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Experience in Videogame Display: An Extension of the Matrix Model

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Abstract

Niklas Nylund argued that videogames lacked a coherent descriptive framework required to understand their complex position as museum artifacts. He proposed a matrix model consisting of three overlapping aspects of games display: objects, context, and experience. Although a starting point for exploring the role of videogames in museums, this required further detailed analysis. The present article extends the matrix model by exploring the area of 'experience', separating this aspect of display into three sub-categories: (a) playable experience, (b) collective experience, and (c) situational experience. These sub-categories of experience are discussed regarding videogame display in European museums. It is argued that this extended view of experience, rather than distracting from contextual information, is central to videogame display. Extending this category beyond playable games enables exhibitions to use the area of experience within a wider framework.

Keywords

videogame museums, videogame display, videogame experience, museum display, videogame exhibitions

Introduction

This article explores the challenge of displaying videogames in museums and the relationship with the experience of videogames. Videogames have existed since the 1950s, and are displayed in increasing numbers of exhibitions and specialist museums.

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Amongst the earliest videogames was *Noughts and Crosses* (Douglas, 1952), and the first videogame museum, The Computerspielemuseum, opened in 1997 in Berlin. Nevertheless, the position of videogames as museum artifacts remains complex, since they are neither simply physical objects nor interactive experiences. Likewise, the function of videogame museums varies, with different emphasis placed on material objects, historical context, and the experience of gameplay. Research has tended to focus on the preservation of videogames as material objects, although the 'notion' of videogames has been expanded to involve cultural and social aspects (Sköld, 2017). However, the display of games remains problematic and 'riddled with questions and ambiguities' (Nylund, 2018, p. 10).

It has been suggested that this problem reflects the lack of a coherent framework for describing the display of videogames or understanding game heritage (Nylund, 2018). To address this deficiency Nylund developed the matrix model, which distinguished between different aspects of game display. Integrating these aspects, Nylund proposed that videogame display can be divided into three sub-areas: object (e.g., consoles), experience (e.g., playable games), and context (e.g., socio-cultural background). These three areas interact, and as a Venn diagram illustrated, the overlap between object and experience corresponded to 'original experience', the overlap between context and object to traditional museum displays, and the overlap between experience and context to the use of videos of gameplay, walkthroughs, and reminiscences of gameplay. The intersection of all three areas represented an 'holistic museum display', although as Nylund notes, not all museums would wish to combine these aspects and might focus on specific areas of display.

The matrix model is presented as a starting point for further exploration and research of videogame display, enabling curators to be more 'aware of the choices they are making when displaying games and constructing game-related heritage' (Nylund, 2018, p. 12). Nevertheless, it was recognized that the model had several important shortcomings. In particular, finer distinctions were required within the categories of context, object, and experience, each of which could be further sub-divided. In the original article, this process was briefly discussed regarding the area of context, which was separated into three sub-categories: (a) context of play, (b) context of game development, and (c) context of public reception.

The Nylund matrix model was informed by the 'Interactive Experience Model', originally developed by Falk and Dierking (1992) to help understand museum visitor experience, and later renamed the 'Contextual Model of Learning'. The Falk and Dierking model separated experience into (a) personal context (e.g., prior knowledge), (b) social context (e.g., groups visits) and (c) physical context (e.g., museum objects). As they acknowledge, this is not a unique idea, but is useful in describing the complexity of the museum experience, and has been influential in helping to understand visitor behavior.

The present article does not focus on visitor behavior, but rather on the display of videogames in museums, and whether museum display requires more attention to the area of experience. As such, it extends the matrix model by investigating the category

of 'experience'. It proposes that 'experience' may be broken down into three further sub-categories. These are termed, (a) playable experience, (b) collective experience, and (c) situational experience. Playable experience not only involves playing games on original hardware, but also on emulators and modern hardware. Collective experience refers to the collaboration between different gaming participants, whilst situational experience refers to the influence of cultural factors. Each area recreates a videogame experience that may be associated with material artifacts, memories of playing with other people, and specific situations. For instance, a game such as *Tekken* (Namco, 1994) could be experienced (a) as a playable game on original hardware (playable experience), (b) as located in popular culture, such as kung fu films (collective experience), and (c) as memories of gameplay in a specific environment, such as an arcade (situational experience).

The concept of experience is not without controversy in videogame display, particularly the longstanding debate as to whether game experience should be 'authentic'. As Guay-Belanger (2022) noted, many gamers, collectors, and scholars, have emphasized the importance of recreating an 'authentic' experience of gameplay, to the extent of using the original hardware. However, others argue it is impossible to reproduce authentic experience, for both practical and experiential reasons (Nylund, 2018). For instance, playing a 1980s game does not recreate the wonder of experiencing a new technology, which today would be considered primitive and old-fashioned. Likewise, due to the degradation of hardware, it is often impractical to use original consoles and controllers. A typical example is *Magnavox Odyssey* (1972), which is dependent on cathode ray tube televisions to function properly. However, even if older technology is still available, the social context of gameplay is difficult to recreate in its original form. Clearly, playing a game in an arcade is a different experience to playing at home (Guay-Belanger, 2022). Indeed, as Newman (2012) pointed out, since videogames such as *Donkey Kong* (Nintendo R&D1, 1981) were released on several different platforms, a true 'original experience' does not exist.

As this suggests, 'authentic experience' is difficult to define and potentially confusing. Guay-Belanger (2022), referring to the work of Dean (2017), distinguished between 'accuracy' and 'authenticity', with the latter reproducing the meaning of the videogame as opposed to simply being technologically faithful. Therefore, experience can still be authentic, in terms of capturing the essence of the game, if not truly accurate. More straightforwardly, Nylund (2018, p. 3) characterized authentic experience, or what he termed 'original experience', as the overlap between object and experience. In other words, original experience corresponded to playable games using original hardware. 'Experience' was defined as interaction with 'software artifacts', or more simply, 'games playable on screens.' The present article considers this definition too limited, since it represents only one aspect of wider experience, which includes not only playable games, but also collective and personal memories of gameplay. The original matrix model also largely ignored the tangible and intangible components of display. This issue was briefly discussed by Nylund in terms of the area of context,

with 'development documentation' an example of tangible context, and 'game developer interviews' that of intangible context. However, there is little exploration of this distinction in terms of the area of experience. Clearly, playable experience is associated with tangible hardware, both original and otherwise, but the broader area of experience may also reflect intangible aspects, such as collective memories.

The present article focuses on the three different aspects of experience, and how these sub-categories impact on videogame display in European museums. Central to this discussion is whether videogames are considered entertainment or historical artifacts. It has been argued by previous researchers that focusing on games as playable experiences ignores the historical and cultural context, and risks a 'theme park' mentality (Nylund, 2018). As with other forms of popular culture, videogames reflect cultural heritage and contemporary issues (Naskali, Suominen & Saarikoski, 2013). On the other hand, this present article suggests that whilst context is important, the essence of videogames is the experience of gameplay itself. Clearly, there are obstacles that make this goal difficult to achieve, such as differences in skill and the complexity of some videogames. Nevertheless, these are problems that museums should aim to overcome, rather than prioritizing the 'deeper meaning' of videogames.

Playable Experience

In the original matrix model, the overall category of experience was not sub-divided, and instead, there is a broad area representing playable experience (Nylund, 2018). Nevertheless, Nylund is somewhat equivocal regarding the value of playable experience, suggesting that museums should not emphasize this aspect of display, and that playable 'original' experience is neither the most sought after, or the most useful, for the museum visitor. Arguing this from practical, conceptual, and cultural viewpoints, he noted that the value of experience is limited, and can distract from a 'deeper understanding'. Perhaps more importantly, he highlighted that simply playing the game without considering the contextual information risks losing sight of the historical and cultural background.

However, this view overstates the importance of contextual display, and ignores the usefulness of playable games in encouraging understanding. It implies that hands-on experience by itself lacks meaning and represents an inferior way of gaining understanding. But there are different types of understanding, and hands-on experience encourages emotional engagement with exhibits, not just intellectual insight. Indeed, some aspects of videogames are only fully appreciated by hands-on experience. For instance, The Museum of Soviet Arcade Machines reports that their least popular displays are the collection of later Soviet arcade machines called *TIA-MC* (Ekstrema-Ukraina, 1986b). These were developed in the late 1980s and early 1990s to run a variety of platformer games, such as *The Humpbacked Horse* (Ekstrema-Ukraina, 1986a). As games, these are very difficult to play and require multiple repetitions to gain the skill required to progress, a point that gameplay reinforces more clearly than contextual information.

Minimizing the role of interactive gameplay also places more emphasis on contextual aspects of display, whereas hands-on experience may help counterbalance this potential bias. Understanding can be distorted by contextual information, and as such, 'exhibitions are riddled with ideological decisions made by their curators' (Nylund, 2018, p. 11). Whilst curators are eager to present videogames in an historical and cultural context, their own ideological positions, and those of external stakeholders, can unwittingly bias displays. As Andreas Lange, a founding director of the Computerspielemuseum notes, there has been a growing trend towards focusing on regional and national histories, partly due to funding requirements (Gazzard & Therrien, 2018). For instance, The Finnish Museum of Games is dedicated to the history of Finnish games, and The National Videogame Museum (Sheffield) highlights the history of local game development. More specifically, it is understandable that the simulator game, *Inva-Taxi* (Åkesoft, 1994), involving fun at the expense of individuals with a speech impediment, was deemed unethical by curators at The Finnish Museum of Games. However, this game was then presented as reflecting the overall 'ideological values' of the museum (Nylund, 2018, p.11). Similar ideological decisions were made by The National Museum of Science and Technology who hosted the *GameOn 2.0* videogame exhibition in Stockholm (2013–2014). In this exhibition, the original contextual information regarding the iconic *Tomb Raider* (Core Design, 1996) character Lara Croft was changed by curators to conform with a 'Swedish gender equality perspective' (Eklund, Sjöblom & Prax, 2019, p. 450). Likewise, the V&A exhibition, *Videogames: Design/Play/Disrupt*, focused on race, gender, and violence in videogames, but was criticized for failing to engage visitors with the experience of videogaming (Khan, 2018). More generally, it has been proposed that videogames might be used to promote social change across a range of global issues (Pollack & Pierre-Louis, 2019). However, although such progressive values might be supported by many museum visitors, they still represent ideological beliefs that curators wish to endorse.

Regardless of contextual information, the visitor will bring their own personal experience to the interpretation of displays, and frequently this experience is described in terms of 'nostalgia'. It has been suggested that nostalgia is one of the central video game experiences (Bowman & Wulf, 2023), with research indicating that nostalgia has strong positive psychological functions and serves to promote social connectedness and well-being (Wulf et al., 2018). However, nostalgia is more than just shared positive experience, but involves complex emotions, and is associated with both happy and sad feelings (Hepper et al., 2012, p.107). Perhaps more importantly, videogame nostalgia allows individuals to create meaning in their lives (Routledge et al., 2012, p. 3). Contrary to popular perception, videogames can evoke a wide range of different emotions, from the entertaining escapism of action games to those which encourage the player to care for game characters and make complex moral decisions. For instance, Calleja (2011, p. 135) argues that because videogames demand active involvement and personal choice, they are more emotionally engaging than other types of media. This sets videogames apart by allowing gameplay and storytelling

to respond to the actions of the player. In this regard, Calleja (2011) developed a 'Player Involvement Model' which describes the aspects of player involvement within six dimensions (kinesthetic, spatial, shared, narrative, affective, and Ludic), and combinations of these dimensions are associated with increased engagement.

The founders of the Museum of Soviet Arcade Machines describe their motivation as an attempt to recreate a sense of nostalgia, and such nostalgia for the Soviet Union has been growing in popularity amongst Russian citizens (Balmforth, 2018). The museum focuses on videogames produced in the Soviet Union during the 1980s, and recreates an arcade from that period. Visitors use old Soviet currency to play the machines, and a period vending machine and historic Soviet Moskvich car complete the illusion. Whilst it may be impossible to capture original gameplay in the Eastern Block, during the time when arcade machines were scarce and fashionable amongst the radical young, the museum experience still conjures nostalgic thoughts about the past. Arguably, such reconstructions create a nostalgic experience and allows a sense of connection, regardless of whether the person remembers the period (Nylund, 2018; Naskali, Suominen & Saarikoski, 2013). Visitors will bring their own meaning to the exhibits, with some reflecting on the economic limitations of communism, whilst for others it will evoke nostalgia for a period of social cohesion and greater equality. Indeed, Mochocki (2021, pp. 8–11) suggests that this form of heritage is not history, but rather how we imagine the past to inform our present and future concerns.

A similar approach, highlighting nostalgia, is found in other European videogame museums. The Computerspielemuseum in Berlin, displays the '*Poly-Play'* (VEB Polytechnik, 1985), the only arcade cabinet developed in the German Democratic Republic. This cabinet provided a physical structure for several different games, such as *Deer Hunt, Hare and Wolf, Downhill, Butterflies* and *Waterpipe Burst* (Telekom Electronic Beats, 2019). Whilst appearing quaint to modern Western eyes, these videogames reflect the society in which they were developed, involving traditional hobbies, such as hunting and butterfly collecting. Others allow insight into everyday life in the Eastern Bloc, such as *Waterpipe burst*, in which the player catches water in a bucket to prevent the room from flooding. Similarly, The Finnish Museum of Games recreates a bedroom from the 1980s, whilst visitors at The National Videogame Museum (Netherlands) travel through time from a sixties living room to an eighties arcade, moving through different atmospheric rooms containing consoles and videogames. The Computerspielemuseum recreates an eighties style amusement hall, with a "used look" that includes a replica pay kiosk and old neon signs. There are also four small rooms demonstrating the use of home video games in previous decades, including a seventies living room with an *Atari VCS 2600*, an eighties hobby room with a *Commodore 64,* a children's room with a *Nintendo Entertainment System*, and a nineties living room with a Sony *PlayStation*.

Videogame museums that allow access to games playable on original hardware and 'recreate' a period atmosphere not only enable an emotional connection with the exhibits but are also very popular. The Finnish Museum of Games reports that their most

popular displays are games that are both nostalgic and playable. This includes the interactive TV game *Hugo* (Silverrock Productions, 1990), reaction time tester *Nopeustesti* (Coinline, 1990), ice fishing game *Propilkki* (Procyon Productions, 1999), and the mobile phone game *Snake* (Nokia, 1997). Likewise, the most popular game in the Museum of Soviet Arcade Machines is *Morskoi Boi* (*Sea Battle*) (Serpukhov Radio Engineering Plant, 1981). This was also the most popular arcade machine in the Soviet Union, and was manufactured in large numbers. The museum notes that many visitors are from the ex-Soviet Union, and come to play their favorite games from childhood, such as *Morskoi Boi* (The Arcade Blogger, 2020). Perhaps for similar reasons, the East-German *Polyplay* (VEB Polytechnik, 1985) is also very popular at the Computerspielemuseum.

Collective Experience

Collective experience represents the second sub-category of experience, reflecting shared culture, collective memory, and social interaction. As Newman and Simons (2009) argue, the collective shared culture of gaming is as important as individual gaming experience. Gamers are sometimes stereotyped as isolated loners, but an important aspect of the gaming experience is social activity. Furthermore, it is often the most valuable and popular feature of gameplay at exhibitions. This has not been lost on museums, who have become aware of the importance of social interaction, and have developed a variety of activities to cater for this demand, such as game design workshops. As an example of this trend, The Computerspielemuseum includes an installation incorporating fifty-two gaming milestones, each of which can be selected with a joystick (Gazzard & Therrien, 2018). Each milestone displays gameplay footage along with an explanation of its cultural influence, aiming to foster conversation between gamers. The concept of the interactive display has become increasingly fashionable over the past thirty years, partly driven by the need to attract visitors by the promise of entertainment, but also by the appeal of increased 'social communication' (Heath & vom Lehn, 2009). Research regarding traditional museums indicates that interactive or provocative exhibits were more likely to start a conversation between participants in comparison to traditional displays (Simon, 2010, p. 161). Nevertheless, although such studies indicate that most traditional museum visitors come in groups, there are concerns that a focus on individual gameplay in videogame museums can prevent social interaction. Indeed, visitor social behavior regarding interactive exhibits remains relatively poorly understood and much less researched than traditional museum visitor behavior (Heath & vom Lehn, 2009, p. 18).

Videogame exhibits point to the existence of a wider gaming culture, involving gaming icons and shared cultural objects, such as *Pac-Man* (Namco, 1980; Suominen & Ala-Luopa, 2012). Videogame museums have engaged with this shared culture by using various types of videogame display, including artwork, music, and movie memorabilia (Guttenbrunner, Becker & Rauber, 2010). Like

cinema and music, games are important in creating emotional experiences and empathy (Isbister, 2016). As such, there is an increasing cross-over between videogames and other forms of media, such as the cinema and graphic novels. Videogames not only generate spin-off films, but also inspire the content and visual presentation of mainstream cinema and television. For instance, Sell (2021) compares the film *1917* (2019) to the videogame *Uncharted 2: Among Thieves* (Naughty Dog, 2009), noting that both involve visual elements of a third-person action-adventure videogame.

Shared culture points to the need for collaboration between museum professionals, researchers, gamers, and hobbyists, to create successful exhibitions (Naskali, Suominen & Saarikoski, 2013). If gamers are the main consumers of videogames, then they should also have a role in creating exhibitions (Goodlander & Mansfield, 2013). Nevertheless, collaboration is mired by potential conflicts, with hobbyists and museum professionals often inhabiting separate worlds. Researchers and professionals are seen as central in the planning of exhibitions, whilst hobbyists are valued for technical and personal knowledge. However, many general museum professionals are unfamiliar with videogame culture, and gamers do not necessarily have knowledge of exhibition development. For these reasons, hobbyists are considered more likely to display videogames as playable entertainment, whilst museum professionals are more inclined to focus on contextual information. Nylund, Prax and Sotamaa (2021) suggest that videogame exhibitions by hobbyists are based on a limited understanding of videogames, and their exhibitions simply represent iconic brands and playable experiences. In their desire to attract visitors it is argued that 'non-professional' museums were less willing to engage with intangible heritage, such as gaming culture, and were skewed towards 'entertainment', ignoring the cultural value of videogames (Nylund, 2018).

In this respect, the *GameOn 2.0* exhibition (2013–2014) was criticized for focusing on playable games which distracted from attempts to contextualize the exhibits (Prax, Eklund & Sjöblom, 2019). The researchers highlight three structural limitations in the exhibitions' attempt to display playable games: individuals without gaming skills were excluded, many important videogames were unable to be displayed due to the difficulty in gameplay, and finally the distraction of gameplay overshadowed attempts to contextualize the cultural and historical background. The research suggested that interaction with exhibits often reduced social contact and collective experience, since often only one visitor could play at a time, leaving others to watch. However, these conclusions perhaps understate the value of playable games, and the degree to which visitors socially interacted. Certainly, one of the positive benefits mentioned by the *GameOn 2.0* staff was the increased inter-generational and visitor interaction with multi-player games (Prax, Eklund & Sjöblom, 2019). Indeed, *GameOn 2.0* staff noted that visitors used games as a focus for discussion (Prax, Eklund & Sjöblom, 2019). Finally, although this exhibition was criticized for the over-emphasis on playable games, it was this aspect that contributed to it being The National Museum of Science and Technology (Stockholm) most successful exhibition in terms of visitor numbers.

As Andreas Lange notes, it is important for videogame museums to attract a broader audience, particularly given the wider social change generated by the digital revolution (Gazzard & Therrien, 2018). It might also be added, that engaging a broader audience shifts videogame museums from being enclaves of gaming culture to representing a more collective experience. It has been suggested that museums run by hobbyists tend to involve a narrow group of individuals (Nylund, Prax & Sotamaa, 2021). This may be a consequence of hobbyist groups acting as cultural gatekeepers by excluding other gaming groups. As Kirkpatrick (2012) observes, British videogame magazines have defined gaming identity by excluding certain groups, such as older adults, women, and casual game players. Others agree that gaming communities can be exclusive, and these communities often demand that gamers demonstrate their gaming ability and conform with community norms (Nielsen et al., 2008, pp. 148–149).

This exclusiveness can make collaboration difficult, and some groups may be marginalized. For example, gaming has often been considered a male preserve, even with the rising number of female gamers. Given this viewpoint, and the bias towards masculine content in games, it is unsurprising that females have felt excluded by a gender barrier in gaming (Mäyrä & Alha, 2020). Nevertheless, differing gendered interests in gaming needs to recognized. For instance, in a study of Norwegian adolescents, Leonhardt and Overå (2021) found boys spent more time playing videogames, whilst girls focused on social media. Laconi et al. (2017) also found that genders differ in their motivation for playing videogames. This research indicated that males preferred complicated and competitive games, such as massively multiplayer online role-playing games (MMORPG) and action-adventure games, whilst females were interested in games that maintained relationships, and tended to be more casual players. Smartphone game users are also predominantly female, with smartphone gaming increasingly popular, accounting for over half of all global games revenues (Newzoo, 2022). There is also a close relationship between gaming and social media, with players using social media to interact and share videogame experiences (Bankov, 2019). However, many adolescent males view smartphone games as 'casual gaming' rather than 'real gaming' (Leonhardt & Overå, 2021). Smartphone games are also difficult to display in museums, since they are frequently digitally updated and rely on server connections which may no longer exist. Similar issues are involved in attracting a wider range of age groups to videogame museums, even though the age of gamers is increasing and visitors often attend with older family members. Research by the Interactive Software Federation of Europe (ISFE, 2010/2020) indicated that only six percent of gamers in Europe during 2010 were over 55 years old, whilst a decade later thirty-one percent were aged from 45 to 64 years old.

Videogame museums have been actively encouraging female and older visitors, and investigating ways of increasing public involvement. The National Videogame Museum (Sheffield), The National Videogame Museum (Netherlands), and The Computerspielemuseum, have included dance and rhythm games in their collection, such as *Chunithm* (Sega, 2014) and *Dancing Stage* (Konami, 1999). Museums also

emphasize family friendliness, host birthday parties for children, and include videogame areas for families. Collective experience is also promoted by activities such as '*The Legend of the Golden Console'*, a cooperative treasure hunt game devised by The National Videogame Museum (Netherlands), in which participants solve puzzles using a mobile phone loaned from the museum. However, although videogame museums encourage interaction with exhibits, there is less opportunity for public participation in developing exhibition displays. User generated content (UGC) is one possible way of involving gamers in exhibitions, and the National Videogame Museum (Sheffield) encourages visitors to create their own videogame characters. Whilst this is a skilled and time-consuming activity, and only appropriate for enthusiasts, it is possible that within-game creations could be displayed as part of contemporary exhibitions.

Situational Experience

'Situational experience' forms the third sub-category of experience, reflecting the way in which videogame experience is modified by the surrounding circumstances. These circumstances include the influence of culture (e.g., gaming magazines), gaming situation (e.g., home or arcade), and gaming knowledge (e.g., skill). Indeed, the videogame curator, Chris Melissinos, argues that an important part of gaming are the memories surrounding playing a game, which enable the game to be located within the individual's broader life experience (Terpstra, 2022). Therefore, a distinction needs to be made between contextual and situational experience, with the latter reflecting personal interaction with videogames, compared to contextual knowledge of the historical and cultural background.

Videogames have different functions depending on the situation in which they are displayed. In an arcade they function as entertainment, in a gallery as a work of art, in a museum as a historical object. Playing a videogame in a museum inevitably creates a conflict regarding these different functions, particularly between videogames as a museum object and as entertainment. Nevertheless, it has been argued that by focusing on games as entertainment, museums have ignored controversial issues and lost track of the cultural aspect of videogames (Eklund et al., 2019). Playable experience has usually been considered entertainment, rather than an artwork or historical object, and as Nylund notes (2018, p. 3), 'Museums have traditionally been interested in physical objects, relying on them to communicate information about cultural heritage to museum visitors'. Likewise, Falk & Dierking (2000, p. 232) suggest that museums are not places of entertainment and should not try to 'out-Disney Disney'. Nevertheless, they add that this should not eliminate fun, since educational experiences can be enjoyable, but museums must not allow commodification to side-line expert knowledge. As an alternative to playable experience, museums could emphasize intangible aspects, such as gaming culture. Indeed, museums have used videos of gameplay, for instance, displaying *Let's Play* videos featuring individuals playing a videogame accompanied by an ongoing commentary (Guttenbrunner, Becker & Rauber, 2010).

However, although background material may be required to fully understand gameplay (Newman, 2012), visitors are not necessarily interested in detailed information, such as in-depth video interviews with developers or artists.

Clearly, the relationship between education and entertainment is complex, and depends on the type of museum. Nevertheless, the desire for education, and the expectation that museums will be educational, remains a strong part of museum visitor motivation (Mason, Robinson & Coffield, 2018). Indeed, Packer and Ballantyne (2004) argue that entertainment and education in museums complement each other, and that education should be 'learning for fun'. They suggest that traditional museums need to transcend the division between entertainment and education by focusing on the experience surrounding the display and by fully engaging the visitor. As Packer and Ballantyne's research indicates, visitors often do not make a clear distinction between education and entertainment. The visitors included in this research frequently expressed the view that education needed to be combined with entertainment, and that engagement and choice was the most important requirement for this to be effective. Nevertheless, the debate continues as to whether visitors are actively engaged in exhibits, or simply passive vessels easily distracted by entertainment to the detriment of contextual learning. Whilst videogames are entertainment, it is an entertainment that must be actively engaged in, rather than passively enjoyed. As Isbister (2016, p. 2) notes, the fundamental feature of videogames, and the one that distinguishes these from other forms of media, is that they 'offer players the chance to influence outcomes through their own efforts'. This underlines the fundamental point made by Calleja (2011) that the experience of playing a game is complex, and concepts such as 'fun' are too vague to describe involvement in gameplay.

Visitors do not simply follow the intention of the curator, but bring their own perspectives and meaning to an exhibition (Falk & Dierking, 2000). Nevertheless, many researchers seem ambivalent about the idea that visitors should be free to construct their own perspective on museum displays, or indeed, are able to do so. As noted earlier, videogame museums have been criticized as simply presenting games as an 'enjoyable, friendly, and playful experience' (Eklund et al., 2019, p. 458). Playable games are condemned as simply promoting entertainment that prevents individual reflection, and acting as distractions from professional interpretation (Swalwell, 2013). Visitors are described as almost childlike in their need for guidance, and being easily distracted by the 'noise and blinking screens'. From this standpoint, videogames are almost considered a diversion from the real function of the museum display, which is to promote a particular view. As some have argued, a well-constructed display should be able to convey a socio-political message, regardless of the blinking screens of playable games (Eklund et al., 2019, p. 456).

In contrast, this article suggests that the focus of displays should be the experience of videogames rather than wider cultural or contextual issues. Videogames are primarily designed as entertainment, and it would be perverse to expect visitors to ignore this aspect. Indeed, research indicates that visitors like playing familiar games, much to the irritation of staff, who possibly desire a more serious audience (Eklund et al., 2019,

p. 452). Clearly, videogame museum visitors do not just want to read or look at a display, but are interested in handling objects, participating, playing, and interacting with videogames (Naskali et al., 2013). Visitors go to videogame museums to be entertained and seeking playable experiences, and museums are aware that it is these aspects that attract visitors.

Understandably, therefore, museums are heavily weighted in their displays towards playable games: The National Videogame Museum (Netherlands) has at least 231 playable games, and The Museum of Soviet Arcade Machines, 328 functioning machines. Yet there are limitations on the display of playable games in museums. Online games, such as MMORPG, cannot be easily displayed since they require many players to operate. There is also a distinction between Role-Playing Games (RPG) which require substantial time to develop game characters, and 'maze chase' games, such as *Pac-Man* (Namco, 1980), which are more instantly playable. However, the most common limitation restricting playability in museums is the experience of visitors with gameplay. Quite simply, videogames that are easier to play are more popular than those requiring skill or familiarity with gameplay. Likewise, games that involve a developing narrative, such as adventure games, tend to be avoided in preference to those more immediately accessible. It will come as no surprise, that the most popular game in *The Micro Museum* is *The Binatone Pong Game* (Binatone, 1976), being easy to understand and attractive for mixed-age players (*Micro Museum*, personal communication, 2021). Similarly, the *Wroclaw Museum* chooses playable games that are easy to learn and master, and with a short loading time (Jakub Rzepecki, personal communication, 2021). Most importantly, the museum notes that all attempts to display more ambitious games have ended with a lack of interest from players. The most popular games in the museum are simple and addictive games, such as *Duck Hunt* (Nintendo R&D1, 1984), *Pong* (Atari, 1972) and *Pac-Man* (Namco, 1980). Less popular exhibits include the more demanding game consoles, such as the *Amiga*, which requires experience and time to acquire the necessary skill to enjoy the games. Interestingly, this is also true of the arcade game *Asteroids (Atari, 1979)*, which is less popular because of the skill required in steering the spaceship. This last game underlines the relevance of situational factors in the experience of games, given that *Asteroids* was hugely popular when it first appeared in 1979 as an arcade game. Enjoyment requires expertise, which only came with repeated arcade visits, whilst museum time is limited and easier games more readily available.

Game experience is therefore dependent on time, as well as place. It is constrained by the amount of time available in the museum, as well as the time period during which the game was developed. *Asteroids* (Atari, 1979), for those who were not teenagers in the 1980s, represents a historical curiosity, not a playable game. As Andreas Lange at the Computerspielemuseum reflects, museums cannot rely on future visitors having an emotional connection to older games and consoles (Gazzard & Therrien, 2018). This has implications for the accessibility of museum exhibits for a mixed range of age groups. If game museums are to develop from relying on a particular generation, then they must appeal to a wider group.

Discussion

This article has extended the original matrix model. It has argued that 'experience' is not a single aspect of videogame display, and has proposed three sub-categories of videogame experience. This further sub-division allows more detailed exploration of videogame display in museums. The article also maintains that experience should be at the center of videogame display, rather than secondary to cultural contextualization. This is not to say that videogame museums should simply be 'fun', 'interactive', and 'entertaining', but that the concept of experience is more multifaceted than has been previously described. Instead of attempting to balance playable experience and contextual information, experience should be extended beyond playable games to incorporate situational and collective aspects. Rather than viewing contextual information and experience as opposing features of display, a more nuanced view of experience would enable these categories to be better integrated.

Although the focus on playable experience has increased visitor numbers, there is some unease that this is pandering to entertainment, is potentially confusing, and needs to be balanced with more contextual information (Nylund, 2018). Indeed, the popularity of playable experience is partly blamed for the 'resistance of the playable games to contextualization' (Prax et al., 2019). Nevertheless, the desire to contextualize can lead to a top-down approach, in which curators are more interested in helping visitors understand the cultural meaning of videogames, rather than encouraging personal experience. As White and Love (2016) suggest, videogame curators may need to surrender their desire to regulate museum visits, and negotiate a balance between education and visitor experience. Heath & vom Lehn (2009) reflect that the intentions of curators are often subverted by visitors, who have their own agenda and personal interests. As they note, the curatorial viewpoint often attempts to prescribe an educational message which disregards the expectations of the museum visitor. Although the criticism of these authors is directed towards the unhelpful use of interactive displays in general museums, the same argument can be applied to other forms of curatorial control. For instance, whilst social interaction and cultural discussion might reflect curatorial goals, it is not necessarily a priority for visitors. In this regard, feedback from the exhibition *GameOn 2.0* indicated fundamental differences in the expectations of staff and visitors. On one hand, staff were keen to engage visitors in topics of 'cultural significance', whilst on the other, visitors simply wanted to play the videogames (Prax et al., 2019, p. 444). Tours based around themes, such as gender in gaming, had to be abandoned since participants were more interested in gameplay. However, it is unclear whether this reflected the distraction of gameplay or the resistance of visitors to cultural themes that may have seemed peripheral to their interests. Perhaps tours which incorporated issues of gameplay experience might have been more enthusiastically received.

It has been argued, that for many visitors, gameplay did not increase understanding of videogames, but instead, complicated an already 'opaque' subject (Prax et al., 2019, p. 447). This lack of prior knowledge of videogames or gaming culture made

playability of videogames entirely irrelevant. Although these authors acknowledge that 'we must play games in order to understand them', and that playable games still had value for exhibitions, their conclusion reveals an ambivalence to playable experience. Visitors are described as wearing out fragile artifacts, being easily distracted, and lacking the knowledge required to participate in gameplay. One solution, suggested by the authors, is to separate displays into different sections. In one area would be easily played games, and the other area, contextualized non-playable games. However, compartmentalising displays in this way has echoes of the social divide apparent throughout the history of leisure activities (Bailey, 1978). Whether at the seaside or the dance hall, attempts were made to segregate pastimes considered self-improving and educational from those seen as mindless entertainment. The goal of 'rational recreation' involved the desire to control and order entertainment, and these ideas have continued to influence reactions to the 'wrong sort of leisure' (Nott, 2015). In regard to the videogame museum, this approach would consider the visitor interested in gameplay as being less sophisticated and as requiring contextual education.

The present article argues, that instead of separating gameplay experience from contextualization, museums need to make gameplay more accessible. Such increased accessibility requires greater appreciation of the limits of visitors gameplaying abilities. However, rather than suggesting gameplay is less important, these restrictions underline the responsibility of museums to supply gameplay information and offer gameplay advice. Instead of focusing on games that are easy to enter and exit, and do not require complex knowledge to operate, it would be preferable if difficult games were made more inclusive. Complex games, such as action-adventure games, would benefit from 'cheats,' and arcade games from short-cuts. Non-gamers may need simple instructions regarding game operations to be able to participate, and one possibility is to have sections of games already completed and text displaying gameplay instructions. Similarly, younger players may benefit from detailed instructions regarding unfamiliar and older games.

One advantage of extending the matrix model is that the category of experience is no longer simply restricted to playable games. Instead, experience encompasses wider issues, including gaming culture and nostalgic memories, as well as playable entertainment. This wider framework embraces collective and personal memories connecting this form of entertainment to everyday life, popular culture, and personal experience. Videogame display no longer needs to choose between the arcade and the museum.

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