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Me, Us and IT: Insiders' views of the complex technical, organisational and personal elements in using virtual worlds in education

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Abstract

The adoption and pedagogical use of technologies such as virtual worlds to support teaching and learning, and research in higher education involves a complex interplay of technical, organisational and personal factors. In this paper, eighteen educators and researchers provide an overview of how they perceive a virtual world can be used in education from the perspective of themselves as individuals 'me', their educational organisations and as members of the Australian and New Zealand Virtual Worlds Working Group (VWWG) community of practice 'us', as well as the complex technology that underpins this learning environment 'IT'. Drawing on Linstone's (1981, 1984) Technical, Organisational and Personal (TOP) multiple perspective concept as the framework for analysis, the authors discuss their perspectives of how the personal, organisational and technical aspects of teaching through the use of virtual worlds have impacted on their teaching and research in higher education. The potential of employing the TOP framework to inform future research into the use of technologies such as virtual worlds in teaching and learning is explored.

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The adoption and pedagogical use of technologies such as virtual worlds to support teaching and learning, and research in higher education involves a complex interplay of technical, organisational and personal factors. In this paper, eighteen educators and researchers provide an overview of how they perceive a virtual world can be used in education from the perspective of themselves as individuals 'me', their educational organisations and as members of the Australian and New Zealand Virtual Worlds Working Group (VWWG) community of practice 'us', as well as the complex technology that underpins this learning environment 'IT'. Drawing on Linstone's (1981, 1984) Technical, Organisational and Personal (TOP) multiple perspective concept as the framework for analysis, the authors discuss their perspectives of how the personal, organisational and technical aspects of teaching through the use of virtual worlds have impacted on their teaching and research in higher education. The potential of employing the TOP framework to inform future research into the use of technologies such as virtual worlds in teaching and learning is explored.

Introduction

The Australian and New Zealand Virtual Worlds Working Group (VWWG) began in 2009 seeing a need to bring together researchers from Australia and New Zealand to discuss how virtual worlds could be utilised in higher education institutions across the two continents. This paper draws on Linstone's (1981, 1984) multiple perspective approach to explore the experiences of Australian and New Zealand higher education academics in employing virtual worlds technologies in their teaching and learning. Using Linstone's (1981, 1984) Technical, Organisational and Personal (TOP) multiple perspective concept as the framework for analysis, eighteen educators who are members of the VWWG explicate the

complexities of employing virtual worlds in higher education. These experiences are viewed through the lens of TOP, which considers their personal perspectives as teachers, researchers and individuals with a social presence in virtual worlds 'me', the organisational context of the educational institutions in which they work, as educators within the virtual world social context, and as members of the VWWG community of practice 'us', and the technology of virtual worlds, referred for the purpose of the paper as Information Technology 'IT'.

Literature review

The design, deployment and use of virtual words within educational institutions can be thought of as a messy (Courtney, 2001), 'wicked' problem (Rittel & Webber, 1973). In recent times, virtual words have had to deal with a decline in support within educational institutions, both in focus and financial resourcing as initial grant money has dried up. As the findings of a study conducted in 2013 suggest, organisational factors such as lack of available technology and institutional support in terms of technology, funding and teaching accounted for a majority of educators no longer teaching in virtual worlds (Gregory et al., 2015). Thus, initial fervour turned to disillusionment on the part of institutional leadership about unmet expectations that were based on more hype than fact. In the intervening time, lessons have been learnt about how to best apply the technology within educational settings as demonstrated by the work of researchers in the Australian and New Zealand Virtual Worlds Working Group (Gregory et al., 2016, Gregory et al., 2015, Gregory et al., 2014). As a result, virtual worlds have been rising up from the 'slope of enlightenment' and are now placed on the 'Plateau of Productivity' (Lowendahl, 2016, online).

Yet, across Australasia, particularly, Australia and New Zealand, many virtual word practitioners still face considerable barriers in developing, deploying and using virtual worlds in their institutions. Such problems can be described as having multiple, evolving facets, where technical elements are complex and interconnected, and where stakeholders have different and sometimes contradictory aims. The research undertaken by educators who have been striving for a long time to develop creative and holistic resources and best use deployments of virtual worlds, offer great insight into the nature of the problems faced by educators in using such tools. They have deep insight into the nature of the benefits that can accrue from carefully considering matching technology and desired educational outcomes. The authors of this paper, a diverse group of educators and researchers in virtual worlds within higher education, offer multiple perspectives on the problem from an insiders' point of view. As experts, they offer insights from diverse perspectives and represent a range of educational institutions; from metropolitan research focused

universities, to multi- and single-campus regional institutions from every part of Australia and New Zealand. The authors draw upon their personal insights and reactions to their struggles and hopes for virtual worlds in education in the broadly interpretative tradition as per Schwandt (1994). In the practical situation of using and thinking about virtual worlds occurring in a social context, Markus (1983) argues that in complex systems projects insiders such as a project team member, as an individual educator, as a system support person or learning designer, are aware of the role of the non-technical aspects of the job at hand and the desired outcomes of applying virtual worlds. Thus, we as insiders are considered as intelligent, thinking, creative and self-aware and more than capable of contributing in their own right to the research effort. By combining insights from multiple experts and contexts, we are able to build a richer understanding of the phenomena. In seeking to understand their diverse perspectives, the theme of 'me', 'is' and 'IT' is explored using Linstone's (1981, 1984) TOP multiple perspective concept framework for analysis. Linstone's ideas have been used in complex problem analysis for well over three decades. The approach recognises the limitations of focusing only on the technical aspects in complex real-life systems, arguing that the technical perspective needs to be augmented by the organisational/institutional and personal/individual perspectives to make sense of the complexity of systems operating with organisational contexts. For Linstone (1981, 1984) to understand the sociotechnical environment in which systems operate, we need to move beyond reductionism, which assumes that all problems can be solved from a technical perspective. The multiple perspective approach, therefore, requires consideration not only of the technical, but also organisational factors such as the dynamic processes that impact on systems as well as the individual actors within the system. Each individual brings with them personal characteristics such as their ability to learn and adapt, their power and influence within the organisation and how they utilise these characteristics as leaders or followers. We are also reminded by Avison and Myers (2002) who argue that 'qualitative' is not equivalent to 'interpretive'. This means there is a role for some descriptive numerical analysis of the perspectives we have collected in the aid of understanding.

The TOP multiple perspective approach provides a useful lens through which to consider the complex technology that drives virtual worlds (T), the organisational context within educational institutions that employing virtual world technologies and the community of scholars surrounding virtual worlds (O) and the personal characteristics of educators and researchers who are employing virtual worlds in their learning and teaching (P). In the following sections, the authors apply the TOP multiple perspective approach as the theoretical foundation for understanding the 'me'

(Personal/Individual), 'us' (Organisational), and IT (Technical) factors impacting on their experiences teaching and researching in virtual worlds and as the lens through which they share their experiences as a diverse group of virtual world insiders.

Me, Us, IT: a complex ecosystem

Like all learning environments, the elements and relationships that constitute the educational use of virtual worlds are multiple and complex. The prism of 'me', 'us', IT and the TOP multiple perspective conceptualisation provides a concise structure with which to unpack this dynamic complexity, as shown in Figure 1. As the diagram shows and the next sections describe, the complex ecosystem in which we teach and research constitutes three elements: the technology (IT, in this case 3D virtual worlds augmented with other learning technologies that offer particular pedagogical affordances); the organisation comprising our higher education institutions including our colleagues, learners and university service providers including technology services, as well as the VWWG community of practice 'us'; and the person 'me', who fulfils the role of educator, researcher and social individual.

Me (Personal/Individual)

Me represents the personal perspective. As practitioners, we engage with the combination of IT, virtual worlds and pedagogy in more than one role; we are educators, researchers, and individuals with a social presence in these environments. The role of 'social individual' is included in this category because many practitioners have a social presence within virtual worlds that, in addition to satisfying social needs, can also feed into their teaching and research. This could be through learning more about the intricacies of the platform by frequent use and experimentation, through direct mentoring from other users who are not educators, or simple observation of what others are doing in situations that have nothing to do with education. While not unique to virtual worlds, given that most virtual worlds were established primarily as social networking platforms, the social aspect of engagement in virtual worlds is an important element in understanding the ways in which individuals interact within virtual world environments.
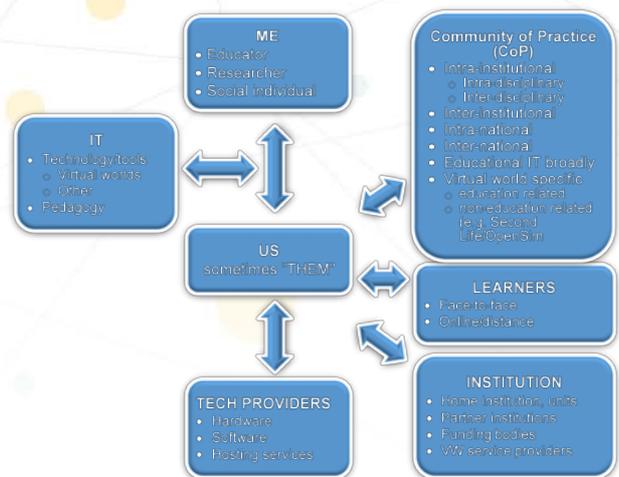

Figure 1: *ME, US, IT: A complex ecosystem*

Us (Organisational)

Us represents the organisational perspective of institutions and of the relational dynamic that occurs in a complex web of different players, both within and without the virtual world environment. Some of the members of this complex web include IT support, faculties and departments, university management and teaching support centres. Others, such as 'Tech Providers' are included separately because of the dialogue that frequently occurs between users of the various virtual world platforms and the platform providers and hosts that, at times, leads to mutual insights, growth, and development. While it could be argued that 'Tech Providers' should also be included in the community of practice (CoP) (Wenger, 1998), we would argue that, as they are primarily commercial providers of a service, they answer to a broader constituency and have a larger mission than just educators and education, with this segment of their constituency often being considered minor, yet, they are important, players.

When reflecting about 'us' two streams were evident: (a) the community of practice that the educator was able to be part of, and (b) the affordances of virtual worlds to provide educational experiences for students. The place of the VWWG within the community of practice has served as an important linking mechanism between geographically dispersed individuals and clusters and has itself become hub of an Australasian virtual worlds community of practice.

IT (Technical)

IT can represent literal 'IT', that is technology and the perspective of technology developers, support services and vendors. But, it can also represent other things through 'it', a crucial one being pedagogy. Indeed, it could be argued that IT (technology) on its own merely represents an opportunity waiting to be exploited. In the field of virtual worlds, platforms such as Second Life and

OpenSim exemplify this idea perfectly. In each case, users are provided with a blank slate, an empty, highly customisable, 3D environment, underpinned by a range of technological affordances. However, it is left up to the users to create the uses of the environment provided. For educational uses of virtual worlds, the most crucial factor is the combination of and intersection between, technology and pedagogy. The usability characteristics of the technology tools themselves, such as stability and cost and play an important part in the ability for individuals, 'me', and organisations, 'us', to viably adopt and adapt virtual words to their teaching practice.

Methodology: community of practice

Members of the VWWG were asked to provide their insights into 'me', 'us' and 'IT' in relation to their experiences of using a virtual world at their institutions. A request was distributed to all members of the VWWG inviting them to contribute to this publication by responding to a series of open and closed questions incorporated into an online survey. These questions included closed questions aimed at identifying the discipline in which they use virtual worlds for teaching and the sorts of activities undertaken through virtual worlds. Open questions focused on the themes, 'me', 'us' and 'IT', and also sought to identify any challenges they have experienced teaching and researching in virtual worlds.

A total of 19 VWWG members responded to the survey. Responses to closed questions provided background information for this paper, and responses to the open ended questions were thematically analysed to identify the experiences of the respondents in relation to the 'me', 'us' and 'IT' themes, drawing on the TOP multiple perspective approach. The findings from this study are reported in the following sections.

Respondents discuss the 'me' aspect of their virtual world experiences

Thirteen responses were received in regards to what virtual worlds meant to 'me'. The responses were categorised into five themes: frustration; less active; engagement, innovation and unrestrictive; and collaboration without borders as shown in Figure 2.
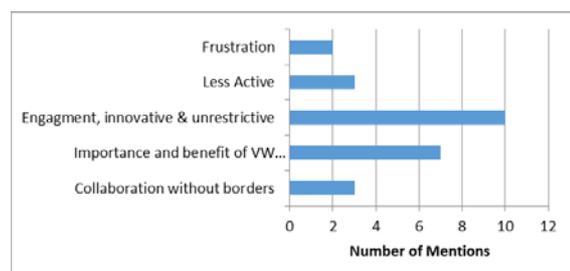

Figure 2: Five themes of 'me' in relation to virtual world education

Themes and individual responses in relation to 'me' are discussed further.

Frustration: Two of the responses outlined the frustration they felt in terms of the lack of support virtual worlds receive. This included the challenges in finding funding to support and maintain usage, and the isolation felt due to the lack of willingness to engage with virtual worlds.

Less Active: Three responses indicated that they had become less active with virtual worlds. This was due to workload, focussing only on educational use, and funding pressures as previously outlined. In all cases, the passion for virtual worlds remained and it was external forces that led to reduced usage and frustration.

Engagement, innovative and unrestrictive: The most common element with ten responses centred on the positive aspects of virtual worlds and the way they foster engagement, inspire innovation and removed many of the restrictions faced in the real world or two-dimensions (2D) communication technologies. This was expressed in two ways. Firstly, was in terms of the benefits to teaching and learning the individuals gained from applying virtual worlds in a teaching application. This was based on how virtual worlds increased engagement and allowed for solutions to problems currently unavailable or less effective via other means. Secondly, in terms of the benefit directly to the individual, for example, one response was, 'What I like about virtual worlds is that I can experience them as 'me' or even 'alternative me's'. I have about thirty avatars and which one I use depends on how or who I'm feeling like. Virtual worlds allow me to learn as 'me'.'

Importance and benefit of virtual world pedagogy: The importance in using virtual worlds with the appropriate pedagogy was raised by seven of the respondents. While many virtual worlds such as Second Life have large social networking aspects, comments outlined that their focus was centred on education. Using virtual worlds requires careful consideration of the correct pedagogy that integrates with their affordances.

Collaboration without borders: Three respondents outlined how the technology enabled communication and collaboration with users located across the world. The flexibility and scalability of virtual worlds enabled for more immersive conversations than can happen elsewhere. For example, a study by Lee, Nikolic, Vial, Ritz, Li and Goldfinch (2016) demonstrated how effective a virtual world could be when used to improve the broader aspects of project work with students and staff located across two continents with industry representatives located across the globe. The interaction with the offshore students and industry representatives helped reduce the confusion and frustration often faced in the initial, critical stages of open-ended, project-based

learning. This led to a measured increase in learning and students becoming more confident and an improvement in their skills.

Some other comments from respondents in relation to 'me' were:

> Virtual worlds opened up my horizons. They can provide a perspective that cannot be experienced readily any other way. It is hoped that virtual worlds will offer a deep and rewarding immersive role play environment in which to foster empathy and regulatory fit. However, they still suffer from 'non-support fatigue'. The 'me' must keep finding funds and support to maintain the use of them.

Another respondent made the following comment:

> At a personal level, the 'me' level, the powerful combination of virtual worlds and communities of practice was revealed to me very early on. I believe I am a much better, and certainly much better informed, educator as a result of my participation in Second Life and the communities, both virtual and real world, it has exposed me to.

> In addition to this growth as an educator, working with the virtual environment of Second Life (and subsequently OpenSim) has forced me to learn a whole range of other skills that I may well not have learned otherwise. The use of virtual worlds has also, over the years, opened up many opportunities for collaboration, research, publication and obtaining research funding. Virtual worlds, task-based learning, simulation, immersive learning, etc., are still providing me with ongoing opportunities to do all of these things.

Us – In the virtual world

A strong voice came through about collegiality and a true sense of an authentic Community of Practice (CoP). This was evident regardless of the level of experience that the educator had in the virtual world as one new user claimed that the users of virtual words that they were fortunate to have interacted with, proved to be collaborative and dynamic educators. Other users had been extremely helpful when they encountered the many blocks that can occur initiating virtual worlds into the curriculum. This 'less than encouraging environment' meant that 'users band together to be supportive' and many have found that 'the CoP group inside virtual worlds, share more than any other group of colleagues with whom I have ever had the pleasure of dealing'.

Often educators are the only one within their institution using virtual worlds and as such the need to find a CoP outside of the physical space is extremely important. The VWWG has sought to provide this space and special

interest groups have developed in tandem to the main group. One such group was the virtual worlds PhD group. This brought together higher degree research students who were using virtual worlds as part of their research. One participant described this as 'a truly authentic experience as we used the technology we were researching'. The meetings held by the VWWG and sub-groups enabled geographically dispersed individuals to come together with a true sense of presence, as though they were in the same space and sharing the same experience. This meant that 'we can share a table, a meeting, a laugh or a project as if we are actually meeting in the real world'. 'There is a sense of shared presence that you just don't get when using other technologies'. 'By sharing the virtual space with our colleagues, we become 'us'.'

As educators working in what is still a new technology in terms of uptake in the higher education community, the authors feel that it is important for 'us' to drive the process. This includes continuing to partake in research that includes virtual worlds and to set the goals and designs for how a virtual word will work if they are to have mainstream acceptance. It is the 'us' that are the leaders in these fields and should be assisting other teaching staff and institutions in how to deploy of virtual word as a turnkey educational technology.

As many of 'us' work in online and blended learning environments, the challenge of providing students with authentic experiences in which we develop relationships and provide parity of experiences is vitally important. Virtual worlds provide students located in different locations to participate in activities where they feel a sense of community, in which the activity is about 'us', as they interact via the avatar they have embodied. As educators using virtual worlds, we believe in the effectiveness of teaching and learning in a virtual environment having experienced the benefit to students through the presence we and they bring to the activities.

Thirteen responses received were in regards to what virtual worlds meant to 'us'. The respondents referred to the term 'us' in two different ways. This includes as a virtual world user community and as educators represented in Figure 3.
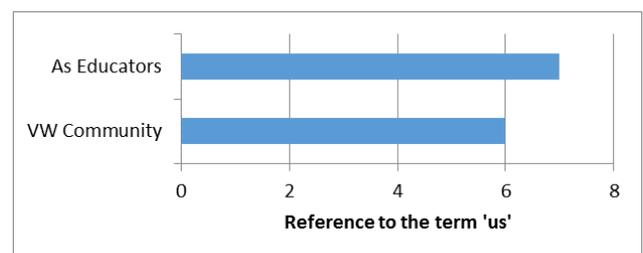

Figure 3: 'Us' in relation to virtual worlds (vw)

Most respondents considered the term 'us' as educators and discussed in two different contexts. The first, by only one respondent, was that as a virtual world supporter within a university the 'us' is small with little support to further develop the area. The other respondents described 'us' as the benefits that virtual worlds bring to the community of teachers, students and other participants that engage with it for teaching and learning. For example, statements included 'I can share virtual space with my colleagues and we become 'us'.' And, 'What's important about virtual worlds is the community it has the potential to build'.

The other six respondents consider 'us' in terms of the VWWG. A common theme across the responses was the collegial and supportive environment of the group with the sharing of experience and research, forging many friendships along the way. It was highlighted that members of the group were leaders and were responsible and needed to help others appreciate and adopt virtual world technologies.

From the point of view of the university as a group 'us', there appears to be scant support for further development in the area. It remains a niche enterprise taken on by passionate individuals. It has yet to become mainstream. Virtual worlds allow participants located in different locations to appreciate activities where they feel a sense of community in which the activity is about 'us', removing the lack of student engagement and that feeling of isolation found with typical online learning opportunities. The 'us' allows more people to participate in the learning journey, be it students, industry or teaching staff from around the country or world.

IT (Technical)

Ten responses received where in regards to what virtual worlds meant to 'IT'. The respondents referred to the term 'IT' in three different ways, with one respondent referring to two. 'IT' was discussed in terms of the user; technology infrastructure and support; and exploration and potential as shown in Figure 4.
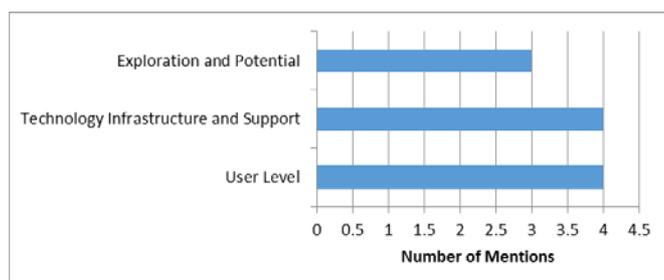

Figure 4: IT in relation to virtual worlds

Many respondents discussed the user component of IT referring to technical capability, adaptability and familiarity with the technology. This includes the way younger and older generations interact with the

technology and how, by using the technology, we enable our students. Younger participants in particular tend to adapt to the technology very quickly, but in turn need some motivation to try new technologies to become aware and familiar with the application. Older participants less familiar with technology can need some assistance in understanding the fundamental concepts. A study by Nikolic, Lee, Goldfinch and Ritz (2016) assessed the implementation of a virtual world careers fair and found students would not necessarily engage with new technology without a motivator. Within the study, it also found that those not familiar with the technology can benefit from an in-world (in the virtual world) help desk prior to the beginning of events.

Similarly, just as many respondents outlined the impact that infrastructure and IT departments have on the experience. One respondent believed that IT is becoming invisible, while the other three respondents discussed the struggles implementing virtual world learning has with their interaction with IT support. They claim that 'IT support struggles with understanding what virtual worlds are and how they are used in teaching'.

The other three comments referred to 'IT' as a place to trial and use technology. It was important to explore technology, that it is always changing and there are always many new developments on the horizon for educators to explore. It was also noted that many of the new technologies on the horizon will merge with virtual worlds leading to new opportunities. The technology in virtual words remains a stumbling block for wider spread adoption. Their use in education still requires a level of technical skill that is beyond the average academic or the funding available.

A challenge in using virtual worlds is IT on two levels. First is in getting the technology to work (overcoming IT policies) and the non-standard computer setup of participants. Logistical management is key and is not for everyone. But, by getting people to participate in such events, the opportunities provided by technology gain greater familiarity and awareness which may provide some hope. Secondly, IT departments have been increasingly aware and helpful in supporting virtual world opportunities. However, there is still a lack of financial support in providing long term licenses and rolling out the technology across all users to help support the initiatives and increase greater take-up.

Conclusions

The findings reported in this paper provide greater understanding of educators and researchers' perceptions of how a virtual world is used by the individual 'me', the group 'us' and how 'IT' has impacted on its use. It is clear from the responses that virtual worlds are complex ecosystems and that their use in teaching and learning,

and as sites for research, needs to be understood in the context of wider organisational considerations in which the individual educator and researcher plays a critical role in championing the use of virtual worlds for education, while also navigating the complexities and messiness that comes from working within an organisational context, which is itself complex and dynamic, and subject to limited resources and support. The complexities of the virtual worlds technology bring particular challenges that require the commitment and dedication of educators to resolve. The findings also show the benefits of educators and researchers collaborating through the VWWG community of practice as an element of the organisational context that can support educators in navigating the complexities of using virtual worlds.

The TOP multiple perspective approach helps to make sense of these complexities and provides a valuable framework for assisting educators and researchers to explicate the factors that make up the complex ecosystem in which they teach and research. The TOP multiple perspective conceptualisation has potential as a framework for analysis of other technological implementations within higher education.

Overall, the authors believe the value of virtual worlds in education is enormous and will continue to espouse their benefits to the wider community as they navigate and problem solve the challenges experienced in their teaching and researching in virtual worlds. They have individual stories to tell, but they also provide a group story, from across continents through their community of practice, the Australian and New Zealand Virtual Worlds Working Group. As the findings of this study show, the members of this group use virtual worlds as individual teachers, researchers and social beings 'me', and as members of an organisational context comprising their higher education institution and the VVWG community of practice 'us' to support their teaching and research enabled through the virtual worlds platform 'IT'.

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