A NEW SPATIAL EXPERIENCE OF ART VIA TECHNOLOGY

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ABSTRACT

Art and technology are (must be) mutually exclusive according to the conventional approach, as they refer to distinct realms. However, these two fields have a great interaction, and this interaction occurs not only in the creation of an art object but also during its display. Museums and galleries increasingly deploy computer-based interpretation devices such as tour/personal guides, or suggest applications for smartphones and tablets. Such kinds of digital technology provide relevant information for visitors and allow for a better engagement with the art object. Furthermore, creators seek to provide novel experiences by using new technologies in exhibitions. This is not something like simple setups or demonstrations; technology here refers to a creative usage as an exhibition method for fine arts. Exhibition spaces, on the other hand, have an essential role in the presentation of art objects, and in the implementation of new technologies. Architectural space is reinterpreted by technology to create new experiences for visitors. The objective of this paper is to present the effects of technology on exhibitions and especially on exhibition spaces in today's digital age. It is proposed that this new technological insertion will make space the exhibition object itself; and this spatialized art will depend on a collaboration of technology and architecture. This concept is highlighted in the exhibition; "Van Gogh Alive – The Experience," which utilizes unique systems combining still images, motion graphics and surround sound together in a space. This new and different expression of art is also evaluated in comparison with the original exhibition in the Van Gogh Museum.

Key words: museums, exhibition spaces, new technologies, experiential design, Van Gogh Alive

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1. INTRODUCTION

Museums and exhibition spaces as one of the oldest typologies have an essential influence on the cultural and social structure of communities. Throughout the years, the ways of creating art have changed, along with the ways they have been presented. However, the concept and function of museums have dramatically evolved with developments in science and technology. New media and digital technologies have been rapidly applied to museums with the purpose of enabling visitors to engage better with the artwork. Digital computing and communication technologies, wireless Web, mobile operating systems and more have transformed people's everyday experiences, and consequently their expectation of museums in terms of gaining and sharing information. Technology has had a two sided effect on artistic disciplines; as art forms that exist at the hand of technology and that are enhanced by technology. In short, the deep impact of technology on the production and presentation of art have created a shift in museum and exhibition practice and theory. Innovative use of technology has provided interactive experiences for visitors. Museums are no longer conceived as spaces where artefacts are kept and displayed, but sites for experiences (Hein, 2000). Increasingly, museum professionals including curators, architects and administrators are searching for ways that include more pervasive uses of innovative technologies to promote the curiosity, imagination, and creativity of visitors.
Within the scope of this paper, what museums are in modern society is explained and the spaces in which art is displayed are discussed in terms of architectural design. However, the main goals of the study are to explore the new technologies used in museums as a means of enhancing visitor experience, and to emphasize the positive relation between exhibition spaces and technology. Literature review is used as methodology. A spatially based experience is cited as an example to broaden the concept. Comparative analysis is conducted for this case study by noting the main features of the traditional presentation and contemporary interpretation of the same exhibition. The significance of this article lies in handling both on-line and on-site use of technology, and in underlining the potential of space to provide new experiences when art and technology are coupled together.

2. EXHIBITIONS AND THEIR SPACES

A museum today is a place where collections are kept and displayed, and where people can learn, study, share and connect, also be entertained, and have bodily involved experiences instead of be passive spectators. The notion of the 'museum' as a cultural organization and a public asset first appeared in the 17th century by scraping away its primary objective of the safekeeping of artefacts towards an educational and management organization (Tallis and Mytilinaiou, 2008). International Council of Museums; ICOM (2010) defines museum as "a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of

education, study and enjoyment." This definition states the role of exhibitions in teaching and entertaining. *Education* through museum exhibitions has always been an important topic. Designers have employed new approaches to reach more diverse audiences by embracing all parts of society – all ages, gender, ethnicities, people of differing skills and backgrounds. *Enjoyment* is seen as an influential way to make people engage with the exhibition, which also makes it easy to learn and understand in a more relaxed environment. Moreover, other types of exhibitions independent from the usual structure of a museum such as temporary exhibits and expos have the same identity in terms of stimulating education and enjoyment.
Exhibition space is only one of the various functions a museum could house, along with storage, offices, a library, a café, shops etc. However, the most important part of a museum is being a junction for art objects and visitors. Designing an exhibition is a work of visual and spatial arrangement; a fiction targeting the visitor, and Dean (1996) lists the elements of a design as follows; value, colour, texture, balance, line and shape. Today, exhibition space is redefined as a site of experimentation. Hence, design of an exhibition space is changing according to the impression that curator or architect intends to give. Space becomes an inextricable part of the artwork. Özden (2011) discusses that since the gallery space is devoted to function as a place for display, it is primarily a site for artistic installations. And there are many galleries either wholly or partly devoted to installation art. It is clear that the architectural space and the artwork turn into a "unified display." This active role of the space mainly depends on two antecedent theories; (1) "Gesamtkunstwerk" (total work of art) appeared in Art Nouveau as a way of unifying building and decoration in an overall composition, and later used in Bauhaus, (2) "Einheitskunstwerk" (unified art work) used by Gutschow (2006) as an emergence of a single art form differently from Gesamtkunstwerk which is a fusion of interrelated discrete arts.

3. NEW TECHNOLOGIES

Exhibition design for galleries and museums has been impacted by technology with respect to the digital and information age. The Horizon Report: 2010 Museum Edition (Johnson, L. et al., 2010), which is focusing on museum education and interpretation, has called attention to six most important emerging technologies affecting exhibitions. These are mobile technologies, social media, augmented reality applications, location-based-services (such as geotagging and geocaching), gesture-based computing (as started with Nintendo Wii and the Apple iPhone), and the semantic web.
Today's digital media technologies alter the way of display and representation in museums, and as a consequence the perception and understanding of the visitors. Those new technologies redefine the meaning of exhibition as we once knew. Stogner (2009) classifies the technologies according to what we might do with them. *1. "To be entertained."* That is an immersive, interactive and experiential way of engaging visitors with the exhibition by using high definition videos, animation, music, sound effects, sets and lighting, 3-D movies, 3-D interactive, 4-D sensoramas, holographic imagery, simulations, gaming and more. *2. "To do it now."*

That refers to instant access, on-demand information and streamed media, which means visitors could have multimedia tours using mobile phones, PDAs, barcodes, and GPS locators. *3. "To do it everywhere."* That extends the visitors' experiences out of the museum building via on-line exhibitions and educational modules, or social networks such as MySpace and Facebook, or virtual experiences on Second Life, or cyber-exhibitions. *4. "To do it my way."* That is about personalizing and individualizing using devices enable visitors to bookmark or tag. It is highly convenient for personal relevance and interest. *5. "To share with others."* That comprises social tagging, participatory and crowdsourcing. *6. "To create something."* That is supported by a variety of software make it possible for visitors to create artworks and artefacts. In a nutshell, we are in an era of technology; not a point of whether we would use them, but how more efficiently we could use them.

Technology redefines the limits of space for museums. Virtual reality (VR) and augmented reality (AR) technologies are important with regards to their reinterpretation of exhibition space. Virtual museums are constructed by using World Wide Web and HTML technology. Paquet et.al. (2001) categorize the virtual reality-based museums under three fields; 1. Using panoramic images and QuickTime VR to view them, 2. Browsing still views of museum rooms and clicking on objects to view 2D still images and detailed text information, 3. (Exists in prototype phase) Using 3D representation of the architecture of the museum and add to it 3D objects created from scanned data. It is intended that visitors feel as if they are actually visiting the museum via a truly immersive 3D experience. With a more advanced system, museum patrons could have a virtual space tailored to their visit through a meta-search on the collection, and when other patrons are online, they could have real-time interactions (Jones and Christal, 2002). Programming artificial intelligence that takes visitors on a tour of an exhibit is also possible. In general, virtual museums are spaces where virtualised artefacts are stored and displayed. Besides the experience depending on a type like Second Life, the real value and benefit of virtual museums is that they could present fragile, very precious artefacts or destroyed heritage environments. On the other hand, augmented reality is used in exhibition spaces to enrich the reality and to interact in real time. Nowadays, a smartphone is an option to perceive AR artefacts. Augmented exhibitions aim to show location based AR artworks in the empty museum space, using smartphones with AR viewer applications. Bimber and Raskar (2005) highlight that AR is becoming an emerging edutainment platform for museums. And they tell that novel approaches have taken AR beyond traditional eye-worn or hand-held displays; by exploiting large spatially-aligned optical elements such as mirror beam combiners, transparent screens, or holograms, as well as video projectors.

A museum is regarded not only as a place for information gathering but it is a place for sharing a social fact. Galani and Chalmers (2004) draw attention to *the social aspect of pace* in museums, as being in the relative proximity of each other or at least in visual contact with their companions. Visitors are there to learn or to be entertained, whilst they have an implicit sense of presence. The 'art' presented in a space and the 'experience' given is not comprised of only a collection of objects, but a collection of people at a certain time. People walk around, stand, sit down, view objects, talk, catch phrases of other's conversations, express their feelings or witness

others'. They shape the exhibition space and the unique experience as active participants. It is possible to say that the museum experience is a group activity deliberately or not. From this point of view, Boehner et al. (2005) investigates "ambient systems" to measure affective presence in museums. They have usage patterns and physical location paths collected through use of wireless guides, and activity values measured through a combination of motion and sound sensors. And by a visualisation of information, they obtain visitors' paths, visitor traffic over time and emotional climate maps (Figure 1). By doing so, authors aim to reveal the crucial role of the visitors in a museum activity, and to show their ability to impact on the space of the museum and to influence the overall experience. It is possible to interpret why one area of the exhibition space remains undiscovered, or in what people are most interested. This analysis may also serve as a tool for curators to alter exhibits by obtaining information about popularity, traffic flow and more.

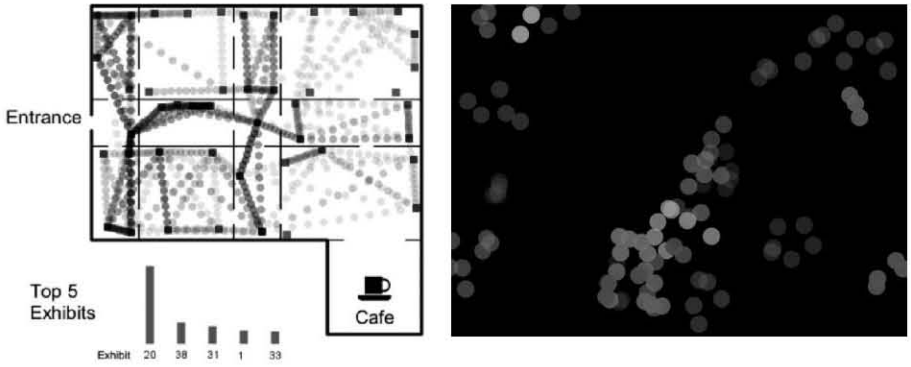

Figure 1. (left) Animated display of visitor traffic over time, and (right) emergent art display of affective presence (Boehner et al., 2005).

4. AN EXAMPLE: VAN GOGH ALIVE

The largest collection of original works by the Dutch painter Vincent Van Gogh is displayed in the Van Gogh Museum in Amsterdam, Netherlands. The museum houses 200 paintings, 400 drawings and 700 letters, as well as the artist's own collection of Japanese prints (html link 1). The permanent collection is in the main building which was designed by Gerrit Rietveld. Opened in 1973, the building is a rigid prism with a rectangular floor plan scheme. Museum galleries are grouped flowing into each other around an empty central space (Von Naredi-Rainer, 2004). And the paintings hung on the walls are displayed in these exhibition spaces where people walk around, stand and look at the art objects. Temporary collections are housed in another building which was added in 1999. This Exhibition Wing designed by Kisho Kurokawa accords perfectly with the main building despite its oval and dynamic mass.

The main function of the Van Gogh Museum is to preserve the collection of artefacts, and to present them to the public as well. However, there is a pursuit to encourage different perceptions of art objects through new ways of engagement. Developing technologies certainly prompt these sorts of attempts. Hence, new exhibitions take place to allow for new experiences of art by Van Gogh. An on-going exhibition (from September-2012 to May-2013): "Van Gogh, My Dream Exhibition" in the Beurs van Berlage, Amsterdam is one of them. The exciting and innovative aspect of this exhibition is that seven well-known paintings by him are brought from 2D to 3D animations. Visitors receive special 3D glasses to enjoy these animations. Suggested movements come to life, new layers and details become visible (html link 2). For example, during one of his famous paintings "Wheatfield with Crows" (1890) in motion, crowds loom on the horizon, fly towards you, and then pass over your head as probably Van Gogh himself envisioned it.

This paper presents a *spatially* based exhibition of Van Gogh which is enriched by digital technologies. **"Van Gogh Alive – The Experience"** is a travelling exhibit conceived and executed by Australian based Grande Exhibitions' curators. Fantastic images of the masterpieces by Vincent Van Gogh are displayed through multimedia display technology to create a multi-sensory experience for visitors. The show has taken place in Singapore, Istanbul and the United States, and will make its next appearance in Ankara in October of 2012.

The technology used in Van Gogh Alive is unique. More than 3,000 images comprised of the artist's paintings and photographs of some of the locations that inspired him between 1880 and 1890 are displayed on huge projection screens, curved or flat surfaces, walls, columns, ceilings and even the floor (html link 3). Designers of the exhibition use Dataton's WATCHOUT software system to synchronize the images through 40 different projectors onto multiple areas of a gallery (html link 4). The software integrates still images, graphics, video, animation and sound. Photographs and video have also been augmented with Van Gogh's works to demonstrate his sources of inspiration.

The exhibition space that is full of art immerses people in the artwork. The images presented are in a scale unseen before; far larger than the life version of Van Gogh's works, which allows the visitor to put himself into the painting (Figure 2). They could reach new levels of detail that could only be achieved by large HD projections. For example, "Wheatfield with Crows" is experienced in a totally different way. The giant image of the painting makes you feel as if you are walking on the wind-swept wheat field where the crows fly over. At another screen you see the ears of wheat wave in the wind, where the painting is zoomed in and augmented. And classical music in the background helps to feel the dramatic, cloudy sky with a sense of isolation. It is a stage on which you can experience the feelings of Van Gogh; a sense of his life coming to an end, while he was painting the amazing "Wheatfield with Crows," which is commonly claimed as his last painting.

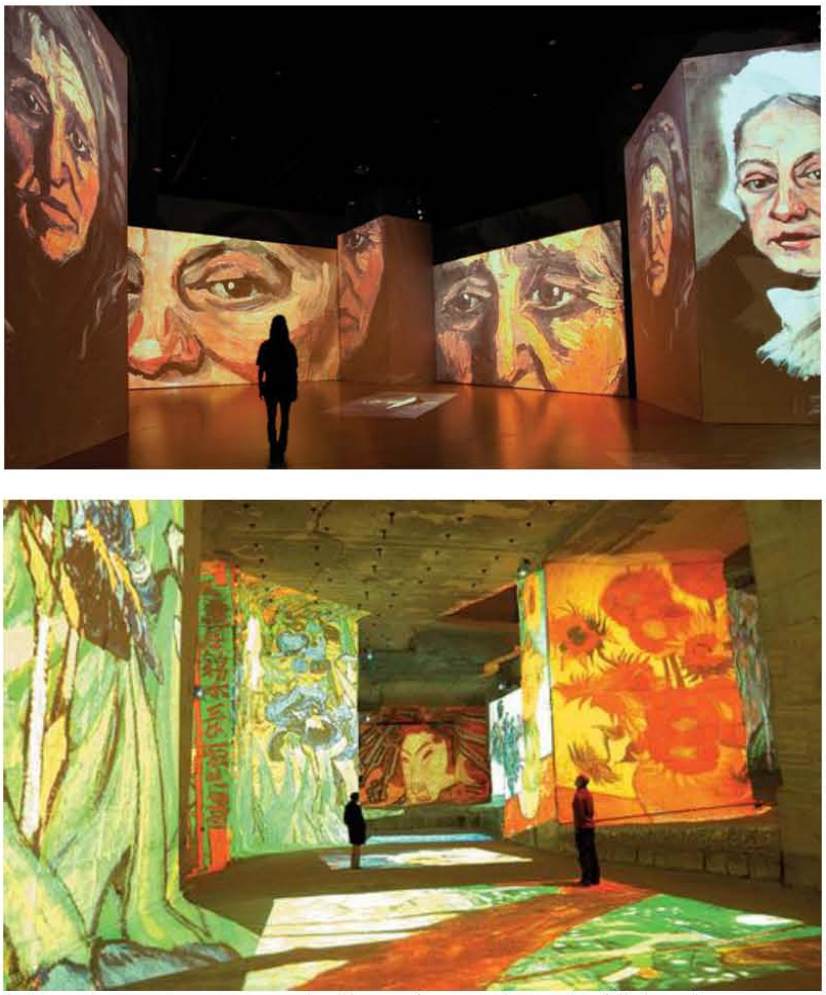

Figure 2. Van Gogh Alive – The Experience (html link 3, 4)

The Van Gogh Alive exhibit recreates space as an environment of experience for artwork without using any art object, except installation equipment. With an imagination of huge canvas, visitors view art in a whole new way, as curators put it; "forego all preconceived ideas of traditional museum visits, dispel all notions of tiptoeing through silent art galleries to view masterpieces from afar, change how you engage with art, stimulate your senses and challenge your beliefs of what an 'exhibition' can be." At this point, for a further conception, it may be useful to reveal the new experiences of Van Gogh Alive by comparing it with the original exhibit in the Van Gogh Museum. Table 1 aligns the features of both exhibits for each element relevant to exhibitions.

Table 1. The original exhibition and Van Gogh Alive

In Van Gogh Museum	***In Van Gogh Alive Exhibit***
	
Sound and motion in presentation	
✗	✓
Images of presentation	
An ordinary canvas size	A gigantic size
Visitors' position-movement	
At one certain point for each object. *Static*; standing still and looking	Everywhere in the space. *Dynamic*; walking, sitting, getting much closer
Crowdedness (or feel of crowd)	
more	less
Uses of exhibition space	
walls or panels and paintings hanging on them	A total space; art on walls, extra surfaces, columns, ceilings and floors
Visitors' expectation	
Conventional	Depends on surprise (What is next? Where to look?)

According to the table, Van Gogh Alive has a distinct character in terms of the notion of exhibitions. It is an interpretation of original paintings using a transformation to giant images with sound and motion. The design of exhibition space is totally different from well-known arrangements of painting collections. Space itself becomes the 'art object,' whereas it is only a physical shelter for a traditional exhibition. During their visit to the Van Gogh museum, people stand in front of the art objects and observe. However, in Van Gogh Alive, visitors walk around or sit on the floor; they are free to choose the most convenient place to engage with the art. As a result of this availability, the space is not so crowded or has no clusters in specific points. In parallel, visitors feel less crowded with the individual presence of the visitor being stronger. Additionally, expectations in Alive depend on surprise, since people are curious about what will happen next or where the first image will appear. In other words, visitors are more excited and inspired by a constant regeneration of space.

5. CONCLUSION

This paper argued how new media and digital technologies support new experiences in art exhibitions, and particularly the interaction of these experiences with architectural space. Recent developments in web and wireless technologies, mobile telecommunications or sensing technologies are applied to enhance the engagement of visitors with art, also to assist education and communication in museums. Furthermore, new technologies prompt new interpretations mostly depending on fascinating perceptual and sensual experiences. By going beyond a simple function of accommodation, exhibition space becomes an important part of this twist. Its relation with art and the art object is reintroduced by technology. The conception of space has evolved with technology in terms of both the creation and presentation of art.

"Van Gogh Alive – The Experience," a novel presentation of the masterpieces of Van Gogh, one of the most talented artists in history, was examined as a case for the topic of this study. It is a vibrant performance of light, colour and sound combined and amplified, very different from the traditional notion of exhibitions. It presents a new experience of both art and space. The space here is redesigned by technology to create a new form of *derived* art by Van Gogh.

In sum, exhibitions like 'Van Gogh Alive' create new art experiences and usher in new ways of engagement with art objects, where the perception and cognition of artworks change. New environments of art are emerging by means of modern technologies, where visitors are informed and entertained, and can also interact, communicate and share. The exhibition spaces become inspirational for those new experiments. The enquiry about how the volume could be an inseparable part of the presentation or even re-creation of art gives birth to new spatial experiences. And it is clear that the future of the exhibition practice is closely associated with what technology can do by combining art and space.

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Html link 2. http://www.vangoghexhibition.com/

Html link 3. vangogh-alive.com/

Html link 4. http://entertainmentdesigner.com/news/museum-design-news/van-gogh-alive-art-appreciation-through-digital-immersion/