the Louvre's collection in multimedia forms. From 2011 onward, Museum Lab continued to use digital media to showcase its art and artifacts, alternately presenting new media installations and similar multimedia resources based on its different collection departments (12).

8 b) The British Museum

The British Museum began in 1979 to digitize its records in the Department of Ethnography. The first interactive databases were installed in 1988 and, since then, all new object have been added in the same way. As of the March update, there are currently 2,254,259 records in the database and new ones are being added every day. Information on the website published under the Creative Commons license is free for public use. An interactive feature on the website is the Portable Antiquities Scheme, which is a portal for members of the public to upload images of archaeological objects found in England and Wales.

The British Museum's main technological partner is Samsung. From 2009 to the present, they established the Samsung Digital Discovery Centre (SDDC) as part of the government effort to improve national digital illiteracy. SDDC proactively infuses digital applications into the museum's education and exhibition services. Not loath to devote high costs to purchase the most up to date digital learning resources, the centre boasts 30 of Samsungs newest tablet computers and 24 digital cameras. The children through using equipment provided by Samsung can learn about world cultures, from Buddhist statues to Egyptian hieroglyphics, from antique clocks to clothing. The collaboration with Samsung also allows the British Museum to become the leading museum in the UK in developing projects such as augmented reality mobile apps and dynamic workshops for children from ages three to eighteen. In addition to these services, the British museum plans to extend its digital resources to university staff training programs and introduce them to 3D printing, 3D animations, and augmented reality (13).

9 c) The Metropolitan Museum of Art

The Metropolitan Museum's digital department established an independent Media Lab with the purpose to create new museum experiences using emerging technologies. Invigorated by the creative tech communities in

New York, the Media Lab shares the fruits of its labor with different curatorial departments in order to enhance museum services. The Media Lab's mission is to examine the relationship between technology and the humanities, covering topics such as: how does the technological applications in exhibition rooms impact visitor experience? how will creative technology affect artistic applications? how can digital tools assist cooperative learning? how to establish creative interactive communities for digital archives? how to transform existing resources into new media art? and how to promote progress in digital tools research?

The digital department has a blog called the Digital Underground, which regularly shares insights on the museum's digital activities. The online collection database, as of March 2016, has 424,726 records.

10   Volume XVI Issue II Version I

11   (A)

still in the developmental phases and experimentation is necessary to refine its application before it can work seamlessly in the service of art objects. Meanwhile, digital resources have become an asset in itself, and the the Thomas J. Watson Library collection has also been digitized and placed on the website (14).

IV.

12   Digital Applications in the National Palace Museum

The National Palace Museum houses over seventy thousand items of accumulated treasures from different royal dynastic collections in Chinese history, with historical documents, maps, and artifacts from the Qing dynasty making up the majority. Over the years, the NPM has held true to its responsibility of ensuring the collection's safety, undergoing research, planning exhibitions, promoting education outreach and academic exchange, and servicing visitors. Since the establishment of the National Palace Museum in 1965, the museum has used traditional methods of preservation, exhibition curation, and museum merchandising. Its catalogues and publications were entirely in paper form. Starting in 1996, the National Palace Museum began to change under the pressures of a society slowly transformed by digital technology. In that year, following the Department of Rare Books and Historical Document's publication of the Grand Council Archives, a monumental project which took 20 years to complete, the NPM decided to incorporate digital photography and computer technology into its archival methods. To save the original paper documents from further deterioration, the NPM began to digitize the nineteen hundred thousand documents in the Military Affairs Department: Monthly Memoranda collection. This digitization project plan, named "Historical Document CD Production Project Plan," began officially in 1997 to transfer all the images in the Military Affair Department Document card catalogue collection into a digital archive. This endeavor was the start of the NPM's digital collection.

In 2002, the National Palace Museum proactively took part in the National Digital Archives Project organized by the Executive Yuan. The Department of Rare Books and Historical Documents, the Department of Antiquities, the Department of Painting and Calligraphy, the Department of Registration and Conservation, and the Department of Education, Exhibition, and Information Services all joined the effort, split up into seven subordinate projects to establish twenty one different databases. Allowing the NPM to maximize the use and potential of its collection, digitization across departments immensely improved the quality of the museum's collection management, artifact preservation, exhibition curation, education promotion, research publication, digital application, merchandising, and public services. Because the National Digital Archives Project was almost exactly synchronous with the technological trends that arose at the turn of the millennium in Europe and America, the National Palace Museum has managed to remain up to date in the digital age. Since the implementation of the National Digital Archives Project, the NPM's videos, interactive installations, and metadata technological standards have all been developed in accordance with international museum data industry standards.

To this day, the National Palace Museum has been continuously updating its technology and digital resources and has accumulated over 10 years of experience using digital technology. In these ten years, the NPM's digitization efforts were sponsored by three government funds: Digital Museum Project, National Digital Archives Project, and National Digital Archives and Digital Learning Project. The National Digital Archives Project reached official completion in 2012, by which time, technology had already firmly taken root in the museum's infrastructure, making the NPM capable and ready to adapt in the fast-paced digital age. In the years since 2012, the National Palace Museum has been working on the NPM Initiative to Promote Digitization Services Project and the NPM 4G Mobile Museum Project.

13   a) NPM Initiative to Promote Digitization Services

In 2014, products of this initiative include Diplomatic Credentials Failed to Deliver mobile applications, Diplomatic Credentials Failed to Deliver Documentary, iPalace Channel test run, Rural Education Development Project, etc. "The National Palace Museum iPalace Channel" is the National Palace Museum's cloud multimedia platform. It is the biggest and most influential project under the initiative. Having both English and Chinese versions, it contains a collection of 31 multimedia works and a wide range of digital learning resources carefully produced by the National Palace Museum. From the iPalace Channel's induction in early 2014 to the present time, the NPM has organized many educational outreach activities and continuing education programs based on

the resources in this channel. Starting in 2014, the NPM began a trial operation by teaching its lesson plans based on the iPalace Channel to 10 primary and secondary schools in educational priority areas.

A total of 613 students participated, aboriginal students accounting for 15.4 %, new immigrant children 14.7 % , Taiwanese students 66.3%, Hakka students 3.6 % of the total. In 2015, the NPM extended its educational outreach operations to 21 schools (19 rural, 2 educational priority). A total of 537 students participated, aboriginal students accounting for 41% of the total, marking a significant improvement. Due to the positive reception of the trial and the first phase, the NPM continued to the second phase, this time covering

14   Year 2016

The Digital Museum: A Case Study of Digital Applications in the National Palace Museum from the collection on a chronological timeline to tell the story of art and global culture. Over 900,000 volumes in Based on its digital collection, the Heilbrunn Timeline of Art History is a wonderful example of curating data in the digital dimension. The timeline places essays and items

15   b) NPM 4G Mobile Museum

Answering the government's push for developing open content as a way to enrich community resources, the NPM 4G Mobile Museum project is the crucial next step for the National Digital Archives Project. The NPM 4G Mobile Museum Project works to accelerate the incorporation of mobile broadband services and mobile industry standards, by producing digital content and creative applications from the museum collection, maximizing the museum's value, and increasing the museum's 4G services. In 2015, the core principle for digital development is "to make the NPM a portable, zero-distance learning resource to the world with cloud platform technology." Under the NPM 4G Mobile Museum Project were four subordinate project plans:

i

16   . Developing Innovative 4G Applications

The NPM experimented with 4G mobile technology, wearable smart-technology accessories, iBeacon, and augmented reality to create mobile tour guide service applications. A Creative Mobile Applications Competition, in which industry, public, academic, and technological institutions were invited to develop applications from the museum collection, was also held to encourage involvement of creative talent in the local communities (15).

17   ii. Creating Innovative 4G Content

The NPM produced two films in 4K resolution: Documenting Victory in Etching, a film about the history of Victory in the Pacification of the Dzungars and Muslims, a series of copperplate prints drafted by Giuseppe Castiglione (1688-1766); and Adventures of the Mythical Creatures at the National Palace Museum, a 3D animation film based on animals in Castiglione's paintings. In addition to these newly produced 4K films, the NPM also uploaded 39 4G compatible videos, added 180 4G compatible entries to the NPM Selections Website, and created 27 exhibition theme sites (16).

18   iii. Establishing an Open Data Platform

In mid-October 2015, the NPM Open Data Platform officially launched online. The old interface had been completely redesigned. For the first time, artifact images and information are available for download for free. Exhibition packages, containing information on individual exhibitions, were also available for download. The platform uses user-friendly functions such as search queries organized by period, artifact type, or keywords (17). New Media Art Exhibition." In the main branch in Taipei, the NPM produced "Giuseppe Castiglione: Lang Shining New Media Art Exhibition," which, due to its success, later opened and exhibited at the Basilica of Santa Croce in Milan, Italy. Finally, in collaboration of Taiwan Power Company, the NPM opened "National Treasures for FUN New Media Art Exhibition" at Pingtung county in Southern Taiwan (18).

V.

19   Giuseppe Castiglione: Lang Shining New Media Art Exhibition a) Art and Cultural Exchange

This exhibition centers on the court painter, Giuseppe Castiglione (1688-1766), a painter-missionary whose intercultural exchanges at the Qing court in the seventeenth century evoke the spirit of our current age.

Between the sixteenth and seventeenth centuries, Jesuit missionaries committed themselves to visual art and architecture as ways to spread the Catholic faith. Born in Milan, Italy, Giuseppe Castiglione studied oil painting at the professional workshop of Filippo Abiati and joined the Society of Jesus in Genoa at the age of 19. In 1715, Castiglione traveled to Beijing, China, and, under the recommendation of Matteo Ripa, a fellow painter-missionary, established himself as a professional painter at the Qing court. There, by the name Lang Shi-ning, he served for fifty one years under the consecutive reigns of emperors Kangxi (1661-1722), Yongzheng (1722-1735),

and Qianlong (1735-1796). His stay allowed for significant cultural exchange between East and West. While he toned down his painting

20 Digital Application

No. The National Palace Museum in order to keep cultural art and artifacts apace the digital age has brought his works to the digital world in a way that mingles the real with the virtual. The "Giuseppe Castiglione–Lang Shining New Media Art Exhibition" is in tune with the current state of art museums as that which extends beyond the physical exhibition space. Originally, this new media art exhibition was designed as a multimedia companion to "Portrayals of a Brush Divine," an exhibition of Castiglione's paintings housed at the NPM in Taipei. However, this new media art exhibition has since evolved into the role of cultural ambassador. Three hundred years after Castiglione's coming to China, using digital media, the NPM is finally able to bring his work back to his homeland and to other countries, which otherwise would not have had the chance to enjoy his art.

21 b) New Media Art Technology

The design of this exhibition takes into account the changes of people's perception habits brought about by the digital age, in which people increasingly rely on hand held devices to navigate the world. It assumes audiences are moderately familiar with technology but accommodates those less technologically savvy with traditional supplementary exhibition materials. The main body of exhibited materials were a combination of digital replicas of Castiglione's paintings and a total of ten new media art installations, plus one 4K resolution animation produced for this exhibition.

Virtual Guides and Mobile Application are accessible from 3D animations of Emperor Qianlong and a seventeenth century nun displayed on either side of the exhibition entrance. The two figures direct visitors to scan the QR codes for the Chinese and English versions of the exhibition mobile application. The mobile application combines QR code, 4G LTE, iBeacon, and augmented reality technology to add interactive features to the physical tour.

Castiglione's Road to China contains a timeline of Castiglione's life. Controlled using a touch screen, the installation contains video clips introducing Castiglione's birthplace, his time at Genoa and Coimbra, his journey from Lisbon to China, and finally his time in Beijing.

A Peacock Made of Light is based on the painting Peacock Spreading its Tail Feathers (1758). The concept behind its creation is transparenspective, which is a synesthetic play on the traditional notion of combining the play of light and shadow to work with perspective. The centerpiece is the peacock model, which is a light sculpture made of multiple optoelectronic materials used to modulate light transmission and imaging. Audio surround sound plays traditional Chinese music, baroque music, and soft ambient music. The lighting and projected scenery in the background simulates the alternation between night and day.

Explore the Flora and Fauna of Castiglione is a linear wall navigator in which viewers can explore a virtual landscape populated with plants and animals from Castiglione's many paintings. Visitors can explore the landscape by rolling a display screen along rails mounted on the wall. To find out the source of a particular landscape feature, visitors only need to pause and the original painting will pop up.

Let's Paint One Hundred Horses is geared towards younger audiences who may not be able to grasp or be engaged by facts and dates. Let's Paint One Hundred Horses allows visitors to color the horses from Castiglione's painting on tablet computers and upload the finished image on to the complete painting projected in the exhibition room.

Castiglione's Virtual Flowers are two augmented reality installations that bring to life Castiglione's still-life masterpieces Gathering of Auspicious Signs (1723) and Vase of Flowers(1723). Viewers look through a digital tablet and Castiglione's flowers will appear as 3D holograms on the pedestal.

A Tour of the Imperial Garden installation is based on Immortal Blossoms of the Everlasting Spring (1723-25). It is composed of four interspersed light columns made out of LED light boxes. The lighting and sound effects also simulates the alternation between night and day. The screens on the columns display flowers from Immortal Blossoms and are able to zoom in and out to create the illusion of walking into the picture plane.

The Chime Clock is modeled on "Clock in the form of a Birdcage." The work is inspired by the concept of the passage of time and employs the technology of projection mapping, power generating machine, and adjustable electric window tint film to create succession of seasons and years.

Creating Golden Pheasant in Springs is one of many of Castiglione's paintings painted in collaboration with other painters. To make good use of this concept, this installation allows users to take pictures with the installed iPad and upload their photos to the system, looking at the exhibited items, will see the related supplementary information appear automatically on the display glass while the companion auditory information will play simultaneously on the headphones.

Adventures of the Mythical Creatures in the National Palace Museum is National Palace Museum's first 4K resolution animation. This animation film creates a fantasy story around Castiglione's painting Ten Fine Hounds. These ten hounds, once prized tributes to the emperor, along with other creatures featured in Castiglione's paintings must gather to save a friend, the roe deer.

22 c) Exhibition Evaluation

The evaluation for this exhibition was conducted through the exhibition mobile application. The period in which the data was gathered for this study was from 10/08/2015 to 01/04/2016 at the Taipei location. A total of 189 people partook in the APP questionnaire in this time frame. Normally, visitors who are willing to fill out surveys without the lure of giveaways and presents already prove their level of loyalty. The collection method for this questionnaire was also completely passive as there was no marketing and solicitation for participation, therefore the study is completely neutral and reliable. In this exhibition, there were more female than male visitors. Female visitors occupied 60.89%, male Out of the questionnaire results, 55.31% of the visitors visit the National Palace Museum more than twice a year, falling under the general high frequency visiting group. Out of all the women between the ages 31-50, 65.31% visit often, which is approximately 10% more than the general high frequency visiting group. From an analysis of visitors' feedback regarding exhibition content, collection content, display methods, exhibition layout and flow, the satisfaction rating was 80.45%. When asked how satisfied they were of the exhibition's overall design, 24.58% were highly satisfied, 62.57% were satisfied; together the total is 87.15%.These results show the exhibition's popularity with the public.

23 VI.

24 Conclusion

This evaluation of the National Palace Museum's most recent new media art exhibition, Giuseppe Castiglione: Lang Shining New Media Art Exhibition, shows that the museum digital applications successfully serves its community. High satisfaction ratings show that the public is receptive and making use of the NPM's different attempts to incorporate other forms of media displays alongside its art and artifacts. Seen in context with a summary of digital applications in other world museums, this paper means to show the NPM's digital progress and achievements in recent years have remained apace with world-wide technological trends.

25 Volume XVI Issue II Version I

26 Frequency

No [1]

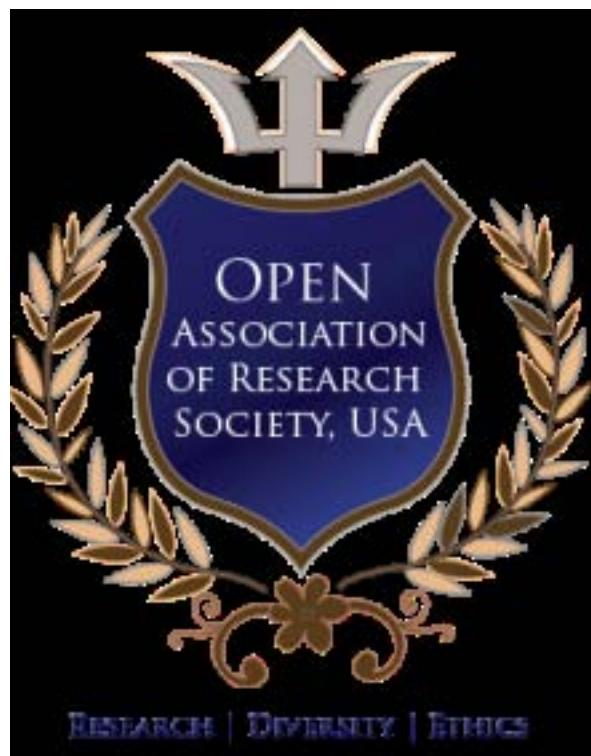Figure 1:

1

Figure 2: Table 1 :

4G Creative Mobile Applications Development	1
4G Creative Mobile Applications Competition	1
4G Film in 4K Resolution	2
4G Compatible NPM Selections entries	180
4GCompatible Exhibition Theme Sites	197
4GCompatible Videos 4G Innovative Applications Lab	39
4GNew Media Art Exhibitions	1 2

Year 2016

35
Volume XVI Issue
II Version I
(A)
Global Journal of
Human Social Sci-
ence -

Figure 3:

2

By Sex		
Sex	No.	Percentage
Male	70	39.11?
Female	109	60.89?
By Age		
Age Range	No.	Percentage
Under 20	22	12.29?
20-30	33	18.44?
31-50	80	44.69?
51-70	42	23.46?
Over 70	2	1.12?
Total	179	

Figure 4: Table 2 :

4

	No.	Percentage
Total	179	
Overall Satisfaction		
Rating	No.	Percentage
Very unsatisfactory	2	1.12
Unsatisfactory	21	11.73
Satisfactory	112	62.57
Very satisfactory	44	24.58
Total	179	

Figure 5: Table 4 :

3

Total	179

Figure 6: Table 3 :

354 [21 st century roles of national museums: A conversation in progress (2002)] *21 st century roles of national mu-*
355   *seums: A conversation in progress*, `http://www.si.edu/-Content/opanda/-docs/Rpts2002/02.`
356   `10.21stCenturyRole.Final.pdf` 2002. October. Washington, DC: Smithsonian Institution.

357 [Stow ()] *Digitisation of Museum Collections. A Worthwhile Effort?*, A Stow . `https://gupea.-ub.gu.se/`
358   `bitstream/2077/26817/1/gupea_2077_26817_1.pdf` 2011.

359 [Stow ()] *Digitisation of Museum Collections. A Worthwhile Effort?*, A Stow . `https://gupea.-ub.gu.se/`
360   `bitstream/2077/26817/1/gupea_2077_26817_1.pdf` 2011.

361 [Pepi (2014)] 'Is a museum a database?: Institutional conditions in net utopia'. M Pepi . `http://www.e-flux.`
362   `-com/journal/is-a-museum-a-database-institutional-conditions-in-net-utopia/` *Eflux*
363   *Journal* 2014. December.

364 [Metropolitan museum to inaugurate internet homepage on world wide web ()] *Metropolitan museum to inaugu-*
365   *rate internet homepage on world wide web*, 1995. (The Metropolitan Museum of Art. Press release)

366 [Griffiths ()] *Shivers down your spine cinema, museums, and the immersive view*, A Griffiths . 2008. New York:
367   Columbia University Press. p. 235.

368 [The British Museum Official Website] *The British Museum Official Website*, `http://www.britishmuseum.`
369   `org/-research/search_the_collection_database/about_the_database/history_of_the_`
370   `project.aspx`

371 [The British Museum Official Website] *The British Museum Official Website*, `http://www.britishmuseum.`
372   `org/`

373 [The Metropolitan Museum of Art Official Website Annual Report ()] 'The Metropolitan Museum of Art Offi-
374   cial Website'. `http://www.metmuseum.org/15` *Annual Report* 2015. 2015. (The National Palace Museum.
375   Unpublished)

376 [The National Palace Museum Annual Report ()] 'The National Palace Museum'. *Annual Report* 2015. 2015.
377   (The National Palace Museum. Unpublished)

378 [The National Palace Museum Annual Report ()] 'The National Palace Museum'. *Annual Report* 2015. 2015.
379   (The National Palace Museum. Unpublished)

380 [The National Palace Museum Annual Report ()] 'The National Palace Museum'. *Annual Report* 2015. 2015.
381   (The National Palace Museum. Unpublished)

382 [Mayo ()] 'The Prelude to the Millennium: The Backstory Of Digital Aesthetics'. S Mayo . *The Journal Of*
383   *Aesthetic Education* 2008. 42 (1) p. 101.

384 [Mayo ()] 'The Prelude to the Millennium: The Backstory Of Digital Aesthetics'. S Mayo . *The Journal Of*
385   *Aesthetic Education* 2008. 42 (1) p. 101.

386 [Ruby ()] 'Visual Anthropology'. J Ruby . *Encyclopedia of cultural anthropology*, D Levinson (ed.) (New York)
387   1996. Henry Holt and Company. 4 p. 1347.

388 [Griffiths ()] *Wondrous difference: Cinema, anthropology, and turn-of-the-century visual culture*, A Griffiths .
389   2002. New York: Columbia University Press. p. 329.