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Editor:	Ralph Schroeder, OII; Ralph.Schroeder@oii.ox.ac.uk

CONTRIBUTING AUTHORS

CONTRIBUTOR	INSTITUTION	CONTACT
Ralph Schroeder	Oxford Internet Institute (OII)	Ralph.Schroeder@oii.ox.ac.u

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ABSTRACT

This report analyses the ethical, legal, social and gender issues in Presence technologies. It is divided into several sections: Section 1 defines presence and discusses the overall background to the need for a discussion of these issues. Section 2 provides a descriptive list of potential issues, both those that have been identified by the author and those provided by means of the input of the WinGs and the Peach community. The third section describes a number of scenarios in depth, the issues that arise in them and some potential solutions. The final section 4 summarizes and points the way towards future actions.

It can be noted that this report draws on and should feed into the other Peach workpackages. However, it has already been noted in the Roadmap that ethical, legal, social and gender issues have tended to be a relatively isolated and small-scale part in research on presence. This is partly due to disciplinary specialism, but also because (as will be argued below) presence technologies have entered into the mass market mainly in the form of online games and social virtual worlds, and can otherwise mainly be found in niche applications. This means that there has been a very uneven and scattered discussion of these issues, if any. It will also be argued that in fact, presence technologies are often related to a number of other 'presence-like' technologies with which they have important overlaps, but this overlap has been overlooked because presence technologies are often related to other computer science developments such as artificial agents and simulations, which are less closely related to the social implications of virtual environments.

KEYWORDS

Ethical, Legal, Social, Gender, Presence

ACRONYMS

ACRONYM	Meaning
VE	Virtual Environment
VR	Virtual Reality

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1 INTRODUCTION

1.1 SOCIAL, ETHICAL, LEGAL AND GENDER ASPECTS OF PRESENCE TECHNOLOGIES

This report analyses the ethical, legal, social and gender issues in Presence technologies. It is divided into several sections: Section 1 defines presence and discusses the overall background to the need for a discussion of these issues. Section 2 provides a descriptive list of potential issues, both those that have been identified by the author and those provided by means of the input of the WinGs and the Peach community. The third section describes a number of scenarios in depth, the issues that arise in them and some potential solutions. The final section 4 summarizes and points the way towards future actions.

It can be noted that this report draws on and should feed into the other Peach workpackages. However, it has already been noted in the Roadmap that ethical, legal, social and gender issues have tended to be a relatively isolated and small-scale part in research on presence. This is partly due to disciplinary specialism, but also because (as will be argued below) presence technologies have entered into the mass market mainly in the form of online games and social virtual worlds, and can otherwise mainly be found in niche applications. This means that there has been a very uneven and scattered discussion of these issues, if any. It will also be argued that in fact, presence technologies are often related to a number of other 'presence-like' technologies with which they have important overlaps, but this overlap has been overlooked because presence technologies are often related to other computer science developments such as artificial agents and simulations, which are less closely related to the social implications of virtual environments.

1.2 DEFINITIONS AND DELIMITATIONS

Much depends on how virtual environments are defined. Here I will use the definition that virtual environments (VEs) or virtual reality technologies are those in which the user or users have a sense of being in a place or space other than the one are physically in, and being able to interact with that environment (see Schroeder 1996, 2006a). It follows that presence is the experience of being in this kind of environment, an environment in which a sense of 'being there' (or 'being there together' in the case of multi-user virtual environments) is experienced.

This definition is compatible with the definition of the Peach Roadmap, which uses a number of definitions: presence as a phenomenon which, following Slater and others, is the 'successful replacement/augmentation of sensory data with virtual generated data'; the definition of presence as a research field which focuses on technologies for 'being there', and the definitions of the International Society for Presence Research (ISPR) concerning the psychological or subjective state whereby experience is filtered through technology. The reason for simply 'being there' in this report is that it allows us, without going into these definitional issues, to focus on 'being there together', which has become the most widespread use of the technology and the one that raises the most important social (ethical, legal, gender) issues.

There will continue to be debates about these definitions, and one such debate can be found on the Peach blog (see <http://www.peachbit.org/> Peach WinG5 blog, where the author of the report has also contributed). In any case, the important social implications of this technology relate to these experiences of being in another place or space. They do not, in my view, relate to the cognitive science of machine learning and artificial intelligence, or to simulations and the like. Moreover, the most critical social issues relate not to single-user settings (though these will also be discussed below), but rather, as just mentioned, to multi-user scenarios where people are interacting in the virtual space. That is because in the latter case, the issues relate not only to one's person's well-being in the VE, but to how that person's well-being depends on others in the VE.

Sometimes the issue of agents is discussed. But this is not directly to do with VEs except insofar as people using VEs will sometimes interact with a human-like agent and treat the agent as if it were a real person (and vice versa). However, the social implications here simply resolve into the question of whether the agent can be distinguished from a real person (embodied in an avatar representation) or not. In other words, it is a case of whether the 'deception' (passing the Turing test) works, and what its implications are.

The ethical, legal, social and gender issues are increasingly important. But it will become apparent that much hinges on how we separate presence technologies from other technologies, and current from future uses.

2 ETHICAL, LEGAL, SOCIAL AND GENDER ISSUES

The following section provides a list of the ethical, legal, social and gender issues. Obviously there can be considerable overlap between them, but it is nevertheless to keep them apart to some extent. No attempt is made at this point to do more than to identify the issues, and to this effect a brief description of the issue will be provided to make them amenable to being understood by persons who may not be familiar with the field. In the case of the issues that were provided as input by the Peach community (at the Networking Session and Workshop of the IST event, November 21-23 2006 in Helsinki and the Peach WinG meetings March 8-9 in Barcelona 2007), I have elaborated and expanded on the issues in my own words as best as I can since the input came mainly in the form of brief verbal or written mentions of the issues. To be fair, it should be pointed out that I could be misrepresenting this input through my elaboration. Also, no attempt is made at this stage to prioritize or suggest solutions to these issues. This should be done in future work and in collaboration with the rest of the Peach WinGs and the Peach community. Furthermore, although in future work, it may be possible to group these issues together analytically and present them within an overall narrative, this should be done later since they are all interconnected and such a mapping would benefit from input from the other WinGs and the community. Still, at this point a list of the key issues is the most urgent task as it is important to identify the scope of the issues.

The Peach project (Starlab, Cristina Martin) has recently set up a Help Desk to involve the community in discussing these issues, provide a means of supporting researchers and the wider community, and generate further inputs, though it is too early to detail its workings. There is also a blog forum for these topics, and it will be interesting to see how this forum develops.

2.1 INPUT FROM THE PEACH MEETING AT IST HELSINKI, NOV.2006

The following is taken from the IST meeting where the following comments were posted (they are elaborated by the report author in section 2.1.1 below):

- Where do you draw the line between presence technologies and other technologies?
- Are you for bits or matter? (me, bits)
- Should discussion of ethical issues aim at researchers – or at policy and the public?
- What if I want to disappear?
- Should ethical and social discussion aim at current technology, or at future technologies?
- Liability issues for VR content providers for real world accidents connected to their use?
- Making a VR tool – who has to pay for accident?
- Is Mozart commercial – will his music disappear?
- Concert music will disappear; people will make their own music.
- What about users with special needs?

2.1.1 Elaboration of Comments Posted

The workshop provided a lot of interesting discussion – both comments put on the poster and in face-to-face discussion. I discuss a few of them.

Users with special needs is an important issue. Although there are conferences for VR for special needs and disabilities, this comment could also be interpreted in a wide sense: are there issues for presence for people who might have different needs? (Put the other way around: when is a standard technology or environment sufficient, or when does it have to take different needs into account?).

Liability for outcomes from VR technologies or environment, and also accidents arising from use of presence technologies – these are key issues (though I think there has been only one test case – I will need to check). Still, there are many potential eventualities to consider here.

Will Presence technologies lead to the end of recorded entertainment and culture, to the end of 'live' (face-to-face) entertainment and culture, or to users making their own entertainment and culture? Music is a good example – film and theatre would be others. This is a key question where Presence technologies shade into other technologies – such as recorded entertainments and culture that could be superseded by newer, to virtual events replacing real ones, and to 'social networking' models of production. A host of issues are raised here.

'What if I want to disappear' implies a scenario where the user spends a lot of time in a virtual environment, or perhaps their identity is altered in a VE. This has been raised in the context of gaming and social spaces applications – perhaps it is interesting to apply to wider cases?

Finally – there are many other ethical and legal issues that could have been raised – but were not. Does this tell us something?

2.2 INPUT FROM THE PEACH MEETING, BARCELONA MARCH 2007

The following is an elaborated summary of the discussion at this meeting. Again, putting these in list form is most important at this stage to gauge the scope of the issues.

A clinical applications ethical committee for presence research might discuss:

- is it dangerous to the user? – sensitive data on emotional states (it could be used to influence people, and does it comply with law?)
- is the simulation of reality harmful? (show as real what is not, ie. to children)
- potential side-effects of research uses (have to show what they are, disclose what they are, but is this possible in such a new field?)

Medical ethics are already applied to research uses: are these sufficient?

- Deception can be applied to online games – are there social issues here?
- Do better technologies give an advantage mostly to men if these are early adopters?
- Gaming: is it ethical to provide highest possible presence, and does this lead to addiction? Or should presence be reduced to avoid addiction?
- How women are represented in online worlds?
- Intellectual property rights: should it be necessary to pay users to have a model of their avatar (as they appear in real life, or in the virtual world)?
- If it is possible to sell information about people's presence (ie. for example, with the mobile in silent mode, this means the person is busy, or if a person is in Second Life, it will be possible to sell this information) – does this raise ethical issues?
- Is it possible to control and manipulate of presence information to influence behaviour?
- The make-up of an ethical committee for research – who is representative (for example, with regard to religion and politics)?

- What kind of politics should govern inside, for example, Second Life?
- What laws hold in Second Life?
- The evaluation of new technologies – how to ensure copyright, patents, spam, filesharing policies, and the like.
- Interdisciplinary perspectives are needed – because new technologies have different consequences.
- Remix or mashup culture: who pays? For example, in relation to the property rights to certain digital objects that are used.
- What court should be used if something happens to you in Second Life? For example, protests against certain commercial activities (there are no rules for this in Second Life), or holding to someone to ransom.
- Should ethical and legal responsibility be assigned to the avatar or the real person?
- For the mobile user – is the responsibility with the device manufacturer, or network or service provider, or the user? For example, for a location-based SMS message, or avatar behaviour?
- How can mobile users, who want to share information with others, ie. with context-awareness and user profile, do this in a secure and safe manner?
- What about laws developed through pilot research trials?
- How can we achieve the harmonization of law, ie. there are national authorities for telecommunication and security, but online virtual worlds cut across these. They may also cross the divide between private and public law in the online world.
- How to promote the participation of women researchers?
- How to avoid exclusion, ie. disabled persons, or those with a lack of connectivity?
- Stealing someone's voice: this has become feasible with technologies for making one's voice sound like another person's – what are the implications for identity deception?
- Gay and ethnic issues: will people from a different background be treated differently or respectfully in shared VEs?
- People may want to have a different appearance, or look like themselves, in VEs: what are the social implications?
- Language barriers in shared VEs – what if you can't understand others, if you get treated as a foreigner?
- How to treat an avatar? Only if the communication is to the real person is there harm?
- How invested are you in your avatar? (this will determine ethical treatment as avatar).
- What if you 'die' as avatar? (harm to you and your relationships?)
- The market for VE and presence technologies: it can be enabling to have rules governing these new technologies, because this will reduce uncertainty, and not just be a barrier.
- What if an avatar imitates you? With your appearance?
- Is it just a question of getting used to new technologies? We need to accept the harms as well as the benefits.
- Usage in companies as compared with issues raised in private life – what are the differences?

- If a device can sense what you are doing, ie. context aware device or person's-state aware device, what are the ethical issues?
- Sensing the users mode, their presence (or absence) in certain places.

2.3 ADDITIONAL ISSUES BY THE AUTHOR OF THIS REPORT

In a massively multiplayer online game or social space, some may spend time on a daily basis for a long time. In this case, close friendships can be developed and the user may develop a strong sense of being attached to a virtual place and the objects in it.

Issues here include: what if the world withdraws support (ie. shuts down the world), and there is little possibility to reproduce the online relations? Or if there is violence or injury or harm, if the violence is taken offline? What about legal rights to one's online places and the objects one has developed, or ownership rights of one's avatar? In this case, it is important to distinguish: what should be stopped for ethical reasons? What can be steered socially, or socio-legal framework for? What can be educated for? Do social issues become a bottleneck for technology development, or vice versa? What kind of devices should be developed and promoted, and what kinds of economic or commercial issues arise?

- Identity, addiction and the impact of Virtual Interaction: are these separable?
- Health issues such motion sickness?
- End-user license agreements govern online worlds: but the problem that users (children especially) cannot be expected to read them has been widely discussed.
- How should the usability of presence technologies be treated?
- Do the uses of virtual conferencing or spending time in Second Life contribute to sustainability (for example, avoiding energy uses for physical meetings)?
- Recording and surveillance in VEs – what threats are posed?
- Do the uses of VEs and presence technology raise different issues for research, commercial, entertainment, and military uses?
- How to categorize and classify the impacts of different types of systems of presence and related technologies – for example, immersive versus desktop, realistic versus abstract worlds?
- Gender: women in research and computing, different experiences of presence, avatar appearance and interaction in online worlds, and gendered cultural perceptions of the technology – does this exhaust the gender issues?
- The current uses of VEs, apart from research, are mainly in visualization and practical applications like therapy and training on the one hand, and entertainment (gaming and socializing on the other) – what other like uses can be envisaged?
- Short-term versus long-term uses – there are important differences for social implications.
- Property ownership within and across different online worlds.
- Avatar persistence within and across different online worlds.
- Routine uses of VEs versus experimental ones – are there different issues to consider?.
- The effects of spending time in virtual worlds on real behaviour: how does this relate to realism or game content, or content for training and therapy?

- The different capabilities afforded by different systems and environments: in a shared or collaborative VE where many people share the same environment, they may not know what kinds of systems and environment display the others have - the 'powers' of others may not be transparent, but do we want to make them so?
- There are inequalities at the digital divide level, in terms of skills and access.
- Avatar appearance – it will be important to be able to identify each other and continue to do so across different environments.
- There will be different capabilities for different types of avatar embodiment – in terms of how the user is tracked (some have only the position of their body tracked, others the movement of their head and arms, etc), in terms of what devices they have (some may have a mouse, others a 3D wand, etc), the extent to which they can change and interact with environment, and other factors.
- Agents – can they be recognized as such? If not, are they deceiving real users?
- The perception that virtual relationships are not as good as real relationships – what can be done about this?
- Shaping, owning and the persistence of environment – what if there is destruction, or the owner of the system takes away the online world or makes it deficient in interoperability? What about credit or payment for work that has been done in the online world?
- Legal issues: where is the liability for online world events, for their security and access to them?
- What if the online economy transfers or becomes intertwined with the economy of the real world (ie. if real, not online money, is paid for objects)?
- Living in virtual worlds – what kind of online society is desirable?
- How can the social – ethical and legal – implications of presence research be divorced from the larger context of how presence technologies have been developed, how they are currently used, and above all, the outlook for their uses?
- Should the separation be between 1. entertainment and sociable uses, 2. research uses, 3. commercial uses?
- A key question that frames all the issues is which technologies are addressed: immersive systems, desktop systems, mixed reality systems, and others?
- The increasing trackability of persons by means of digital technologies, how do presence technologies fit into this?
- Will it be useful to make a systematic comparison between ethical and legal issues in video-capture systems and in virtual environment systems: what are the differences?
- Should gender issues be divided into gender in online gaming on the one hand, and women in computing on the other?
- Can we distinguish between ethical and social issues in research, as against ethical and social Issues in non-research applications?
- How to distinguish issues in presence versus copresence technologies – should they be kept separate?
- The legal ownership of virtual worlds and avatar rights – do these belong to law, or to broader social debates?

- Where to draw the boundary between presence technologies and the social implications of other technologies?
- Should discussion of ethical and social discussion aim at researchers and policy or at a wider public?
- Should ethical and social discussion aim at current technology or look towards a future mature technology?

3 SCENARIOS

Scenarios 1 and 2 apply to shared or collaborative VEs, 3 and 4 to single user and shared VEs. The scenarios vary in the detail that they are treated, but that should not be taken as an indication of their importance, but simply of the space needed to explicate the key points. Each scenario is divided in background and setting, social issues, and potential solutions.

3.1 **SCENARIO 1 – ONLINE VIRTUAL WORLDS, THEIR GOVERNANCE AND IMPACTS**

3.1.1 Background and Setting

People spend a lot of time in online virtual worlds, either for gaming or for socializing. These are presence technologies insofar as, via 3D graphics and either text or voice communication, they provide a sense of 'being there together'. Examples include Second Life, World of Warcraft, the Sims Online, and others. This is perhaps the most commonly used form of presence technology, and it raises a host of questions such as the impact of spending a lot of time in another reality, the rules which should govern these places, and consequences of one's online identity for one's online and offline self.

3.1.2 Social Issues

This can be called the online virtual worlds scenario because the VE in this case is precisely that; a social world, again, whether for playing or socializing. One question that arises in this case is to what extent these worlds should or can be governed by ethical and social rules that apply in the real world.

In this case it is necessary to take a step back and to consider how this case is publicly perceived: there is no systematic research on this topic, but (anecdotally, and from media treatments of the topic), when this topic is discussed, this scenario is typically treated as something of a joke, ie. get a real life, or it's only a virtual death, etc. Note however that this is more of a reflection of the novelty of this technology rather than a serious attempt to grapple with the problem since there are real issues here: if people spend a lot of time in these worlds, surely the issue of whether they provide a space that is enriching or the opposite is one that should be treated as important (although it is true that the virtual world matters less, for example, if one loses virtual money or dies in the virtual world, the consequences are not the same as in the offline world).

Still, this inability to grapple with new technologies has happened with other technologies (for example, jokes are made about genetically engineering hybrids between humans and other animals), but again, in this case, the issue is raised in this joking way because we have problems grappling with the notion of alternative worlds or identities other than our real ones.

There are several key considerations for online virtual worlds: One is whether the user (player, socializer) forms attachments that affect him or her – online or offline. Another is the ethical and social rules that govern or should govern these worlds. It is important to register here that what has happened so far in online virtual worlds is between two extremes: users have tried to implement utopian societies on the other hand, or replicated or imported real world practices into the virtual world. Note also that this is bound to be unresolved: interaction in virtual worlds will replicate or follow the real world or it will depart from it. This makes it fascinating to watch the development of these worlds, though not a great deal hinges on this because both socializing and gaming worlds are mainly used for recreation, so again, it is a question of enriching our lives or impoverishing it.

The impact of spending a lot of time in online VEs can be related to the videogames and violence or 'addiction' issue (see most recently, the essays in Vorderer and Bryant 2006). The conflicting evidence or unresolved nature of the debate perhaps points to the fact that the issue must be seen in a larger context, and not just in terms of the evidence from psychological experiments. Similarly with addiction: is it appropriate to see this as a psychological condition, or should it not be framed, again, in terms of whether shared VEs enrich or impoverish our lives?

It is important to note that this highlights that these issues relate to the *multi*-user scenario: how I appear in a single-user world does not matter since people's self-perception matters mainly in relation to other's perceive them. The question of avatar appearance and the avatar's capabilities for interacting matter in relation to others. This is also why the issues that have been raised in section 2 deserve attention: avatar deception and appearance and the like are not important per se, but because people spend so much time with others online.

It is thus misleading to treat the 'excessive' disappearing into or socializing in virtual worlds as somehow being unreal or an 'Ersatz' real life. Rather, the question should be: how enriching or impoverishing are the interactions in virtual worlds with avatars?

3.1.3 Potential Solutions

There are a myriad of ethical, legal and gender issues in this scenario, but the key question should be to consider the quality of time spent 'being there together'. This is a wide-ranging social issue, but an important misunderstanding can be avoided by not treating these worlds as completely liberating (these worlds have their own constraints and possibilities) or as being a poor substitute for real life (as Walther (1996) has shown in a similar context, people put a lot more into themselves and their relations with others online, or in the context of missing social cues – they develop 'hyperpersonal' relations). In this sense, these relationships should not be treated as inferior to face-to-face relationships.

3.2 SCENARIO 2 – ONLINE AND OFFLINE PRESENCES IN EVERYDAY LIFE

3.2.1 Background and Setting

VEs have been defined carefully here, as environments in which the user(s) experience a sense of being in a place other than the one they are physically in and interacting with it. But the line between VE technology and other technologies which afford a sense of presence is blurring. There is a range of devices which also afford presence or something approximating it (Schroeder 2006b); for example Instant messaging, videoconferencing, sensors which relay our presence, and mobile phones which include the user's geographical position in virtual and real worlds. This scenario can be extended further: it is becoming common to talk about the user's web 'presence' (their identity online); for example, an academic's profile of their research and interests, or a teenager's online web space in social networking sites.

3.2.2 Social Issues

In this case there are two main issues: the boundaries between the virtual and real worlds may be blurred, and the user's identity may become unclear.

Users can be tracked through their online presences. For example, we will increasingly want to know: where is the other person, online or offline? And who is the other person, what are their characteristics? To do this, we are increasingly able to track the user's online and offline location through awareness: the other person is available online – through their avatar, via text, via video or voice – or they are currently in a real place because I know that they can be reached by, for example, stationary telephone, or they are at home or their workplace or are travelling something.

Note that in this case the absence of a person may define their presence ('the person is away from their desk, so they must be travelling, or they are preoccupied in their online virtual world'). Note too that this is not just, as it is often portrayed, a question of identity deception (deliberately misleading others about one's characteristics or whereabouts) or multiple identities (the play with a number of identities that Sherry Turkle described many years ago), but more a question of misinformation or an overabundance of information which makes for a dangerous level of surveillance, not just by authorities and commercial actors but also by other people.

In video- or virtual conferencing situation, should a person be able to misrepresent that they are present (for example, leaving their video-image or avatar switched on while they are stepping outside into the real world for a break)? It is quite likely that sensors will be able to sense our presence, but both enabling them to do this regardless of whether we have switched them on and the opposite (requiring manual switching off and on) will be desirable in certain situations.

3.2.3 Potential Solutions

One solution would be to restrict the user's identity to a single valid representation of themselves and to being in a single place, real or virtual. This may be necessary for legal reasons, but it will not be feasible in many instances. Another solution, to allow the user of VEs to set their own level of transparency (ie. what they want known about themselves and their location), is desirable, but also has to be put into practice: is it feasible to force online spaces to reveal if they allow 'lurkers', people who are simply watching a space in Second Life without making themselves known? Is it possible to constantly monitor whether your status of being online via instant messaging webcam and a host of other devices is up-to-date as whether they are switched on or off, or to monitor the way you are represented on the web (perhaps by 'googling' yourself)? In short, presence in VEs and related technologies will generate a host of social issues, but in this case the issues go beyond presence technologies in the strict sense (being in another place and interacting with it), and shade into other technologies such as videoconferencing, social networking, presence on the Web, mobile phones, instant messaging and the like. These digital technologies which do things apart from VEs – making others aware of us, conveying our location, creating a digital profile – go far beyond the scope of presence and need to be seen in the wider context of digital devices in society.

3.3 SCENARIO 3 – TRAINING IN VEs

3.3.1 Background and setting

Among the scenarios that have taken place and that can be envisaged are military training, driving simulations, training for dangerous situations such as firefighting, and the like. These are important because the sense of being in another place and interacting with it will carry over into subsequent uses of this training in the real world.

3.3.2 Social Issues

This is an issue that has been more widely discussed than others, but it boils down to how to make the link between the training and the real world situation in which it is used – that is, whether there is effective skills transfer.

3.3.3 Potential Solutions

Ensure that there is adequate testing of the transfer of virtually acquired skills to the real world setting. The liability of those providing and relying on the fact that the training was adequate in the event that this is not the case and there is damage (a traffic accident, a wrongful military killing) is bound to raise the question whether this was a result of the virtual training or some other factor. Nevertheless, the legal issue here is comparable to others of equipment failure, and perhaps the more important one is how useful the VE's are in this case.

3.4 SCENARIO 4: RESEARCH IN VES WITH HUMAN PARTICIPANTS

3.4.1 Background and Setting

Researchers use a VE to do experiments involving human participants that are more easily carried in a VE or that could not be carried in a real world setting.

3.4.2 Social Issues

The basic issues here have been discussed extensively in relation to the virtual Milgram experiment (see <http://www.peachbit.org/>, keho issue 1, also reproduced as Appendix 1 below). Even if in this specific case, the research ethics called forth a mixed response in the ensuing online debate among researchers, it is important to widen the debate: As we have seen in other scenarios, the advantage of VEs is that we can do things that are not possible in the real world.

Also, a number of variations of virtual Milgram can be envisaged: for example, where consent has not been obtained, where cruelty is not just between an avatar and an agent but between two or more avatars. There are many possibilities, for example, for using VEs as laboratories for psychological and sociological studies that could not be carried with real subjects face-to-face or in physical social environments (Schroeder and Bailenson 2008).

3.4.3 Potential Solutions

The solutions in this case will be provided in one sense by research ethics committees, which will have to be involved in research of this type. However, it may also be important to have a wider debate among researchers and society-at-large about the limits of what is acceptable in a virtual setting.

4 CONCLUSIONS

For many of the listed issues and scenarios, it may be desirable to solicit public opinion by describing a certain scenario in detail and allowing a choice between a small number of options. This will be one possibility that could be pursued in the future.

It may also be, however, that formulating ethical, legal, social and gender guidelines for presence technologies at this point may be unnecessary or premature. Consider the case of video game violence (closely related to online virtual worlds): here, norms have tacitly emerged (self-regulation of the games industry) whereby certain lines are not being crossed in view of public concerns, with a low level of debate regularly or periodically flaring up. Another comparison might be the case of the regulation of genetic technologies, which have required and received urgent regulation while being continually being updated. Consider finally the recent report (2007) by the Royal Academy of Engineering about 'Dilemmas of Privacy and Surveillance: Challenges of Technological Challenge' (www.raeng.org.uk/policy/reports/pdf/dilemmas_of_privacy_and_surveillance_report.pdf), which is about digital technologies. The report recommends in relation to privacy, for example, that 'the law needs to keep up with technological developments, both in order to have a relevant notion of what counts as reasonable with respect to privacy, and in order to be prepared for any legal issues that arise due to new technologies' (2007: 31). These issues include the extensive surveillance of people that is being made possible by technologies such as RFID and tracking people's online presence (ie. the web searches that they make, which is a much broader notion of 'online presence'). There will be some overlap with the issues raised here, but also issues in relation to this report that are not covered by wider debates about privacy and surveillance.

In other words, the laws need to be changed to keep up with changing technologies. As indicated in the scenarios and issues raised above, many of the issues are 'prospective'; that is, they are on the horizon but have not actually materialized so far. At the same time, it is important that data protection and other privacy laws that already cover information technologies as a whole will also cover presence technologies, and perhaps the most important task in the future will be to identify how they may apply, whether there are any areas that are left out in existing legislation (a kind of 'gap' analysis for laws) which cover the possibilities in the lists and scenarios described here, and how to fill these potential gaps.

Finally, much 'solving' of the issues will take place by means of adaptation or social learning: the norms of online virtual worlds, for example, or discussions among researchers about the ethics of experiments, have resulted in a variety of possible solutions and answers emerging (by means of disputes among citizens of online worlds or in the discussions among researchers). It is important not to foreclose this emergence of norms.

There are therefore a number of ways forward, which will be pursued and described in future Peach work:

- Analyze how the issues raised in section 2 above can be clustered, prioritized, be presented in the form of a more detailed and narrative piece of writing.
- Solicit expert advice and public opinion about some of the issues raised here, including scenarios.
- Identify potential legal gaps in laws, and also determine the likelihood and potential impact, of prospective issues.
- Describe some of the solutions that are emerging, or likely to emerge, by adaptation or social learning.

- Feedback on this report will elicit responses about whether any important issues or areas have been omitted or if they can be analyzed in a different way.

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6 APPENDIX 1.

'Virtual Milgram' points to potential ethical dangers of presence experiments

Mel Slater and colleagues have stirred up debate with recent experiments designed to investigate presence and responses to a virtual character.¹ They have studied how far research participants will go in inflicting pain on a virtual human (or avatar) in an immersive virtual environment. Among the results: participants feel increasingly uncomfortable about the experiment and responded to the virtual character as if it were highly real. In fact, some participants stopped administering the 'painful shocks' and approximately half the participants said afterwards that they had wanted to stop the experiment. But how far should we go in experimenting in virtual environments? Since they are not real, does that mean 'anything goes'?

To answer this, we need to go back and look at the context: The original experiments were conducted in the 1960s by Stanley Milgram, who was interested in the extent which people obey others in authority in inflicting pain or suffering on others. One background to his experiments was the Nazi atrocities during the Second World War. His experiment involved research subjects administering ever greater electric shocks to another person strapped in a chair in an experimental setting when the experimenter tells them to do so. He found that subjects were willing to continue administering shocks even though the person strapped in the chair was screaming with pain. What they did not know, of course, was that this person was in fact an actor and no shocks were being given.

The experiment was controversial for a number of reasons: one was that subjects were being deceived. A second was the controversial nature of the findings, perhaps most of all because they reveal some unpleasant facts about human nature. Third, they were regarded as inflicting unnecessary mental anguish on the research subjects.

The experiment by Slater and colleagues was a replay of Milgram's, with three crucial differences: one is that research participants were not deceived, the second that the experiment was not about obedience but rather about presence and the responses to virtual characters, and finally that the person to whom the shocks were administered was a virtual human and the experiment was carried out in a Cave-type virtual environment. Participants therefore knew that the shocks they were giving could not hurt the virtual human. Slater et al. found similar results to Milgram in terms of the stress levels of participants - though with 'lesser intensity' of the responses (¹ p.e39); an important replication since, as mentioned earlier, doing this experiment with 'real' recipients of pain is no longer acceptable for ethical reasons. The results also shed important light on presence since subjects clearly thought that the virtual human's pain made them respond as if they were in the presence of a real person. These are important results for the community of presence researchers and beyond, and yet they called forth considerable discussion on the Web.²

At this point I should declare an interest: I have worked with Slater and colleagues and know that, as the saying goes, he would not hurt a fly - and clearly in this experiment the distress to participants was minimal and well within the limits of what research ethics might dictate. Further, as all who have done research on virtual environments and presence know, Slater is a highly regarded pioneer in the field and with this experiment he is pushing research into exciting new directions. I also agree with Slater that virtual environments provide many excellent opportunities for doing experiments that for various reasons we would not be able to carry out in the physical world and in face-to-face interaction. Slater's experiments investigating fear of public speaking by having research participants speak in front of virtual audiences who react in different ways is a perfect example. But there is also a range here: some such situations are clearly acceptable - the virtual public speaking experiment provides a good illustration since it may cause some participants considerable anxiety during the experiment but may also help them to overcome or alleviate this anxiety in real world circumstances. Yet some such situations are equally clearly unacceptable - for example, a research participant brutally killing a virtual human merely to see how far they will go.

Slater's 'virtual Milgram' can be regarded as at the same end of the range as the public speaking experiment and is to my mind worthwhile. Yet it also points, in my view, to some limits of this type of research: Some extreme social situations should be studied because the distress to participants is not great and the value of the experiment *is*. Some extreme social situations should not be studied because the distress to participants is too great and not justified by the benefits of the study. So even if virtual humans are not real, this does not mean that interacting with them cannot cause undue distress to the real participants interacting with them - even if they know that this cannot be the case. One benefit of Slater's Milgram experiment is that he has confronted us with this dilemma.

Other researchers, such as Jeremy Bailenson (with whom I have also collaborated), are also investing situations where people interact with virtual humans in ways that would be impossible face-to-face; for example, by altering their appearance in a virtual setting and measuring reactions to different emotions. These experiments and Slater's work to my mind represent some of the most promising areas of social research. Furthermore, nowadays there are rigorous institutional procedures in place that assess whether experiments fall within the bounds of research ethics, and this applies just as much to virtual environments as to experiments with face-to-face interaction. But - put briefly: just because it's virtual, that does not mean we can do any type of human subjects research. Virtual environments are useful because we *can* do certain experiments that we cannot in the physical world and with people interacting face-to-face. Others cannot be done because they will, for example, be too realistic. Where to draw the line? This is bound to be an ongoing debate that will be of interest to all presence researchers and those interested in virtual environments and related technologies.

Ralph Schroeder, Oxford Internet Institute

PEACH Leader of Working Group 4: Social Impact, Ethics and Legal Issues

<http://people.oii.ox.ac.uk/schroeder/>

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1. <http://www.plosone.org/article/fetchArticle.action?articleURI=info%3Adoi%2F10.1371%2Fjournal.pone.0000039>

2. <http://www.newscientist.com/blog/technology/2006/12/morals-in-cyberspace.html>