Understanding interaction in virtual worlds

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New cinema blockbuster, Avatar, leapt to the top of box office charts as soon as it came out — a stunning 3D realisation of an alien world. Our fascination with themes of escape to other fantastic places and the thrill of immersion in virtual environments also attracts millions to assume new identities in online virtual worlds.

Now researchers at The University of Nottingham, SRI International in Silicon Valley California, two Canadian universities — Simon Fraser and York — and online games developer Multiverse are to begin a new three-year international project examining online behaviour in virtual gaming environments.

The Virtual Environment Real User Study (Verus) will explore the relationships between the real-world characteristics of gamers and the individual activities and group dynamics of their avatars in online virtual worlds. Investigating how individuals interact within online environments will have many benefits.

Computer generated imagery (CGI) in the movies has made possible unprecedented levels of realism. The imagined other-world setting of Avatar, called Pandora, lived in director James Cameron's mind for 20 years before CGI could realise his vision — and he also opted for high-definition 3D to involve audiences further.

Cameron, the Oscar-winning director of science-fiction epics like The Terminator, Aliens and The Abyss, sits on the advisory board of one Verus research partner, Multiverse. CGI in movies has developed in

tandem with technological advances in computer games development, and some games sales are overtaking movies.

After its launch in November, computer game Modern Warfare 2 became the biggest entertainment product launch in history, yielding sales of $550 million in five days.

Researchers have already been studying virtual world environments, not just to help enhance the entertainment value of online games, but also to increase their effectiveness as tools for teaching and learning, professional training and collaborative work. To date, however, few coordinated investigations of virtual world behaviours and real-world users have been conducted across different cultures.

To address this shortcoming, Verus researchers will recruit volunteers and observe their gaming activity at multiple locations worldwide. The studies will take place in computer laboratories, Internet cafes and other popular gaming environments. In these settings, researchers will interview and track the volunteers as they play online in virtual worlds such as Second Life and World of Warcraft, as well as in other virtual environments that have been specially designed for the project.

Dr Thomas Chesney, Lecturer in Information Systems at Nottingham University Business School, is co-Principal Investigator with Dr John Murray from Silicon Valley-based SRI International, a leading independent non-profit scientific research institute.

Dr Chesney said: "Virtual world interfaces are likely to increase in popularity and they could even become the main way we access information in the future. SRI has assembled an international team with complementary strengths to study virtual world behaviour and it is an honour to be part of that.

"This project has the potential to contribute significantly to our understanding of computer mediated communication," he added.

John Murray PhD, who leads the project at SRI, said: "We have formed a strong, multidisciplinary team of international researchers and organisations with extensive knowledge of behaviours in virtual worlds, as well as in experimental economics, social and behavioural sciences, education research, linguistics, cognitive engineering and artificial intelligence."

"We anticipate that the study's findings will significantly enhance SRI's existing capabilities in the study and use of virtual worlds, especially for our work for clients in the fields of education, simulation and training."

The research will be carried out in collaboration with other academic colleagues at Simon Fraser University in British Columbia, Canada, and York University in Toronto, Canada. Multiverse, a leading gaming platform developer in California, which will provide specialised virtual environments for the study.

The controlled gaming experiments will take place at Nottingham University Business School in the United Kingdom and at Simon Fraser University and York University in Canada. Research will include human-computer interaction studies, user surveys and questionnaires, on-site participant observations and other ethnographic methods of study.

The team will invite participants to contribute their own perspectives on their avatars (virtual identities) and themselves, and explain how they see and experience the virtual environments in which they play.

Education Professor Suzanne de Castell from Simon Fraser University in British Columbia, Canada, said: "A small sample will be, initially at least, studied more in depth to see whether using technologies like eye

tracking and skin temperature may reveal significant objective physiological correlations between players' real-world states and virtual-world situations and activities."

Director of Nottingham University Business School in the UK, Professor Leigh Drake, added: "Our expertise in experimental and behavioural economics, and relating to behaviour in virtual worlds, combined with the additional strengths we will contribute from our role in The University of Nottingham's Horizon Digital Economy Hub, represents a significant contribution to this project.

"We are delighted to be working in partnership with Simon Fraser University and York University in Canada, where we already have strong links with faculty at the Schulich School of Business through our research in issues relating to sustainability and business ethics."

Provided by University of Nottingham