

Virtual Reality, Real Harm: Addressing Sexual Assault Legislation in the Metaverse

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Introduction

Over the course of this research period, I have conducted an in-depth investigation into the legislative gap surrounding virtual sexual assault in the metaverse. This work has proven to be both challenging and enlightening, offering valuable insights into the complex intersection of technology, law, and human behaviour.

Research Focus and Importance

My research has focused on the legislative gap surrounding virtual sexual assault in the metaverse, a 3-D digital space that aims to replicate real life in an online medium.¹ This work is critically important as it addresses the urgent need for legal frameworks to keep pace with rapidly evolving technology, which presents new challenges for legal systems worldwide. The study aimed to evaluate whether current legislation can be applied to virtual sexual assault by comparing the psychological impacts of real-world and metaverse experiences, and to explore potential legal reforms for prosecuting such cases. My findings suggest that in the short term, the Sexual Offences Act 2003 s.3 could be amended by broadening the definition of 'touch' to include interactions in the metaverse. However, ultimately, a new comprehensive Act will be necessary to address not only virtual sexual assault but also to create a framework for incorporating other metaverse-related legislation in the future.

Firstly, my research has revealed that the concept of virtual sexual assault is not new. Since the beginning of the metaverse, there have been cases of virtual sexual assault, except they were not reported to the police.² These incidents have often been dismissed or not taken seriously, leaving victims without recourse and perpetrators unpunished.³

¹ McKinsey & Company, 'What Is the Metaverse and Where Will It Lead Next?' (www.mckinsey.com 17 August 2022) <<https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-the-metaverse>> accessed 4 July 2024.

² John Danaher, 'The Ethics of Virtual Sexual Assault' in Carissa Véliz (ed), *Oxford Handbook of Digital Ethics* (Oxford University Press 2021).

³ Nancy Jo Sales, 'A Girl Was Allegedly Raped in the Metaverse. Is This the Beginning of a Dark New Future?' *The Guardian* (5 January 2024) <<https://www.theguardian.com/commentisfree/2024/jan/05/metaverse-sexual-assault-vr-game-online-safety-meta>> accessed 5 January 2024.; Ellie Muir, 'A Young Girl's Avatar Was Assaulted in the Metaverse – What Should Be Considered a Crime in VR Worlds?' (*The Independent* 30 January 2024) <<https://www.independent.co.uk/life-style/metaverse-assault-meaning-virtual-reality-b2483435.html>> accessed 12 June 2024.

Victims have often been dismissed due to the misconception that events experienced in the metaverse cannot have the same impact upon a person as in real life.⁴ Due to this, victims have often been shunned and made to believe that their trauma is not real, much like how sexual assault in real life used to be dismissed. This historical context underscores the longstanding nature of the problem and the need for serious consideration.

In examining the current legislative landscape, I found that no existing legislation in England and Wales adequately addresses virtual sexual assault. The Sexual Offences Act 2003 defines sexual assault in terms of physical contact, which ostensibly excludes virtual interactions.⁵ Similarly, the Online Safety Act 2023, while aiming to enhance online safety, falls short of addressing the unique issues arising in the metaverse.⁶ My research extended to international contexts, revealing that, similar to England and Wales, no country currently provides comprehensive legal protection against virtual sexual assault.

A key focus of my research has been establishing the link between virtual and real-life sexual assault. By establishing this correlation, my research reveals that the brain struggles to differentiate between experiences in the metaverse and those in real life, meaning that a victim of real-life and virtual sexual assault would have felt and experience the same trauma.⁷ This finding is crucial in understanding the potential psychological impact of virtual sexual assault. The correlation has been established through looking at two main factors: haptic technology and proprioceptive drift. Haptic technology, which can replicate the sense of touch in virtual environments through stimulating the somatosensory system, plays a crucial role in making virtual experiences feel real due to stimulating an additional sense rather than simply visual and auditive.⁸ While this technology is still developing, it is already advanced enough to create immersive experiences that can trick the brain into believing it is experiencing real touch.⁹

⁴ Rocío Vizcaíno-Cuenca, Mónica Romero-Sánchez and Hugo Carretero-Dios, 'Making Visible the Myths about Cyber-Sexual Violence against Women: An Analysis of Social Reactions toward Victims on Twitter' (2024) 39 *Journal of Interpersonal Violence* <https://journals.sagepub.com/doi/full/10.1177/08862605231222876?casa_token=5UWvUXWExJQAAAAA%3AXYMC0fsrGyRDAXsPAevK0EqS-9ubsR9mIjQ8JXrc9gk9vmptSGMCeyuwR985tt1TxfgddHnOA7dUAw> accessed 7 August 2024.

⁵ Sexual Offences Act 2003 s.3 (1)

⁶ Department for Science, Innovation & Technology, 'Online Safety Act: Explainer' (GOV.UK 8 May 2024) <<https://www.gov.uk/government/publications/online-safety-act-explainer/online-safety-act-explainer>> accessed 12 June 2024.

⁷ Mel Slater and others, 'Inducing Illusory Ownership of a Virtual Body' (2009) 3 *FOCUSED REVIEW* 214 <<https://www.frontiersin.org/journals/neuroscience/articles/10.3389/neuro.01.029.2009/full>> accessed 9 July 2024.

⁸ Microsoft Research Blog, 'Touching the Virtual: How Microsoft Research Is Making Virtual Reality Tangible - Microsoft Research' (*Microsoft Research* 13 June 2018) <<https://www.microsoft.com/en-us/research/blog/touching-virtual-microsoft-research-making-virtual-reality-tangible/>> accessed 9 July 2024.

⁹ Microsoft Research Blog, 'Touching the Virtual: How Microsoft Research Is Making Virtual Reality Tangible - Microsoft Research' (*Microsoft Research* 13 June 2018) <<https://www.microsoft.com/en-us/research/blog/touching-virtual-microsoft-research-making-virtual-reality-tangible/>> accessed 9 July 2024.

Furthermore, I have examined the concept of body ownership in virtual reality through looking at proprioceptive shift, drawing on studies like the rubber hand illusion.¹⁰ Conducted by Botvinick and Cohen, the rubber hand illusion has demonstrated that the human brain can be tricked into attributing ownership to non-body parts.¹¹ In this experiment, the participant places both hands in front of them. One hand is then covered from view, and a rubber hand is positioned in its place. Through a series of synchronised touches applied to both the rubber hand and the hidden real hand, the participant's brain can be deceived into believing that the rubber hand belongs to their body. While the original experiment achieved this illusion through visual-tactile synchrony, subsequent studies have shown that it can also be replicated through visual-motor synchrony.¹² In this variation, participants wear a data glove that tracks their hand and finger movements. These movements are then mirrored in real-time by a virtual hand displayed in a virtual reality environment. When the movements of the real hand and the virtual hand are synchronous, participants experience a sense of ownership over the virtual hand. This research has significant implications for understanding the experience of users in the metaverse. By using tracking devices that monitor a person's movements and transmit them to the virtual reality environment in real-time, it is possible to trick the brain into believing it has ownership over the virtual body. The addition of haptic technology to these tracking sensors further enhances this sense of ownership, as the brain receives feedback for the somatosensory system in addition to visual input. Therefore, it can be concluded that tricking the brain into believing that a virtual body is its own is not only possible but can be achieved to a significant extent with technology currently available to consumers. In a virtual reality environment like the metaverse, this means that a user's brain can feel touch and believe that the avatar's body is its own.

This phenomenon has profound implications for how virtual sexual assault is experienced and perceived by victims. If the user's brain believes that the touching is happening to their physical body, and the touching is characteristic of sexual assault, it is likely that the brain will perceive the experience as a genuine assault. This can potentially induce psychological and physiological responses similar to those experienced during real-life sexual assault, including tonic immobility - a fear response that causes the body to freeze.¹³ Consequently, victims of virtual sexual assault may not be able to simply 'switch off' the system or exit the metaverse, as their body might freeze in place, much like a person experiencing real-life sexual assault.¹⁴ This suggests that the overall impact

¹⁰ Mel Slater and others, 'Inducing Illusory Ownership of a Virtual Body' (2009) 3 FOCUSED REVIEW 214 <<https://www.frontiersin.org/journals/neuroscience/articles/10.3389/neuro.01.029.2009/full>> accessed 9 July 2024.

¹¹ Matthew Botvinick and Jonathan Cohen, 'Rubber Hands "Feel" Touch That Eyes See' (1998) 391 Nature 756 <<https://www.nature.com/articles/35784>> accessed 27 June 2024.

¹² Mel Slater and others, 'Inducing Illusory Ownership of a Virtual Body' (2009) 3 FOCUSED REVIEW 214 <<https://www.frontiersin.org/journals/neuroscience/articles/10.3389/neuro.01.029.2009/full>> accessed 9 July 2024.

¹³ Anna Möller, Hans Peter Söndergaard and Lotti Helström, 'Tonic Immobility during Sexual Assault - a Common Reaction Predicting Post-Traumatic Stress Disorder and Severe Depression' (2017) 96 Acta Obstetrica et Gynecologica Scandinavica 932 <<https://pubmed.ncbi.nlm.nih.gov/28589545/>> accessed 27 June 2024.

¹⁴ Jesús de, 'The Reality of Tonic Immobility in Victims of Sexual Violence: "I Was Paralyzed, I Couldn't Move"' (2023) 25 Trauma, Violence, & Abuse

on the victim could be strikingly similar in both virtual and real-life scenarios, with the victim feeling the touch and being unable to escape it. These findings underscore the need for robust legal frameworks to address virtual sexual assault, as the psychological impact on victims can be just as severe as in real-life cases. Therefore, as the real-life and virtual sexual assault has the same impact on its victims, the same legal ramifications must be available for both, allowing us to look at possible legal solutions to this issue. It also highlights the importance of considering the unique characteristics of virtual environments when developing such legislation.

In exploring how virtual sexual assault might fit into existing legal frameworks, I have conducted an in-depth analysis of relevant philosophical and legal concepts. Central to this analysis is John Stuart Mill's harm principle, first articulated in his 1859 essay 'On Liberty'.¹⁵ This principle holds that power can only be rightfully exercised over someone to prevent harm to others. While Mill did not explicitly define 'harm', it can be inferred from his introduction that he intended it to encompass not only physical harm but also moral wrongs and acts that restrain autonomy and rights.

Applying this principle to the context of virtual sexual assault presents both opportunities and challenges. On one hand, the psychological harm experienced by victims of virtual sexual assault could potentially fall within the scope of Mill's harm principle. The trauma, anxiety, and distress caused by such experiences can significantly impair a person's well-being and autonomy, which aligns with Mill's broader interpretation of harm. Moreover, the harm principle counts as harmful actions that impede our rights. Given that we have a recognised right to sexual autonomy, it could be argued that virtual sexual assault, by violating this autonomy, causes harm.¹⁶ However, the application of the harm principle to virtual environments is not without complications. The application of the harm principle to virtual environments is complex and contentious, with perspectives ranging from full extension of the principle to virtual spaces, to arguments for maintaining a clear distinction between virtual and physical harm.¹⁷ These diverse viewpoints highlight the need for a nuanced approach that considers the unique characteristics of virtual interactions, the potential for real psychological harm, and the evolving nature of technology. The principle was primarily developed as a defence against 'harmless crimes', such as consensual adult behaviours that do not directly harm others.¹⁸ Virtual sexual assault, while occurring in a digital space, cannot be classified as a 'harmless crime' given its potential for significant psychological impact.

[https://journals.sagepub.com/doi/abs/10.1177/15248380231191232#:~:text=Tonic%20immobility%20\(TI\)%20is%20a,among%20victims%20of%20sexual%20violence](https://journals.sagepub.com/doi/abs/10.1177/15248380231191232#:~:text=Tonic%20immobility%20(TI)%20is%20a,among%20victims%20of%20sexual%20violence) accessed 27 June 2024.

¹⁵ John Stuart Mill, 'On Liberty' (*Gutenberg.org*1859) <<https://www.gutenberg.org/files/34901/34901-h/34901-h.htm>> accessed 11 July 2024.

¹⁶ Dana-Sophia Valentiner, 'The Human Right to Sexual Autonomy' (2021) 22 *German Law Journal* 703 <<https://www.cambridge.org/core/journals/german-law-journal/article/human-right-to-sexual-autonomy/2BF21459B1E4F82DA0E133273D5601B0>> accessed 5 July 2024.

¹⁷ Philip Brey, 'The Ethics of Representation and Action in Virtual Reality' (1999) 1 *Ethics and Information Technology* 5 <<https://link.springer.com/article/10.1023/A:1010069907461>> accessed 20 July 2024.

¹⁸ Bernard E Harcourt, 'Mill's on Liberty and the Modern "Harm to Others" Principle' in Markus D Dubber (ed), *Foundational Texts in Modern Criminal Law Foundational Texts in Modern Criminal Law* (Oxford University Press 2014).

Furthermore, the nature of harm in virtual environments raises questions about the boundaries of legal intervention. If we accept that psychological harm in virtual spaces is equivalent to harm in physical spaces, it could potentially open the door to criminalising a wide range of virtual behaviours. Another challenge lies in the assessment and quantification of harm in virtual environments. While psychological harm from real-world sexual assault is well-documented and recognised in legal contexts, the effects of virtual sexual assault may be less understood or more difficult to prove in a court of law. Despite these challenges, my analysis suggests that existing legal principles could potentially be adapted to address virtual sexual assault. The legal system already recognises the need to punish sexual assault due to the psychological harm inflicted on victims. If we accept that virtual sexual assault can cause similar psychological harm, there is a strong argument for extending legal protections to virtual environments.

However, such an extension would require careful consideration and potentially new legislative frameworks. Simply expanding existing definitions, such as that of 'touch' in the Sexual Offences Act 2003, may not be sufficient to address the unique aspects of virtual interactions. A more comprehensive approach, possibly involving new legislation specifically tailored to virtual offenses, may be necessary to adequately protect users in the metaverse while also respecting the unique nature of virtual environments. In my research, I have investigated potential legal approaches to address virtual sexual assault. These approaches can be broadly categorised into three main strategies, each with its own set of advantages and challenges.

The first approach involves expanding the definition of 'touch' in existing laws to include virtual touching. This strategy would broaden the interpretation of 'touch' in current legislation, such as the Sexual Offences Act 2003, to encompass virtual interactions. This approach offers several advantages. It is potentially the quickest solution to implement, as it does not require creating entirely new legislation. It also builds upon existing legal frameworks, which could facilitate easier integration into current legal practice. Furthermore, it acknowledges the reality that virtual touch, especially with haptic technology, can feel real to the brain. However, this approach is not without challenges. It may face resistance from legal traditionalists who argue that 'touch' should only apply to physical contact. There is also a risk of over-broadening the definition, which could lead to unintended consequences, such as touching in virtual reality games that are not the metaverse. Additionally, it might not adequately address all aspects of virtual interactions that don't have direct physical world analogues.

The second strategy involves creating new legislation specifically for virtual offences in the metaverse.¹⁹ This approach would involve drafting entirely new laws tailored to the unique characteristics of virtual environments. The advantages of this approach are significant. It allows for a comprehensive approach that can address multiple aspects of virtual crime, not just sexual assault.²⁰ It can be designed with the specific nuances of

¹⁹ Olivia Bellini, 'Virtual Justice: Criminalizing Avatar Sexual Assault in Metaverse Spaces' (2024) 50 Mitchell Hamline Law Review <<https://open.mitchellhamline.edu/cgi/viewcontent.cgi?article=1337&context=mhlr>> accessed 12 June 2024.

²⁰ Prachi Singh & Dev Karan Rajput, 'Metaverse: Surging Need for Competent Laws with Increasing Metaverse Crimes' (2022) 5 Int'l JL Mgmt & Human 712

virtual interactions in mind, and it demonstrates a proactive legislative response to emerging technologies. However, the challenges are equally substantial. It is likely to be a lengthy process, requiring extensive consultation, potentially leaving victims without protection in the interim. There may also be difficulties in defining virtual spaces for legal purposes. Moreover, it could create a separate legal regime for virtual and physical offences, potentially leading to inconsistencies such as in the sentencing for the offender or in the evidence required to prove the assault.

The third, and perhaps most novel approach, considers granting limited personhood to avatars in metaverse environments.²¹ This strategy involves attributing some degree of legal personhood to avatars, allowing for more direct application of existing laws. This approach could provide a framework for addressing a wide range of virtual interactions and offences. It aligns with the psychological reality of how users perceive their avatars and could pave the way for more comprehensive governance of virtual spaces. However, the challenges of this approach are significant. It is a potentially controversial idea due to the substantial political and philosophical opposition. It raises complex questions about the nature of personhood and identity in virtual spaces. Furthermore, it could have far-reaching implications beyond criminal law, affecting areas like contracts in virtual environments.

In my analysis, I have considered the practical and philosophical implications of each approach. The expansion of the definition of 'touch' appears to be the most immediately feasible solution, offering quicker protection for victims. However, it may prove to be a short-term fix for a long-term problem. Creating new legislation, while more time-consuming, offers a more comprehensive solution that can address the unique aspects of virtual interactions, but requires significant political will and resources. The concept of granting personhood to avatars, while intriguing, is perhaps the most radical and challenging to implement, raising profound questions about the nature of identity in the digital age. The concept of avatar personhood, while currently too radical for immediate implementation, merits further research and could inform future legal frameworks.

A significant challenge I have identified is the global nature of the metaverse. Virtual sexual assault cases may involve perpetrators and victims in different countries, each with different legal systems and approaches to virtual crime. This highlights the need for international cooperation and potentially new forms of global digital citizenship.²²

Ultimately, my research concludes that while expanding the definition of 'touch' might be the quickest solution, a comprehensive new Act dealing with crimes in the metaverse is necessary in the long term. This work not only explores potential solutions to protect users in virtual spaces but also emphasises the potential dangers inherent in new

<<https://heinonline.org/HOL/Page?handle=hein.journals/ijlmhs19&div=60&id=&page=&collection=journals>> accessed 12 June 2024

²¹ Ben Chester Cheong, 'Avatars in the Metaverse: Potential Legal Issues and Remedies' (2022) 3 *International Cybersecurity Law Review* <<https://link.springer.com/article/10.1365/s43439-022-00056-9>> accessed 20 July 2024.

²² Bernard E Harcourt, 'Mill's on Liberty and the Modern "Harm to Others" Principle' in Markus D Dubber (ed), *Foundational Texts in Modern Criminal Law Foundational Texts in Modern Criminal Law* (Oxford University Press 2014).

technologies, particularly in immersive environments. By highlighting these issues and proposing potential solutions, my research aims to contribute to the development of more effective legal protections for users in virtual spaces, ensuring that the metaverse can be a safe and equitable environment for all.

Dissemination Activities

To share my findings and engage with the wider academic and legal communities, I have undertaken several dissemination activities. I am in the process of publishing a summary piece for Legal Cheek, which will help bring these issues to the attention of legal professionals and students. Additionally, I am currently writing up a full journal paper to present my research in greater depth. One journal I will apply to publish in will be the Leeds Student Law and Criminal Justice Review.

I will also attend the University of Leeds Centre for Criminal Justice meeting, which will provide valuable networking opportunities and exposure to current thinking in the field. Moreover, I will apply to present my work at the British Undergraduate Research Conference, which, if accepted, will allow me to share my findings with a broader academic audience.

Personal Impact

This research experience has had a profound impact on my academic and personal development. I have gained a deep appreciation for the importance of thorough, meticulous research, particularly when dealing with emerging technologies and their societal implications. The process has enhanced my analytical skills and broadened my understanding of the complex interplay between technology and legal frameworks.

Moreover, this research has opened my eyes to the potential dark sides of technological advancement. While the metaverse offers exciting possibilities, our work has highlighted the urgent need for proactive legal and ethical considerations to protect users in these new virtual spaces.

Leadership Skills

The self-directed nature of this project has allowed me to develop crucial leadership skills. I have taken initiative in my learning, driving the direction and pace of my research. Managing my own time and project direction has honed my decision-making and organisational abilities. Working under the guidance of my supervisor, I have learned to balance independence with seeking advice and feedback, a skill that will undoubtedly prove valuable in my future academic and professional endeavours.

This project has also taught me the importance of interdisciplinary thinking. Addressing the issue of virtual sexual assault requires knowledge not just of law, but also of technology, psychology, and ethics. I have had to step out of my comfort zone and engage with concepts from various fields, enhancing my ability to synthesise information from diverse sources.

Future Plans

Looking ahead, I am excited to build upon this research in several ways. I plan to publish a full research piece in an academic journal, further contributing to the discourse on this important topic. I believe my work could serve as a foundation for future studies in this rapidly evolving field. Furthermore, I aim to engage directly with tech companies developing metaverse technologies. By sharing my knowledge about the potential impacts of their platforms on users, I hope to influence their approach to safety and ethical considerations. Through these interactions, I aspire to encourage companies to think more critically about the technologies they are developing and to prioritise user safety in their design processes.

I also see potential for further research in this area. As the paper notes, it is crucial not just to address current problems, but also to anticipate future risks associated with the metaverse. There is scope for research into creating legislation that can adapt to technological advancements, ensuring that the law remains relevant and effective in protecting users. Additionally, I am interested in exploring the global implications of my research. Given the borderless nature of the metaverse, there is a need for international cooperation in addressing virtual crimes. I hope to contribute to discussions on how different legal systems can work together to provide comprehensive protection for users worldwide.

Conclusion

In conclusion, this research period has been immensely valuable, not only in terms of the knowledge gained and contributions made to an important field but also in my personal and professional development. It has reinforced my passion for the intersection of law and technology, and I look forward to continuing this work in the future.

The experience has underscored the importance of proactive legal thinking in the face of rapid technological advancement. As virtual reality becomes increasingly integrated into our daily lives, it is crucial that our legal systems evolve to protect individuals in these new spaces. My research has highlighted the urgent need for this evolution, particularly in addressing serious issues like virtual sexual assault.

Moving forward, I am committed to continuing this line of inquiry, contributing to the development of legal frameworks that can effectively govern virtual spaces while promoting innovation and user safety. I believe that by bridging the gap between technology and law, we can create a safer, more equitable metaverse for all users.