

An Ethical Commitment for Mixed Reality Games

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Abstract

Mixed Reality Games change the way that people experience and share space, they thus raise new ethical challenges for designers, especially at cultural heritage sites that are particularly sensitive shared places. In this paper we reflect on a major study of ethical practice in mixed reality games recently published in ACM Games: Research and Practice, and explore how its findings might be translated into guidance for developing mixed reality games within our LoGaCulture project. The result is a four part commitment: to critically engage with ethical aspects of our case studies, to draw on known ethical strategies, to actively look for ethical issues, and to create space for artistic freedom where possible. We have then set out what this initially looks like at two of our case study locations: Avebury and Madeira. Our approach shows that rather than a prescriptive set of strategies that would create a false sense of assurance it is possible to set out a reflective and critical approach that represents a more genuine engagement with mixed reality ethical issues.

CCS Concepts

• **Social and professional topics** → **Codes of ethics**; • **Human-centered computing** → **Mixed / augmented reality**.

Keywords

Mixed Reality, Ethics, Cultural Heritage

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1 Introduction

Augmented and Mixed Reality Games augment real spaces with digital information, and introduce interactions that cross between the

real and the digital. Examples include digital tour guides [2][10][4]), Locative Literature [11] or Ambient Literature [5], or more ludic experiences that include mechanics such as treasure hunting or chasing other players [8]. Commercial examples include Niantic (*Pokemon Go*, *Harry Potter: Wizards Unite*) and Six to Start (*Wanderlust*, *Zombies Run!*), but much of the development has come from academia, where Mixed Reality Games have been used to create new ways of interacting with cultural heritage sites, from populating the empty rooms of historic buildings with digital characters [6] to hunting for objects across an archaeological park [19].

The phenomenal success of *Pokemon Go* has drawn attention to some of the potential ethical issues around mixed reality games, with journalists highlighting the ability to catch *Pokemon* at sensitive sites where play is inappropriate¹. In the last ten years there has evolved a growing body of literature exploring the perils of MR Games as a persuasive technology [15], that subverts public spaces [13], and raises new health and safety concerns [3].

Most frameworks for the development of MR Games do not have an ethical component, focusing instead on the development process [21], or design rules for creating effective experiences [7]. Royakkers et al. (2021) goes as far as presenting ‘The Ten Commandments for Responsible Augmented Reality’ [16], a set of design principles that call on MR Game designers to guarantee anonymity and privacy, clarify issues of ownership, protect mental and physical health, treat people with fairness and dignity, protect autonomy, ensure fair power relationships, create public spaces, be socially responsible, and to do so whilst working broadly across society.

As part of the LoGaCulture project we are developing MR Games across four different heritage sites in four different countries: Avebury (UK), Madeira (Portugal), The Senckenberg Nature Museum (Germany), and the Valley of the Boyne (Ireland). In each case we are working closely with cultural partners who are often the custodians of that heritage, and therefore have an ethical obligation to their visitors, broader society, and future generations, to ensure that the sites are respected and preserved.

We recently published in *ACM Games: Research and Practice* a significant review of the ethical challenges raised by MR Games, and (through interviews with designers) the strategies that have been developed to mitigate them [12]. But this analysis does not translate directly into actions or guidance for designers. In this paper we present a summary of our findings, and describe how we

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¹Brian Feldman (July, 2016) Yes, You Can Catch *Pokemon* at Auschwitz, New York Magazine <http://nymag.com/intelligencer/2016/07/yes-you-can-catch-pokemon-at-auschwitz.html>

are interpreting them into the *LoGaCulture Ethical Commitment*, a living response to both our analysis and the criticisms we have of the existing strategies and the ethical approaches that they assume.

2 Ethical Problems, Ethical Strategies

In the review paper [12] we looked in detail at the emerging ethics of Mixed Reality Games, with the assumption that a technology that has the power to transform people's experience of place will naturally raise unique ethical challenges. Synthesising the work of a number of different researchers we found 26 different ethical concerns that can be collected into 5 different dimensions:

- (1) **Claim Rights** - focused on the people associated with the place where the MR Game is situated, e.g. preserving cultural norms, or protecting them from trespass and Graffiti.
- (2) **Duty of Care** - focused on the player of the MR Game, e.g. their safe passage and consent, and requirements for accuracy and fairness.
- (3) **Social Justice** - focused on the social and cultural responsibilities of the designer, e.g. to provide accessible and inclusive experiences, protect people from harassment or exploitation
- (4) **Privacy** - focused on the use of personal data, e.g. managing surveillance, protecting players information from each other
- (5) **Control** - focused on respecting players freedom and agency, e.g. avoiding dark patterns, preventing player manipulation

We then conducted interviews with 17 MR Game Designers in order to elicit a set of strategies that they currently employ in order to address these concerns. They described 64 distinct methods (tactics) that fit into 15 strategies across three areas:

- (1) **Design Strategies** - that apply during the conception and development of an MR experience: Practising inclusive design, involving stakeholders, developing an editorial process, through careful interaction design, and integrating with existing activities on site.
- (2) **Participant Management Strategies** - that apply to the selection and support of players: Controlling who participates, training them adequately, framing the experience in a positive way, providing space for reflection, and giving them power over their personal data.
- (3) **Logistical Strategies** - that apply to the management of the live experience: Live monitoring, pretesting, and undertaking pre-visit checks.

For LoGaCulture there is a danger that in adopting specific strategies and tactics we move further towards a systematic *deontological* approach to ethics, which hides the fundamental importance of underlying *virtues*². The LoGaCulture team will therefore need to act reflectively and remain engaged with the ethical process, rather than assuming that the adoption of particular strategies will guarantee an ethical outcome.

3 The Cultural Context

The International Council of Museums (ICOM) released a code of ethics in 2012, that includes 8 principles [1] (and see [9] for

a good overview). While LoGaCulture includes one museum our case studies are also situated in open landscapes, many public. We therefore take inspiration from the ICOM code in terms of respecting the cultural values of our partners (these are enshrined within the code, although some will need translating to the context of landscape as heritage) and also in terms of trying to address the criticisms that have been made against the code.

Unusually the ICOM principles are expressed as descriptive statements and are perhaps best interpreted as descriptions of the ideal ethical museum rather than principles. As a result in the following, the **bold** is the stated principle, while the description is our interpretation based on the extended descriptions:

- (1) **Museums preserve, interpret and promote the natural and cultural inheritance of humanity** – In that they have a responsibility to protect and promote this heritage, as well as the resources made available to them for that purpose.
- (2) **Museums that maintain collections hold them in trust for the benefit of society and its development** – thus museums have a stewardship role that includes ensuring rightful ownership, establishing provenance, providing a guarantee of permanence, creating and maintaining documentation, providing suitable accessibility and ensuring responsible disposal.
- (3) **Museums hold primary evidence for establishing and furthering knowledge** – Museums have a responsibility for the care and interpretation of primary evidence related to their collections.
- (4) **Museums provide opportunities for the appreciation, understanding and promotion of the natural and cultural heritage** – Museums have an educational duty to increase public awareness and attract wider audiences from the community, locality, or group that they serve.
- (5) **Museums hold resources that provide opportunities for other public services and benefits** – As a professional home for a wide variety of experts Museums have a duty to share that expertise with wider society, for example through establishing shared resources, or the provision of services.
- (6) **Museums work in close collaboration with the communities from which their collections originate as well as those they serve** – this means that they have a responsibility to support and work with the national, regional, local, ethnic, religious or political groups involved, and to be responsive to requests from those communities.
- (7) **Museums operate in a legal manner** – Museums must conform fully to international, regional, national, or local legislation and treaty obligations.
- (8) **Museums operate in a professional manner** – Members of the museum profession should observe accepted standards and laws and uphold the dignity and honour of their profession. They should safeguard the public against illegal or unethical professional conduct.

Kathrin Pabst notes four challenges faced by museums and their staff while attempting to meet these principles [14]: balancing individual needs vs. society at large; respecting individual's subjective truth while conveying objective truths; balancing their own

²A *deontological ethics* approach refers to the creation of rules or commandments that when followed will result in an ethical outcome. An alternative is to follow a *virtue ethics* approach, where we would instead define the qualities that we expect to be paramount in ethical judgements.

skills with those of external actors; and reconciling personal judgement with established guidelines. The last of these echoes our own concerns about how the LoGaCulture team must remain actively engaged with ethics, rather than using a set of strategies to avoid sometimes difficult questions. The others highlight what some of those difficult questions might be in dealing with contested histories or balancing conflicting priorities for a site.

In particular these issues arise when considering alternatives to the Authorised Heritage Discourse (AHD) [17], which represents the dominant and accepted interpretations of heritage that have their roots in the nineteenth century where “the ‘moral’ duty of the present to conserve” became a founding ethic of modern cultural heritage institutions, with heritage framed as “one means of fortifying and regulating national identity”. Given the stewardship role of cultural institutions mentioned in the ICOM code museums become the natural inheritor of the Claim Rights identified in our ethical analysis, meaning that there is a danger that mixed reality experiences further ossify the AHD around those sites.

LoGaCulture, with its explicit inclusion of cultural partners, is particularly vulnerable to this ethical dilemma. By conceptualising the research around case study sites, and by working closely with the cultural authorities within those sites the project runs the risk of excluding alternative narratives, and sitting too comfortably within the AHD. It is the nature of these sorts of projects that this be the case, and we would not advocate for a radical change in the structuring of these project in the future, but we should acknowledge the deficiencies in the strategies in Section 2 for enabling artistic and free expression within the law, and in our design collaborations we need to consider ways in which space for dissent might be included within our experiences.

4 The LoGaCulture Ethical Commitment

As a European project LoGaCulture is committed to the European values of human dignity, freedom, democracy, equality, the rule of law, and human rights, whilst respecting the balance between the autonomy of individuals and the flourishing of society as a whole.

As we have seen there can be no rigid or mechanistic route to an ethical project. Instead, we seek to live up to these values by making a four part commitment drawn from the analysis above:

- (1) To **critically engage** with the ethical aspects of the case studies throughout the design, development, and deployment stages of the project.
- (2) To **draw on the strategies** identified in [12] as appropriate to reify this engagement, and to explore new strategies where they are missing.
- (3) To **actively analyse our case studies** for the ethical issues identified in [12], making no assumptions about the absence of bad actors, and to take measures to deal with those issues when they are found.
- (4) To work with our cultural partners within the scope of their cultural heritage values but to **respect artistic freedom where possible**, and to explore potential places for dissenting or alternative voices within the scope of the project.

While there is no prescriptive list of strategies that arise from the LoGaCulture Commitment (and in fact, that is the purpose of the first point) we are already engaging across our case studies



Figure 1: Case Studies 1 and 2 – Avebury Henge, the West Kennet Barrow, and Silbury Hill

and have preliminary ideas about the ethical approaches we might adopt. In the following we will explore how two example sites from our case studies are drawing on the analysis presented above in order to illustrate how this process will work. Strategies and Tactics from [12] are shown in *italics*.

4.1 Example: Avebury

4.1.1 Overview. Avebury is the subject for Case Studies 1 and 2. Avebury is a UNESCO World Heritage Site (along with Stonehenge) managed by the UK’s National Trust, and it is an important European neolithic landscape dating back over 5000 years. The site includes the largest stone circle in the world (at 330m across) set within a the wider landscape with a number of other significant monuments (including the West Kennet Avenue, Silbury Hill, and

the West Kennet Long Barrow). Figure 1 shows some of these monuments.

4.1.2 Approach. In Case Study 1 the University of Southampton (UOS) will work closely with the National Trust (NT) in a process of *Participatory Design* to create a larger visitor experience. This will be an extended and in depth collaboration in order to identify aims, construct a story, develop thematic mechanics, and undertake interactive design.

In Case Study 2 Bournemouth University (BU) will work with a number of different experience designers to create a collection of smaller experiences that explore a wider possibility space. To enable this the team will develop *Authorial Advice* for their designers based on the goals of the NT, and will work with them on establishing an *Editorial Process* through which they can retain some oversight.

In both case studies UOS and BU will work with the NT to develop an appropriate *Aesthetic* for the experiences based on the established branding of the NT. Befitting Avebury's status as a World Heritage Site both teams will also attempt to maintain *Normalcy* as much as possible, and will use *Passive Technology* in order not to spoil the existing experience of the site.

Early discussions with the NT have already identified *Optional Content* as important for the experience (as parts of the site occasionally need to be shut off for purposes of erosion control), and in Case Study 1 we are breaking the larger experience down into a series of layers that starts in the visitor centre and then expands out into the surrounding village and then out again into the landscape, this means that a sense of *Stopping* will be built into the experience.

Finally, Avebury is one of the LoGaCulture sites where ideas of social visiting will be explored, this is where visitors can interact with one another through the game in order to create a shared experience [20][18]. For this we will draw on *Non-verbal Communication* as a way of managing user content within the experience.

Given our close working relationship with the NT one challenge with Avebury will be to balance the control of the cultural partner with artistic freedom. We intend to do this mainly through the smaller experiences developed in Case Study 2, which are deliberately framed as more arms length from the NT, providing a more independent space for building experiences that is clearly signposted as such, while retaining important checks through the appropriate editorial process.

4.2 Example: Madeira

4.2.1 Overview. The Island of Madeira is the subject of Case Study 3. Madeira is the outermost region of Europe, and is rich in UNESCO protected biodiversity. The Instituto Superior Tecnico (IST) based at the University of Lisbon, will work closely with the Natural History Museum of Funchal (NHMF) to develop an experience based around both the museum and the Levadas, the name for the 2200km of irrigation channels and aqueducts running through the island's mountains that was established in the 15th century. Figure 2 shows a view of the levadas.

4.2.2 Approach. In the exploratory phase IST will follow an approach that is deeply rooted in contextual, participatory and collaborative perspectives by undertaking *Research* on the location(s)



Figure 2: Case Study 3 – The Levadas of Madeira

upfront with locals (local community as well as local cultural operators – such as the NHMF), tourists, and researchers to uncover sensitivities and forgotten stories of the location; by discussing and reviewing the findings through *External Review* with colleagues and experts from the LoGaCulture project and the Natural History Museum, as well as by involving the various visitors (locals, tourists) in a *Participatory Design* process by listening to their stories, motivations, hopes and fears. Through the cooperation with the museum, we achieve *Stakeholder Participation* (with cultural operators, curators and local scientists), and involve them in the discussions and creation of the content and establish consent through ongoing relationships.

In the design phase, we'll address the ethical dilemmas resulting from the tensions of cultural heritage sites and over-tourism

through applying the ethical framework in the design process, particularly by reproducing (parts) of the location as an MR experience that will take place at the museum and *Separate* it from the usual visiting experience. In terms of Interaction Design, we will create a transmedia MR experience that allows for opting out and *Stopping* the experience anytime to secure physical and psychological safety as well as creating inclusive prompts whenever possible. We will also make sure to maintain *Normalcy* in that both the nature and the experience of other visitors will not be affected in any disturbing way through the transmedia MR experience, namely by not bringing more people to already overcrowded areas and avoiding the installation of additional technologies, working with *Passive Technologies* and what we find on site.

When it comes to applying participant control and logistic strategies, we'll plan our activities in such a way that we will only include participants who actively want to take part in the experience and use *Trigger Warnings* for any upsetting content that might form part of the transmedia MR experience, such as, for example, the feeling of helplessness when being confronted with the virtual damage of the cultural heritage site. We will also make sure that participants are informed about and feel confident about the use of the technology in place, giving them a *Rubric* in the form of information about the length, content, and expected emotional response of the intervention, and contact details in case they want to be informed of study outcomes or review/deletion of data. In terms of security and well-being of participants, we will make sure that the experience is initially *Piloted* and then *Live Monitored* by the project team who can intervene if needed, and who are in direct contact with the participant to listen to and solve any complaints or problems at situ.

5 Conclusion

Rather than suggest a prescriptive set of strategies for LoGaCulture (which would encourage an overly bureaucratic use of the strategies that could ultimately create a false sense of assurance) we have instead set out a reflective and critical approach to ethics based around a four part commitment: to critically engage with ethical aspects of our case studies, to draw on known strategies, to actively look for ethical issues, and to create space for artistic freedom where possible.

We have also set out how this is being realised in two of our case study locations. A key limitation of our work is that we are at the start of this process, and so future work includes review points where we will reexamine our designs and our technologies to understand if ethical issues are emerging. No mixed reality game can be ethically perfect, creative artefacts can (and should be) inherently challenging, and design is by its nature the process of plotting a careful course through multiple, sometimes competing, objectives and perspectives. But we hope that through this ethical commitment we can mitigate the worst ethical challenges, and reduce the likelihood of unintentional adverse consequences.

By pursuing this process we intend to not only support the ethical creation of our own case study experiences, but also to explore how this approach might be developed into a more complete ethical framework for designing mixed reality games with lessons for future policymakers and legislators.

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