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Sensory Seduction and Narrative Pull

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The Promise of Augmented Reality

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Abstract— **User experience design is a process that has been defined, developed and refined over the last few decades. It is a process of shaping a user's movements through a website or mobile application. It is user-focussed, prioritising utility, ease-of-use and efficiency. It is widely used and has helped advance the way in which users interact with websites and mobile applications, making it far less frustrating. User experience design is a key element in how the internet and mobile technology have become ubiquitous in our daily lives.**

Given this success, it would seem that continuing to use this process for new communication technologies would be the best way forward. However, it could limit the discovery of opportunities and uses for these new technologies.

This paper looks at the importance of visual inquiry, experimentation and play for new technologies, particularly Augmented Reality (AR). AR is an emerging visual communication medium, and it is our contention that only through visual exploration and experimentation with the technology can a unique visual language emerge that will engage users in a manner befitting it.

We explore the creative input that has helped shape the aesthetics of communication media at various points in history, from the humble poster to the internet aesthetic we know today, and look forward to the opportunities that lie waiting for the creation of new user experiences that have the sensory seduction and narrative pull that AR promises.

I. INTRODUCTION

In 1995, Rick Poynor interviewed Brian Eno for Blueprint magazine about his recent work. Eno is a multifaceted creative who has been at the forefront of developments in music, visual art and new media for several decades. During the interview, he was bemoaning CD-ROMs saying:

"Whatever the literary content of this, I maintain that the experience of reading off here is so off-putting that you would never do serious reading like this. What is missing", he says, is "sensory seduction & narrative pull." (Poynor, 1998, p257)

Taking this sentence out of the context of that interview, it could easily apply to the early years of the web, where text was dumped on screen with little thought given to its legibility and little thought given to the navigation or overall structure of the site. Over the years, design processes based on User Experience (UX), with concepts of usability and narrative at their core, have improved the design and structure of websites, and indeed other sorts of digital media applications. They may be easy to use now, and communicate information effectively, but whether they have the sensory seduction and narrative pull that Eno is looking for is debatable.

We take Eno's point to be that *serious reading* implies a deep engagement on the part of the user and that the creation of a compelling and immersive experience is necessary in order to bring this about. The question then becomes: given a particular medium, how best can we leverage its unique properties in order to provide the sensory seduction and narrative pull that would facilitate this?

Many new technologies are at the start of their stories, and we can use what we have learned over the years about User

Experience, usability and narrative in particular, to employ these technologies more effectively than was the case in the early years of the web. We suggest however, that in the case of a new technological medium, the use of more experimental, open-ended and playful design processes is critical in order to explore the full potential of the technology. Of particular importance is the question of how *visual narrative* can be realised and what sort of medium-specific *visual language* can be evolved in order to set the medium on the right path to engaging experiences. Our focus is on the emerging field of Augmented Reality (AR) and our specific interest is in approaches to the design of compelling AR experiences for the cultural heritage sector.

We start by presenting a review of the importance of experimentation for new technological media and examine how through visual exploration of narrative, new visual languages emerge. We continue with an analysis of the concept of narrative and how visual narratives can be leveraged to provide compelling content. We suggest that by pushing the limits of visual language a new level of engaging user experiences befitting the technology could create the sensory seduction and narrative pull that AR promises. We conclude by arguing why and how visitors to outdoor cultural heritage sites could particularly benefit from visual narratives communicated through new technological media, especially AR.

II. Innovation through Experimentation

The importance of experimentation as a means of pushing forward the boundaries of possibility for a new technological medium has long been recognised. In particular, the role of creatives and artists is of upmost importance. As the National Research Council observes:

"Artists' questioning can be a powerful, constructive force. In particular, since the mid-19th century artists have often personified the 'user to come' for new cultural technologies. Many media technological advances have arisen in the arts and design fields or have been modelled there, a decade or a generation ahead of the industrial-academic curve" (National Research Council, 2003, p97)

In the early Modernist period of the 1920s and 1930s we see numerous instances of this dynamic at work. For example, the emergence of an accessible version of film photography was enthusiastically embraced by designers, who experimented with the medium by cropping and juxtaposing photographs, reorganising them into photomontages, and arranging them on pages in dramatic fashion (Hollis, 2001). Another key technological breakthrough was the development of a system of 3 & 4 colour printing by Jules Chéret, son of a type compositor and an apprenticed lithographer (Presbrey 1929). Whereas previously printing was restricted to black heavy-set type, colour-illustrated

designs were now possible. This innovation was adopted and experimented with by designers and artists giving birth to the discipline of poster design. In both cases we see how the avant-garde make visual breakthroughs by means of experimentation and eventually come to define how media are manipulated and used.

A key figure of this period is László Moholy-Nagy, an artist and a designer who was a strong advocate of the integration of technology and industry into the arts. Moholy-Nagy was an experimentalist, constantly pushing media such as film, photography, sculpture, typography and graphic design in new directions, experimenting with them to create new meaning in the same formats. His work in typography laid the foundation for modern graphic design. As Stirton explains, Moholy-Nagy identified typography as one of the "key agents in shaping a modern sensibility among the mass of the public". Moholy-Nagy maintained that, "The typographical process is based on the effectiveness of visual relationship." In 1925, he produced a series of books that clearly expressed this idea, where he rejected traditional layout of conventional books. Instead, he broke up text using bold lines and juxtaposed blocks of type with photographic images. He conceived the idea of a double page spread as a "field of abstract design innovation that could also guide and shape the readers understanding". Through his experimentation and his pushing the medium of typography he moved confidently into the realm of information management, shaping meaning as much by form, placement, and contrast, as by semantics or textual comprehension (Stirton, 2016). Moholy-Nagy's experiments, and those of his contemporaries such as Jan Tschichold, created a sophisticated new visual language that is still employed in commercial graphic design today.

Similar dynamics can be seen at work right through the 20th Century with film and the moving image – Dali and Bunuel's experiments with surrealism and non-linear narrative in the 1930s; Nam June Paik's work with emerging video technologies in the 1960s; Bill Viola's experimental large-scale slow motion moving image installations in the 1990s. All of these artists contributed to the creation of a visual language for film that eventually moved out of its avant-garde context into mainstream commercial usage.

A more recent technological medium is that of the World Wide Web. Website design has evolved through the early part of this century from its humble beginnings from screens full of never-ending blocks of text to well structured pages that help users easily navigate websites. In the early days of website creation, aesthetics were thought to be irrelevant. As Siegel reports, early website creators favoured the hyper-functionalist approach. Functionalists believed that aesthetics did not matter to a website as long as it was functional and user friendly (Seigel, 1997). However, the introduction of web multimedia authoring and publishing applications, most notably Macromedia Flash, had a profound influence on the landscape of website design.

Flash provided the perfect environment to push the web forward into the 21st century. Ford observed how it opened the doors for creatives to fulfil their ideas and implement their web design dreams (Wiedeman, 2006). Such tools gave designers and typographers freedom to play with layout and free rein when structuring the navigation of their websites. They explored visual narrative within the new medium and pushed the technology, creating visually stimulating websites that invited the user to explore. It pushed the measure of what websites could be, enabling designers to deliver rich content with motion and interactivity while delivering impressive visual experiences. Flash is no longer a viable building tool for websites but its influence is visible throughout the Internet we know today. Developments in HTML, CSS & JavaScript can now deliver the same rich content that, at one time, was only achievable through Flash. While the functionalists disliked Flash, the popularity of the visual language that it enabled and its rich mode of content delivery could not be discounted.

III.   Narrative & Visual Narrative

We contend that the key to providing an engaging and compelling media experience is to successfully address the concept of *narrative*, in particular that of *visual narrative*, and to use design processes that facilitate the construction of such narratives. Narrative is defined as "a spoken or written account of connected events; a story" (OED, 2018). We now discuss the limited extent to which the concept of narrative has been addressed in web design and describe the design processes that might suit the incorporation of an expanded notion of narrative into web design and digital media in general.

Today's well-structured sites have evolved from much discussion, argument, research, study, experimentation and testing in the field of User Experience (UX) design. This was initially addressed at problems in layout and legibility, restructuring pages to make them less visually noisy. This change coincided with a shift in thinking that increasingly saw the Internet as a commercial landscape, with a business focus on the needs of the user. Interfaces became calmer and more uniform and usability became focused on navigating the user from the homepage through the site to an actionable point such as "buy now". UX design is now standard practice for the development of websites and mobile apps and it has been extremely successful. This emphasis on ease-of-use and user satisfaction results in visually pleasing, but also standards-based consistent interfaces.

Narrative and building narrative is often cited as a key part of UX design; however, a quite different meaning of the word narrative is in play here. Within UX, narrative is about building personas that frame the different types of end users. The idea is that this helps the development team visualise the end users, their lives, their challenges and how the team's product, whether that is an app or a website, will benefit that user. So, narrative within the world of UX is about helping the development team to visualise their customer. We contend that this is a simplistic and one dimensional use of the concept of narrative, and that much more interesting engagements can be achieved by embracing the concept in a fuller sense of its meaning.

Visual narrative, for instance, is based on the notion that a complex idea can be communicated in a single image, hence the saying - "A picture is worth a thousand words". It is the situation whereby a story is primarily told through photography, illustration or video, but can also be enhanced with graphics, typography and audio[1]. The definitive feature of visual narrative is that the story is presented by visual means and it is a uniquely powerful way to communicate.

Visual narratives are created to convey messages to specific target audiences and therefore these messages have to be delivered in a language recognised and understood by the intended audience (Hollis, 2001). *Visual language* is a set of principles and design elements by which meaning can be conveyed (Wang, 2008). If the message is properly constructed, creating images with context, and using the elements and/or signs from a contextual visual language, the viewer can understand what is being said. Communicating like this can resonate with the viewer and create an emotional connection between the viewer and the image, provoking a response, and stimulating the sort of deeper engagement we are looking for.

For example, poster design as previously mentioned, evolved through the innovative work of Chéret and the development of 3- & 4-colour printing. Chéret's style was adopted and developed by other artists from Henri de Toulouse-Lautrec to Edouard Vuillard (Hollis, 2001). The new technology opened opportunities to create new work using a new medium. Playing with the new medium allowed these artists to play with composition, colour and type in new ways, and created a new visual language that influenced the future of visual communication. The poster changed from dense sheets of text to a more visually engaging communications medium.

A century on, in a digital age, posters are still used globally. Everything from election propaganda to a band tour will be promoted through the use of posters in public areas. Globally, it is still considered to be a strong visual medium for communication. But the design of a poster is not achieved through a regimented set of steps. There are layout "dos & don'ts" but they don't dictate the overall design or the end visual output. The design comes from an iterative process of experimentation with visuals and layout. The visual narrative of a poster emerges from working with the content and moving the composition around to achieve the visual tone that will resonate with the viewer. Reinhard Gassner, of Atelier Gassner, explains, "The most frequent mistake is to attempt to make everything visible all at once. Good posters derive their strength from concentrating on a

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[1] Hollis (2001) notes that combining text and image can give meaning to ambiguous images, a notion that was called anchorage by Roland Barthes (Barthes, 1978)

strong basic effect and then gradually conveying other messages. And they live from the fact that, through good design, a special visual tone is achieved" (Gassner, 2010).

Constructing a visual narrative that operates at this level requires a playful approach that is far removed from the regimented steps of UX. As Natasha Jen simply put it, "*design is messy*" (Jen, 2017). It is experimental and proceeds by means of trial and error. Design is an active, iterative practice of visual inquiry, prototyping and self/peer critique, as opposed to a formula that can be followed. In conclusion we suggest that the use of such experimental design processes is critical as a means of evolving and defining the visual language of any new technological medium.

IV.   AUGMENTED REALITY

Our focus in this work is on the emerging medium of Augmented Reality (AR) and how to design for AR so that compelling visual narratives are made possible. Augmented Reality is an experience that supplements the real world with a virtual layer of information (Lowry, 2015). The most common versions of AR up to now have used the cameras and displays on mobile devices such as smart-phones and tablets. A common scenario is that the user looks at some portion of the real world through the screen on their device and then the application overlays digital information or graphics on top of that. More recent versions of AR rely on the use of headsets or specialised glasses which then directly augment the users field of vision.

Recent improvements in AR hardware have brought the technology into focus again with print magazines and online articles coupled with reviews of new hardware yet-to-be-released, spiking interest and anticipation (Buntz, 2016; Abovitz, 2017; Hicks, 2018; Bohn, 2018; Statt, 2018; Dickson 2018). One of the developments in this new era of AR is the light field display, which as Scott Stein explains, "projects what's effectively a full 3D image onto your retinas that can be focused on in the same way that a real object can" (Stein, 2017). Having experienced the technology, Stein explains how he was standing in a room, looking at a solar system projected in front of him, where he could focus on planets close to his eyes or on planets far off in the distance. This change from simple overlays on our field of vision to almost embedding information in our field of vision makes for a more immersive and potentially compelling experience.

Another improvement in technology that may have an impact on AR is the incorporation of sensors. A sensor is something that can be embedded in a real world location and that can then relay information to an AR application. In this scenario, AR could visualise data from hundreds of sensors simultaneously and then overlay relevant information pertaining to your immediate environment through a headset or glasses. Buntz (2016) cites

Gunary (CEO of Cractus Technology Inc.) describing the huge potential of applications for AR technology across industry, presenting examples of farmers being able to see, at a glance, the moisture levels of their fields and the fuel levels of tractors, and heavy machinery mechanics who would be able to get real-time views of components that need replacing.

AR glasses could have the ability to access repositories of data giving the user an instant level of insight into objects that was not readily available before. The experience of immersive data visualisations of IoT (Internet of Things) and sensor data in real-time, would change how we interact with the world around us, having the ability to present users with real-time contextually relevant information.

This is an exciting departure for AR. If these sensors work effectively they remove the need to anchor the AR displays to GPS points or visual markers. These sensors move AR to being pervasive, feeding the user relevant information into their field of vision. How this data interacts with the real time view becomes even more important. With the GPS point or the marker, the creator of the AR content was able to create the content fitting for that specific geographic location. For instance, a marker on a wall where the overlaid information would appear, the colour and texture of the wall would have driven the decisions on how best to view the content. However, now the information will appear without any visual supports.

Sensors feeding the information to a display that is overlaid into our field of vision sounds engaging and immersive. However, there is a fine line between being annoying and useful and a canyon between useful and engaging. The key question then becomes this: what sort of visual language is appropriate to this new medium and how do we best employ this language in order to realise compelling visual narratives?

As AR is an experience that supplements the real world with a virtual layer of information, it is safe to assume that a large percentage of what will be overlaid onto our view will be text and graphics conveying a message. We therefore suggest that since Typography is a visual language concerned with conveying messages through type, and Graphic Design is a form of visual communication that utilises space, image, shape and colour, both disciplines are not just central, they are vital to the evolution of the technology, how it will be used and how it will visually communicate.

V.   OPPORTUNITIES IN AR

We suggest that visual narrative and AR can be combined to create that sensory seduction and narrative pull that Eno spoke of. Business areas such as marketing have already identified the opportunities and have been working with the technology over

the last decade. Marketeers see AR as a primary storytelling medium, one that can be an immersive platform to tell a story and direct people to deeper content (Forbes Agency Council, 2017). The same thinking can be applied to a diverse range of areas. For example, the use of AR within Cultural Heritage in a range of roles from art appreciation to expanding audio tours to full visual interactions. Outdoor heritage sites have the potential to be a playground of possibility for the technology.

Each heritage site, from castles and churches, to forts and standing stones contains information that is not readily available but exists in a network of knowledge between historians, curators, and researchers but not to the visitor who takes the time to visit the site, look around and sign the visitors book. Some sites provide online information or physical information boards at the site but due to the design and the amount of content the visitor may or may not take the time to read them. These heritage sites are full of history and rich, interesting stories that are not always successfully communicated to the visitor. AR could add the additional layer of this missing information and actively engage the visitor. To engage the visitor and create a unique experience that connects the visitor to the site they are visiting, a visual narrative will need to be developed.

In essence, AR would become the invisible interface between the visitor and the cultural site and while usability will be important, an immersive experience that connects with the user will be equally so. This immersion goes beyond basic usability, the interface has to become an experience, it has to blend with the environment the user is standing in. The user needs to be able to view, understand, and interact with the technology. With so many challenges from the real world environment such as light, shadow, distance, accuracy to name but a few, AR has many hurdles to overcome. Fulfilling the design goals of an application depends, to a large extent, on the successful design of these components (Cameron, et al., 2011). These will only be teased out through experimentation and exploration.

AR can give an extra dimension to visual narrative. For instance, images are static, they can be displayed and viewed anywhere, but are in themselves are static. Films are more dynamic, with movement, pace and dialog but require the viewer to stay where they are while they are being shown. With both static and moving images, other visual aids are needed to build up the narrative. With AR, the context of the narrative is the cultural heritage site itself in the real-time view. AR can present the contextual story dynamically as the visitor moves through the heritage site; the graphic elements will interplay with real-time factors, such as weather and lighting and create unique experiences for visitors.

Taking into account the description of the experience as described by the reviewers, immersive graphics are coming in the next fleet of AR headsets coming to the market. Creatives will have a highly visual medium to experiment with and design for. Like Eno, creatives would be playing with this new technology, pushing and pulling it to its limits to find new ways to communicate their message.

VI. Conclusion

Every new technology deserves a few years of experimentation and exploration, especially AR due to the visual opportunities it presents. AR has the potential to be the delivery vehicle for a new visual language that could give more engaging user experiences across many sectors from Cultural Heritage and education to advertising and brand awareness. The quality of the interaction and the strength of the message being communicated comes from creatives such as artists, graphic designers and typographers experimenting with the technology. Clever crafting of the story through graphic images and type on a real-time view that play to AR's strengths could create user experiences that have the sensory seduction and narrative pull sought by Eno.

With creatives developing exemplars of what's possible, we could find that articles talk less about the technology and more about the experiences offered by the technology. AR as an interface, whether to a culture heritage site or shop window is the unseen presenter, master of ceremonies, unveiling the story and revealing information in a way that the user can understand and enjoy.

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