

Productivity and Play in Organizations: Executive Perspectives on the Real-World Organizational Value of Immersive Virtual Environments

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ABSTRACT

In exploring the productive potential of virtual worlds, one relevant line of inquiry is the degree to which immersive online environments can support the objectives of real-world enterprises. Despite the favorable treatment of virtual worlds in the popular and business press, organizations remain cautious in their acceptance and adoption of virtual environments. Since there is a dearth of academic literature on this facet of the virtual world phenomenon, this research aims to provide an assessment of executive perspectives on the potential impact of virtual worlds on businesses and the challenges that may be encountered in organizational application of such environments. To capture business-oriented perceptions of virtual worlds we analyzed the reports of twenty-five business executives who recently spent considerable time training in and exploring *Second Life*, a popular online virtual environment. We identify and discuss seven tensions reflected in their assessment of the organizational role of virtual worlds, and situate these tensions in the prevailing computer-mediated communication discourse. Findings point to significant parallels with evaluative perspectives on earlier waves of Internet-based innovation, insights from the existing literature on computer-mediated communication, and an opportunity for theory generation through dialectical reasoning.

Keywords: virtual worlds, *Second Life*, executive perspectives, critical tensions, organizational value

INTRODUCTION: THE QUESTION OF PRODUCTIVITY

In the NSF-sponsored *Workshop on Productive Play* conducted at UC-Irvine in May 2008, the discussion of the participants repeatedly turned to the meaning of *productive* in the term “productive play”. In the context of virtual worlds and online games, what type of productivity should we as researchers be concerned with? How do we understand productivity in reference to these virtual environments? Perhaps more importantly, when we use the word *productive* it begs the question – productive for whom? All of these questions are relevant for an analysis of the broader social impact of virtual worlds, but naturally they do not admit a singular response.

Indeed, productivity in reference to virtual worlds can be understood in several distinct ways. In an article exploring the subject of productive play, Pearce (2006) argues that play in online gaming environments is productive in the very real sense that participants produce electronic artifacts and much of the content of the games themselves. Furthermore, this productivity is not confined by a specific game environment, but can migrate with a player-producer to other virtual communities (Pearce, 2006). Similar to Pearce’s argument, one can focus on productivity with respect to the skills and aptitudes of individual participants. Aside from the creation of specific artifacts, virtual environments often enable individuals to develop leadership and interpersonal coordination skills that can be fruitfully applied in a wide range of contexts (Beck & Wade, 2004). This has long been a central argument for the value of participation in sports and other team-based activities (Nelson, 1966; Eley & Kirk, 2002; Fraser-Thomas et al., 2005).

In the United States and many other Western capitalist economies, the issue of productivity frequently turns to a question of business value – how does an individual or team support the operating objectives of a given organization? Here again, multiple understandings of productivity can be raised. We can question the revenue potential of businesses that create and operate virtual world or online gaming environments. This perspective is reflected in much of the press coverage of virtual worlds and online games, with numerous reports on the earnings of such organizations as Blizzard Entertainment or Linden Lab (e.g. Hemp, 2006; Hof, 2007; McConnon, 2007). Another understanding of productivity centers on the determination of how virtual world environments can support the business objectives of real-world enterprises that are not fundamentally tied to a given gaming environment. In what ways can virtual worlds enhance the operation of everyday organizations?

In the present essay, we wish to explore this last understanding of productivity – the real-world organizational value of virtual world environments as measured through traditional objectives, such as revenue generation and cost control. We

focus on this framing of productivity not because it is in some way more important than the other approaches to the question of productive play, but because we believe it remains the most equivocal of the understandings discussed. Discussion of the business value of virtual worlds in the popular, business, and technology press has wavered between effusive claims that virtual worlds are the future of social development and electronic commerce (Hemp, 2006; McConnon & Jana, 2007) and stern warnings against the hype of an untested marketplace (Rose, 2007; Rosmarin, 2007). As popular consensus remains elusive, research into the potential organizational impacts of virtual worlds has only recently been undertaken in earnest (e.g. Castranova, 2001; MacInnes, 2006; Bray & Konsynski, 2007). One point, however, is clear: from the total population of real-world organizations, few are currently realizing unequivocal benefits from participation in virtual worlds. Instead, much of the discussion about such value involves the future, or potential, ways in which organizations may benefit from virtual worlds.

Building on the observation that the practical value of virtual worlds to real-world organizations remains primarily *potential* at this stage, we argue that the perspectives of top-level organizational leaders are particularly relevant to assessing priorities for commercial investment in such environments. Executive assessments will be central to both the rate of adoption of virtual environments for business purposes and the ways in which such environments are appropriated by organizational members. In an effort to understand the salient issues for organizations, this research highlights a series of critical tensions reflected in the thoughts and experiences of twenty-five executives who researched and spent time in the popular virtual world of Second Life. After a brief review of the literature on virtual worlds and their business applications, we present an overview of the study and our findings from the reflections of the executive respondents. We then provide a discussion of the significant parallels between the evaluation of virtual worlds and assessments of earlier waves of Internet-based innovation and insights from the literature on computer-mediated communication. We conclude with insights for research and practice.

VIRTUAL WORLDS

Virtual world is one of a number of terms used to characterize computer network-based virtual environments that are interactive, persistent, and multi-user (Castranova, 2001; Bartle, 2004). Within virtual worlds, *interactivity* is achieved through the development of a three-dimensional (3D) interface. Users engage the system through the creation and action of an avatar, a 3D embodiment of the individual. *Persistence* reflects the fact that a virtual world continues to exist even when a given user is

not engaged with the system – i.e. action within the world persists even when one is not accessing the platform. This persistence is critically related to the multi-user nature of the system. The term *multi-user* indicates that the environment is impacted by a large number of distinct users simultaneously. The term “shared environment” is sometimes used to capture this same concept. Second Life, There.com, and Club Penguin are among the most widely cited prevailing virtual worlds.

The origin of contemporary virtual worlds can be traced to a number of related sources. To a large extent, contemporary virtual worlds are an outgrowth of advancements in online gaming. Indeed, the term Massively Multiplayer Online Role Playing Games (MMORPGs) is often used as a synonym for virtual worlds.¹ Today’s MMORPGs, such as *World of Warcraft* and *Everquest*, are virtual worlds oriented around the conduct of a persistent game, but the earliest instantiations were text-based virtual environments for collective role-playing games such as *Dungeons and Dragons*. The collaborative and communicative potential of these earlier gaming environments gave rise to the creation of MUDs (Multi-user dimensions/domains/dungeons) and MOOs (Multi-User Object Oriented), which are text-based online environments dedicated to collaborative efforts and social interaction (Bruckman & Resnick, 1996; Curtis, 1997). These forms of interaction are more generally known as online communities. Thus, contemporary virtual worlds combine the social and community focus of the MUDs with the advancements in 3D interface design that have continued within the MMORPG environment.²

One of the most visible and widely noted examples of a contemporary virtual world is the online platform Second Life. The Second Life environment is the brainchild of Philip Rosedale, the founder and CEO of San Francisco-based software development firm Linden Lab, which hosts, manages, and governs the Second Life platform (Rymaszewski et al., 2006). While it is accurate to identify Linden Lab as the creator of the system, it is somewhat misleading because most of the content within the virtual world is generated by its users. The platform was introduced to the public in 2003, following a brief six-month beta trial.

In 2006, the social recognition of Second Life surged in the wake of profiles of the platform in a range of popular publications, including *Business Week*, *Popular Science*, *Harvard Business Review*, *The Economist*, and *WIRED Magazine*. Currently, Second Life boasts nearly 15.5 million residents, or uniquely named avatars.³ However, this number includes multiple avatars created by a given real-world user as well as individuals who have registered an avatar with Second Life but no longer access the system on a regular basis. A more telling statistic is that

roughly 490,000 residents log in to the platform on a weekly basis. Some researchers have argued that Second Life is now a self-sustaining economy where users can buy and sell goods and services within the virtual environment – in many cases translating into the generation of significant real-world revenue (Hobson, 2006; Noam, 2007). In the current study, the assessment of virtual worlds on the part of organizational executives focuses on their experiences with the Second Life platform. Next, we briefly review the literature on the organizational value of virtual worlds, and then we present our study.

ORGANIZATIONAL VALUE OF VIRTUAL WORLDS

The emergence and evolution of a wide variety of information and communications technologies (ICTs) over the past two decades have helped organizations gain experience in assessing new technologies. Internet-based tools, such as email, listservs, and instant messaging, have enabled organizations to fundamentally alter the way their members communicate within and across organizational boundaries. This appropriation has allowed firms to leverage technological advancements as channels of enhanced business value. However, the introduction of each of these technologies has brought with it a set of tensions that organizations have been forced to address and reconcile in the effort to extract value from these tools. These tensions arise out of the juxtaposition of what can be accomplished with the technology and the determination of what actions and affordances are in line with the objectives of the broader organization. For example, in the application of the World Wide Web, firms have wrestled with finding the proper balance between unfettered search or site access and the complete limitation of use through the implementation of content filters and other centralized control measures (Ang & Nadarajan, 1996; Ding et al., 1999; Simmers, 2002).

We argue that critical tensions are emerging once again in the organizational assessment of virtual worlds. To understand how these innovative environments can be fruitfully deployed, organizations must first determine how the capabilities of virtual world platforms might fit with their existing markets, prevailing competitive dynamics, and organizational processes. Organizational members must explore key questions such as: What, specifically, are the potential organizational benefits associated with virtual worlds and how does my organization attain them? What are the risks to my organization of investing in virtual worlds? What are the tradeoffs associated with my organization's participation in virtual worlds?

To date, research has provided little insight into these questions. Indeed, there is currently no distinct body of literature aimed at understanding

the issues surrounding virtual worlds. Rather, research directed at virtual worlds is distributed across a variety of scholarly disciplines, including information systems (e.g. Mennecke et al., 2007; Noam, 2007; Schultze et al., 2008), games research (e.g. Pearce, 2006) computer science (e.g. Benford et al., 2001), computer-supported cooperative work (e.g. Nardi & Harris, 2006), sociology (e.g. Parks & Roberts, 1998; Herman et al., 2006; Antonijevic, 2008), marketing (e.g. Catallo, 2008; Catterall & Maclaran, 2002; Siddiqui & Turley, 2006), organization science (e.g. Overby, 2008), education (e.g. Johnson & Levine, 2008), and cognitive science (e.g. Mennecke et al., 2007).

The predominant focus of the academic community with regard to virtual worlds has centered on the technical features of these environments and their development or enhancement, with very little attention oriented to the underlying organizational value of such systems or even the relationship between the technical features and organizational processes. However, a number of authors in research- and trade-based outlets have called attention to possible applications of virtual world platforms within contemporary business environments. Several authors have called attention to the option of using virtual worlds for marketing of a firm's products and services, with a specific emphasis on connecting with a younger age cohort more attuned to IT-based entertainment (Castranova, 2001; Hobson, 2006; Catallo, 2008). Others have noted the potential for conducting corporate training exercises or distance learning in virtual world environments (Nebolsky et al., 2004; Newitz, 2006; Johnson & Levine, 2008). Building upon the interactive nature of virtual worlds, researchers have also highlighted the potential for collaboration between organizational members and strategic partners within these immersive environments (Talamo & Ligorio, 2001; LaBrosse, 2007; Adrian, 2008). It is important to underscore that most of these studies considering the organizational value of virtual worlds have focused on *potential* applications, with limited empirical exploration of their actual introduction or use. We contend that, in order to assess the practical organizational potential of virtual worlds, we must make space for the input of those responsible for organizational IT investment.

In this study, we focus on the assessment of the organizational value of virtual worlds from the perspective of those whose perceptions will likely guide investment in these innovative environments – i.e. organizational executives taking their first cautious steps into the environment of a contemporary virtual world. Specifically, we analyze the first-hand experiences and perspectives of 25 executives as they try to make sense of the potential impact of virtual world technology for their real-world organizations, including both their assessments of potential organizational value as

well as the perceived impediments to such value. With this focus on the sense-making of experienced, practicing professionals, we identify a number of key insights regarding the business impact of virtual worlds and the degree to which the current IT evaluation processes are similar to, and distinct from, those encountered with earlier Internet-based communications media.

RESEARCH METHODOLOGY

To explore the potential real-world business value of virtual worlds, we assigned a Second Life project to an Executive MBA class consisting of 25 full-time executive managers. Table 1 provides a breakdown of the study participants by industry of experience. The participants were asked to complete an initial training and orientation in Second Life, spend time in the world, conduct Internet-based research, and reflect on the potential impact of virtual worlds such as Second Life for real-world organizations. The reflection papers received from participants included discussions of specific experiences within Second Life, personal perceptions and reactions to the environment, and extended discussions of what they saw as valuable or detrimental aspects of the platform and the associated behavior of individuals with respect to the objectives of a going concern. These reflections served as the primary source of data for our analytical efforts. Respondents averaged 28 hours spent exploring the Second Life platform, with individual times ranging from four hours to 100+ hours in-world. All but two of the respondents spent 15 hours or longer on the Second Life platform.

Table 1. Executive student industry experience

Industry	Number of executive students
Industrial products	6
Electronics and information technology	5
Healthcare	4
Financial services	3
Consumer products	3
Transportation/distribution	2
Education	1
Utilities	1

Our analysis consisted of two rounds of coding. The first round involved note-taking and open coding in line with a grounded theory approach (Strauss & Corbin, 1998). In this initial process, we became immersed in the data and employed constant comparison to identify persistent patterns in the experiences and perceptions of the respondents. The second round of analysis

involved selective coding (Strauss & Corbin, 1998) in an effort to capture the arguments in favor of the potential business impact of virtual worlds within organizations and those arguments against the potential business impact in the foreseeable future. To organize and display the data, we developed tables that Miles and Huberman (1994) describe as “conceptually ordered descriptive matrices”, which we used for data clustering and partitioning. Subsequent axial coding enabled us to identify and describe distinct tensions that were evident in the data.

FINDINGS

The analysis of executive reflections revealed significant consistency in both the potential for business application and the perceived impediments to organizational adoption. The opportunities for business application discussed by our respondents largely reflected those noted in the existing literature – most notably, adoption for the purposes of marketing, training, and online collaboration or organizational meetings. Study respondents also noted significant potential for product development and testing because of the immersive 3D quality of the environment. Finally, several respondents noted applications for virtual world technology in the areas of recruitment and candidate interviewing as well as virtual tours. Table 2. Tensions related to the impact of Second Life within real-world organizations

Tension	In favor	Against
Popularity	Significant market	Minimal traffic
First-mover	Early foothold	Popularity plateau
Demographic	Desirable demographic	Dysfunctional demographic
Anonymity	Honest & uninhibited information	Trust issues & misinformation
Sociality	Social presence	Limited social cues
Experience	Immersion & 3D prototyping	Authenticity
Social Benefit	Freedom & therapy	Dehumanizing

While nearly all respondents argued that both business potential and significant impediments existed, in general the participants’ reflections implied a wary stance toward the business value of virtual worlds. The deep ambivalence toward virtual worlds observed in this study reveals the presence of significant tensions in the evaluation of Second Life and virtual world technology in general. For the purposes of an analysis of the organizationally productive potential of virtual world environments, we highlight seven interrelated paradoxical

elements, or “tensions”, that are reflected in the arguments of the respondents regarding the potential organizational value. Table 2 provides a summary of these tensions and the arguments in favor of, and against, the business impact of virtual world technology. We address each of these tensions in turn.

Popularity

The popularity of Second Life was a critical point for many of the arguments in favor of the platform. Many respondents cited statistics from the Second Life home page claiming there are over 11 million residents in the virtual world, with 30,000 to 40,000 typically in the world at any given time. With that critical mass of prospective consumers, many respondents perceived that the potential for marketing of goods and services in Second Life is significant. However, several respondents noted that many business-oriented Second Life locations enjoyed very little avatar traffic. They argued that the bulk of traffic in public spaces revolves around the adult content areas or one of the many areas where avatars could make “money”.⁴ Traffic was considered to be minimal at locations where the respondents would be comfortable representing their organizations. The following quotes exemplify this thinking:

What also struck me, was that there wasn't [sic] a lot of “people” at the legitimate business sites.

I navigated over time and noted that the amount of people and foot traffic at the storefronts was less than what I had anticipated. There appears to be a limit on the number of maximum visitors. When a sector or a product could only have limited exposure, this would severely limit the benefits of such a storefront.

In addition, Second Life was perceived to be relatively small in comparison with other social networking websites or Web 2.0 platforms with which the respondents were familiar:

When we see that it has about 500,000 people who are considered ‘active users’ and when compared to MySpace which had over 106 million accounts according to an article ... the exposure to the potential market is almost insignificant.

Beyond the assessment of current popularity, many respondents focused on questions relating to the projected growth of Second Life. In particular, they considered the issue of a *first mover advantage* and the benefit that a Second Life presence could offer to early adopters.

First-mover

Much as the current population of Second Life opened some eyes to the medium's relevance, the growth potential of Second Life and other virtual worlds is staggering according to some estimates. Several of the study respondents sought to

extrapolate past growth rates to the future. These respondents argued that organizations with an early footprint in virtual worlds will achieve greater marketing and brand awareness benefit from the platform's growth than more reticent competitors. They also felt that early adoption could enable firms to understand the medium more intimately and capitalize on later developments of the platform's commercial opportunities:

They are not games, but are compelling, immersive and powerful tools to assist in collaboration, community development and innovation inside the enterprise. Although the embryonic nature of virtual worlds means that significant issues and obstacles are in the way of effective use by enterprises, the upside potential is so great that no enterprise can afford to ignore the opportunity. Enterprises must be cognizant of the issues, and limit their expectations in the short term.

As a counterpoint to these optimistic perspectives on early adoption, a number of respondents interpreted recent numbers to indicate that growth of the Second Life population had flattened substantially. The following calculation is illustrative of this thinking:

While Second Life added 343,961 new registrations in September, to a total of 9.6 million, the 3.7 percent gain in sign-ups was the slowest monthly growth on record. Beyond this, the number of active Second Life users fell to 516,149, from 540,151 in August.

Further, many respondents indicated that, while predicting that the idea of virtual worlds for commercial purposes (e.g. marketing and online collaboration) would eventually take root, they perceived it to be premature in its current form. These respondents believe that businesses will have ample opportunity to take advantage of subsequent, more robust virtual world platforms. While the respondents were conflicted regarding the advantages of early adoption and the future growth potential of the platform, they did voice persistent questions concerning the people who presently populate the virtual world.

Demographics

The respondents were consistent in their assumptions regarding the demographic characteristics of Second Life residents. The people behind the avatars were generally assumed to be young and technologically savvy. In this regard, some respondents felt that the medium provides an excellent mechanism for connecting with and marketing to a commercially attractive demographic group. For example:

The other benefit SL may offer is better communication with younger generations (Gen-X, Gen-Y and later). They were raised on the Internet, text messaging, personalization, and instant

gratification. SL could be one way to motivate this generation and extract the next innovations.

Interestingly, engagement with this demographic was not universally applauded. In the reflections of several respondents, it is argued that the flip-side of youth is immaturity. Similarly, the accompaniment of technological savviness was believed to be “geekiness” or social awkwardness. Second Life residents were repeatedly characterized as social misfits, misanthropes, and perverts with too much time on their hands or the inability to interact through traditional means. This perception of a dysfunctional demographic was supported by experiences of rude or antisocial behavior in-world among respondents. Several respondents feared that an association with such behavior could do irreparable harm to their organization’s brand image. Furthermore, from the comments of study respondents, it appears that concerns about the demographic composition of the Second Life environment are closely linked to the degree of anonymity that the platform enables.

Anonymity

In some regards, anonymity was perceived to be a distinct strength of the system. Respondents felt that they might get more honest and uninhibited information from avatars than from face-to-face exchanges. For example, in reference to an interviewing context, one executive suggested, “Possibly by providing the forum for a candidate to have their initial interaction with a virtual representative of the firm could provide an increased likelihood of an open and frank meeting”. It was suggested that such openness could also be an engine for research and innovation:

... some promise of unlimited possibilities, and no real consequences for their actions, people can become less inhibited and more creative about expressing their views and experiences in desired future states. An environment like this encourages new ideas and innovations – an opportunity for new problems to drive new solutions.

Not surprisingly, the anonymity afforded by the Second Life platform was not always viewed favorably. Respondents noted that anonymity can foster the types of antisocial behavior noted earlier. For example, anonymity is considered a likely contributing factor to the large amount of pornographic activity within Second Life. In the words of a program management executive, “In my 40 years of life, I don’t think I have ever run into so many sexually motivated characters”. Stories of sexually oriented activity and rudeness abound in the data. Respondents reported a multitude of situations in which their avatars were harassed, stalked, and on one occasion sexually violated. The respondents questioned the ability to control such activity, which they perceived as greatly limiting any conceivable role for the medium in organizations:

In addition even if you filter out mature content, the risqué clothing, skin, and parts business is unbelievable so you are never safe from a flash of some body part while walking through a Herman Miller studio or Caldwell Banker’s HQ.

If we recommended our customers to use this site, and they subsequently were propositioned or mistreated in any way, I believe that our reputation would suffer irreparable damage.

In addition to concerns about adult content, anonymity evokes questions of trust. Anonymous avatars can readily misinform each other. As one healthcare professional asked, “Would you trust a virtual doctor?”. Similar trust issues relate to the information one might acquire in Second Life. The following are two perspectives from the data:

The idea that one can represent oneself in any way makes it difficult for marketers to interpret the information In this case one can be misled by people pretending to be who they are not. It is a challenge for organizations to decipher the information that is being presented and the character behind it.

[My organization] does not know who they are collaborating with in SL. This could have a risk of astronomical proportions Anonymity allows people to be freer with their feedback but there could be a large price to pay.

Thus, respondents were deeply ambivalent regarding the influence of individual anonymity on the quality of social exchange within Second Life. At the same time, the potential for enhanced social engagement was cited as one of the key benefits of the platform. Indeed, many respondents pointed to the opportunity for social interaction as a fundamental reason for spending time in-world.

Sociality

The immersive nature of Second Life enables individuals to present themselves and interact in an almost physical way. In this regard, the virtual world is perceived to offer distinct advantages over established electronic media such as email or other Internet environments:

Virtual worlds offer an inexpensive, useful and immersive way of holding meetings, collaborating, and sharing information Companies like IBM are already exploring this concept, having created a dedicated business unit to explore and exploit virtual world technology.

Respondents indicated that this physical presence is critical to many of the organizational applications that they believe to be most promising, such as virtual collaboration or global product development. One participant noted that since Second Life had a fairly distinct culture, complete with its own set of norms, it could facilitate cross-cultural interaction. This sense of physical presence is also perceived

to be conducive to learning situations. Several respondents felt that the Second Life platform would represent a tremendous benefit in corporate training efforts.

However, because of the limited social cues associated with Second Life interaction, communication is seen as fairly thin, and some respondents felt it could be more effectively addressed through another medium. While the social presence of multiple avatars is important for many business applications, other potential applications rely on the combination of the social and graphically immersive qualities of the environment for organizational appropriation.

Experience

One of the defining characteristics of a virtual world is the immersive nature of the three-dimensional interface. In our study, the immersiveness of the Second Life environment fueled the imaginations of many respondents. In particular, respondents noted the benefits of being able to achieve a more realistic understanding of new products or services:

I would classify Second Life as a four-dimensional version of the Internet. The Internet, in general, provides users with a two-dimensional experience. Pictures are shown of products, but you can't walk around the product or interact with the product. Second Life provides the user the ability to do both of these things.

In addition to the benefits of immersiveness for consumers, it was argued that designers and other organization members can get feedback on new concepts with minimal cost and investment:

Second Life thus is a place where techie and design oriented people can go at little expense and determine what works that could perhaps be brought back into the real world Whether you're into fashion, finance or retail, Second Life provides a portal to test many ideas that might be useful in real life.

Further, the large-scale nature of Second Life affords the potential for virtual tours of new locations, facilities, and architectural options.

An organization, such as a university, could create a replicated visual environment of the campus that could be visited by potential students. This would be beneficial for a student to get a sense about the university during the narrowing down of his selection process. (Professional 18a)

Interestingly, even the immersiveness of the environment was not universally perceived as a positive characteristic. It was noted that immersiveness may be detrimental to actual product testing, prototyping, and virtual tours if the environment was viewed as a straightforward replacement for the real-life experience. Some

respondents argued that the environment is not entirely realistic, and individuals would want to see the "real thing" before making any significant decisions.

There are simply the limitations to a virtual experience versus reality. Take as an example my company's solution, air conditioning controls. Second Life does nothing to add the user's experience of my product versus the Internet since the user can't feel the cool breeze turning on and off.

One participant indicated that to resolve this tension there must be some "research supporting customers' willingness to make real world decisions based on game-like graphics". Not surprisingly, concerns about the degree to which the Second Life platform mimics real-life environments were intermingled with reflections on the ways in which the Second Life and virtual worlds might impact on the broader social sphere.

Social benefit

Many respondents described what they deemed to be the potential social advantages of a virtual world like Second Life. Benefits of the virtual world ranged from specific applications, such as virtual tourism, to broader, more idealistic notions, such as enhanced freedom of expression. One of the more profound visions of societal impact was offered by a physician describing how a person with a neurological disorder may benefit from Second Life:

Their minds are usually not affected [by their disorder]. The great challenge for these folks is to come up with solutions to allow them the opportunity to interact with and become contributing members of society. Traditional approaches involving rehab and assistive orthotics and prosthetics are limited in their ability to allow a return to functional life. Why not change the premise? Rather than asking their bodies to cope with a First Life, why not expand their minds virtually in a Second Life? I wonder if there could be some way to "hook up" patients with severe paralysis to a virtual world such as Second Life There is something fundamentally empowering about the ability to move around at will.

On the other side of this appreciative view of the virtual world came several questions as to where we are heading as a society. There were a number of references in the data to the movie "The Matrix" in which all existence is virtual to the detriment of physical experience. Many respondents felt that such virtual activity, even if it involved social interaction, was necessarily inferior to physical activity and face-to-face interaction. The following examples illustrate this perspective:

I do think that, like many of the other technological advancements (like e-mail), it will significantly reduce the amount of direct human contact.

I did not enjoy the experience of Second Life. I have not experienced enough of the things I want to experience in my first life to have time or desire to have another life in Second Life.

[An avatar] can have chats about endless subjects, some that you might not even have with your closest RL friend. Some might think that this is very beneficial, but in my opinion, if a person has that much time to invest, why not invest in the oh so many other useful activities and relationships that can be had in RL.

Many respondents appeared sincerely worried about the impact of such technologies on society. As we discuss in greater depth in the Discussion section, these concerns mirror perceptions that emerged with earlier waves of technological innovation.

As noted throughout the description of our findings, certain tensions are especially salient when assessing specific potential business applications of Second Life and other virtual worlds. For example, while questions regarding popularity are especially relevant when assessing the marketing potential of the platform, they are less central to an evaluation of the systems for the purposes of virtual meetings or online collaboration. Table 3 provides a summary of the tensions and the business applications for which the resolution of these tensions is most salient.

DISCUSSION

The findings from this study present a mixed outlook on the adoption of virtual world technology within real-world business environments. Specifically, the reflections of our respondents illustrate the challenges that business leaders will face as they seek to leverage virtual worlds to pursue their organizational objectives. One of the most interesting observations in reflecting on this data is that the perceptions of the study's participants are not without precedent. In their perceptions of both the areas for possible business application and the

concerns about the introduction of virtual worlds, our respondents' comments mirror many of the issues raised in the wake of earlier Internet-based innovations.

Prospective benefits of virtual worlds

With regard to the value of virtual worlds for organizations, our respondents repeatedly emphasized the applicability for business functions previously highlighted in the early days of the World Wide Web, including marketing, training, and group collaboration. Among the study participants, marketing was the most widely acknowledged opportunity for the application of virtual world technology. Due to perceptions of exponential growth of virtual worlds, many respondents perceived that these environments could provide firms with an attractive avenue for generating increased brand awareness. As noted in our findings, this "attractive emergent market" perception was closely intertwined with assumptions about the demographic characteristics of Second Life residents (e.g. young, technology savvy). In addition to the branding potential of the platform, several participants noted that such systems could offer a unique mechanism for the collection of market intelligence and an improved understanding of customer preferences to inform subsequent marketing efforts. These "brochureware" and market intelligence approaches to the potential of virtual worlds represent a clear recapitulation of early assessments of business potential for the Web, where many businesses perceived that the critical value of the medium rested in its ability to increase advertising and brand awareness (Hacker, 1996; Zeff & Aronson, 1997; Fingleton, 1999; Hill & White, 2000).

A second area of consistent perceived value of virtual worlds is in the training and education of organizational members. The immersive nature of virtual world platforms is seen as a natural fit with the development of *virtually* hands-on training exercises without incurring prohibitive travel expenses. Several respondents suggested

POTENTIAL BUSINESS APPLICATIONS						
Tensions	Marketing & brand awareness	Training & distance learning	Meetings & collaboration	Product innovation & testing	Recruitment & interviewing	Virtual tours
Popularity	•				•	•
First-mover	•	•		•		•
Demographic	•					
Anonymity	•		•	•	•	
Sociality		•	•	•		
Experience	•	•		•		•
Social Benefit		•			•	•

Table 3. Business applications and salient virtual world tensions

that virtual worlds might be useful for creating an employee onboarding process that is interactive but can still be implemented in a uniform manner around the globe. Here again, the parallels to early commercial applications of the Web are apparent, as with the emergence of e-learning as a novel instructional channel in the late 1990s (Cross, 2004).

Given the clear similarities between the perceptions of virtual worlds and earlier assessments of business value associated with the World Wide Web, the natural question is: "What can we learn about the adoption and appropriation of virtual worlds from this earlier wave of innovation?" Interestingly, the comments of our respondents suggest that some lessons have already been integrated into the evaluation of virtual world technology. Business professionals may have taken some painful lessons from the experience of the dot.com investment bubble. Accordingly, they are not simply buying into the hype around virtual worlds. Rather they are applying a critical lens to claims made within the broader media coverage of these virtual environments, and raising challenging questions regarding the potential real impact on corporate profits. This maturation of evaluation is also reflected in the acknowledgement that marketing within the context of a virtual world may demand skills and processes not currently present within a firm. For example, even among those who perceive substantial marketing potential in virtual worlds, there is a realization that the virtual world is not simply a 3D alternative to a bricks-and-mortar, or even Web-based, showroom. The interest of virtual world residents must be actively courted and consistently reinforced if marketing objectives are to be achieved. This marks a departure from many of the perceptions around the marketing potential of early websites.

Despite these insights, additional lessons may yet be gleaned. As noted earlier, the predominant assessment among the respondents in the study was that the business value of virtual worlds is relatively limited. However, a consideration of parallels in the development of the Web would suggest that an appropriate assessment must be tempered by the recognition that ultimate value will depend on the emergence of new processes, enhanced technological capabilities, and novel forms of interaction that have yet to be envisioned. In light of recent history in IT-based innovation, the tendency to disparage virtual worlds as "mere games" strays dangerously close to the infamous utterance of one ABC network executive in 1989 that, "The Internet will be the CB radio of the '90s" (Kelly, 2005). Of course, a range of practical questions remain: What are the new processes and competences required for conducting business in a virtual world environment? How can firms justify their investment in virtual world efforts? How can such investments be tied to the real-world results of the firm?

Virtual civilization and its discontents

As clear as the parallels are between the assessment of virtual worlds and early evaluation of the Web, precedents for the concerns regarding virtual worlds are just as apparent and perhaps better researched. The anxieties expressed by the participants in the study reveal remarkable consistency. Obvious problems associated with organizational participation in virtual worlds involve lack of control over virtual resources and the associated impact on brand image, and the potentially disruptive influence of antisocial virtual world actors. However, and perhaps more significantly, respondents repeatedly raised concerns about the depersonalizing potential of virtual worlds, the perceived dysfunction inherent in favoring virtual interaction over traditional interpersonal exchange, and the antisocial behavior that results from such electronically mediated environments. However, the consistency of these apprehensions is not simply between the participants of the study, but also with observers of earlier waves of IT-enabled innovation.

Virtual worlds may be couched within a robust stream of literature known as computer-mediated communication (CMC), which is rife with debate regarding the introduction of novel electronic media. Indeed, the topic of CMC within organizations has been one of the most hotly contested areas of research in the field of information systems. A new form of CMC often brings about a flurry of research activity so that it can be better understood. Extant literature analyzing earlier Internet-based communication environments demonstrates how arguments both for and against the then-novel communication environments were developed (e.g. Culnan & Markus, 1987; Parks & Floyd, 1996; Walther, 1996).

Within the earlier analyses of Internet-based communication, we observe a distinct opposition between researchers who emphasize the beneficial potential of CMC for the expansion of social interaction and those who foresee the degradation of existing societal bonds. Research which supports the degradation perspective suggests that increased use of computer-mediated communications leads to a marked decrease in the interpersonal nature of communication efforts. With more widespread adoption of Internet-based communication, many scholars have warned against the decline of interpersonal discourse and community-mindedness as more and more human interaction is mediated by technology (Turkle, 1995; Doheny-Farina, 1996; Putnam, 2000). Kraut et al. (1998) effectively summarized this image of interpersonal withdrawal:

Some scholars argue that the Internet is causing people to become socially isolated and cut off from genuine social relationships, as they hunker alone over their terminals or communicate

with anonymous strangers through a socially impoverished medium. (p. 1017)

The bases for these dire predictions reveal a remarkable resonance with the perspectives of respondents in our study. Concerns about the anonymity afforded by virtual worlds provide an illustrative example.

The ambivalence to anonymity revealed in our study echoes the arguments of earlier researchers. The question of anonymity has been one of the most prominent areas of disagreement within the CMC debate – centering on the contrast between the honest exchange that can result from anonymous situations and the potential for untrustworthy or distasteful behavior enabled by anonymity. From the positive perspective, several writers have suggested that Internet-based communication provides the basis for improved interpersonal interaction, because individuals can be judged based on the value of their ideas without the threat of personal prejudices associated with race, gender, or physical disability (Pool, 1983; Walther, 1996; Rheingold, 2000). Conversely, anonymity created by Internet technology can lead to inappropriate behavior because individuals feel they cannot be reprimanded or held accountable for their actions and statements (Sproull & Kiesler, 1986; Hiltz et al., 1989; Lea et al., 1992; Alonzo & Aiken, 2004).

Having established the parallels between concerns with virtual worlds and those that confronted earlier waves of Internet-based media, we must again turn to the question of what lessons can be brought forward to inform the evaluation of this new technology. In this regard, the other side of the CMC debate assists us by suggesting that concerns for the degradation of social interaction are often overstated or one-sided in their assessment. Several scholars have highlighted the beneficial potential of Internet-based communication. For example, a number of researchers have found that Internet media can serve as a jumping-off point for the establishment of personal relationships, which could subsequently be augmented through other channels of communication, such as telephone or face-to-face contact (Parks & Floyd, 1996; Parks & Roberts, 1998; Katz et al., 2001; Gibbs et al., 2006). Furthermore, some scholars have argued that the Internet provides the basis for personal connections that rival or eclipse those established in traditional communication environments (Wilkins, 1991; Bruckman, 1992). Perhaps the most telling counterpoint to a pessimistic perspective is that, in the follow-up to their “Internet Paradox” study (Kraut et al., 1998), Kraut et al. (2002) found that most of the negative outcomes documented in the earlier phase of their study had effectively dissipated over time. Indeed, recent research on social computing websites has found usage of the websites provides social capital benefits, especially for users with low self-esteem or low

life satisfaction (Ellison et al., 2007). Applying these insights to the domain of virtual worlds suggests that many of the anxieties voiced by respondents in the present study may dissipate as familiarity with the medium increases.

Implications for research

Our findings suggest a number of implications for future research into the real-world business value of virtual world environments. First, building upon the CMC research tradition discussed above, it is worthwhile to ask how virtual world environments differ from earlier waves of IT-enabled communication in their impact on social structures and user engagement. While many of the characteristics of established Internet-based media which have been subject to critique in the past (e.g. anonymity of actors, relative absence of facial and vocal cues, physical isolation) remain in the context of a virtual world, other facets of a virtual world are markedly distinct. For example, communication in a virtual world is more synchronous than some earlier forms of CMC and the immersive environment provides visual cues that are absent in text-based interaction. As researchers, we must explore the ways in which these different affordances can impact on the nature of the social interactions that result. Furthermore, as virtual worlds continue to evolve, many are experimenting with adding technologies that increase the synchronicity of communication, such as added voice communication. The introduction of these tools adds to the potential research questions for this emerging technology. Questions such as “Will the inclusion of voice functionality eliminate some concerns with the impersonal nature of Internet-based communication?” and “Does synchronicity improve the perceived value of the communication medium?” are familiar in the literature on CMC and research on human computer interaction (HCI), yet in the context of these new immersive environments the answers could be quite different. While these questions remain outside the scope of the current research effort, they will be critical as the assessment of virtual worlds continues.

Similarly, while it is true that the experience of Second Life is designed to be more immersive and, in a sense, more engaging than prior forms of CMC, the reality is that many organizational environments are not yet technically ready to support the optimal virtual world experience. The delivery of Second Life’s more immersive experience is currently hampered by a mismatch between systems requirements and the prevailing technology (that is, not the technology that is *available* today, but rather the technology that is widely used within homes and organizations). From a research perspective, this suggests a range of questions: Does the perception of Second Life’s business value vary based on the technological resources used to access the platform? Can tensions observed with

respect to anonymity or the absence of social cues be ameliorated with the introduction of advanced computing resources?

Finally, in this research we have presented seven “tensions” that were reflected in the perspectives of executive respondents regarding the value of virtual worlds to their organizations. Importantly, these perceptions suggest a series of assumptions on the part of the study’s respondents regarding the future direction of virtual world platforms. Future research will involve understanding the key criteria through which individuals make sense of the organizational value of virtual worlds. Which evidence or assumptions support various assessments of organizational value? Which considerations are most important in this assessment process? As we move forward with this research program, we will seek to elicit the perspectives of a wider range of professionals in an effort to answer these questions.

Limitations

There are a number of limitations to the present study that should be acknowledged. First, because the framework of business opportunities and associated tensions in this study is based on the perspectives of a relatively small sample of executive respondents, we do not claim that the highlighted applications and tensions are exhaustive. Rather, they illustrate the types of issues confronting managers and executives as they assess the organizational value of virtual worlds.

Second, the amount of time (i.e. hours) that executives spent in-world is a potential limitation, because the nuances of the virtual worlds often reveal themselves to the users as they spend more time in-world, interacting and shaping the experience. However, we feel this limitation is somewhat mitigated as the number of hours spent assessing the Second Life domain likely reflects the amount of time that would go into the initial assessment of such an application within an organization, from which opinions would be formed.

A third limitation involves the relevance of executive perspectives relating to such novel technologies. While we argue that the in-world experiences of executives are a valuable source of input, executives may not always be on the level of an organization that investigates novel information technologies. Often, technologies are vetted at a lower hierarchical point within a firm (e.g. members of an IT unit). In such cases, executives may make decisions based on clearly articulated business cases rather than assessing technologies independently. Accordingly, future research will also consider the perspectives of other organizational participants.

Finally, we acknowledge that Second Life is only one instantiation of a virtual world. Accordingly, we do not argue that our findings can be generalized to all virtual world environments. We believe this study is insightful for the assessment of organizational value in virtual worlds with a similar focus to that of Second Life. The dynamics encountered would probably be very different in more “focused” virtual worlds, where there are more clear objectives and distinct controls (e.g. World of Warcraft or targeted training applications).

CONCLUSION

In this research we explore the question of *productivity* in virtual worlds from the perspective of those best positioned to make decisions about organizational investment in these emergent environments (i.e. organizational executives). To this end, we propose an initial framework of critical tensions that must be addressed as businesses experiment with the conduct of business in virtual worlds. While we do not claim that our categories are exhaustive, they offer a rich yet parsimonious set of domains across which to address the potential role of virtual communities within contemporary organizations. Like other research on the contradictory facets of information technology (e.g. Robey & Boudreau, 1999), this work reflects on the paradoxes that are always present in organizational contexts that support innovative theorizing (Poole & Van de Ven, 1989), with implications for both professionals and researchers. Collectively, the insights can inform future development of virtual worlds, aid in the generation of theoretical insights, and identify new opportunities or threats in organizational appropriation of virtual worlds.

NOTES

1. A wide variety of terms continues to be used in place of virtual world, including immersive online environment, persistent state world, and MMORPG. In the current paper we have decided to follow the lead of Castranova (2001) in using virtual worlds for the sake of parsimony.
2. In today’s context, MMORPGs might properly be considered a subset of virtual worlds – specifically ones which are structured around a distinct game.
3. All statistics were provided by Second Life (http://secondlife.com/whatis/economy_stats.php) and were accessed on 1 October 2008.
4. In this context, “money” refers to Linden Dollars, the currency within Second Life.
5. Clearly not all of the earlier Internet-based communication media were subject to the critiques of asynchronous communication. MUDs, MOOs, chatrooms, and instant messaging also reflect synchronous communication environments.

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