

# Conducting Research in Periences of Interviewing Inside the Metaverse

Savannah Althoff-Thomson and Jean-Paul Van Belle

Department of Information Systems, University of Cape Town, Cape Town, South Africa

[altsav001@myuct.ac.za](mailto:altsav001@myuct.ac.za)

[Jean-Paul.VanBelle@uct.ac.za](mailto:Jean-Paul.VanBelle@uct.ac.za)

**Abstract:** Recent technological developments in the “Metaverse” have made the immersive virtual reality an imminent reality. Most existing metaverse research focuses on the use case and business potential of the metaverse and virtual reality technologies, but little research has been conducted to understand the experiences of early adopters and the motivators and inhibitors which affect their adoption and continued use. We set out to research the use cases of the metaverse among early adopters. A qualitative approach was employed for research, given its strengths in exploring unforeseen themes and allowing early adopters to raise issues which matter most to them. However, we adopted a novel, albeit entirely appropriate, research methodology which offers possible emulation: our interviews were conducted within a popular metaverse application, *RecRoom*, with semi-structured interviews taking place between avatars. We discovered some interesting differences between interviews in virtual reality, as compared to face-to-face and online interviews, due to the unique affordances of the metaverse. We discuss some of our experiences with interviewing in virtual reality. These include positive experiences which build on the affordances of the virtual reality space; apart from the anonymity (not one’s *real* face), interview participants experienced a greater social presence afforded by gestures indicating emphasis and emotional expressions. However, we also found some potential problems, such as harassment of the researcher and the difficulties with multi-tasking. Alongside capturing metaverse use cases by early adopters at this juncture of metaverse development, our experiences provide some insights and suggestions which might be useful for future metaverse researchers who intend conducting their research with participants while immersed in a virtual reality space.

**Keywords:** Interviewing in Virtual Reality; VR affordances; Metaverse Research Methods; VR use cases.

---

## 1. Introduction

The metaverse can be defined as a “next-generation internet of combined three-dimensional virtual worlds, that can be multiple mirrors of the existent world or fantasy worlds, where avatars can interact with each other and software applications in an immersive, real-time, persistent, shared, spatiotemporal environment, harnessing the capabilities of computing and extended reality (XR) technologies” (Akour et al, 2022; Duan et al, 2021; Huggett, 2019; Nevelsteen, 2017). Virtual worlds are currently considered as the most user-accessible form of the metaverse (Park & Kim, 2022b). Current metaverses use XR, and head-mounted displays (HMDs) are considered an essential component (Park & Kim, 2022a).

The earliest members of the population who begin to use a new technology are often novelty-seeking and defined as innovators or early adopters (Dedehayir et al, 2017). The current users of the metaverse can be categorised as early adopters, given that metaverse technologies have not yet reached the early majority - the release of consumer-friendly Head-Mounted Displays (HMDs) is limited to one or two companies, with few competitors (Diphoko, 2022). The habits of use within this group provide information about the usefulness and interest of emerging technologies within present society, which can be valuable to companies interested in or currently developing these technologies (Sanchez-Cabrero et al, 2018). This group of users play a key role in “communicating or convincing the benefits of the innovation and its uses to the remainder of the population”, aiding the diffusion of innovations (Dedehayir et al, 2017, p. 2). Akour et al (2022) emphasise that the effectiveness of the metaverse is determined by its interactive features and personalised user experience, alongside motivation.

Going forward, there is a likelihood that in-situ qualitative research will have to be conducted within the metaverse or any other virtual reality environments. This paper looks at the affordances of the metaverse from the perspective of a researcher wanting to conduct interviews within the metaverse and reports on our experiences of a research project which we conducted last year.

The overarching research question is: *what are the affordances and pitfalls of using the metaverse to conduct qualitative data collection by means of interviews?* We asked the participants about their experiences in the metaverse as early adopters, as well as *the use cases for which they used the metaverse*. We report briefly on the *metaverse use cases* in this paper (Section 5). However, the focus of the paper is to investigate and report on the added social presence factor which interviewing within the metaverse contributes to research methods (Section 4). Thus the paper’s main contribution is on using interviews in a virtual reality environment as a novel

data collection technique. As highlighted by Kohonen-Aho and Alin (2015, p. 127), “despite a large and growing body of research on social presence, we currently lack a sufficient theoretical understanding of how social presence emerges in 3D virtual environments”. In addition, there is currently little or no research on how to effectively conduct interviews in 3D virtual reality environments. This paper hopes to bring some perspectives on this exciting and potentially very rich environment as a medium in which to collect qualitative research data.

## 2. Literature Review

### 1.1 Virtual Reality, Virtual Worlds and the Metaverse

The metaverse can be seen as an integrated or linked collection of virtual worlds “combining immersive Virtual Reality (VR) with physical actors, objects, interfaces and networks in a future form of Internet” (Huggett, 2019, p. 4), becoming a social, virtual world which can parallel the real world. Virtual worlds are attempting to move from a set of sophisticated but independent immersive environments to an immense integrated network, otherwise known as a metaverse (Dionisio, Burns, & Gilbert 2013; Huggett, 2019). Therefore, the core characteristics of virtual worlds extend to metaverse definitions as they connote a subset of metaverse applications. Park & Kim (2022a) clarify the distinction between virtual reality (VR) and augmented reality (AR) technologies and the metaverse. VR technologies are immersive, entirely digital, virtual environments that can be reflections of reality or fantasy worlds (Pengnate, Riggins, & Zhang, 2020). These technologies are a combination of software and hardware – the latter usually requires HMDs, and often uses handheld controls to represent the user’s hands (Carter & Egliston, 2020). AR allows users to experience natural environments with the enhancement of digitally overlaid content and can be experienced using a variety of hardware (Jung et al, 2016). These technologies can also be combined to form mixed reality (MR), and all three of these fall under the category of XR, but AR and VR are considered as the two core reality-virtuality technologies (Xi et al, 2022).

Metaverse has stronger social meanings, and a scalable environment (Park & Kim, 2022a). In order to give users an immersive experience over a longer period, an HMD is necessary, and “XR is the medium which connects avatars in the MV and users in the real world” (Park & Kim, 2022, p. 4211). XR technologies dramatically enhance the immersive, interactive and visual experiences of the metaverse. VR technologies are already becoming increasingly publicly and commercially available with the development of powerful, user-friendly devices such as the Meta (Oculus) Quest 2, HTC Vive, Oculus Rift, Valve Index and PSVR, reinforcing the necessity of these technologies as an essential access point to the metaverse (Jung et al, 2016).

### 1.2 Current Uses and Affordances of the Metaverse

Stevens (2022) outlines the current affordances of the metaverse: building, exploring and playing in virtual worlds, socialising for work or pleasure, customising avatars, and investing in “virtual property” and NFTs (non-fungible tokens). The competitive landscape for metaverse development is immense, with major companies attempting to become critical players (Mileva, 2022). Hundreds of metaverse platforms and games already exist, with immersive games championed through VR hardware (Mileva, 2022). *Axie Infinity* is currently the most popular metaverse game – it allows users to tokenise Pokémon-like creatures, build worlds for them to live in, and trade them as digital assets (Mileva, 2022). This platform is closely followed *Decentraland*, where digital currency affords users the ability to buy wearables and virtual real estate, as well as the opportunity to earn income (Mileva, 2022). A similar concept is used in *Sandbox* and *Illuvium*, all of which are inspired by the earliest metaverse – *Roblox* (Mileva, 2022). VR platforms have released several 3D social experience games, accessible through constituent XR headsets. *Horizon Worlds* is Meta’s platform, and engages users through interactive games, exploring and creating worlds, and socialising with other users (Sharma, 2022). *VRChat*, *RecRoom*, and *Fortnite* use the same format, and collectively attract more than 171 million users (Petrov, 2022). Many of these platforms are also available on smartphones, consoles and PCs.

### 1.3 Interviewing: Comparing Physical with Online (Electronic) Interviews

Face-to-face (FTF) interviewing has strengths in providing rich data quality as a result of more conscientious participants, non-verbal cues, and human contact (Schober, 2018). However, as standards of communication are changing rapidly with the development of technology, alongside people’s perceptions of these technologies, modes of interview are evolving based on practicality, preference, and effectiveness in relation to desired data collection outcomes. FTF interviews now compete with the popular medium of video-chat (VC) or online interviews, with clear advantages and disadvantages respectively. This study introduces a novel research

methodology, interviewing participants avatar-to-avatar (**ATA**) in a virtual world, using the affordances of the three-dimensional metaverse.

The literature exploring and comparing interviewing modes primarily focuses on the workplace context and performance, but nevertheless the findings have implications which extend to field research. Insofar as the researchers have surveyed literature, there is no information considering the benefits or drawbacks of interviewing within the metaverse – instead, the possible benefits or drawbacks have been extrapolated based on comparisons between the affordances of FTF and VC in relation to ATA.

FTF interviews allow interviewers to encourage participation while having more certainty that interviewees fit within their sampling frame, owed to the certainty regarding location and identity (Schober, 2018). In contrast, while VC provides less certainty, it is a much more cost-effective solution than FTF interviews, and affords ease of geographically dispersed study (Sears et al, 2013). VC interviews can be scheduled with more convenience for both parties, and can be undertaken in greater volumes due to affordances of digital data collection which aids efficiency (Sears et al, 2013; Schober, 2018). However, people have differing levels of technological capability, which may exclude potential participants if they do not have familiarity with or access to video chat platforms (Sears et al, 2013). Moreover, in an increasingly ‘online’ environment, potential participants may be excluded based on their preference of being interviewed – some may not want to meet FTF based on their schedule, social anxiety, fears regarding safety, or lack of desire – to share their personal space with a stranger. The advantages and considerations regarding VC undoubtedly apply to ATA, but the disadvantage of technological capability may be heightened considering the lack of adoption of virtual reality in comparison to VC. Covid-19 has undoubtedly encouraged the adoption of and reliance on online communication. With people increasingly working remotely, they may question the need for an in-person meeting as societal norms have made online meetings a default option. However, potential participants may not have the means or capability to participate in virtual reality interviews, making ATA more suited to sampling frames with the pre-requisite of regular VR use.

FTF interviewers can create more incentives for participation, and provide the ‘human touch’ that motivates participants to answer conscientiously, and disclose more sensitive information (Schober, 2018). It provides less suspicion about the interview process, and higher tolerance of interview length, which Sears et al (2013) attribute to the increased “likeability” of interviewers in real-life settings and heightened perceptions regarding their effectiveness (Schober, 2018). FTF interviews encourage honesty in answering non-sensitive questions, as evidenced by the decreased likelihood of participants giving socially desirable answers and increased likelihood of opinion-based responses (Schober, 2018). With concerns regarding data privacy as technologies become ubiquitous with everyday decision-making, VC or online interviews may prohibit interviewees from expressing opinions which are not socially acceptable, for fear that any online presence is vulnerable to third-party access (Basch et al, 2020).

However, Schober (2018) additionally points out that participants may be more comfortable giving sensitive answers because of the protection of technology afforded by VC, given that they have more control (e.g. choosing what part of their environment to share, choosing to switch to audio-only). Especially with audio-only options, participants may be more comfortable in line with well-established social forms of the confessional booth and psychoanalytic couch which remove the face to allow for greater disclosure (Schober, 2018). The self-awareness provided by the self-view in VC may result in distraction of the interviewee, or may make them more self-conscious and less vulnerable in providing responses (Schober, 2018; Sears et al, 2013).

ATA provides an interesting middle ground, where the benefits of ‘virtual human touch’ are higher than VC and can arguably create similar advantages of conscientious answers and likeability of interviewers. Moreover, privacy concerns of VC may be mitigated, as participants might not be required to provide real names, faces, or voices in ATA research, perhaps allowing participants to give more honest and genuine answers than in VC or FTF without fear of judgement or later repercussions. Moreover, ATA does not require “self-view” – in video chatting platforms, the interviewee can often see themselves in a small corner frame, making them conscious of their perceived appearance. ATA gives ultimate control over perception and potential bias, because interviewees can present themselves in any way they choose.

Significantly, FTF interviews give rich non-verbal cues, both in participant displays and in their environment. This allows interviewers to make adjustments in real-time as they gauge participants’ emotional state, facilitating longer interviews, encouraging completion, and reducing distractions (Schober, 2018). These affordances are especially pronounced when considering the dependence of VC interviews on reliable bandwidth, which can impair the reading and quality of non-verbal cues for the researcher (Basch et al, 2021). Moreover, researchers can only see what the interviewee decides to share, as they are removed from participants physical

environments and restricted to a view of their head and torso – non-verbal cues are limited by this perspective (Kohonen-Aho & Alin, 2015; Sears et al, 2013).

Again, ATA provides a middle ground – non-verbal cues are enhanced by the ability to see the entire body and its gestures, but simplified faces and forms may limit these cues to a specific range. Moreover, the discomfort of VR headsets may limit the amount of time interviewees can spend in the interview, as the cognitive load is much greater. Kohonen-Aho & Alin (2015) highlight that this limited non-verbal cues may be an advantage in interpretive research, as researchers do not always reliably interpret individuals’ reactions; online interviews using VC or ATA could reduce the conscious and sub-conscious interpersonal judgements of researchers while still providing some real-time opportunities to probe for further information based on verbal and limited non-verbal cues (Sears et al, 2013). With that said, unstable bandwidth, lack of clarity and dropped signals could result in frustrations which could negatively affect engagement on both the side of the interviewer, and of the interviewee in online interviews, or cause participants to withdraw entirely from research.

The advantages and disadvantages of different interview modes are summarised in the table below. The choice of interview mode based on these affordances heavily relies on the unique features and requirements of the research, such as subject matter, sensitivity of study, available resources and sampling frame.

**Table 1: Strengths/weaknesses of different interview modes**

<b>Face-to-face / Physical</b>	<b>Online / Electronic</b>	<b>Virtual Reality / Avatar-to-Avatar</b>
More certainty of adherence to sampling frame	Less certainty of adherence to sampling frame and increase reliance on participant honesty	Anonymity requires complete reliance on participant honesty for adherence to sampling frame
Expensive	Very cost-effective	Can be cost-effective depending on need to acquire headsets
Limited by physical reach of researchers to participants	Geographically dispersed participants	Geographically dispersed participants
No need for technological capability or means to participate	Need for technological capability and means to participate (bandwidth, devices etc.)	Advanced need for technological capability and means to participate (bandwidth, devices etc.)
Answer non-sensitive questions more conscientiously and fully	Answer non-sensitive questions less conscientiously and fully	Unclear
Less privacy concerns	More privacy concerns	Anonymity; least privacy concerns
Less control	More control	Most control
More potential for subjectivity by researcher	Less potential for subjectivity by researcher	Least potential for subjectivity by researcher
Rich non-verbal cues	Less rich non-verbal cues	Non-verbal cues within specific range

Schober et al (2018) argue that although FTF interviews are no longer considered as the most desirable form of data collection, owed to the adoption of new communication modes and the cost-effectiveness of these solutions, participants may always prefer the ‘human touch’ of social presence and rapport with interviewers. Social presence connotes the extent to which users feel or perceive the presence of others, and their ability to access the intelligence, intentions and sensory impressions of one another (Pengante, Riggins & Zhang, 2020; Oh, Bailenson & Welch, 2018). Although VC improves social presence through video feeds, it does not provide a feeling of shared space in the same capacity as FTF.

Kohonen-Aho & Alin (2015, p. 114) highlight that VR could be considered as a “potential solution for the lack of social presence caused by the distance allowed by the communication medium”. This potential solution was also highlighted by Zuckerberg himself (Meta, 2021), noting that “when you’re in a meeting in the metaverse, it’ll feel like you’re right in the room together, making eye contact, having a shared sense of space and not just looking at a grid of faces on a screen”. This heightened level of social presence reduces distance caused by the communication medium through a shared sense of space, which prevent users from becoming disengaged. Moreover, the heightened level of social presence afforded by ATA undoubtedly affects engagement and comfort of users, which may allow for richer responses and prompts (Pengante, Riggins & Zhang, 2020). ATA arguably harnesses the individual benefits of FTF (social presence, likeability of interviewer, comfort, non-verbal cues) and VC (greater accessibility of participants, control, lessened bias) to create a solution which does not require as much compromise from researchers. Moreover, the affordance of anonymity in ATA interviews is only poised to become more significant as privacy concerns proliferate alongside the adoption of technologies.

### 3. Research Methodology

There were two research objectives for this research. The main research objective was to look at *the use cases and experiences of the early adopters in the metaverse*. In order to achieve this, interviews were conducted inside the metaverse between avatars, and this led to a second research question: *“how can the affordances and limitations of the metaverse be used effectively to conduct qualitative data collection?”*. The first objective is reported on in much more depth elsewhere but summary findings relating to the use cases, are highlighted in Section 5. The findings relating to the use of the metaverse as a medium to collect data are found in Section 4.

Considering that this research aims to understand the thoughts and actions of human participants in the metaverse context, the interpretivist philosophy was adopted. When applied to information system field research, it strives to understand context and the process whereby the information system is influenced and influences the context (Klein & Myers, 1999). Moreover, it is the only philosophy which encourages the researcher to be an insider to better understand the data, making it suitable for interviews within the metaverse which may be influenced by the social presence of the researcher’s avatar (Lacity & Janson, 1994). Taking these principles into account, this research will create knowledge through analysing the experiences of early adopters, providing a richer understanding of the metaverse context alongside its influence on users and the influence of users on the platform. Given the research questions of this study, and the interpretivist nature of the research, the purpose is exploratory. Exploratory research is especially useful in new areas of inquiry, where the goals of the research are to understand the extent of a particular phenomenon, problem or behaviour, or to generate some initial ideas about that phenomenon (Bhattacharjee, 2012). The metaverse is a rapidly developing concept, and while ample research exists regarding the accessing of XR technologies, the phenomenon of how to interview for research purposes in the Metaverse has not been extensively researched, making it suited to exploratory research.

The cross-sectional timeframe, which collects all data at one point in time, is well-suited to research in and with fast-developing emerging technologies. Given the rapidly changing metaverse landscape, a longitudinal study might provide contradictions in sets of data as technologies are continuously modified. The research proposal and instruments were approved by the Ethics in Research Committee at the University, to ensure the study was in line with the laws and rights of individuals with regard to research that involves human participants.

### 4. Interviewing in the Metaverse as a Means for Qualitative Data Collection: An Experiential Report

This section details our experiences with interviewing in a virtual reality space. The interviewing researcher began to field interviews purposively by means of posting a short description of the study and a request for participants on *RecRoom* adult forums, outlining the entirely voluntary nature of the study. Purposive sampling was important given the reliance of interviewing in the metaverse on technological capability and means to participate. Individuals approached the researcher using private messaging affordances of the platforms, and if they met the inclusion criteria as defined by the target population, interviews were set up with times and virtual meeting locations. Interviews commenced from the beginning of June. The researcher entered *RecRoom*, a free online virtual world which is predicted to become one of the biggest players in the metaverse (Sherr, 2021), using an Oculus Quest 2 virtual reality headset. Interviews were conducted by means of using the researcher’s avatar, named *technosavvy*, to communicate with the participant avatar, in a virtual face-to-face fashion (Figure 1). The researcher’s avatar resembled the researcher.



Figure 1: Example of Data Collection Method

The researcher requested consent to record, and upon receiving consent, the recording of the interaction commenced aided by the screen recording functionality of the headset. The researcher then read out the consent paragraph defining the informed consent and requested verbal confirmation of consent from the interviewee. Participation was solely voluntary and based on the interest of the participants in the research. Once informed consent had been obtained from each interviewee, the researcher commenced the semi-structured interview using the interview guide. These interviews ranged in length from 20 to 60 minutes. The demographic details of participants are highlighted in **Table 2**, alongside their accessing technologies and when they began using the metaverse. Interviews were recorded, transcribed and securely stored. Immediately after interviews the researcher took down notes or observations as they related to the interview, given that these notes could not be taken during interviewing because of the immersive head-mounted display hardware.

**Table 1: Demographic Participant Information**

Participant	Age	Gender	Accessing Technology	First Adoption (Date)
P1	45	Man	Oculus Quest 2	June 2020
P2	51	Man	Oculus Quest 2	May 2022
P3	-	Man	Oculus Quest 2	May 2019
P4	50	Man	Oculus Quest 1	January 2020
P5	40	Man	Oculus Quest 2	2019
P6	50+	Woman	Oculus Quest 2	January 2021
P7	45-50	Woman	Oculus Quest 2	November 2021
P8	-	Woman	Oculus Quest 2	February 2022

In developing this study, a novel research technique was used – interviewing between avatars in the metaverse. For future researchers interested in implementing this technique, the researcher recommends considering the various advantages and disadvantages of this technique. First, when participants responded to questions, the affordances of social presence made their responses rich with gestural nuances. Emphasis and emotion could be expressed through hand and head movements, and travelling around the room demonstrated when users got restless. Alongside highlighting the varied significance or certainty of their responses, which aided in analysis, it also allowed the researcher to understand when to prompt for more information using further questions in the semi-structured interview. However, these non-verbal gestures and expressions were limited by the range of emotions and movements afforded to *RecRoom* avatars. Nevertheless, participants appreciated the affordances of social presence based on researchers’ affirming gestures, such as nodding their head or shaking hands when greeting them. Moreover, it allowed participants to demonstrate the motivators or inhibitors which they highlighted, through ‘teleporting’ with the researcher to those spaces or showing virtual items.

Interviewing in the metaverse meant the benefits of erasing barriers, such as appearance, could be applied to the objectivity of the research. Responses were not subconsciously influenced by these barriers, and therefore participant experiences were analysed based wholly on their content. Additionally, it is possible that the affordance of not being observed allowed participants to be more comfortable, which may have resulted in more honest responses, as they were being interviewed in a space which felt safe to them. Although none of the participants exercised the affordance of control through leaving the interview, this ability may have catalysed their willingness to participate, knowing they could withdraw at any time, without fear of social pressure, through teleportation.

Immersion in the space also allowed the researcher to more deeply understand the benefits and struggles users experienced in the metaverse, especially in relation to harassment and multitasking. When initially randomly attempting to sample participants through approaching avatars in public rooms, the researcher’s avatar was harassed by a younger player who wanted to engage in a virtual fight, and continuously insulted the researcher through voice chat affordances. There was difficulty reading interview questions while wearing the headset, and there were no options to bring information from devices into the metaverse, which meant the researchers had to use the private messaging functionality to send the questions as messages to a friend in *RecRoom* (**Figure 2**). In this way, the messages could be viewed whilst interviewing the other avatar, although this was far from an ideal solution. The headset caused physical strain for the researcher, both in discomfort while wearing the headset as it pressed against the face causing imprint given its heaviness, and in strain on the eyes during longer interviews. However, this did not seem to be an issue for early adopters – many of them expressed their ability to wear the headset for long periods of time.



**Figure 2: Example of Limitation in Data Collection Method**

Moreover, when considering the geographic dispersion of metaverse users, researchers must pay close attention to ethics. This study demonstrated the difficulty of finding research participants within one area, given the inherent diversity of virtual social spaces. To ethically conduct research within these spaces, researchers must consider universal ethical standards. Additionally, given that academia has a responsibility to instruct on the development of the metaverse (Akour et al, 2022), they must also put forward suggestions for systems of virtual ethics which encompass global ethical standards.

## 5. Use Cases of the Metaverse

Most of the use cases identified in the literature review were identified as motivators by participants – gaming, user-generated content (UGC), education, fitness and investment (commerce). However, these use cases were enhanced through identified motivators on the platform, such as socialisation, immersion and extended abilities, and were all identified as hedonic motivators for use of the metaverse. A more detailed description of the use cases had to be omitted due to space limitations.

**Table 2: Use Cases and Occurrences Amongst Participants**

Use Cases	P1	P2	P3	P4	P5	P6	P7	P8	Total
Gaming	X	X	X	X	X	X	X	X	8
UGC	O	O	X	X	X	X	O	X	5
Learning	O	O	X	O	X	X	O	X	4
Fitness	O	O	O	X	O	X	O	X	3
Investment	O	O	O	O	X	O	O	O	1

## 6. Conclusion

Although the idea of the metaverse has been around since the publication of Stephenson's (1992) sci-fi novel thirty years ago, it's only recently that technological developments have made this immersive landscape an imminent reality. Investments from the Global North in the Web3 XR space are substantial, and the competitive landscape is growing as the broadness of use cases is motivating users to invest in and adopt the technology (Xi et al, 2022). When conducting this research project last year, the aim was to understand the affordances of the metaverse through interviewing early adopters to uncover popular use cases. In doing so, the researchers demonstrated a novel research technique – interviewing between avatars (ATA) in the metaverse. The primary research question in this paper was to explore the affordances and pitfalls of qualitative data collection of ATA interviewing in the metaverse, and to provide recommendations and inspiration to future researchers with similar research methodologies.

Early adopters were gratified by the broad use cases of the metaverse, and many pointed to gaming as an exceptional source of fun and pleasure, given its aspects of competitiveness and socialisation. The benefits of user-generated content unexpectedly emerged as a strong hedonic motivator, and overlapped with the educational advantages of the platform. Learning was revived in metaverse use cases, given how the metaverse creates the affordance of visualising concepts and enhanced demonstration capabilities, amplified by the advantages of presence for teaching. Fitness emerged as a more distinctive use case in the metaverse

and had life-changing effects for one participant. Additionally, the unique experience of novel investment in virtual real estate was highlighted, which demonstrated the future of the metaverse. The outlined popular use cases among participants, contextualise the current state of metaverse development, and give insight into elements for further development. The affordance of 'teleporting' to environments and demonstration of virtual items through interviewing in the virtual space enriched the researchers' understanding of these use cases.

In discussing the researchers' experience of the novel research technique of ATA interviewing, the affordance of social presence enriched participant responses through non-verbal cues. Although limited to a certain range, avatar body movements and facial expressions highlighted emphasis and emotion, which aided analysis in allowing the researcher to understand the certainty or significance of responses and when to deviate from the structured research instrument to probe for further information. Participants similarly appreciated the richness of social presence through the researchers' affirming gestures, such as nodding of the head or shaking hands, which made them feel a shared sense of space similar to Zuckerberg's (Meta, 2021) proclamations.

Interviewing in the metaverse had significant implications for critical issues of ethicality and objectivity in qualitative and interpretive research (Klein & Myers, 1999). Given the anonymity of avatars in the metaverse, researchers were not subconsciously influenced by appearance, allowing experiences to be analysed wholly on their content. Coupled with this anonymity, the participants were able to interview in a comfortable and familiar space, without being watched or watching themselves, possibly resulting in more honest, full and genuine responses. Moreover, they had ease of withdrawing from the research at any time through 'teleportation'. However, the geographic dispersion of users of the metaverse calls on academia to develop a universal standard for ethical research in VR, given that limiting research participants to one physical area is challenging.

Researchers interested in interviewing in the metaverse have to consider the limitations of multi-tasking, harassment, and physical strain of the headset when considering ATA interviewing. Nevertheless, the novel qualitative research technique combines the affordances and addresses the shortcomings of FTF and VC, providing an opportunity to contribute to academic research in a more socially present, meaningful way for both researchers and participants.

## References

- Akour, I., Al-Marouf, R. S., Alfaisal, R., and Salloum, S. A. (2022) "A Conceptual Framework for Determining Metaverse Adoption in Higher Institutions of Gulf Area: An Empirical Study using SEM-ANN Approach", *Computers and Education: Artificial Intelligence*, pp 1-14.
- Basch, J. M., Melchers, K.G., Kurz, A., Krieger, M. and Miller, L. (2020) "It Takes More Than A Good Camera: Which Factors Contribute to the Differences Between Face-to-Face Interviews and Videoconference Interviews Regarding Performance Ratings and Interviewee Perceptions?", *Journal of Business and Psychology*, Vol. 36, pp 921-940.
- Bhattacharjee, A. (2012) *Social Science Research: Principles, Methods, and Practices*, University of South Florida, Tampa.
- Carter, M., and Egliston, B. (2020) *Ethical Implications of Emerging Mixed Reality Technologies*, University of Sydney, Sydney.
- Dedehayir, O., Ortt, R. J., Riverola, C., and Miralles, F. (2017) "Innovators and Early Adopters in the Diffusion of Innovations: A Literature Review", *International Journal of Innovation Management*, Vol. 21, No. 8, pp. 1-27.
- Dionisio, J. D., Burns, W. G., and Gilbert, R. (2013) "3D Virtual Worlds and the Metaverse: Current Status and Future Possibilities", *ACM Computing Surveys*, Vol. 45, No. 3, pp. 1-38.
- Diphoko, W. (2022) "The State of the Metaverse According to Zuck", [online], FastCompany, <https://www.fastcompany.co.za/technology/the-state-of-the-metaverse-according-to-zuck>
- Duan, H., Li, J., Fan, S., Lin, Z., Wu, X., and Cai, W. (2021) "Metaverse for Social Good: A University Campus Prototype", *ACM International Conference on Multimedia*, Virtual Event, Cornell University, pp. 153-161.
- Halaweh, M. (2019) "Model of Emerging Technology Adoption (META): Virtual Reality as a Case Study", *Journal of Information & Knowledge Management*, Vol. 18, No.(2), pp. 1-18.
- Huggett, J. (2019) "Virtually Real or Really Virtual: Towards a Heritage Metaverse?", *Studies in Digital Heritage*, Vol. 4, No. 1, pp. 1-15.
- Jung, T., Dieck, M. C., Lee, H., and Chung, N. (2016) "Effects of Virtual Reality and Augmented Reality on Visitor Experiences in a Museum", *Information and Communication Technologies in Tourism 2016*, pp. 621-635.
- Klein, H., and Myers, M. (1999) "A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems", *MIS Quarterly*, pp. 67-94.
- Kohonen-Aho, L. and Alin, P. (2015) "Introducing a Video-Based Strategy for Theorizing Social Presence Emergence in 3D Virtual Environments", *Presence*, Vol. 24, No. 2, pp. 113-131.
- Lacity, M., and Janson, M. (1994) "Understanding Qualitative Data: A Framework of Text Analysis Methods", *Journal of Management Information Systems*, pp. 137-155.

- Meta. (2021) "The Metaverse and How We'll Build It Together - Connect 2021", [online], Meta, <https://www.youtube.com/watch?v=Uvufun6xer8>
- Mileva, G. (2022) "50+ Metaverse Statistics | Market Size & Growth", [online], Influencer Marketing Hub, <https://influencermarketinghub.com/metaverse-stats/>
- Nevelsteen, K. J. (2017) "Virtual World, Defined From A Technological Perspective and Applied to Video Games, Mixed Reality, and the Metaverse", *Computer Animation in Virtual Worlds*, pp. 1-22.
- Oh, C., Bailenson, J., and Welch, G. (2018) "A Systematic Review of Social Presence: Definition, Antecedents, and Implications", *Frontiers in Robotics and AI*, Vol. 5, No. 114, pp. 1-35.
- Park, S., and Kim, S. (2022a) "A Metaverse: Taxonomy, Components, Applications and Open Challenges", *IEEE Access*, pp. 4209-4251.
- Park, S., and Kim, S. (2022b) "Identifying World Types to Deliver Gameful Experiences for Sustainable Learning in the Metaverse", *Sustainability*, pp. 1-14.
- Pengnate, S., Riggins, F., and Zhang, L. (2020) "Understanding Users' Engagement and Responses in 3D Virtual Reality: The Influence of Presence on User Value", *Interacting with Computers*, Vol. 32, No. 2, pp. 103-117.
- Petrov, C. (2022) "45 Virtual Reality Statistics That Will Rock the Market in 2022", [online], Techjury, <https://techjury.net/blog/virtual-reality-statistics/#gref>
- Ramayah, T., Rabaya, T., Saparya, S., Mahmud, I., and Rawshon, S. (2017) "Why Are They So Addicted?: Modeling Online Games Addiction Behaviour Among University Students", 1st International Conference on Business & Management, ResearchGate, pp. 1-7. Sanchez-Cabrero, R., Costa-Roman, O., Pericacho-Gomez, F. J., Novillo-Lopez, M. A., Arigita-Garcia, A., and Barrientos-Fernandez, A. (2019) "Early Virtual Reality Adopters in Spain: Sociodemographic Profile and Interest in the Use of Virtual Reality as a Learning Tool", *Heliyon*, Vol. 5, No. 3, pp. 1-12.
- Schober, M. F. (2018) "The Future of Face-to-Face Interviewing", *Quality Assurance in Education*, Vol. 26, No. 2, pp. 290-302.
- Sears, G., Zhang, H., Wiesner, W., Hackett, R., and Yuan, Y. (2013) "A Comparative Assessment of Videoconference and Face-to-Face Employment Interviews", *Management Decision*, Vol. 51, No. 8, pp. 1733-1752.
- Sharma, U. (2022) "10 Best Metaverse Games to Play", Beebom, <https://beebom.com/best-metaverse-games/>
- Spiegel, J. (2018) "The Ethics of Virtual Reality Technology: Social Hazards and Public Policy Recommendations", *Science and Engineering Ethics*, Vol. 24, pp. 1537-1550.
- Sherr, I. (2021). "Rec Room's Big Plans for the Metaverse: 'So Much More Than A Game'", [online], Cnet, <https://www.cnet.com/tech/gaming/rec-rooms-big-plans-for-the-metaverse-so-much-more-than-a-game/>
- Stephenson, N. (1992) *Snow Crash*, Bantam Books, New York.
- Stevens, R. (2022). "What can you actually do in the Metaverse in 2022?", [online], CoinDesk, <https://www.coindesk.com/learn/what-can-you-actually-do-in-the-metaverse-in-2022/>
- Tasa, U. B., and Gorgulu, T. (2010) "Meta-art: Art of the 3D User-Created Virtual Worlds", *Digital Creativity*, Vol. 21, No. 2, pp. 100-111.
- Xi, N., Chen, J., Gama, F., Riar, M., and Hamari, J. (2022) "The Challenges of Entering the Metaverse: An Experiment on the Effect of Extended Reality on Workload", *Information Systems Frontiers*, pp. 1-22.