

Get a second life

Christian Jarrett on the benefits (and dangers) of using virtual worlds in your psychological research, therapy and teaching

This is not the only reality. Millions of people also exist online in virtual worlds, where they can fly, teleport, socialise and spend time inside a digital body of their own design. Psychologists are studying these worlds, to find out how people behave there, and to uncover whether a person's online escapades affect their real-world selves. Others are moving into digital realms to teach and work with clients. The researchers and clinicians in this field all make the same argument – this is no passing fad, but rather the most exciting opportunity facing the profession for a generation.

Second Life (SL: www.secondlife.com) and other similar online virtual worlds are accessed by desktop computer and involve users assuming the role of a digital version of themselves known as an avatar. With this avatar they can then navigate the 3D digital world and meet and chat with other avatars online in real time, either using text or speech. SL now has over 16 million registered users. Other online worlds, such as World of Warcraft or Everquest, allow similar freedom to explore and socialise, but unlike SL, they also have game objectives. Early psychological research in this field has focused on establishing who these users are – no mean feat given privacy issues – and whether their online behaviour follows the social psychological laws uncovered in the real world.

Ditch any stereotypes – the evidence to date suggests these are not worlds populated solely by teenage, male video-

gamers. For example, Dmitri Williams and colleagues published a study last year showing that 7000 players of Everquest 2 were aged 31 years on average, and while the majority were male, 19 per cent were female. Moreover, it was the older players and the female players who tended to play for longer hours.

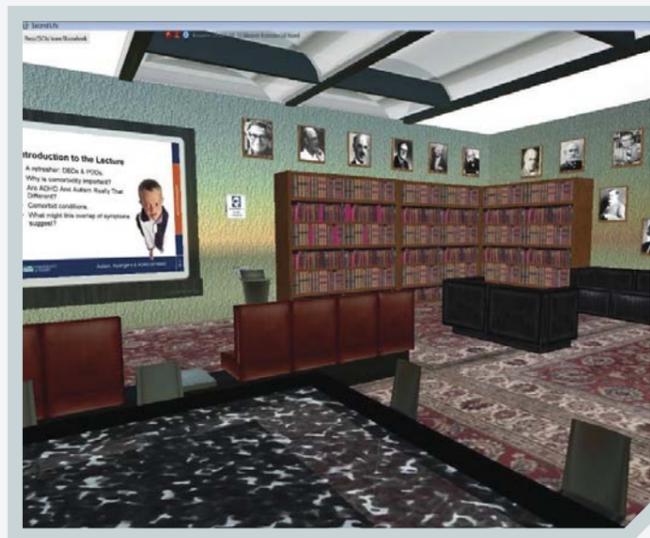
Virtual research

Studies in SL suggest that the way people interact online closely mirrors real-world social behaviour. For example, they may be interacting vicariously behind the mask of their chosen avatar, but a study by Nick Yee and colleagues at Stanford University found that two characters of the same gender in SL tended to keep a greater distance between each other than two characters of the opposite gender. Moreover, the closer two characters were, the less likely they were to be directly facing each other – reflecting a real-world phenomenon, in which people tend

to make less eye-contact the closer together they are. 'Social interactions in online virtual environments...are governed by the same social norms as social interactions in the physical world,' Yee's team wrote.

A similar finding was made by Doron Friedman and colleagues at the University of London. When they programmed an ownerless 'robot' avatar to automatically wander up to people in SL, the response most people had was to back away from the digital stranger as if protecting their personal space.

Aleks Krotoski, a PhD student at Surrey University and technology columnist at *The Guardian*, studies social groups in SL to see how people's friendships affect their attitudes. She's found that group influence also works in SL in much the same way as in the real world. 'In one study I looked at attitudes towards sexual activity in Second Life – a hot topic!' Krotoski says. 'I found that the density of groups had a very strong relationship with the uniformity of individual attitudes about sex in this virtual world. This is similar to what you'd find in the real world.'



Other research has shown that little is lost in translation when proven tools of social influence from real life are put to use in virtual worlds. Paul Eastwick and Wendi Gardner of Northwestern University, Illinois, assumed online characters in the world of There.com and approached other avatars to ask if they would mind participating in a photo-shoot on the beach. They found that both the foot-in-the-door effect (asking a smaller favour first) and the door-in-the-face effect (asking a larger favour first) led to more cooperation just as it does in the real world. Disconcertingly, but adding further to the idea that virtual worlds emulate the real world, the pair also found evidence of racism, with participants less likely to cooperate when the researchers assumed the role of a dark skinned avatar (see box, 'The dangers of virtual worlds').

The fact that people behave in virtual worlds in a way that reflects real life is exciting news for psychologists because it opens up the medium as a way of conducting large-scale social studies, with relevance to the real world – projects that might otherwise be impossible or prohibitively expensive to conduct. 'By conducting a study in an existing virtual world, you have sample sizes that aren't possible in a lab study,' says Yee. 'So for example, in our study of interpersonal spaces in Second Life, we gathered eye gaze and distance measures from hundreds of avatars with precise measurements.'

Krotoski agrees: 'You can literally track everything,' she says. 'Where people are, which direction they're facing, who they're talking to – anything that's happened in these spaces happens on a computer somewhere and that data is recorded.' Another advantage for social studies concerns commitment. 'You get very strongly committed groups of people,' Krotoski explains, 'which is an advantage if you want to understand the processes that exist in small, tightly knit groups. This also means it is an ecologically valid environment – these are

The dangers of virtual worlds

Back in the real world, UK-based psychology and psychotherapy are only just preparing for the introduction of statutory regulation, so it's no surprise to discover that virtual therapy is currently completely unregulated. Indeed, in an anonymous digital world, it's easier than ever for anyone to pass themselves off as a virtual therapist. As people plug into these virtual worlds in ever increasing numbers, there's a pressing need for policies and guidelines on virtual world therapy to catch up with the technology.

Other experts have concerns about the addictive quality of virtual worlds. 'We need to pay more attention to the risks and benefits of playing these games and spending too much time in virtual worlds,' says psychiatrist Jerald Block, who has written several high-profile articles about so-called 'pathological computer use'.

Critics of the notion of addictive computer use argue that there is nearly always another primary cause of the person's distress and that the addictive use is merely a secondary symptom. Block retorts, however, that while comorbidity is at nearly 100 per cent, the range of other conditions that computer addicts suffer from is so varied, 'it argues against a one-to-one relationship that someone is using their PC simply to compensate for this other disorder'.

In the case of virtual worlds, Block is particularly concerned that too much time and devotion to their avatar can loosen a person's grip on reality, leaving them in a psychotic-like state. 'The real and the virtual become equated as equally valuable. These people see themselves in either universe as equally real.' Defenders of virtual worlds answer that the social contact that's made online is real. Indeed, games like World of Warcraft positively encourage large-scale social cooperation, with many missions requiring that people form large-scale guilds of up to 200 people to achieve success.

people who are invested and engaged in their online communities. Doing research there is like going to a real-life laundromat and watching how people behave.'

Another avenue researchers are pursuing in virtual worlds concerns whether people's online appearance and behaviour affects their real-life self. In an as yet unpublished study, Jeff Hancock at Cornell University and Jeremy Bailenson at Stanford University recently asked 90 people to spend time in SL playing the part of either a tall or short avatar. 'What we're interested in is how use of these avatars affects the way people self-conceptualise,' Hancock explains. 'This is the idea that I look at the way I behave to understand who I am. We're finding people are also using the information they see about themselves online in virtual worlds to understand themselves in the real world. We're predicting that people playing the role of tall avatars will subsequently rate themselves as more attractive and dominant in the real world – something we're going to track over the six weeks of the study with questionnaires.'

Consistent with Hancock's predictions, other researchers have shown how people's avatars in immersive virtual reality (VR) affect their subsequent real-world behaviour (see box, 'Using immersive virtual reality'). Nick Yee and

his colleagues, for example, have shown that participants placed into taller avatars negotiate more aggressively in a subsequent real-life bargaining task; and that those placed in more attractive avatars subsequently disclose more information to a virtual stranger, and select more attractive partners in a later dating task.

'We've referred to the impact of avatar appearance on behaviour as the Proteus

"Doing research there is like going to a real-life laundromat and watching how people behave"

Effect after the Greek god who was able to change forms at will,' Yee says. 'These findings suggest that

a certain amount of social engineering could be performed in virtual worlds just by changing what avatars we give to people. For example, perhaps we can make a virtual community friendlier just by changing the avatar selection range.' The Proteus Effect raises some tantalising possibilities for therapeutic interventions. 'For example,' Yee ponders, 'perhaps a therapist could work with an individual with low self-esteem by modifying their avatar's appearance and practising pro-social and confident behaviour.'

Virtual therapy

It's early days, but psychological therapists

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and counsellors are already using virtual worlds to work with clients. I went to meet one such digital pioneer – SL counsellor Jack Leisen. As we arrive by teleportation module at his office, floating 600 metres above the ground, Leisen (real name John Wilson) tells me that his online clients seek help for a range of issues, including those that have arisen in their digital lives. 'I think people are often surprised at how quickly relationships can become meaningful in a virtual world,' he says. Other clients simply view SL as a convenient way to see a therapist, rather than travelling. 'They still have that experience of mentally moving to another space,' Leisen explains. Still others see virtual counselling as a way of getting ready for face-to-face contact. 'For some people it's an introduction,' Leisen says. 'It's the first time they've told their story and it's pretty harrowing. Afterwards they might decide that's all they need, or they might recognise that they need to take things further face-to-face.'

Kate Anthony, a psychotherapist and co-founder of the Online Therapy Institute (www.onlinetherapyinstitute.com), says that technological advances are putting power and choice into the hands of clients – they can choose how they want to work, whether by text, e-mail or in a virtual world. And if they want a different therapist they can find one at a click of the mouse. 'The main difference from face-to-face therapy,' Anthony says, 'is the lack of a physical presence. This cuts through all the white noise – the biases that a physical presence creates. It allows the client to be much less inhibited, so it's a much faster way of working. Also, with a client being able to create their own avatar, you can examine how people like to present themselves to people virtually, providing lots of material for examining how the client views themselves.'

Leisen/Wilson, who is trained in person-centred and solution-focused counselling, says that the lack of visual feedback from a client's real world facial emotional expressions, tone of voice and body language means that he needs to be explicit in asking how his clients are. However, he stresses that it is still possible to build up a meaningful therapeutic relationship: 'It's been the case that for a long time people have been deeply moved by the written word, and so it is with the way people express themselves in what they type online – their words can tell you a huge amount.'

One key issue on which experts are currently divided concerns the extent to which virtual world therapy can ever be a complete substitute for face-to-face therapy. 'I'm convinced that, in general, the "real" cannot be totally replaced with the "virtual",' says Alessandra Gorini at the Applied Technology for Neuro-Psychology Lab in Milan, where she conducts clinical research in virtual worlds under the supervision of Professor Giuseppe Riva. 'One of the most important things is the creation of a good therapeutic relationship between patients and their therapist, and unfortunately I cannot imagine a good and effective therapeutic relationship that was originally established between two avatars. That's why we suggest using



the virtual online sessions only if the therapist and the patient already know each other.'

Anthony, who co-authored the guidelines on online therapy published by the British Association for Counselling and Psychotherapy, disagrees. 'I think the time will come when technology is the mainstay of the profession and most people will use it in some shape or form. You could argue that Second Life is already face-to-face counselling – you've got two physical representations, and as they get more realistic and technology gets more sophisticated, the fact that you're not in the same room won't get noticed.'

Another striking feature in the evolution of virtual worlds has been the growth in online communities for people with conditions like cerebral palsy and autism, who would ordinarily find it difficult to seek each other out for support and companionship. Their real-

world abilities and strengths notwithstanding, the appeal is obvious of a digital world that allows people to cast aside the chains of their real life disabilities and assume an identity of their own choosing.

Psychologist Simon Bignell at the University of Derby has been investigating online communication patterns among people with autism and Asperger's for whom virtual world communities are proving to be especially popular (e.g. <http://braintalk.blogs.com/brigadoon>). Intriguingly, he's found little or no differences between the way people with autism communicate with each other online in SL and the way 'neurotypical' people communicate.

'This is bizarre, really,' he says, 'because you'd expect to replicate the deficiencies in their social communication skills from the real world. But I think the virtual world is levelling the playing field – a lot of people use text rather than the speech function, so this may be allowing people with autism and Asperger's to slow down the flow of information. It makes communication a bit like a flow of text messages: you have to be succinct, to the point and unambiguous, which suits people with a condition like autism.'

Virtual teaching

A related line of work that Bignell (avatar name Milton Broome) is involved in concerns using virtual worlds for teaching. The most immediate advantage to virtual teaching is obvious – people, wherever they are located in the real world, can congregate in the same virtual space to hear a lecture or engage in a tutorial. Bignell and his colleagues have gone further, asking what kind of virtual environments are optimal for teaching and how the creative possibilities of online worlds can be most effectively exploited to enhance teaching.

To this end, Bignell invited students to a series of virtual lectures, each time changing the environment according to their earlier feedback. He and his co-workers reached the point where 500 square metres of virtual space had been stripped back with all distractions removed. 'We came to the conclusion that actually very little is needed in a virtual classroom,' he says. 'The basic requirements are the space that people can be in, perhaps a platform to stand on, the students, the teacher and the content.' The students found it to be an odd experience at first, Bignell says, but eventually their attitudes started to change and most of them experienced

a sense of total immersion, rather like being absorbed in a captivating movie.

Other advantages to using virtual worlds for teaching include the fact that there is a playful element, so it can be easier to capture students' interest. The freedom of the worlds also allow lecturers to create virtual lab spaces and resources that might be out of reach in the real world. Looking ahead, Bignell is to lead a new six-month project called Preview-Psych, which aims to translate to psychology a series of problem-based learning methods that were designed at Coventry University for the virtual teaching of health and nursing.

One aspect of this involves setting up so-called 'intelligent avatars', which look like other avatars but are actually automated. 'By programming these avatars to approach students online, we can use this technology to steer conversations along a certain track,' Bignell says. 'You can get the robot avatar to introduce information on a topic, schizophrenia for instance, and then allow the student to reflect on that content in conversation. What's more, the intelligent avatar can play any role you want, whether it be the manager of a healthcare centre or a virtual therapist.'

Take the plunge

While some experts have raised concerns about the possible risks of virtual worlds, there can be no doubt that developments in the field are offering psychologists a multitude of new and exciting opportunities. Alessandra Gorini is particularly optimistic: 'The number of scientific publications on virtual reality for clinical applications has increased incredibly in the last few years,' she says, adding that it's great news that this year's International CyberTherapy and CyberPsychology Conference is to be held in Italy (www.e-therapy.info). This is important, she says, 'because it demonstrates the great impact that virtual realities are having, not only in the United States, but also in Europe.'

Simon Bignell, too, can barely contain his excitement at the prospects offered by virtual worlds. 'I think for psychology, this is the most exciting breakthrough, in

Using immersive virtual reality

Other psychologists are using virtual technology in a different way – creating their own virtual spaces and making them truly immersive, using headsets or vast floor-to-ceiling screens. 'You can think of immersion as being defined by whether you can just turn your head away from the virtual reality (VR) or not,' says Mel Slater (ICREA-University of Barcelona and UCL). 'If the answer's Yes, then that's not immersive VR. The other aspect is the extent to which your whole body is engaged. To look around you, do you turn your head or simply use your fingers on a keyboard?'

Slater was the lead author of a study that attracted huge interest in 2006 when he and his colleagues attempted to replicate Stanley Milgram's classic obedience research using immersive VR. The researchers found that as participants increased the voltage of the punishment they were inflicting upon the virtual 'learner', they showed all the physiological hallmarks of stress, even though they 'knew' the person they were punishing was not real.

This finding reflects a more general observation from immersive VR research indicating that people tend to respond in VR as they would in the real world. 'The best example is a hole in the ground,' says Slater. 'People's immediate reaction is to jump back from a deep precipice in a virtual environment, and they show all the signs of anxiety as if it were real. The next phase is a cognitive evaluation – they might say to themselves "I know it isn't there", calm down and actually step on the hole. Other people never get to that stage. The perceptual information telling them that there's a precipice is too powerful.'

Alessandra Gorini and her colleagues Giuseppe Riva and Andrea Gaggioli in Milan run an immersive VR lab with the specific purpose of testing therapeutic applications using a free open-source software (www.neurovr.org). They recently showed that immersive VR could be used to help obese patients reduce their response to stress, thus helping prevent one of the main triggers for their overeating. They are now planning a VR trial with people who have generalised anxiety disorder. 'We're using biofeedback combined with VR, to teach patients to control their anxiety,' says Gorini.

Immersive VR really comes into its own when helping people overcome their phobias, such as of spiders or flying. Compared with real-life exposure, virtual reality allows therapists to take complete control of the intensity and quality of clients' exposures to frightening stimuli. Such exposures can be ceased immediately, if necessary, and particular situations can be over-practised at will. 'Take the fear of flying,' says Gorini. 'Using virtual reality therapy during a single one-hour session, a patient scared by landings can practice several of them without wasting time and money with other aspects of air travel.'

terms of methods and techniques, that we've had for many years. We can simulate communities, we can simulate environments, we can simulate psychological processes in a safe and anonymous way, all the while having complete experimental control. I think we're going to see a massive expansion in the use of these worlds.'

For psychologists who've been convinced and can't wait to get started, Nick Yee cautions that the field requires a skills set that is seldom taught in psychological curriculums; social psychologists especially will not be used to having so many participants, and the large data sets mean everything is significant, so you have to use tools other than classic *p*-value based statistics to understand what's going on. 'For example,' Yee says, 'in our Second Life study, we created a tool that took behavioural "snaphots" of 80 participants over six weeks at five-second intervals. So while virtual worlds are a powerful platform to study interesting psychological questions, there's also a lot of start-up effort required.'

Aleks Krotoski agrees, pointing to the need for technical nous, and a powerful computer with fast broadband. She also

emphasises the commitment that is involved. 'You need to recognise that people will be disconcerted if somebody comes in and says "Hi, I want to analyse you". And you need to be aware that you're stepping into a community. I always advise ensuring that you give something back, and making sure people realise they're not being observed as if they're bio-molecules in a Petri dish.'

'It helps to establish yourself,' she says, 'not as a shining example of the community, but take a month to wander round, make sure you know the ins and the outs of the communities you want to study and that you familiarise yourself with the virtual etiquette. Fail to do that and you'll either get shunned or you'll impact the community in a way that will ruin it for other people and possibly destroy it completely.'

If you remain undaunted, Bignell says the first place to start is to download the free SL software from the internet. 'Get yourself an avatar, customise it and then just take the plunge.'

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