



The Ethics of Virtual Reality Interactive Digital Narratives in Cultural Heritage

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Abstract. As IDNs are used to represent complex phenomena, we are bound to assess the ethical dimension of these representations in order to help IDN mature as a practice and a discipline. In this paper, we consider ethical aspects arising from applications of IDN in VR for Cultural Heritage experiences. Using a discussion of ethical aspects of cultural heritage and virtual reality as a foundation, and considering a range of IDN VR cultural heritage experiences, we derive a set of ethical questions for IDN design in general and for cultural heritage specifically as the basis for the development of standard ethics guidelines and help start a conversation on the topic in the community.

Keywords: Interactive digital narratives · Ethics · Ethics guidelines · Virtual reality · Cultural heritage

1 Introduction

The question of the effects of mediated products on their audiences has been studied for a considerable time [1–3]. As the field of Interactive Digital Narratives (IDNs) matures [4], questions arise that have been asked of other disciplines [5], and starting to address these questions helps the field develop further. One such question is the issue of ethics: what are the ethical considerations of IDNs? The approach taken by this paper is to focus on ethical questions pertaining to a specific platform and application for IDNs, Virtual Reality (VR) and cultural heritage. Concretely, we start with a catalogue of general concerns and then take a bottom-up approach in considering IDNs developed as VR experiences in cultural heritage. The connection to cultural heritage enables us to take in insights developed in this more established field, and consider ethical aspects of VR technology which has been used in the preservation of cultural heritage sites and artefacts over the past two decades. Bringing together these lessons and our initial catalogue, we identify specific concerns for VR in cultural heritage applications.

A crucial prerequisite to discussions of ethical questions in IDN design is an understanding of its specific qualities in contrast to fixed narratives forms. IDN as a dynamic,

systemic form is principally open to unexpected consequences and unintended uses and this central aspect shifts a part of the responsibility to the audience as interactors. On this basis, we can identify questions for ethical implications of IDN productions in general and VR products for cultural heritage specifically. The following catalogue of questions is intended as a starting point for a framework of ethical IDN production as part of the further development of the field.

- How can multi-perspective experiences be created in a way that each perspective gets a fair treatment?
- How can an IDN scaffold an experience for the interactor in a complex situation so that they arrive at an understanding of how their actions have resulted in the outcome?
- How can undue simplification and trivialization of a complex situation in an IDN be prevented?
- How can an IDN design accommodate interactors with different levels of experience with interactive artifacts?
- How can an IDN design accommodate interactors with different levels of prior knowledge in regards to the topic of the artefact?

2 Ethics of VR IDNs in Cultural Heritage

The ability of IDNs to contain multiple perspectives and offer choices make it an attractive medium through which cultural heritage can be represented. Before we consider the above ethical concerns, we need to also consider the ethical considerations introduced by the technological platform of choice. Built to visually and aurally immerse the wearer into a virtual world, VR technology has been the platform of choice for over two decades in digital heritage experiences [6]. Examples of such IDN cultural heritage applications are *The Last Goodbye* [7], *Nefertari: Journey to Eternity* [8], *Chauvet: The Dawn of Art* [9] and *The Book of Distance* [10].

In 2016, Michael Madary and Thomas K. Metzinger proposed a possible code of conduct for VR [11]. The authors emphasize that the main motivation behind their investigation is VR's ability to enable the illusion of embodiment and argue that this can have a manipulative effect, especially if "illusions of embodiment are misused" [11]. Madary and Metzinger point out the importance of informing the interactors about potentially lasting psychological effects of VR and "the possibility of using results of VR research for malicious purposes" [11]. Furthermore, the authors discuss a potential danger of excessive use of VR, which can lead to a condition where VR users could "experience the real world and their real bodies as unreal, effectively shifting their sense of reality exclusively to the virtual environment" [11].

Importantly, IDNs are not just the 'interactivisation' of traditional media [12]. In this regard, Rebecca Rouse reminds of the active role of the audience, created by these experiences, which traditionally "has been reserved for the curator and exhibit designer" [13]. The interactivity in IDNs differs considerably from earlier fixed forms of narration and thus require a novel starting point, such as Koenitz' SPP model [14]. For the same reason, we have to reframe the ethical considerations explored above within the framing of IDN work including VR.

The use of a head-mounted device in VR brings the interactor in the immediate vicinity of the projected world which heightens the ‘authenticity-of-feelings’ [15] but also introduces ethical questions. Conversely, IDNs in general facilitate experiences as part of the possibility space of the protostory [14] and its intended understanding.

In IDN, there is an implicit contract between interactor and designer, an act of “active creation of belief” [16] that is also the responsibility of the audience. From the ethical perspective this creates the question at what point does a possible failure to reach the intended understanding stop belonging to the interactor and start being attributed to the IDN designer?

2.1 Ethical Issues in Example Application

Since spatiality is an essential characteristic of the digital medium [16], navigation is a critical component, but this is tackled superficially in the first three examples of VR experiences in 3D space. In *The Last Goodbye*, a drone-avatar diminishes the player’s presence while in *Nefertari* and *Chauvet: Dawn of Art* unnatural teleportation systems are used. Similarly, IDNs attempt to model some complex aspect of life (real or fictional) and provide means for the interactor to ‘navigate’ through it. The level of realism implemented in the IDN system, the fidelity of the system to the complex phenomenon all contributes to the interactor’s feeling of being ‘inside it’.

The fourth example, *The Book of Distance*, is different from the other three because the interaction is not based on navigation, but on agency within the story. Effectively serving the progress of the narrative, the interactions allow the player to contribute to the story, serving as a side-kick to whoever is currently leading the narrative. There is an emphasis here on plausibility over realistic place illusion as the player’s interaction with the space around them helps the interactor to actively create the illusion themselves that the depicted scenario is actually occurring. Moreover, as the player’s actions visibly affect the state of the space around them, there is self-location, agency, body ownership, indeed embodiment [17]: the player feels that their real life actions of hitting and dropping are actually helping build a fence, sowing seeds etc. The player not only learns how to do these actions but gets visual feedback. A lesson for IDNs here is that mimetic performance is to be preferred over narrative diegesis in order to teach the interactor the meaning of their actions. Having players perform actions just for the sake of doing something, of interaction without agency, without conveying the results and possible underlying meaning of that action is unethical IDN design in the context of the represented intangible cultural heritage.

Where the *Book of Distance* does not deliver, is on the level of emotional connection, elements of which have been found to be positively affected by spatial presence, especially in VR interactive narratives whose main purpose is not entertainment [18]. However, due to the design choice of not giving a fixed role to the VR player [10], there is no emotional attachment to any of the three main characters in the experience as the player’s actions help each of these in different stages of the experience. There is even no rational empathy because interactors are not presented with any moral choices: each action that is presented has to be done, otherwise the narrative does not progress.

Taking the issue of emotional connection a step further, we can ask whether it is ethical to expect empathy from a VR player who is taught to re-enact some form of

intangible cultural heritage without having the cultural insider's knowledge necessary for a full understanding. The vision of VR as the 'ultimate empathy machine' [19] is problematic for several reasons (also see [20]), one of which we can see in *The Book of Distance*. What the IDN designer should aim for is instead 'radical compassion': 'an ethical stance that embraces an openness to understanding and refuses to assimilate others' experience into one's own self' [21].

3 Specific Concerns of VR IDNs in Cultural Heritage

Drawing from the initial questions and the above examples, the following ethical questions should be considered in future VR cultural heritage projects:

- How can the role of the interactor be defined, such that no prior knowledge of a specific cultural tradition is required, and yet enables an understanding of it?
- How can interactors with different knowledge levels about a specific cultural heritage tradition be accommodated?
- How can an experience be respectful to a given tradition, but does not submerge contemporary values to it (e.g. oppression due to gender, origin, religion etc.)?
- How can newly discovered knowledge (e.g. new archeological finds, novel historical insights) be integrated into an IDN artifact?
- How can undue trivializing of the depicted original behavior be avoided?
- How can the responsibility of the interactor in a cultural heritage experience be clearly communicated?

4 Conclusion

In this paper, we have provided a starting point for a framework of ethical IDN production by analyzing ethical considerations arising from applications of IDN in VR for Cultural Heritage experiences. Building upon ethical aspects of cultural heritage and virtual reality separately, we have developed a set of ethical questions for IDN design in general and specifically for the application of IDN in VR representing cultural heritage. From these questions, initial guidelines can be developed by the community, with the aim to define a standard applicable to on an international level in the future.

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References

1. Benjamin, W.: *Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit*. Frankfurt am Main, Suhrkamp (1969)
2. Horkheimer, M., Adorno, T.: *The culture industry: enlightenment as mass deception*. In: Durham, M.G., Kellner, D.M. (eds.) *Media and Cultural Studies: KeyWorks* (2006)

3. Habermas, J.J.: *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society*. (T. Burger, Trans. & F. Lawrence, Trans.) (1989)
4. Koenitz, H.: Thoughts on a discipline for the study of interactive digital narratives. In: Rouse, R., Koenitz, H., Haahr, M. (eds.) *Interactive Storytelling*. ICIDS 2018. LNCS, vol. 11318, pp. 36–49. Springer, Cham (2018). https://doi.org/10.1007/978-3-030-04028-4_3
5. Koenitz, H., Eladhari, M.P.: Challenges of IDN research and teaching. In: Cardona-Rivera, R., Sullivan, A., Young, R. (eds.) *Interactive Storytelling*. ICIDS 2019. LNCS, vol. 11869, pp. 26–39. Springer, Cham (2019). https://doi.org/10.1007/978-3-030-33894-7_4
6. Ch'ng, E., Cai, Y., Thwaites, H.: Special issue on VR for culture and heritage: the experience of cultural heritage with virtual reality: guest editors' introduction. *PRESENCE Teleoperators Virtual Environ.* **26**, iii–vi (2018). https://doi.org/10.1162/pres_e_00302
7. Zalewska, M.: *The Last Goodbye (2017): Virtualizing Witness Testimonies of the Holocaust*. 8 (2017)
8. *Experius VR, Curiosity Stream: Nefertari: Journey to Eternity* (2018). https://store.steampowered.com/app/861400/Nefertari_Journey_to_Eternity/
9. Tanant, J.: Google Arts & Culture, Atlas V: Chauvet: The Dawn of Art (2020). <https://experiments.withgoogle.com/chauvet>
10. Oppenheim, D., Okita, R.L.: The book of distance: personal storytelling in VR. In: *ACM SIGGRAPH 2020 Immersive Pavilion*, pp. 1–2. ACM, Virtual Event USA (2020). <https://doi.org/10.1145/3388536.3407896>
11. Madary, M., Metzinger, T.K.: Real virtuality: a code of ethical conduct. Recommendations for good scientific practice and the consumers of VR-technology. In: *Frontiers in Robotics and AI*, vol. 3 (2016)
12. Koenitz, H.: Reframing interactive digital narrative: toward an inclusive open-ended iterative process for research and practice (2010). https://smartech.gatech.edu/bitstream/handle/1853/34791/koenitz_hartmut_a_201008_phd.pdf
13. Rouse, R.: Someone else's story: an ethical approach to interactive narrative design for cultural heritage. In: Cardona-Rivera, R.E., Sullivan, A., Young, R.M. (eds.) *ICIDS 2019*. LNCS, vol. 11869, pp. 47–60. Springer, Cham (2019). https://doi.org/10.1007/978-3-030-33894-7_6
14. Koenitz, H.: Towards a specific theory of interactive digital narrative. In: *Interactive Digital Narrative*, pp. 91–105 (2015)
15. Mochocki, M.: Heritage sites and video games: questions of authenticity and immersion. *Games Cult.* 155541202110053 (2021). <https://doi.org/10.1177/15554120211005369>
16. Murray, J.H.: *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. Simon and Schuster, New York (1997)
17. Kilteni, K., Groten, R., Slater, M.: The sense of embodiment in virtual reality. *Presence Teleoperators Virtual Environ.* **21**, 373–387 (2012)
18. Barreda-Ángeles, M., Aleix-Guillaume, S., Pereda-Baños, A.: An empathy machine or a just-for-the-fun-of-it machine? Effects of immersion in nonfiction 360-video stories on empathy and enjoyment. *Cyberpsychol. Behav. Soc. Netw.* **23**, 683–688 (2020)
19. Milk, C.: How virtual reality can create the ultimate empathy machine (2015)
20. Fisher, J.A.: Empathic actualities: toward a taxonomy of empathy in virtual reality. In: Nunes, N., Oakley, I., Nisi, V. (eds.) *Interactive Storytelling*. ICIDS 2017. *Lecture Notes in Computer Science*, vol. 10690, pp. 233–244. Springer, Cham (2017). https://doi.org/10.1007/978-3-319-71027-3_19
21. Bollmer, G.: Empathy machines. *Media Int. Aust.* **165**, 63–76 (2017)