Market research within 3D virtual worlds
An examination of pertinent issues

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This paper presents a review of extant literature about virtual worlds market research. We discuss the need for greater recognition of differences to traditional online and e-commerce web services, including social media. Our review considers what makes virtual worlds different and of particular interest to market researchers, including an overview of Second Life. We examine the issues faced and analyse how these link to research processes. We conclude that there is a need for a deep understanding of how user-participants behave ‘in-world’. This article contributes by raising awareness and informing the market research community of pertinent issues.

Introduction

Virtual worlds have become popular cyberspaces where multiple participants can simultaneously experience a rich 3D environment for play and more serious commercial endeavours (Ciaramitari 2010). They represent an important new market research area, as:

- they represent a substantial international market
- they have created a new place to enact the social (after Law & Urry 2004)
- due to convergence, virtual worlds are moving into new areas such as mobile
- aspects of virtual world technology are increasingly being used in a wide range of real-world marketing activities.

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We argue that market researchers need to understand and adapt to the challenges presented by this new technology, which is different to social media such as Facebook and Twitter. Boellstorff (2008) defines a virtual world as a place where human culture is realised through computer software and the internet, while other authors consider virtual worlds as part of the wider domain of massively multi-player online games (MMOGs) (Malaby 2007; Smart et al. 2007). Fantasy role-play games in the Dungeons and Dragons tradition were initially largely a male-dominated social phenomenon but, more recently, social virtual worlds have transformed into 3D marketspaces. Contemporary social virtual worlds are more persistent and interactive than the average commercial internet site – they offer ‘immersive’ consumer experiences, which means they have attracted a broad range of users. There are now more than 300 commercially orientated worlds, owned by organisations ranging from the military to Walt Disney®. It has been reported that more than 1.4 billion users (Kzero Research 2011) engage in some form of online social virtual environment with a global economy worth more than $6 billion (Castronova 2010).

Enabled by the growth and accessibility of the internet in both western and eastern cultures, the gothic fantasy role-playing game World of Warcraft has 12 million users, almost 50% of which are Chinese (Blizzard Entertainment 2010), while Asian virtual worlds Fantasy Westward Journey and Zhengtu Online have exceeded this figure (Van Geel 2010). Castronova (2001) first attempted to estimate the size of virtual economies and found they were potentially similar to those of a small country. Indeed Second Life, launched in 2003 by Linden Labs, compares the size of its virtual land mass to a CIA list of real-world countries (Linden Labs 2011). Second Life facilitates user-generated creation and interaction through avatar experiences, and reports an astonishing marketplace economy worth over US$28 million and a trading history of more than US$1 billion (Linden Labs 2011). A grey economy has emerged based on selling assets traded or won in games such as World of Warcraft for real-world currencies, known as ‘gold farming’ (Heeks 2008), and the sale of other virtual artefacts. Despite concerns about gold farming, both internally within China and externally, Heeks (2008) suggests it has some benefits and, recently, a World Bank report proposed that the virtual economy has a comparable growth potential to that of emerging economies (Lehvondirta & Ernkvist 2011). Given the scale of social interaction, commercial participation and trading capability evidenced by these examples, surprisingly little market research has been undertaken to date. This is a serious omission since, as
social scientists, marketers should be interested in any location where new types of social activity are enacted (Law & Urry 2004).

Virtual worlds combine multi-player game technology with social networking and, as such, are more technologically advanced than the average internet site or weblog (blog). This means that research techniques developed for the internet may not necessarily be directly applicable in this new environment. Brady et al. (2002) researched the integration of information technology into marketing practice and suggested that ‘academics need to study current and potential impacts and advise on future developments’ (2002, p. 569). Market researchers are also interested in brand and consumption communities within virtual worlds where value for the organisation is derived from the information it may generate from individuals, its ability to segment consumers with particular characteristics and the extended reach to unserved consumers it may afford (Kozinets 1999). We therefore propose that there is justification from social science, technology and marketing perspectives for research into this new marketing landscape. Research must, however, take account of the challenges faced by the research context and this paper seeks to address some of those identified. First, we consider what makes virtual worlds different and which virtual worlds may be of particular interest to market researchers. Next, we give an overview of Second Life. We then examine the issues faced by researchers, including the nature and scope of virtual worlds, and analyse how this links to the research process. The implications for market researchers are discussed before the conclusion.

**What makes virtual worlds different?**

For a researcher it is important to understand how virtual worlds are different to web browser environments, the range of virtual worlds and the research opportunities they offer. We identify here five key differences, as follows.

1. Users take the form of avatars – graphical representations of themselves. The environment enables practice for real-life experiences (Howard 2008), where avatars can be seen as extensions of real-world identities (Kelly 2004). The virtual-world avatar is perhaps best described by Hemp (2006): ‘Avatars are endowed with mannerisms, skills, and wardrobes that their users create (employing a variety of software tools), purchase (from in-world stores), receive as gifts (from other avatars), or earn (through in-game achievements). Indeed while avatars’ anonymity is part of their appeal, many people take considerable pride in their
creations as public expressions of hidden aspects of their identity’ (2006, p. 52). Some organisations have now recognised the power of using characterisations with their traditional online offers – for example, O2 has introduced 2D avatars to its websites, apparently to increase interactivity. Within virtual worlds, however, avatars have become increasingly sophisticated, from being purely character manipulation to more about customisation and full character control, e.g. Super Mario, The Sims, Second Life (Meadows 2008). Related to this, there are a number of key challenges for researchers to consider if they wish to operate within a virtual world in avatar form.

2. The software creates an illusion of a 3D explorable space. This has created a new marketing landscape where ‘web pages become digital places’ (Cagnina & Poian 2009, p. 51). There is a continuum of virtual worlds, from ludic worlds with role play and game objectives, such as World of Warcraft, to paediac worlds that are centred on social networks and activities, such as Second Life (Pearce & Artemesia 2009). Sanchez (2009) states that differences arise from the nature of role play and the extent to which activities mimic the real world.

3. Thousands of users can interact in real time. Virtual reality provides ‘enhanced support for work and interaction between remote participants by delivering a common world of digital data and virtual objects for co-participants to discuss’ (Hindmarsh et al. 2006, p. 96). Only a minority of internet users co-create in, for example, Wikipedia, whereas in Second Life around 50% of users may contribute content. According to Ondrejka (2007), by way of comparison, collaboration in blogs and wikis is still sequential and asynchronous. This has led to the creation of the avatar employee, with companies such as IBM and Sun Microsystems having private spaces where their employees may work together. Indeed Second Life has been described as an exemplar of firm–consumer co-creation in action (Bonsu & Darmody 2008). Therefore, these aspects offer potentially intriguing consumer behaviour research opportunities. As a social phenomenon (Dann 2003), virtual worlds enable different levels of interaction where participation may be passive, active, immersive or absorptive (McLellan 2000). This has created a new social environment, although research by Yee and colleagues (2007) suggests that the social interactions in Second Life ‘are governed by the same social norms as social interactions in the physical world’ (2007, p. 120).
4. These worlds are persistent, which means they continue when the user leaves and ‘remember’ the location of possessions. This means that users may have a wide range of possessions and an inventory which they can keep, and indeed make available to others, while they are away. The analogy of a virtual world and its dichotomous comparison to the real world has arisen from gaming cultures that describe ‘in game’ contexts from ‘out of game’, using the term ‘magic circle’ (Salen & Zimmerman 2004) to differentiate between play and ordinary life. Therefore these are constructed environments and the underlying technical construction is based on the MMOG format. This means that factors such as space, population, identity, relationships (risk and trust), institutions, economy, goods, law and politics apply differently (Castronova 2004; Lastowka 2007; Lehdonvirta 2009). There are also considerable ethical issues to consider within environments where everything may be recorded either overtly or covertly.

5. There are potentially multiple means of communication, via text chat, instant messaging and voice, as well as access to the internet, Skype, etc. Virtual-world 3D environments use voice over internet protocol (VOIP) technologies, which enable new ways of communication, collaboration and cooperation enabled through the internet (Fetscherin & Lattermann 2008).

While it has also been observed that currencies are present in many virtual worlds (Messinger et al. 2009), only Castronova (2001) suggested that this was a key characteristic. Consequently those worlds that have the means of facilitating exchange are potentially of greater interest as markets to marketing researchers. Further, virtual worlds like Second Life and Entropia Universe have currencies that have exchange rates pegged to real-world currencies, with real-world economies meaning that the virtual and real worlds can potentially create stock-market-like interactions. Therefore we consider that these virtual worlds offer most potential interest to market researchers and, as such, we use Second Life as our main exemplar.

The discussion so far has identified some key differences between virtual worlds and web browser environments. Virtual worlds ‘can be explored, travelled and engaged with from multiple perspectives, with each user participating in and interacting upon the virtual space in real time’ (Cypher & Richardson 2006, p. 3). These ‘technological artefacts’ are mediated by computer or smart device (e.g. tablet or mobile phone) between a sender
and receiver, and may feature virtual products that can be exchanged by users (Lehdonvirta 2009). They are spaces shared by thousands of users simultaneously, and persistent wherein the world continues after users log out (Book 2004). Overall the greater interactivity, including the use of avatars, allows new forms of collaboration and co-creation opportunities in a social environment that is more immersive, informationally rich and technically challenging as a participative and commercial space.

Second Life has been described as the first virtual world to realise the vision of a ‘metaverse’ – a successor to the internet (Stephenson 1992; Atkins 2008). Within Second Life there is a type of virtual-world play that is described as simulating real life, hence it is often described as a ‘mirror world’. Second Life, for example, allows ‘residents’ (avatars) to buy land, build houses, set up businesses, meet friends, hold events and ‘live’ in an international and multicultural 3D environment. Organisations as diverse as IBM, CNN, the American Cancer Society and more than 200 universities, such as Harvard and INSEAD, have invested in Second Life, either through purchase of ‘land’ or time and other resources. Second Life has differentiated itself from other virtual worlds by allowing individuals and companies to keep the intellectual property rights of assets they create in-world. The virtual economy is based on the Linden Dollar, which has an exchange rate pegged to the US dollar, while currency may be moved into the real world (Moody 2009). Furthermore, Hemp (2006), who first coined the term ‘avatar-based marketing’, has suggested that online personae could be analysed and segmented as a potential new customer group. The avatar-as-consumer also creates a new market research challenge as, to meet avatars, the researcher has to become an avatar. Added to this, little is understood about what avatars consume in Second Life; Kzero Research (2008) suggests that people are predominantly consuming virtual articles for their avatar, such as clothes or their home. Indeed some market research agencies, such as Kzero Research, now offer this research speciality to virtual-world investors.

Market research into brands in virtual worlds is in its infancy. Residents’ perceptions of the brand value of real-life brands within Second Life were found to vary considerably, and were affected by the residents’ experience of Second Life rather than age or gender (Barnes & Mattsson 2008). Further research, using axiology, found both brand category and brand offering fit with the virtual world were significant (Barnes & Mattsson 2011). This emphasises the need for market researchers to understand each specific virtual-world context. Indeed, recently Muzellec et al. (2012) have developed a new brand typology for virtual, real and hyper-real brands.
(i.e. real brands realised in a virtual format), and suggest that virtual brand equity may be leveraged either in-world or by reverse product placement and launching in the real world. Case study research found that the three phases of user innovation in real life (i.e. experimentation/fun/hobby, community building, commercialisation) also occur in Second Life, and often breed opportunities in the real world (Chandra & Leenders 2012). This illustrates the need for market research and brand management that encompass real and virtual worlds.

Conversely, communities of interest, where brands may not be the focus of the group, may evolve distinctive behavioural patterns and social norms, resulting in long-term relationships among members (Rheingold 1993). These may impact on brand commitment, including repurchasing, word-of-mouth marketing and participation in organisation-sponsored activities (Kim et al. 2008). Relationships between participants in virtual worlds may reflect those in the real world, yet may differ as a consequence of the social and cultural context of the environment (Dibbell 1998). Online relationships are mediated by the internet and the virtual world as well as other participants and their personae (Sutanonpaiboon & Abuhamdieh 2008).

**Pertinent issues**

We have identified a range of pertinent issues for market researchers considering working within virtual worlds. These are organised within the overall three phases of the research process: research approach, research design, and methodology/methods.

**Research approach**

Jankowski (1999) argued that ‘positivist-orientated research is much less suitable for investigation of new media than either an interpretative or critical analytical stance’ (1999, p. 373). Is this true for virtual worlds research? The evidence to date is that both positivist and interpretivist approaches can be used, which perhaps is a reflection of the multidisciplinary nature of this research area.

**Research design**

Within virtual worlds research there are some generic issues that impact upon research design, such as choice of research environment – selection of
virtual world, including familiarisation with the environment and operating within a computer-mediated context as well as ethical considerations (Kendall 2009). Key issues also emerge in relation to understanding the research context (culture), and interpreting the behaviour and identity-personae of user-participants.

Choice of virtual world
A number of virtual worlds have market economies that make market research possible within them. Additionally, worlds such as Second Life and Planet Calypso (Entropia Universe) have exchange rates with real-world economies, which means the real and virtual worlds interact. Also, worlds that allow product creation mean new product testing may be required.

Understanding the environment
Since virtual worlds often provide completely new social environments, researchers must make the time to become familiar with the world they are researching before beginning studies. Notwithstanding issues around best practice and ‘rules of play’ within an environment and sub-components of it, researchers must learn how to navigate and ‘live’ in the environment. This includes how to participate and engage with others in-world, in order to understand the research context, norms and accepted behaviour. Furthermore, the relationship between an avatar and the real-world person may also be relevant to an investigation, and it is therefore important to consider who the real-life person is. Within Second Life, for example, a resident may choose to have several alternative avatar forms (alts), an avatar of a different gender, or allow the avatar to be controlled by more than one person. Indeed, for some areas of research, both in-world and real-world depth interviews may be necessary. For example, research into virtual-world behaviour crossing over with the real world would need to be carried out in the real world (Novak 2010).

Ethics
While Williams (2010) suggests that both real- and virtual-world ethics should be the same, other authors, such as Beaulieu and Estalella (2009), suggest that traditional research ethics are challenged by the underlying dynamics of mediated settings. Thus there is a danger in simply thinking that one mediated environment works in the same way as another. It is important that researchers thoroughly investigate ethical and other research issues for the particular mediated environment in which they intend to work.
The Market Research Society (MRS) offers internet research guidelines (Market Research Society 2009) but still does not provide a code of practice for virtual worlds research. The verbal advice given is to follow the overall MRS Code of Practice. While ethical approval is required for academic research projects, there are different ethical procedures in different countries: should ethical approval be linked to the country in which the virtual world is based or within which the researcher is based? For example, in the United States, Institutional Review Board (IRB) approval is required. Atlas (2008) explained that not violating the Terms of Service of the virtual-world provider was a condition of the IRB that impacted on the selection of the virtual world used for his research.

A Virtual World Bill of Rights has been proposed by Stanton (2010), which includes the right for participants to be interviewed in their chosen avatar identity. However, for researchers using ethnographic techniques such as participant observation, who may not always identify their presence as researchers, this list is problematic.

Research conduct in a virtual-world environment
Within Second Life, residents are asked to respect six key tenets of Community Standards, one of which is Disclosure. Under Disclosure residents are requested not to disclose any personal information other than that posted by an individual on the first page of their profile. Furthermore it states that ‘remotely monitoring conversations, posting conversation logs, or sharing conversation logs without consent are all prohibited in SL and on the SL Forums’ (Linden Labs 2009a). There is specific advice for those carrying out research in Second Life: ‘as long as any exchange of personal information is clearly voluntary and includes explicit consent of the person giving the information, there shouldn’t be a problem’ (Linden Labs 2009b). As in real life, it is important to understand which spaces are public or private. It is also good practice for researchers to specify in their profile that they are a researcher so fellow residents are fully aware. For researchers it is therefore particularly important that permission is sought and that user-participants are fully aware of any recording for research purposes.

Research to date alludes to how anonymity and identity are protected within studies: using avatar names (Ludlow & Wallace 2007), checking the avatar name does not link to a real name (Harris et al. 2009), and changing avatar names and some of the transcription to avoid the participants being identified (Boellstorff 2008).
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Researcher as avatar
The advanced forms of avatars raise new ethical issues, including co-location, avatar anonymity, the researcher as avatar, and the relationship between virtual-world and real-world identities. It is impossible for the interviewer to co-locate with participants as the users are effectively located in the external environment. The concept of co-presence has been proposed by Beaulieu (2010) for mediated environments, though not specifically virtual worlds. We suggest that co-presence is the most appropriate terminology for virtual worlds research as avatars can meet and communicate within-world. The potential for a researcher’s avatar to be seen as a reference point has been highlighted by Dean et al. (2009). They found that more participants agreed their real weight was about right when speaking to a thin interviewer and less when speaking to the heavy interviewer. Thus researchers may intentionally or unintentionally influence respondents by their chosen avatar identity.

Designing the environment
The design issues involved in creating eLab City for conducting consumer behaviour research within Second Life are discussed in detail by Novak (2010). A research study for Multimedia Victoria (2007) in Australia estimated development costs in Second Life, i.e. terra-forming land, to be upwards of AU$11,000, smaller sites from AU$30,000 to AU$225,000 for a complex site with a large degree of interactivity, which could take three to four months to develop. The importance of involving the Second Life community in the design was emphasised by Multimedia Victoria (2009), while Novak (2010) explained the difficulties of developing a community once the initial build had been completed. Inevitably, there are costs involved in the design and build of virtual research environments, and these should be thoroughly examined as part of investigations.

Validity
Williams (2010) has considered the issues in understanding validity within virtual worlds, explaining that face validity is dependent upon the phenomenon being researched, while concurrent validity requires a test to be available within the virtual world and predictive validity depends on there being a real-world parallel. To date investigators have adopted mixed-methods approaches, combining quantitative and qualitative methods, some also incorporating offline contexts in order to triangulate and interpret research findings (e.g. Kozinets 2002; Kozinets &
Kedzior 2009; Williams et al. 2011) so as to improve validity and enhance reliability. These strategies depend upon the substantive research questions and, as Hogg et al. (2006) suggest, the integration of findings from each context can support discovery-orientated market research.

**Research methodology/methods**

**Existing research methods**

Traditional methods include online surveys: the main issues relating to virtual worlds are how to technically implement surveys and how to recruit participants. Second Life residents may create links to internet surveys in-world, use avatar ‘bots’ for surveys in-world, advertise on their own land and advertise (paid) in an events calendar. Similarly, related sites, such as the Second Life Educators Database, receive regular requests for members to participate in surveys relating to many different aspects of the environment. Furthermore, a range of tools has been developed for relatively simple surveys to be carried out in-world, such as after meetings. These include the participant touching (clicking) a box that results in presentation of an electronic note card containing questions. The limitations of self-selection surveys in virtual worlds research have been highlighted by Smyth (2007).

Quantitative approaches as described may be orchestrated through qualitative involvement in the virtual world – say, where human-controlled avatars act to deploy scripts. Alternatively, avatar bots, which are solely controlled by computer script, may be used. However, in this case, there will have been some qualitative immersion within the environment prior to an experiment being designed. ‘Notable issues in collecting data in Second Life included difficulties in response rates, maintaining the validity of responses, and choices of a survey incentive’, observe Barnes and Mattsson (2011, p. 946), who used survey bots in their brand research. Completion of previous studies and time since last invitation were stronger predictors of survey completion than the demographics of the panellists (Neslin *et al*. 2009).

To develop trusting relationships with participants, reciprocity and value exchange are considered important (Jorgensen 1989). While this may be in the form of gift or monetary reward, it is more satisfactory and appropriate if exchange is symbolic, such as through recognition, respect, rapport and dialogue (LeCompte & Schensul 1999; Tedlock 2003). Researchers in fantasy role-play games have used specially designed objects as incentives, e.g. ‘Great staff of the Sun Serpent’ used by...

Qualitative methods include interviews: Hine (2005) discusses internet research, and suggests that ‘face to face interaction here becomes the gold standard against which the performance of the computer-mediated interaction is judged’ (2007, p. 4). Virtual worlds are unique compared to, say, standard web pages, since avatars can be co-present and meet face to face to be interviewed in-world.

A voice interview will give additional verbal cues not available via text chat, but this needs to be audio-recorded and transcribed as in traditional data collection techniques. With text-based methods, interview ‘chat logs’ may be recorded and printed off as soon as the interview has been completed, ready for data analysis, assuming the researcher owns the land. Permission is required from other virtual landowners in Second Life to record on their land. An interpretivist semi-structured interview was developed by Ward et al. (2011) to test marketing theory within Second Life. Email forms have also been used, although these are not restricted to in-world identities and therefore issues about offline identity are raised (email addresses and idents are obviously used).

Focus groups are also possible. The main benefit of conducting focus groups in Second Life is that a chat log can be fully recorded, however the process of running and managing a focus group is far more difficult than in the real world. As with interviewing, text or voice-mediated communication methods may be used. If text is used, it can be difficult to moderate with several avatars texting simultaneously, meaning the thread of a conversation may be lost. Solutions include using scripts that enable residents to indicate they have a contribution – for example, putting up a hand, using coloured lights and objects that avatars can touch. These interventions potentially restrict active flow of conversation among participants that draw out relevant phenomena and can obviously present challenges for moderators. Recruiting participants to focus groups may also be difficult without a clear strategy and process – for example, landowners may restrict the number of avatars or require permissions to be granted to enable access, such as where complex and detailed graphical content of the virtual environment or avatars has a high internet bandwidth requirement.

New research methods
Kozinets (2010) developed netnography, a variation on ethnography, to study virtual communities using the internet. While the methods of analysing the large amount of data in blogs may be applicable to chat logs in virtual
worlds, the multiple communities present in these worlds mean that this method cannot be fully transferred to virtual worlds. Therefore Kozinets and Kedizor (2009) have proposed an auto-netnography approach that allows the netnographer to include autobiographical online experiences through first-person narratives in the netnographic text. Participant observation is therefore a useful contribution to research design, wherein researchers immerse themselves in order to understand the rules of play and interaction so as to form research questions and conduct research.

Visual methodologies within Second Life were researched by Rousch et al. (2009), who suggested the value of photographic capture and display within situated ethnography. A key type of visual artefact is known as Machinima (animated content recorded from 3D game play; see Marino 2004). This type of visual content results in data streams that may be coded and analysed using content and narrative analyses to evaluate representations of individuals and the social context. Machinima as a research artefact also presents researchers with the possibility of improving the validity and reliability of findings through content sharing with others.

These issues form an introductory process for researchers planning market research in or related to virtual worlds. The next section considers the future implications for market researchers, with examples.

**Implications for market researchers**

Virtual worlds have created a new social and creative environment where new product development and virtual brands may be created. This section highlights some examples of existing opportunities and the three main areas of virtual world development for the future: the new generation of virtual worlds, convergence with other technologies and the ‘gamification’ of mainstream marketing.

**Existing opportunities**

Tringo is an example of a successful virtual brand developed within Second Life: ‘Tringo, a cross between Tetris and Bingo was invented in SL by Nathan Keir (aka Kermitt Quirk). The game became so popular that it has been licensed for Nintendo’s Game Boy advance and for desktop PCs’ (SLeducation 2008). This example shows the potential for new product development within virtual worlds and also demonstrates how real-world and virtual-world channels may interact. Therefore there is a growing need for market research that can cross real and virtual worlds.
A new generation of virtual worlds

A new generation of virtual worlds is now emerging, which are more developer led, and may be more accessible and easier to use (Wasko et al. 2011). This will also create new product and service experience opportunities. Typically these have both virtual- and real-world merchandise, e.g. Moshi Monsters, a children’s virtual world where 50 million users have joined the site online. Moshi is now expanding successfully offline into books, magazines, trading cards, toys, video games, music, mobile apps, cartoons and much more (Mind Candy 2012). We argue that, to understand the consumers of such worlds, experience of the virtual world is essential. Therefore market researchers need to be able to understand the relationship between the real- and virtual-world merchandise to both conduct research and interpret findings.

Convergence

Convergence of media and technologies means that virtual worlds are now expanding beyond the confines of the online space to incorporate environments across media platforms, including non-traditional smart media devices (such as watches and refrigerators). This has far greater implications than just simply mobile apps for individual virtual worlds. Where 4G technology already exists, it is possible with location-based technology and augmented reality to create a virtual world ‘experience’ within a real-world city, e.g. Moji in Japan (De Souza e Silva 2006). Recently, the consumer brand Magnum launched a ‘game’ promotion (more details below) that included a real-world augmented reality experience in Amsterdam (Neff 2012).

‘Gamification’ of mainstream marketing

Aspects of virtual worlds are moving into real-world spaces, and ‘gamified’ consumer experiences are now emerging as popular marketing approaches. The Magnum campaign included the Pleasure Hunt Game 2 Advergame, which integrates game technology with Microsoft/Bing maps, while there is a new generation of interactive brand mascot in social media (Shultz 2012) based on avatar technology. Finally, companies such as Procter & Gamble are actively using virtualisation techniques in consumer new product development research (WARC 2010).
Conclusions

We have demonstrated that virtual worlds are important to research for technological, marketing and social reasons. Virtual-world research is different not only because personae are represented through avatars, but also because convergent technologies enable potentially unlimited access to new types of data, such as Machinima. Our review suggests that the key principles of research conduct remain relevant but the nature of virtual worlds and their interpretation based on the real (physical) world is problematic in research design. As Williams (2010) observes, ‘the differences between worlds are made more complex by the presence of very different social architectures, interactivity, and user-generated content’ (2010, p. 467). Virtual worlds research evidently necessitates a deep understanding of how user-participants behave in-world and how this evolves over time. This includes identity of user-participants contextualised by social groups within the virtual world, which is evolving as a consequence of the transience or life cycle of the medium.

Regarding future impacts, it is important to note that virtual worlds are increasingly augmenting real life. As Fyrat and Vicdan (2008) observe, ‘the social is now constructed through hybrid formations and forms of flow and mobility established through new technologies’ (2008, p. 391). Convergence with mobile technologies has evolved into hybrid spaces (de Souza e Silva 2006), which now sees role-playing and virtual environments imagined and enacted in the real (physical) world, such as the Magnum augmented-reality promotion in Amsterdam. Market researchers will find that virtual worlds increasingly influence their work. This may be in the shape of creating new virtual products and services to research, changing how research methods are used and the development of new methods, or that marketing campaigns include both virtual- and real-world activities, while the growth of children’s and teen virtual worlds suggests that the next generation may be even more receptive to virtual marketing experiences. Consequently, market researchers will continue to be challenged to adapt and develop methodologies that enable insight into new marketing landscapes. We propose that understanding virtual-world research issues is an important step in equipping market researchers for future research challenges in new mediated landscapes. This article contributes both by raising awareness and informing the market research community of the pertinent issues.
References


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