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vManagement: Initial Exploration of Management Practice in a Virtual World

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Abstract

For several years, the authors have maintained a simulation (sim) in Second Life™, with management responsibility for allocating sim resources across research and instructional projects, some of which involved working with residents. Although not originally anticipated to be a research site in management theory and practice, the project presented an unexpected pattern of difficulty and an unexpectedly rich case study to examine why and how the virtual environment generated norms of power and empowerment for which traditional management practice was not effective. We conducted a theoretical thematic analysis on a body of conversation transcripts, meeting agendas and minutes, email messages and other administrative documents, applying concepts from the literature on presence, copresence, embodiment and social capital, seeking to identify the sociocultural context and structural conditions that shaped meanings and experiences of participants in this project. This exploratory analysis suggests a need for development of management theory and practice based on norms of empowerment shaped by designer-user role hybridization – in short, vManagement.

1. Managing Operations within a Collaborative Immersive Environment

For several years, the authors have maintained a simulation (sim) in Second Life™ (SL), with owner-manager responsibility for allocating sim resources across research and instructional projects. With funding from a College of Business Administration, corporate applications of virtual world technologies are foundational; at a strategic level projects focused on multiple, interrelated topics. Some team members built places and artifacts to support research focused on the use of virtual environments to enhance business activities such as collaborative decision making, and training and development of employees. Others fostered v-commerce activities, inviting current SL residents and real-world organizations to open and operate virtual businesses, serving as case studies and student business incubators to study and apply virtual business strategies. A third type of project explored how the virtual environment shaped and was shaped by social structures and communication processes.

The team anticipated adjustments associated with virtual teams, but expected communication in accordance with principles and practices of business-oriented management to serve well. In spite of careful practices, the team experienced a recurring pattern across projects in which conversations, particularly between owner-managers and virtual world residents, became increasingly difficult and projects were consequently derailed. Classic tools for achieving better organizational outcomes such as increased frequency of communication and greater transparency were utilized - none of which worked particularly well. The most persistent and severe managerial difficulties revolved around differences in assumptions and norms concerning power and empowerment, especially with respect to defining projects and project goals and allocation of sim resources. Although not originally anticipated to be a research site in management theory and practice, the project presented an unexpectedly rich case study to examine why and how the virtual environment generated norms of power and empowerment for which traditional management practice was not effective.

Following guidelines outlined by Braun & Clarke (2006) we conducted a theoretical thematic analysis at the latent level with a constructionist framework seeking to identify the sociocultural context and structural conditions that shaped meanings and experiences of participants in this project. The methodology section will explicate assumptions supporting the methodology as well as describe processes used for data collection and analysis. We built on relevant bodies of literature that address normative behavior in virtual environments, focusing analysis on interactions that illustrate power and empowerment norms that manifested in a virtual world differently from traditional managerial environments. We conclude by suggesting a framework for exploring managerial practice that is based on the sociocultural context and structural conditions of virtual worlds – in short, vManagement.

2. Literature Review

Bodies of literature have developed in recent years focused on psychological and social implications of virtual environments. It is not the purpose here to provide a comprehensive review of these inter-related streams of research. Rather we provide brief descriptions of current understanding of presence, copresence and social capital as the foundation of social norms concerning empowerment. Inherent in empowerment is specification of social roles and the privileges and obligations associated with those roles. Role definition is, we theorize, a fruitful place to seek an explanation for the difficulties we encountered. The analysis applies these concepts to expand our understanding of normative behavior in virtual environments and its implications for project management in virtual environments.

2.1 Presence and Copresence

Avatars are representations-of-self moving within and interacting with virtual space. At the extremes, avatars may be tools or vehicles, as when users describe taking turns “driving” an avatar (Martey & Shifflet, 2012), or perceived as extensions of self as users conceptualize their virtual experiences in terms that evoke their own corporality as their frame of reference (Schultze, 2010). Lee (2004) describes sense of presence as not being actively aware of the distinction between self and representation-of-self or of mediating technology. Copresence addresses participants’ mutual perceptions of being simultaneously present and engaging in reciprocal interaction (Slater, Sadagic, Usoh & Schroeder, 2000; Zhao, 2003). Mennecke, Triplett, Hassall, Conde & Heer (2011) propose Embodied Social Presence (ESP) as a theory of avatar use to explain how presence and copresence (which by definition includes sense of shared place), combined with shared, achievement-oriented activity, lead to a sense of embodiment that deepens and enhances the degree of engagement perceived by users, thus adding to sense of presence and copresence in a mutually reinforcing pattern. Avatar appearance based in reality is also associated with enhanced sense of presence (Jin, 2009), but users may construct fantasy-derived avatars. Schultze (2010) notes the paradox of simulating face-to-face communication via avatars that are digital masks, illustrated by participants engaging in deceptive behavior more easily when text chat was used with an avatar than when used alone (Galaxhi & Nah, 2007). Presence, copresence and engagement are related in complex ways that have yet to be fully explored. For example, even when presence and copresence are high, anonymity can have negative implications for trust (Tanis & Postmes, 2007), dampening social interaction that would lead to less reciprocal interaction and lower sense of copresence.

2.2 Social capital, norms and empowerment

Reciprocal interactions of copresence are the foundation for development of social norms and social capital, the collection of others with whom a user interacts and the resources the user can tap into through those people (Huvila, Holberg, Ek, & Widen-Wulff, 2010). Development of social norms involves another paradoxical phenomenon in that those norms are also shaped by the world itself. Environmental impact on social norms is illustrated by interactions consistent with courtesy norms of hosts and guests within *The Sims Online*, an environment that creates an extended metaphor of home and home ownership (Martey & Stromer-Galley, 2007). Virtual worlds that are shaped by users demonstrate cyclical cause and effect: user norms are shaped by the environment that users co-construct according to their norms. To some extent norms developed in virtual worlds run parallel to norms developed in corporality. For example, attractiveness bias applies to avatars and users idealize their avatars to enhance social status (Eastwick & Gardner, 2009; Peña, Hancock, & Merola, 2009; Yee & Bailenson, 2007; Yee, Bailenson & Ducheneaut, 2009). Others, such as norms of empowerment, are more exclusive to the virtual world.

Empowerment is a matter of individuals’ perceptions of ability to achieve ends they desire, involving match between activity and personal values and skills (meaning and competence), and feelings of control over activity and outcomes (self-determination and impact) (Spreitzer, 1995). As previously noted, world structure is a factor in development of social norms. Thus, those who can shape the world have power to shape social norms. Choices about avatar appearance have an impact on degree and quality of reciprocal interactions (Merola & Peña, 2010) determining users’ ability to tap into social capital as a basis of empowerment. In sum, while participants always fill the role of user of the virtual world, they may also, to varying degrees, fill the role of creator. Those who do act as creators garner

more social capital (Huvila et al., 2010) thus creative abilities and actions are major factors in empowerment.

2.3 Organizational Socialization, Roles and Role Hybridization

In an organizational setting, the socialization process involves employees learning, accepting, and exhibiting expected role behaviors as they contribute to organizational goals. Special emphasis can occur during employee orientation, but socialization continues across an employee's tenure with an organization. At either stage, problems can arise due to role ambiguity or role conflict. These concepts, outlined by Kahn, Wolfe, Quinn, Snoek, & Rosenthal (1964) and developed in subsequent research (i.e., House, 1970; Rizzo, House, & Lirtzman, 1970 and House & Rizzo, 1972), are foundational to traditional management theory and practice.

Role ambiguity arises with a lack of information regarding appropriate behavior, while role conflict results from conflicting sets of expectations. Role conflict can be caused by conflicting signals from organizational members as well as a lack of fit between personality and role expectations, when a role expected by the organization contradicts behavioral norms drawn from personal beliefs and values. Management of role ambiguity and role conflict traditionally focuses on selection processes for hiring employees, clear and current job descriptions, and adherence to administrative principles of unity of command and chain of command. There is however, another source of role ambiguity that falls outside of the scope of such administrative principles – role hybridization.

Role hybridization occurs when individuals fill roles across or among knowledge domains, claiming simultaneous roles that would ordinarily be considered exclusive of each other. It can be a consequence of appropriation (Eglash, Croissant, DiChiro, & Fouche, 2004; Hess, 1995), immersion (Beyer & Holtzblatt, 1995; Heidorn, Mehra & Lokhaiser, 2002; Lindsay, 2003), blending (Bowers & Pycock, 1994; Mackay, Carner, Beynon-Davies & Tudhope, 2000; Suchman, 1994) or expansion (Fleischmann 2006). Fleischmann notes that designers have higher status and that expansion into designer role is both more permanent and more transformative than other forms of hybridization. Role play can be a factor in that designers immerse themselves in the role of users on a short term basis and differentiation between roles remains largely intact. User expansion into designer role is perceived as permanent, and it destabilizes traditional power relations between designers and users.

2.4 Summary and Research Question

Connecting these streams of inquiry and analysis constructs a description of virtual worlds with specific, unique elements and offers a framework to answer the underlying research question of this study. As with any project, some failures can be traced to managerial action (or inaction), but given the team's efforts to correct its own mistakes and the growing body of research in the psychological and social characteristics of virtual worlds, the team was in a position to explore a useful question:

How and to what extent do norms derived from social capital based in embodied empowerment change the normative assumptions of managerial practice?

3. Methodology

To address the questions concerning managerial principles and practices, the team initiated a project to analyze its own experience in management practices by conducting a theoretical thematic analysis to identify and assess situations deemed problematic by the team. Braun & Clark (2006) advise researchers to explicate assumptions underlying methodology, justifying decisions concerning inductive

versus deductive or theoretical theme identification, latent or interpretive versus semantic or explicit level of analysis, and essentialist versus constructivist epistemology.

We do not claim that the identified themes exist within the data absent any relationship with the researchers or that the themes were discovered through an inductive process. Rather, the themes originate in the authors' assessment of their own experience, making the work deductive in theme identification and latent in level of analysis. To gain insight as to how the setting affected processes and outcomes, we chose a constructionist paradigm seeking to understand "the socio-cultural contexts, and structural conditions, that enable the individual accounts" (Braun & Clarke, 2006, p. 14).

3.1 Data collection

An extensive database was compiled from the archive of communications between the management team and residents, visitors, and collaborators with whom it interacted. The database includes well over 1000 transcripts of in-world chats, notecards sent within the virtual world, and email conversations in which project topics were discussed. The archive covers communication from July 2009 through November 2010 and includes input from approximately a dozen residents as well as university-based faculty and students.

The process of archiving transcripts of conversations and notecards in avatar inventory had been introduced to the research team by residents, and had become routine, although not completely consistent. In-world chats, in particular, which are not automatically saved, were often lost, sometimes with immediate realization that the content would have been usefully shared or stored. Nevertheless, the large amount of archival data insures at least some portion of every project conversation is available for analysis.

3.2 Thematic Analysis

Beginning with the functional roles of traditional management, we identified assumptions and processes associated with perceived conflict and suboptimal outcomes. Then, as themes emerged, we returned to the extant research in the psychology and sociology of virtual world interaction to identify underlying contradictions between implicit assumptions of traditional management principles and characteristics of the virtual environment in which the team was attempting to use them. Since the themes originated in our experience, it is necessary to preface the analysis with an overview of our managerial practices and tools and the normative assumptions that underlie them.

Managerial processes included standard elements of planning, organizing, leading and controlling, with the overall project goal to collect and analyze data. Management activities focused on communicating a definitive and consistent mission statement, setting goals for each component of the project, developing plans to meet goals that specified resource requirements, tasks, and responsibilities, and establishing operational policies and procedures. For project elements requiring participation of residents, procedures included distributing task-related information, facilitating flow of operational information, and providing feedback loops to allow managerial control of operations.

Managerial tools used in interactions with residents for planning and organizing included agendas distributed before formal in-world meetings and summaries distributed afterward. In-world notecards were used to outline expectations for roles and tasks as well as to document and distribute policies and procedures developed by the management team. Spreadsheets were used to assess various configurations of land allocation and establish budgets for in-world events.

The predominant channel for communication was in-world text conversation, supplemented with exchanges of notecards and real-world email messages, which were used, in particular, for weekly status updates after project communications had grown dysfunctional. Because project team members were often in-world at different times, transcripts of conversations with residents were routinely archived to facilitate collaboration and continuity among team members.

In-world administrative tools were used to monitor and control ongoing sim operations and to collect data to aid decision-making. For example, one such tool automated processes of leasing land and tracking resource utilization. Another tool recorded visitors to various parcels. Many in-world artifacts, including administrative tools, can only be used by a single avatar owner, and the managerial response was to create another in-world administrative tool, an alternate avatar shared among project management to own and use in-world administrative tools. The shared avatar also provided a single entity to conduct and record project-related financial transactions.

4. Data Analysis

The first step in locating themes involved a search for instances of residents responding to traditional management practices in ways that did not match traditional norms. We then sought to identify features of the virtual environment that could help explain the experience. The most salient factor involved fundamental assumptions of organizational structure. Traditional managerial principles derive from a presumptive value of organizational goals; the work to be done in achieving those goals drives organizational structure and defines working relationships.

Consistent with norms of traditional management practice and given that the sim was funded by the college, the team's assumption was that residents with whom it worked would accept and support the team's managerial status and decisions concerning the strategic goals of the project and resource allocation. The five power bases outlined by French and Raven (1959) were assumed in the team's managerial expectations. Ownership presents ultimate position power, which can be granted by the owner to others in the form of organizational hierarchy. Reward and coercive power can also be associated with position in that those with position power may grant valued resources as rewards to those who accept and support decisions or withhold them as punishment for opposing decisions. The power derived from expertise results in others accepting and supporting decisions with the belief that the decision maker is acting on relevant and accurate information. Finally, referent power results in others accepting and supporting decisions out of a desire to establish and maintain a relationship with an admired individual.

A series of conflicts and unacceptable outcomes indicating a breakdown in the management team's successful use of traditional managerial practices was analyzed in detail to trace their escalation and identify potential causes of the problems. Each situation was first coded with respect to information about the management processes and specific tools used. Residents' responses were categorized as either conforming to or diverging from the norms of traditional management. Where power to make decisions was part of the exchange, the events were coded according to invocation of one or more of the five power bases. Finally, the situation was assessed for the expression of virtual world norms based on role-hybridization and social capital.

While position power was accepted by all team members for defining the project and project goals, norms were inconsistent with respect to decisions about utilization of sim resources to implement those goals. Some residents doing business on the sim had been involved in the virtual world longer than any members of the research team, giving those residents more expertise with the technology. The

management team implicitly understood these residents to be acting in the role of consultants and acknowledged those residents' expert power by using their own position power to grant access to sim resources in exchange for technical services, explanations, and advice about sim operations. The team explicitly anticipated learning from residents to establish sufficient levels of expertise within the team. The team did not anticipate the use of coercive or referent power in the project, but as the project progressed, it became apparent that a failure to grant access to sim resources could be perceived as punishment and that task-based working relationships had the potential to develop into social relationships, opening the door for referent power.

Six interactions are presented here to demonstrate the development of an issue associated with power relationships related to sim resource utilization. In reporting these interactions, we follow a convention of replacing individual names with titles using initials and numbers and of substituting generic descriptors for place names. Participants affiliated with the university are identified as University Researchers (UR) differentiated with numbers based on order of appearance in the illustration and in-world residents as simply Resident (R), similarly numbered.¹

4.1 Excerpt 1

An excerpt from a contract that granted sim land and associated resources to two residents, R1 and R2, illustrates a traditional management approach. The document was intended to establish roles and structural relationships, highlighting hierarchy and position power, whether ownership-based or granted.

UR1 is Owner/Proprietor of [name] Club and is responsible for all financial expenditures required to keep the club running. (Tier, costs for performers, club improvements etc.) Final say in any major changes will come from UR1 in all cases.

R1 and R2 will be co-operations managers and will be in charge of advertising the club and also to recruit/ hire DJs and live performers with assistance from R3. Advertising will be the main objective of the management team. The team will also identify peak operating times within SL and adjust the schedule accordingly....

R1 and R2 will look to *potentially assume joint ownership in 6 months*. The potential of full ownership in the next year is also a *possibility if all parties are in agreement*. [Italics added]

4.2 Excerpt 2

An item from the agenda prepared by UR2 for a meeting with two other residents, R3 and R4, serving at the time as estate managers² also illustrates traditional managerial assumptions of hierarchical authority, even though participative leadership style and operational processes were being called for.

¹ We have taken the liberty of correcting spelling, typographical and grammar errors without inserting [*sic*] to mark the corrections. The many errors common to instant-messaging communication meant that other options, leaving errors uncorrected or inserting the technically correct notation, tended to obscure the meaning. Some participants used British spellings, and those usage differences were preserved to indicate potential cultural differences.

² Residents granted rights to act on the owner's behalf and adjust many of the settings on the sim, some of which determine what other residents can and cannot do.

5) Create some *groups for the governance of the island*. My "first draft" is to have an Executive Committee ... that makes fundamental zoning and strategic decisions. ...

Beyond that, a Merchants' Association seems to be an obvious group, consisting of those who *own entertainment and/or retail venues*. I would hope that many of the "resource sharing" issues could be worked out by that group.

Then, I see an important set of "citizens" who work, live or play in [sim] but are not necessarily interested in building or selling. Presumably clients, entrepreneurs, interns, and friends of [sim] would all have some voice in "town hall" events as appropriate.

Have I missed anyone? Obviously, there would continue to be groups associated with venues or business enterprises, but these would be the "public" groups associated with the Island. [Italics added]

4.3 Excerpt 3

A policy statement proposed by the two estate managers acknowledges their awareness of ownership circumstances and the objectives of the sim.

[Sim] is a non-profit, educational effort of the University of [name] College of Business Administration. *All business conducted in [sim] supports its goals* of research, education, and economic development of the state. [Italics added]

4.4 Excerpt 4

Further, a later conversation between R3 and R2 shows that both of them understood and accepted the exchange of sim resources for advice and services as indicated in the contract. R1 and R2 had assumed responsibility for all other operating costs. However, in this conversation, a hint of conflict has risen over the normative power relationships associated with the granted sim resources.

R3: You see, we thought that the fact you were being given a free parcel would have meant something to you. *We didn't realise that you would take that as never being enough.*

R2: First of all *we do appreciate* the free parcel a great deal. I doubt we would be doing anything otherwise due to costs and the primes we are working around, but it is difficult. R1 and I are *honestly trying very hard* to promote the sim via our venue.

R3: Can I tell you something that I think will make you understand about everything a lot more?

R2: I was under the impression that promoting [sim] by using the sim was a primary goal here. That is all I care about ...

R3: Oh it has been and it is ...[the] sim is an educational project that has been taken on as a research project, which means *that no one will get everything they want straight a way, it's about testing the waters and seeing how things can work* [Italics added]

4.5 Excerpt 5

Discourse had thus far conformed to traditional managerial practices, but interactions with the residents diverged from those norms shortly after. R3 sent the following message to the URs.

I would like to suggest a new way of handling [the sim], because right now it feels like things are getting done much too slowly. I realise that it is a learning process, but it is getting a bit tedious watching things move at a snail's pace.

I know that it is more difficult for UR3 and UR2 to get online more often, and that you guys want to be involved in every step of the journey, but that means a lot of the time that R4 and I are waiting around for your input, and sometimes that is for days, and it really interrupts our SL's, because we have those too!

So I have thought about it, and figured, there are four main areas of [the sim] that need to be governed. Administration, General Upkeep, Leasing and Events.

1. UR2 - I know from both you and UR3 that you would like to take a more hands off approach, but that does not mean you shall be jobless! So your jobs are: [a list of clerical duties and one duty to be "available to clear up any disturbances (we have had experience where only the Sim Owner would suffice)"].

2. UR3 - I think that you should be in charge of general upkeep.

[a list of public relations and clerical duties, including, "You need to keep us updated weekly on what is going on. Also, big decisions still need to be made by the four of us, especially regarding prims, etc. You shall be the ambassador between the sim and us" and "I think you are the girl for this job."]

3. R4 - Leasing

a) All shop/residential leasing - Hippo is best done by someone *who is seasoned* in working with it, and UR2 and UR3, *you can still LEARN from R4, but if we're going to get things done, then R4 needs to be officially in charge of it.*

b) When a new renter/resident comes a' knocking, *R4 should have the ultimate decision making power at the time, if no one else is online, and even then, because being from [place name] in RL and having lived in this sim for eighteen months, believe me, she is a good judge of character, and she shouldn't have to wait three days for something that can be done in one minute.*

4. R3 - Events. I have already been doing this but since we are dividing and conquering I feel it best to notate it.

a) Working with parcel owners to make sure that events don't clash - they have been sending me regular schedules and have been co-operative so far.

b) *Speaking to various event-parcel owners about prims* - I have successfully encouraged most of them to prim down rather than asking for more prims.

c). Also, we have created an online [name] Events calendar, which I have been regularly updating, located at:

[http://calendar.yahoo.com/\[name\]events](http://calendar.yahoo.com/[name]events)

There are also media signs up on almost every event parcel as well as the welcome centre, where people just have to click play and this can be viewed without hassle.

d) Keeping the rest of you updated on what is going on (obviously, you can view the calendar, but if there are issues I will inform you)

I would like to *state that I think terra-forming should be left to me and R4*. We both have the building tools *to do it well*, and when it gets done free-hand it ends up looking rather messy. Also, if you have a query about someone else's 'area', talk to them first.

So, if there is anything I've left out, please feel to add it, but I think this dividing and conquering scheme *should be enforced ASAP*. [Italics added]

Even though the message began, "I would like to suggest" it continues, "...since we are dividing and conquering," indicating a shift to a decision-making role. The resident cites estate managers' time rather than the goals of the project as the driving force for shaping operations. Further, roles this resident outlined for the URs were unrelated to the research goals of the sim project. The list of duties that R3 lists for herself are not in line with the collaborative model of governance UR2 had outlined in the meeting agenda. The section emphasized by italics invokes expert power as the justification for the assumption of decision making power, and the messages ends with the resident, implicitly perceived by management as a consultant and paid with access to sim resources, inviting the UR owners to "feel free" to add inputs. As a result, some members of the management team took issue with the implication that they, even though owners, were being treated as guests in the environment.

4.6 Excerpt 6

Interactions between the two estate managers and the URs and between the two estate managers and other residents became more and more difficult, with continuing role conflicts. The URs' managerial intent to incorporate broad-based participative governance was resisted with comments about the wisdom of "letting prisoners run the jail." It reached a culmination with the following message from R3 and R4 to the URs referencing continued conflict with R1 and R2:

The policies have been sent, the rules announced, *the leaders introduced*. There is no excuse for this behaviour any longer.

The people in question have demonstrated their lack of community spirit since day one. They have also *demonstrated a clear lack of respect* for anyone...and it has become very clear that they are finding a loophole around the system, and by doing so are taking clear advantage of UR2. UR2, you are an intelligent woman, but your SL knowledge is still in its learning stages, and they seemed to be clutching at this. *Any technical stuff you throw their way they KNOW is created by us*, and because we are not actual Professors at [name], they seem to think that as long as they can scam you, they are safe.

They are NOT. We have worked much too long and hard to let two people of such little respect and common decency destroy what we believe to be now an almost perfect sim. ... Something needs to be done, ASAP. You need to talk to them, UR2, and the rest of us *need to be SHOWN some respect*...if they do not start behaving like decent human beings, then they will be evicted in favour of someone or people that are worthy of the position and think it an honour to be where they are - because clearly, these two DON'T. We will not stay in the sim if we continue to be treated like this.

R3 and R4's previous appeals based on their own time and convenience had now become explicit denunciations of others' lack of respect for their power positions. The management response was to restate the original purposes of the sim and their role expectations for all participants. The two residents were not satisfied with that resolution and removed their property from the sim a few days later.

It is not possible within the space of this paper to include additional excerpts from interactions with residents, but the story concludes with R2 being made an estate manager on the expectation that one who had pushed so consistently against the style and actions of the first two estate managers, would not repeat their actions. It didn't work that way, and the pattern began again. As she became more involved in building across the sim, R2 became directive about its purposes and resistant to the power roles of the URs. R2 also pushed back strongly on broad-based participative processes for governance of the virtual business community, and she ultimately was perceived by other residents as maneuvering for a larger share of sim resources at their expense. Eventually the URs received another invitation to "feel free" to take a specified action on the sim. Ultimately, R1 and R2 also left the sim.

5. Discussion

These excerpts reflect a pattern of conflicting power expectations apparent in the database across multiple players and conflict situations. Thematic analysis demonstrated a consistent pattern in which residents assumed status, implicitly and in some cases explicitly revising their roles to claim status on the project team equivalent to ownership, and claiming power with respect to resource allocation decisions. In some cases, the assumption of power included specifying resource limitations that would compromise the team's ability to carry out research activities that were integral to its mission.

5.1 Insights

Fleischmann's (2006) observations on role hybridization offer insight into the situation. Management efforts began with the unstated and unexamined assumption that position power through ownership of the sim established rights to use the sim resources. This was presumed to confer roles as designers of the sim, albeit with technical assistance from resident experts. However, as noted by Huvila et al. (2010), residents of a virtual environment who possess producer/designer skills expect to realize the benefits of the social capital tied to producer status. In this case, residents expected decision-making power as a consequence of their hybrid role as designer-users. Further, given the management team's general lack of virtual world experience and expertise, its members functioned as users rather than designers in the early stages of the project. Residents accustomed to being designers/producers would naturally assume their status to be superior to the users on the project team. What was seen from a traditional perspective as unwarranted attempts to usurp power can be understood within a virtual environment as the legitimate claim of privileges earned through designer status.

A second insight derives from differences in orientation toward role play that seem to have contributed to the conflicts. Residents involved in the project disclosed only partial information about real world identities. Even in cases where significant information had been disclosed, they tended to stay deeply immersed in their avatar identities. In contrast, research team members were completely transparent about real world identities, using blended versions of real-world and avatar names and putting full professional biographical information on their in-world profiles. Researchers clearly labeled the shared avatar as shared, and always identified which researcher was embodied by it during interactions with residents. We saw this disclosure as an ethically necessary element of the full disclosure and transparency expected of managers. From a traditional perspective our behavior reinforced our status as the primary decision makers. But to the extent that engaging in role play within the framework of role hybridization heightens status, management transparency might have impaired its status in the perception of residents (Fleischmann 2006).

5.2 Potential Implications for Management Theory

First, administrative principles are founded in normative assumptions of power and control that do not appear to hold true in virtual worlds. Because technical and design expertise is required to effectively deploy them, ownership of sim resources does not appear to guarantee position power. In fact, norms of virtual worlds with respect to the creation of social capital would suggest that expert power should be reframed as equally salient in a virtual world's allocation of resources. Power relationships as an element of management theory might warrant re-evaluation within a virtual environment.

As noted earlier, management of role ambiguity and role conflict traditionally focus on careful selection decisions when hiring employees, clear and current job descriptions, and adherence to administrative principles of unity of command and chain of command. However, few managerial practices used to make effective hiring decisions are applicable in a virtual world, which is explicitly designed to allow self-creation and expression of alternate identities. Maintenance of currently accurate job descriptions is difficult enough as a traditional managerial task, and it becomes even more problematic in an environment where everyone involved is aware that each of them has the ability to redesign the environment itself.

Finally, socialization process in vManagement may require higher levels of reciprocity. In an environment where identity creation and role playing are understood as ongoing activities, new participants cannot be expected to feel pressure to adapt to the goals and norms of organizations. Instead, all members in an organization, regardless of tenure might be understood to engage in ongoing negotiations in an evolving set of organizational goals and norms. Further, everyone involved will expect to redesign the environment itself to support the reciprocally-established goals and norms.

Future Research

As we noted, the work reported here focuses on themes that originated in the authors' assessment of our own experience. An obvious next step is analysis of the database by qualified analysts who were not part of the experience to assess the events through an inductive process, identifying themes that exist within the data, independent of any relationship with the original researchers.

Based on the continuing research and ongoing development of virtual world technologies, there will continue to be reason to engage in projects within virtual environments and thus reason to be concerned about effective management of such projects. It is plausible to expect significant and systemic differences between projects best carried out in a virtual environment as compared to projects best carried out in traditional environments, but we do not yet know what those differences are. Furthermore, it is entirely likely we will find reason to blend the two with elements of a single project taking place in both environments. It would not be surprising to find that a blend of environments presents the highest levels of managerial challenge.

6. Conclusion

In summary, we encountered unexpected managerial difficulties involving issues of power and empowerment when it came to project design, role specifications and allocation of resources. As we applied classic managerial processes to deal with these issues, it became apparent that there were points of disconnect between the underlying expectations of residents and those of the management team. The thematic analysis suggests that the difficulties can be explained at least in part by the phenomenon of the virtual world shaping users' norms at the same time that users shape the world according to their norms.

Within those norms, the social capital generated by status as user/designers entitles them to exercise designer status in ways that would, in a traditional environment, be reserved for primary decision makers as determined by ownership and/or organizational hierarchy. We are led to consider that perhaps management of projects within a virtual world must attend to principles of management that are different from, and perhaps contradictory to, traditional theories and principles of management. We might need a new school of management thought – vManagement.

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