The Avatar as Sociomaterial Entanglement: A Performative Perspective on Identity, Agency and World-Making in Virtual Worlds

Completed Research Paper

Ulrike Schultze
Southern Methodist University & Lund University
ITOM Department, Cox School of Business
PO Box 750333, Dallas TX 75275-0333
uschultz@smu.edu

Abstract

Virtual worlds are utterly contrived and artificial simulations of the actual world. As such, they offer exciting new opportunities to question taken-for-granted, supposedly naturally-occurring binaries such as subject/objects, human/non-human, and reality/fantasy and to explore computer-mediated work and play in ways that do not rely on *a priori* boundaries between people and technology, online and off-line identities, and actual and virtual reality.

Focusing on the avatar as a sociomaterial assemblage constituted of the embodied user and his/her virtual embodiment, this research explores how virtual worlds users construct agency, identity and reality in situated practice by making agential cuts. Whereas prior research on virtual worlds has tended to frame the distinctions between the avatar and the user, between human and material agency, and between reality and fantasy in more essentialist terms, theorizing these boundaries as given and fixed, this research employs a performative lens. It identifies a number of discursive and material practices virtual world users rely on to construct identity, agency and worlds.

Keywords: avatar, Second Life, assemblage, discursive and material practices, agential cuts

Objective and Motivation

3D virtual worlds provide an exciting new opportunity for exploring computer-mediated work and play in ways that do not rely on *a priori* boundaries between online and off-line identities, social and material agencies and virtual and actual reality (Schultze and Orlikowski 2010). This is because virtual worlds provide users with a virtual body, or avatar, that acts within a digitally material world consisting of others, objects and landscapes. As such, virtual worlds are simulations of the actual world, that is, places with their own materiality, constraints and possibilities that nevertheless mimic actual reality. At the same time, they are utterly contrived and artificial (Malaby 2009), thus making room to question taken-for-granted, supposedly naturally-occurring binaries such as subject/objects, male/female, human/non-human, work/play, and reality/fantasy.

More specifically, virtual worlds afford a performative perspective on computer-mediated work and play (Schultze and Orlikowski 2010) in that they are inherently performative – rather than representational (Barad 2003). People rely on performative utterances, i.e., meaningful speech acts such as "[avatar name] jumps for joy," to take action in them (Murray 1997; Wolfendale 2007). Additionally, the immersiveness of the virtual world (its 3D-ness) is only actualized when users' avatars perform physically and narratively. Thus, it is the performance of bodily practices such as walking, sitting, talking, etc., that gives places, objects and avatars their substance (Taylor 2002). This challenges notions of objects, persons and geographies existing prior to the moment of action, and the representationalist contention that people must first construct the world in consciousness before they can act in it (Ingold 2000).

Performativity invites us to conceptualize avatars as sociomaterial assemblages and identity, agency and world-making as material-discursive practices. In a performative ontology the focus is moved from *inter*-actions between humans and their technological representation – both of which are deemed to exist as separate entities prior to the interaction – to *intra*-actions within an assemblage where the identities and properties of its elements are the result of agential cuts that are made in situated action (Barad 2003; Introna 2007). For example, to a customer calling into a call center, the components that form part of service delivery (i.e., the telephone system, the computer systems, the databases, the customer service representative, etc.) are experienced as an entangled whole until customer service representatives distance themselves from the (failing) technology with such utterances as "the computer has a mind of its own" or "it is not happy," (Nyberg 2009). It is through such discursive practices that agential cuts are made, ascribing not only blame to the technology, but also creating identity and agency boundaries.

Since avatars, that is, users' virtual embodiments through which they act and interact in-world, are a distinguishing technological feature of virtual worlds, they will be the focus of this performative analysis of 3D virtual worlds. Avatars re-embody communicators and make them present to both themselves and others. By having to define and present themselves in terms of virtual bodies that communicate in non-discursive ways through appearance, clothing and gestures, virtual world users invariably engage in identity work (Kafai et al. 2010).

However, avatars are not static representations of the user's self; instead they are situated and variably enacted forms of presence (Schultze and Leahy 2009). At times, the avatar is seen as a separate entity, a doppelganger that behaves independently of the user it is modeled after (Bailenson and Segovia 2010). At other times, the user inhabits the avatar, fusing with it so completely that he/she feels entirely immersed and present in the virtual space (Gee 2008). This suggests that definitions of identity (avatar vs. self), agency (material vs. human), and the world (actual vs. virtual) are fluid and situationally enacted.

Most prior research on virtual worlds has tended to take a view that avatars are representational, assuming their online performances to be directed by the user's prior, conscious self (Bardzell and Bardzell 2008). As such, the distinction between the user and his/her online identity are treated as given, fixed and unproblematic. For example, distinguishing between an actual, an ideal and a virtual version of the self, Bessiere et al.'s (2007) found that avatars in World of Warcraft represented players' aspirational identities. Furthermore, agency is placed firmly with the user, with the avatar being a more or less animated cursor. This is particularly evident in laboratory studies that seek to demonstrate that results generated in virtual worlds replicate human behavior in "real" settings (Yee et al. 2007). These studies also tend to treat the technological interface as the de-facto boundary between the virtual and the "real" world.

In contrast to this representational view of virtual worlds, a performative lens posits that all entities that are entangled in an in-world experience (i.e., computers, users, avatars, virtual others, etc.) acquire their identities, properties and capabilities in the moment and through their interpenetration (Orlikowski and Scott 2008). This implies that the elements implicated in an assemblage and the boundaries that define them do not exist *a priori*, but are the result of agential cuts that are made in practice (Barad 2003; Nyberg 2009).

Understanding how the elements that constitute a phenomenon, such as an avatar-mediated experience, are mobilized and how they are allowed to do some things and not others, is therefore key to a performative research agenda (Mouritsen 2006). The objective of this paper is to develop a performative understanding of the avatar as a sociomaterial entanglement by focusing on how virtual world users construct binaries such as avatar/self, human/technology and actual/virtual within the entanglement that constitutes their in-world experience. In other words, this research seeks to gain insight into the discursive and material boundary-drawing practices virtual world users rely on to construct identities, agencies and worlds by answering the following question: *How do virtual worlds users construct the boundaries of identity, agency and worlds in their in-world experience?*

The paper proceeds as follows: It briefly introduces performativity as an ontological lens. It then develops a theoretical understanding of the avatar as a sociomaterial entanglement. Prior research on avatars is reviewed as part of this theory development. The research method is outlined, followed by the presentation of the empirical insights. The paper will conclude with a discussion of the research implications and opportunities for future inquiry using a performative lens in virtual world and IS research.

The Performative Lens

As a sociomaterial ontology, the performative lens seeks to avoid the *a priori*, taken for granted boundaries between the social and the material (Orlikowski 2007), that is, the distinctions between people and things, between subject and object, and between meaning and phenomenon that are frequently the result of grammatical categories embedded in the language we use (Barad 2003). It does so by focusing on the material-discursive practices through which phenomena are enacted (Orlikowski 2010). Furthermore, it advances a relational ontology that seeks to restore a symmetrical relationship between human and non-human agency by acknowledging that both are capable of acting and inscribing meaning (Nyberg 2009).

A performative perspective is associated with a focus on action and enactment, that is, on the "mundane, everyday practices that shape the conduct of human beings towards others and themselves in particular sites" (Thrift 1997, cited in Nash 2000: 655). It rests on a linguistic understanding of action, which highlights how things are done with words (Searle 2010). Words do not only signify things, thereby serving a representational function (Mokros and Deetz 1996), but they also enact them. For instance, utterances like "with this ring, I thee wed" do not only describe what is happening but actually perform the action (Austin 1962). In other words, they are constitutive of the reality they describe (Callon 1998).

Performativity represents an ontological lens that views reality as "a doing," as enacted in ongoing practice (Barad 2003; Mol 2002). It regards reality not as composed of fixed and independent entities that *inter*-act, but as constituted by fluid, dynamic, multiple, and emergent phenomena composed on intra-acting, entangled material and social elements known as an assemblage. The concept of assemblage moves the focus from *inter*-actions between humans and their technological representations -- both of which are deemed to exist as separate entities prior to the interaction in the representational ontology -- to *intra*-actions among entangled elements whose identities and properties are dynamically constructed in practice (Barad 2003; Introna 2007). This implies that the boundaries between situationally-entangled elements in an assemblage are fluid and temporal (Nyberg 2009).

Barad (2003) refers to the boundaries that are drawn among intra-acting components as agential cuts. These are situated temporal delineations or demarcations that can nevertheless become habituated as part of material and discursive practices or by means of an apparatus, i.e., the instruments through which knowledge are produced (Scott and Orlikowski 2009).

The Avatar as Sociomaterial Entanglement

Avatars give virtual world users bodies and make them present. As such, the are frequently seen as representations of their users in that their appearance and actions signal the user's identity (Taylor 2002). For instance, Vasalou et al. (2008) found that people used avatars (i) to accurately reflect their offline selves by displaying stable self-attributes, (ii) to construct a playful representation of the self, and (iii) to send an embodied message. This representationalist logic underlies much of the research into online environments where the locus of social interaction is seen as occurring in a virtual space untethered from the user's body that is sitting at a computer terminal somewhere (Hardey 2002). This sets up an *a priori* distinction between the "real" physically-embodied user and the avatar as a technological artifact that represents the actual user.

Representationalism, whose logic rests on the separation between the signifier and the signified, i.e., the "real" phenomenon, stands in contrast to performativity (Barad 2003). Instead of regarding the signifier and the signified as existing prior to their interaction, the relational ontology that is performativity sees them as co-emerging during the enactment of a phenomenon through the practice of entangled social and material components that constitute an assemblage (e.g., people, institutional structures, telephone wires, computers, databases, etc.).

From a performative perspective, the avatar is viewed not as a technological artifact but as an assemblage whose elements include the corporeal user and his/her immediate social and physical environment; the computer and browser he/she is using; the internet connection and the computer network that makes the virtual world and interactions with others possible; the databases, servers, and programs that render the virtual world, etc. At different points in time, however, cuts are made to distinguish and delineate different elements that constitute this assemblage, thus dynamically assigning them identity, properties and agency.

Unlike technologies such as email or personal web pages, avatars are not just vehicles through which users present themselves to others in virtual worlds; instead, their online performances are also directed at the user. In other words, through avatars virtual world uses are not only engaged in other-regarding or transitive acts, but also in self-regarding or reflexive speech acts (Powers 2003). This implies that virtual world users who see themselves interacting with others in avatar-form, are frequently confronted by questions of **identity** like "Is this *me*? Do *I* act like that? Is this really what *I am like*?"

Furthermore, when employing an avatar not all aspects of performance are under the user's control (Taylor 2002). Avatars are frequently perceived as almost autonomous (Bailenson and Segovia 2010; Schultze and Leahy 2009), suggesting that the bodies and selves users create have some rooting in the social world outside of them. Bardzell and Bardzell (2008: 12) maintain that avatars are subjectivities: "A subjectivity, in contrast [to a representation], is a living force, an agent that both acts in the world and is constituted in the world through action." Consequently, questions of **agency** tend to arise for users: "Is that me acting or is it my avatar? Does my avatar have a mind of its own? I am telling it what to do and say, or is it acting on its own volition?"

By virtue of their name, virtual worlds re-inscribe a split between "virtuality," which is associated with information, the mind, and fantasy, and "reality," which is associated with materiality and the body (Ito 1997). Under closer examination, however, this split implodes, revealing a fuzzy boundary that Castronova (2005) calls a "membrane." People's experiences inside and outside virtual worlds cannot be isolated from one another. This means that users are frequently confronted by questions around the nature of the **world** they are acting in: "is this event real or is this fantasy? Are the people I am engaging with real or not? Are my feelings real or are they just part of a fairy tale?"

It is important to note that these three dimensions serve an analytical function; that is, they are not mutually exclusive, collectively exhaustive categories with which users make sense of the assemblage that is the avatar. Indeed, there is considerable overlap among the three dimensions. Nevertheless, they are useful as analytical starting points for distinguishing among the different material and discursive practices that virtual world users rely on to make agential cuts in practice.

Identity

Identity is the answer to such questions as "who am I?" and "what am I like?" (Chatman et al. 2005). People have multiple identities, e.g., father, student, manager, Asian, etc., that reflect different aspects of the overall self (Leary and Tangney 2003). In fact, people have as many identities as social contexts they act in. This is because identities reside not only in people's minds, but also in the social context in which they are located and the artifacts with which they interact (Talamo and Ligorio 2001). Thus, identities are activated, sometimes multiple at once, in given situations.

Prior research on online identities tends to apply a representational lens, maintaining that virtual identities are performances that are directed by the user sitting at the computer. This "performed" notion of identity (Brickell 2005; Gregson and Rose 2000) is based on Goffman's (1959) contention that when individuals come in contact with other people, they will attempt to control or guide the impression that others might have of them by changing or fixing the setting, as well as their own appearance and manner.

During such a performance, the self is divided into to two aspects: the *performer,* who fabricates the impressions, and the *character,* who emerges out of the ongoing performance (Goffman 1959). This separation between the performer and the character suggests that a performed identity relies on an active, prior and conscious agent (an "I") that intentionally acts out a role in a given context (Gregson and Rose 2000). In other words, there is doer behind the deed (Van Doorn 2010), a core, essential self that is perceived as the origin of an individual's thoughts and actions (Hickey-Moody and Wood 2008).

The notion of a performed online identity creates the impression that the user's self can be discerned and that its essence can be grasped (Mouritsen 2006). Such an essentialist view of identity implies that selves are composed of elements and properties that exist prior to any social interaction. Categorizing the self into a true, an ought and a possible self (McKenna 2007) is emblematic of this perspective. For instance, Bessiere et al.'s (2007) research on identity exploration in World of Warcraft revealed that the discrepancy between players' virtual and ideal selves was smaller than that between their actual and ideal selves. They thus conclude that avatars represent stable, aspirational identities (also Lawson 2000). Furthermore, representations can be assessed for their correspondence to reality, suggesting that misrepresentations create deceptive identities (Donath 1999) and fake selves (Tracy and Trethewey 2005).

Agency

Generally speaking, agency is an entity's capacity for action (Giddens 1984). Distinctions are frequently made between human and material agency. *Human agency* is generally regarded as an individual's ability to form goals and realize them (Leonardi 2011). It is associated with a mind, intentionality and reflexive interpretation that allow human beings to act with choice and relative freedom, thus making this a moral agency (Introna 2007). *Material agency,* in contrast, is defined as the capacity of non-human entities to act on their own (Leonardi 2011), even though it might be a derived agency, encoded by humans into an artifact (Introna 2007).

Frequently, material agency is attributed to entities, including technologies, that are not entirely under people's control. Since material entities are not accorded a mind of their own, human agency is generally regarded as primary in the inevitable interaction between people and things, including technology. Taylor et al. (2001) thus refer to human agency as having "lead status" compared to material agency's "complement status."

Applying a representational view of reality, Leonardi (2011) highlights that human and material agencies are separate and given. In other words, agency is the property of an entity. Nevertheless, he maintains that both are necessary to take action. In fact, it is by imbricating or interlacing these two types of agencies in different ways that specific actions become possible. This perspective reflects an *inter*-actional view of socio-technical agency (Introna 2007), in that it attributes agency to humans and artifacts prior to their engagement in technology-mediated practice.

The performative perspective challenges this inter-actional notion of agency by maintaining that in practice, human and material agency are indistinguishable. Nyberg (2009) illustrates this in his analysis of call center work. He points out that to a customer calling in, the components that are part of the service delivery (i.e., the telephone system, the computer systems, the databases, the customer service representative, etc.) are experienced as a whole. The caller does not separate among the different

elements and agencies interoperating in the service delivery; instead, she/he is likely to regard the service provider as the cyborg that he/she has become in this thoroughly technologically-mediated setting.

In prior research on virtual worlds, avatars are typically distinguished from embodied agents or bots on the basis of agency. Avatars are driven by humans agency, whereas bots are technology-driven in that they operate according to a programmed script (Bailenson et al. 2006). However, doppelgangers, that is, avatars that act independently of the user they represent, ascribes agency to the technology when users merely observe their avatars take certain action rather than interact with them (Bailenson and Segovia 2010). This research shows that avatars that look similar to the user and that change as a result of their actions (e.g., losing weight in proportion to the amount they exercise), are effective in shaping the user's actual behavior (e.g., continuing to exercise a week after observing their avatar). In these experiments, however, agency attributions are binary, with human agency being limited to the physically-embodied user.

World

Virtual worlds are frequently associated with game worlds, casting what happens in them as *separable* from "real life," as well as *safe* and *fun* (Malaby 2007). Drawing on his own studies of gambling in Greece and other anthropologists' studies of games in other societies, Malaby (2007) however shows that these characterizations of games do not hold empirically. Game participation often plays an integral role in other aspects of social life, affecting identity, reputation, and social connections, in addition to any financial stakes that may be at play (Juul 2005). With such stakes, the implications of participants' in-world experiences are not limited to their virtual lives. As such, activities in-world are not safe and free of "real" consequences.

Nevertheless, in much research on virtual worlds, the boundary between the virtual and the "real" is defined in technological terms. The boundary is synonymous with the interface of the virtual environment: upon donning a head-mounted display in a virtual reality setting or logging into the virtual environment as an avatar, the user transitions into the realm of the virtual (Lee 2004). Indeed, Murray (1997) highlights that providing clear boundaries between the "real" and the imaginary is an important design criterion for virtual environments that seek to enhance user immersion and to convey a powerful story line.

This conceptualization of the real-virtual boundary is also evident in laboratory studies of virtual worlds that have sought to demonstrate that results generated in virtual worlds replicate human behavior in the "real" world. Research that finds that "real"-world social norms regarding non-verbal communication and practices of the body persist in virtual environments – e.g., different interpersonal distance between friends and strangers is maintained (e.g., Soukup 2004), people face the person with whom they are interacting (e.g., Taylor 2002), and users employ different eye gaze strategies based on the interaction partner's gender (Yee et al. 2007) – generates support for the contention that virtual world labs generate "realistic" results.

As this brief literature review of identity, agency and world-making has highlighted, most of the prior literature on avatars and viritual worlds has adopted a representational lens. A performative perspective challenges the *a priori* and fixed distinctions representationalism makes between avatar and self, material and human agency and reality and virtuality. It highlights instead that these boundaries are drawn in situated action, making them dynamic and temporary. It therefore encourages us to explore the how, when and why of boundary-drawing, agential cuts by which identities, agency and worlds are construed, rendering some traits, incidents and relationships as "real" and others as virtual or fantasy.

Method

In order to explore avatars from a performative perspective, this paper relies on data collected during a 35-participant study of the avatar-self relationship in Second Life (SL). The reasons for choosing this virtual world include (i) its large membership (about 18 million accounts in January 2010, when data collection took place), (ii) the customizability and hence diversity of activities (including socializing, gaming, education and commerce), landscapes, as well as avatar appearance and behavioral characteristics it supports, and (iii) its ownership policies and economic openness, which encourages

residents to develop their own virtual objects and businesses. The openness of the SL platform and the peer-produced nature of its content imply that SL residents have to define and enact their in-world identities, activities and interests with little guidance, thus making it a particularly suitable setting for exploring the avatar as a sociomaterial entanglement.

Figure 1: Domains of Use
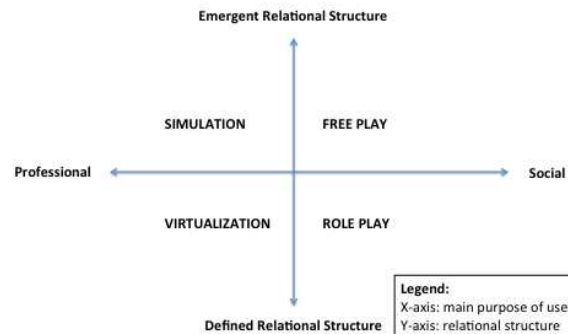
Based on a theoretical sampling logic, this paper analyzes data collected from four female SL residents. Theoretical sampling involves choosing cases that exhibit the phenomenon of interest naturally and intensively thus allowing the researcher to examine and elaborate on the theoretical constructs under investigation (Patton 1990). The four participants were chosen because (i) they each operated primarily in one of the four domains of use that characterize SL (see Figure 1), suggesting that the sample is representational of the different ways in which social virtual worlds are used, and (ii) they were very articulate and thoughtful research participants, implying that particularly rich data was available for each case[1]. Since the purpose of this study is to develop empirically-grounded theoretical insights rather than test an extant theory in (and generalize it to) the virtual worlds context, the richness of the data and the logic underlying the theoretical sampling is more important than sample size (Orlikowski and Baroudi 1991).

The domains of use framework was inspired by Schultze and Rennecker's (2007) categorization of synthetic worlds. However, given that SL relies on user-generated content rather than designer-scripted narratives, the framework dimensions were adapted to differentiate between the different purposes of use (professional vs. social) and the different social structures (emergent vs. defined) within which the users were operating. This resulted in the following use domains:

- **Simulation**: focuses on the creation of economic capital through the construction and sale of products and services to in-world customers. Here, virtual worlds are treated as complete substitutes for the material objects, people and processes that they represent. Thus the connection to the referent, i.e., the actual, is suspended. Like a pilot who is training on a flight simulator treats the model as an adequate facsimile of the actual plane, so SL is treated as its own complete marketplace/economy.
- **Virtualization**: revolves around digitizing the actual world, thus making the virtual world an extension of the "real." Here, the value of the virtual world lies in solving "real world" problems, such as providing virtual classrooms in the event that physical campuses are shut down due to N1H1 virus outbreaks, for example. Thus, continuity and congruence between the virtual and the actual is emphasized.
- **Free Play**: revolves around the construction of a perfect alternate reality as measured by the standards of actual reality. Many of the people who participate in this domain are focused on building relationships with others to make up for meaningful activities, interactions and

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[1] This might be related to the fact that the researcher was female and that women participants were thus more comfortable with the interviewing process than men were.

> relationships that they lack in their actual lives. Even though they seek a virtual life that is "perfect" and unencumbered by actual reality, they nevertheless resist any depiction of SL as a game. Instead, they describe it as a simulation or "pixelated" version of actual reality.

- **Role Play:** focuses on a community or "clan" with established norms and rules that help maintain the fantasy members are seeking to enact. There are numerous role-play communities in SL, ranging from medieval to futuristic settings. The 3D nature of SL makes these role-play settings accessible in that it materializes the fantasy world. Avatars can take on the embodiments of trees, elves, dragons and vampires, and digital geographies (e.g., Sherwood Forest) and objects (e.g., medieval weapons) both enable coherent role-play and constrain inauthentic action.

Table 1 summarizes the demographic details of the four participants constituting the sample for this analysis.

Table 1: Summary of Participants				
Avatar Name[2]	**RL Name[1]**	**Age:**	**Domain of Use**	**Primary Purpose**
Guarant Teutonicus	Terri	RL: 21y SL: 7m	Virtualization	Developing Presence for University
Mitt Richards	Mathilda	RL: 31y SL: 13m	Simulation	Designing Neko[3] Fashions
Mantis Avalon	Sara	RL: 43y SL: 38m	Free Play	Maintaining Intimate Relationship
Yazhi Orlean	Maureen	SL: 35y SL: 10m	Role Play	Developing Story Lines for Vampire Role Play

The participants were interviewed between December 2009 and February 2010. Each participant lived in the southwestern United States, within driving distance for the researcher, and spent at least 10 hours a week in-world. The data collection method was intended to gain maximal insight into the participants' own understanding of their activities and experiences with their avatars. Data were collected in two phases:

1) Initial 2-hour, face-to-face interview: The purpose of this interview was to gain background information on the participant's use of SL, to be introduced to their primary avatar, the groups they had joined and the places where they spent most of their time. These initial interviews were held in bookstores that offered wireless Internet access so that interviewees could log into SL during the interview. A key objective of the face-to-face meeting was to build the kind of rapport and trust needed to continue with the photo-diary phase of the research.

2) Weekly photo-diaries (for 3 weeks), which provided the basis for weekly interviews. These photo-diary interviews were conducted by phone and took about 1 hour each. This interview method was inspired by research in human geography (Latham 2003), which in turn is an adaptation of the "diary:diary-interview" method developed by sociologists (Zimmerman and Wieder 1977). Diary methods approximate observational research and are particularly useful in situations in which first-hand observations are not possible (Czarniawska 2007). This is because diary methods afford the possibility of gaining some degree of access to naturally occurring events, as well as their meaning and significance.

The photo-diary interview method relies not so much on intimate journals as on annotated logs kept by the research participants. These diaries are then used as the basis for intensive interviewing (Zimmerman and Wieder 1977). Since SL has a "snapshot" feature, it is very easy and efficient for participants to take

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[2] All names are disguised.

[3] Neko is Japanese for cat. In SL, members of the neko sub-culture wear tails, ears and whiskers, as well as clothes with tears and holes in them.

photos and provide a few annotative statements (i.e., answering when, what, why, who, and how questions for every snapshot) to construct the diary. Thus, the time burden typically associated with diary methods was significantly reduced. Additionally, the photographs captured the material conditions of each incident, thus making it possible to gain insight into both discursive and material practices. Additionally, it anchored the phone interviews in actual events, thus making them more grounded.

Participants were asked to proceed with their SL activities as they normally would, but to take a snapshot of incidents or instances that were in some way meaningful, significant or important to them. These snapshots were then pasted into a researcher-supplied photo-diary template, which outlined the annotation questions. Participants were asked to include at least 5 snapshots in each weekly diary and to submit the diary at least 12 hours prior to the scheduled phone interview. During the diary interview, the incidents documented in the photo-diary were used to explore the participants' relationship with his/her avatar in a situated context.

Participants were recruited via SL groups that had some association with the targeted geographic area. Given the considerable time commitment required by this research, that is, ~8 hours over a 4-week period, participants were paid $150. With the participants' permission, all interviews were tape-recoded.

Data Analysis

The data analysis followed the interpretive tradition in that it leveraged the concepts of agential cuts (i.e., material and discursive practices of boundary drawing), identity (i.e., avatar vs. self), agency (i.e., human vs. material) and world-making (i.e., virtual vs. actual), as sensitizing devices (Walsham 2006). As the photo-diaries and transcribed interviews were read repeatedly and organized into themes following the tenets of grounded theorizing (Strauss and Corbin 1998), a more complex understanding of both the theoretical concepts and the data evolved. Sub-themes emerged as a result of constant comparison among the higher-level themes and the practices across the different domains of use. In this way, insights were generated regarding how SL users drew identity, agency and world-making boundaries in practice.

Empirical Insights

Identity

The entanglement between users and their avatars was apparent in the way the interviewees talked about their experiences with and as their virtual bodies. At different points in time, their avatars represented past, current, and ideal images of themselves. This is illustrated by the following quotes from Sara, discussing her avatar, Mantis:

> [Mantis is] much more outgoing … and much more fun loving, which is something I really have not actually given myself the permission [to be] or just any real option for myself. I guess when I was younger, and at the age where I should have been having fun, I was described as 18 going on 35. So Mantis is a way that I can sort of go back and sort of celebrate all of those things that I never got to do, or I chose not to do in my younger years.

> When you see someone who's a little bit more edgy it makes you think, "oh, that's probably a person who's really not afraid to express themselves,".... I am a person that doesn't like to express themself for fear of others judging more or thinking different things. … I guess the more edgy Mantis represents my ideal.

> And then [Mantis'] little softer side is sort of being true to myself, because that's really who I am. You know, I will always try to soften it and make it better and try to say it in a more comforting way.

These quotes highlight how dynamic the relationship between the user and her avatar was. Who the avatar represented was neither unitary nor stable. Instead, the avatar's identity was multi-faceted and dynamic, much like the user's own.

Additionally, it was not clear whose identity – the avatar or the user's – was primary. As the following quote from Maureen suggests, users reflect their avatars' persona, just as much as avatars reflect their users' thoughts and feelings:

> You do become your avatar. It's very much like Cameron's new movie. You take on their persona. … It's not like in other video games, where you're just controlling a character to do things. That character is actually speaking for you, and your thoughts are their thoughts.

These quotes illustrate the entangled nature of the avatar and user identities in virtual worlds. Nevertheless, they also highlight the agential cuts that users make as they distinguish between who they are and who their avatars are. These cuts are made discursively and materially. For instance, by referring to avatars in third person, thus rendering them independent entities, users distinguished between themselves and their avatar discursively. By constructing alternate online identities, known as "alts," they relied on material practices for making cuts between themselves and their avatar.

As the quotes below show, the discursive practice of referring to their avatar by name and using 3rd-person pronouns such as "she," were pervasive and indicative of how agential cuts between the avatar and the user's self were made:

> Mitt started as a land sales person and she danced at a club just because I wanted to see what that was like. You know, I would never do that and I kept telling people, "no, no, no, don't do that; that's demeaning." But I was like, "you know what; I want to see what it's all about." And I actually ended up not being liked by the people at the club because there's something about Mitt. All these other dancers would be lucky to get like 200 Linden a night. Mitt would get 5,000 to 10,000 a night!

> It makes me happy that people want to be like Mitt, you know, and … I like to go around and "mitt" people, that's what we call it. And I'll do makeovers and stuff … Mitt is a style. She is a brand and many people want to be Mitt. And how that happened, I don't know.

> I mean, there were some pretty awful guys that came through and of course they would hit on me and Mantis flirts back; she just can't help herself. … There's always going to be something about Mantis. She's either going to have super-daring cleavage or really short shorts, or something. … [She's] really flirty, really kind of quirky, random.

A material practice by which users made identity cuts, was by creating alternate embodiments known as alts. Mathilda, who found that Mitt was unable to do anything but work because her customers and friends were IM'ing her all the time, used her alt as a way of dealing with this social overload. By logging in as her alt, she was essentially in-world incognito. Even though she felt uncomfortable with this, she also realized that the constant multi-tasking that both she and Mitt were engaged in, made it difficult to be around them. Only a handful of Mitt's best friends were aware of her alt's identity.

In contrast, Maureen, who engaged in vampire role-play in order to develop her writing and storytelling skills, regularly used four avatars. They were all female, shared the same last name and had her blue eyes. Her main avatar was Yazhi, a character that she had developed to honor her own Native American heritage. In fact, her name meant "little one" in Navajo, a name that Maureen had been called growing up. Maureen described Yazhi as follows:

> Yazhi, she has a whole life of her own. She's able to go and do all the things and be all the things that don't have to do with being a wife and a mother. … She is my inner me, my inner me me, that's just about Maureen. … Sometimes what we really think and feel gets hidden or lost in all of our have-tos. All of our want-tos get lost. So I think Yazhi is my want-tos. She's my writer and my painter and my creator, all the things that in real life sometimes get pushed to the side and forgotten. … She is able to just be the Maureen … that is there, but never gets to be seen, I think.

In light of Yazhi's identity as the creative Maureen, not weighed down by the responsibilities of being a wife and mother, Maureen created another avatar that she used merely to spend time with her RL (real life) husband in-world. While she saw Yazhi as the person she would like to be, she described her husband-specific alt as follows:

> I think [alt name] is just sort of a prettier me, like I don't really feel any other connection to her, other than what I feel to myself in real life. … She's just me.

Her second alt was used purely for vampire role-play. Even though Yazhi had been initially created for this, Maureen felt restricted in the kind of role-play she was able to do with her. This was because she was concerned about Yazhi's reputation, which was closely associated with her own. Even though she had

intended not to share any information about herself with people in SL, maintaining an impermeable boundary between SL and RL had proven difficult. Thus, being associated with Maureen's Christian values, Yazhi was no longer free to engage in any kind of role-play. In contrast to Yazhi, this alt was "extremely naughty" and "just crazy and dirty." For Maureen, pulling off a character that was so different from her proved "really hard" and "very challenging." She needed to do research to ensure that she played the role of a crazy vampire credibly.

Maureen's third and final alt was used to participate in non role-play environments. She used her to participate in poetry reading and writing circles. She also served as the owner of the store through which Maureen planned to sell the vampire storylines she was developing. As this alt served as Maureen's representative in business dealings, i.e., RL transactions, she created an avatar that resembled her physically.

Interestingly, neither Terri nor Sara had alts, suggesting that this material practice of using alternate embodiments as a way of segmenting the avatar-user's identity and social relationships, was not equally important in all domains of use. Indeed, the coherence and continuity between the actual and the virtual world valued in the virtualization domain would make the use of alts problematic, as "real" people are limited to one material embodiment or corporeality. In contrast, the freedom accorded the users in the free play domain would make alts less important as devices for dealing with social overload or the expectations of the community to which an avatar's identity was tied.

Agency

As is apparent from the above discussion about identity, avatars were accorded independence from the user, making the assignment of agency a natural extension of this logic. Many of the participants' comments alluded to their avatars being capable of cognition, emotions and intentionality:

> In the long run, it really comes down to what Mitt likes, you know. I do have a certain image that Mitt has kind of been known for, but whenever I get stuck in those little image things where people are like, "OK, that's very Mitt," Mitt likes to come out of nowhere with some things totally different. ... I think, Mitt likes to be a bit of a mystery when it comes to [designing clothes] because nobody knows [what she'll do next], nobody knows.

> [Mitt has] been wearing big baggy flannels that hang off her shoulder. ... Just because she's fed up right now. She just does not want extra attention. That's why she went offline to everybody, too.

> At the campus leads meetings [in SL], I know that I'm an undergrad, so I try to sit off to the side and stuff. But actually it's usually Guarant that feels like she is in a position that's greater than that, because she is the one who has all the skills to be able to do the work. ... So I mean, it's definitely Guarant that feels like she's in a higher position.

In addition to using these discursive practices to accord their avatars agency, the participants also leveraged the avatar's technological features to construct an impression that the avatar was being directed by them, when in fact it was not. Thus, they relied on material agency to create the impression of human agency. For instance, users frequently relied on looping avatar animations to fake their own presence or attention in-world:

> It's a dance party, so I could just put [Yazhi] on auto dance and carry on writing. I had my computer split in half, and I was writing a document on one side, and every once in a while I'd go over and read the chat a little bit, and I'd put, "oh, LOL, that was funny," or whatever. So in that way, it was easy for me to be somewhere but not really have to interact with people.

> I like to think that as [Guarant]'s sitting there, she is becoming a familiar face, more or less. I hope that by now people have noticed my name along with my avatar, and consistency with my attendance and stuff, and just acknowledge me in some way. But behind the screen, I suppose, I'm kind of using her to zoom around [with the camera] and make judgment calls by looking at how things are going, instead of listening to what they're saying.

By making the avatar rather than the user the operator in the virtual world, some participants attributed considerable control and technological agency to their virtual bodies. Among the interviewees, Terri, went the furthest in according an independent identity and agency to her avatar, Guarant. Terri was an underperforming undergraduate at a university that was developing a SL presence. After taking a course

on virtual worlds, in which Terri excelled, she was invited to work on the university's SL project. As the following interview excerpt shows, this was a significant experience:

> For the first time in like a really long time I thought like I was really good at something. Like I was in a better position to be a leader, and I really liked that because that's how I've always felt but, just because of not doing well as an undergrad, I guess, I was just kind of discouraged from doing any leadership sort of roles in real life. And I guess Guarant's activity motivated me and showed me that those qualities that I used to have, like I still do have.

Terri began to see Guarant as "motivated," "powerful" and "authoritative." Guarant simply had more "control" over SL than Terri had over RL:

> I can't even conceive of the amount of control [Guarant] has within Second Life. Just being able to create just about anything, down to like the tiniest details. She can control the objects, creating objects around her. She has a lot of control and say within the environments...

> Guarant seems to do a much better job at [communicating]. She tends to type things correctly and backspace and articulate what she wants to say. I'm definitely a little envious of that. ... She does a better job at getting the point across.

> People listen to her, because she speaks with authority, I suppose. And I guess it's that she just has a lot more power than I do in real life. ... And she tends to be much more assertive and better about connecting with people and just working in general. ... I find she like makes her way around into more prominent positions a lot more easily than I do.

Guarant had "direction" and took on positions of leadership and responsibility to which Terri, as an undergraduate, had no apparent access. Together with Guarant, Terri felt that she was able to realize her style and the ideas that she was struggling to express. With Terri's ideas and Guarant's control over the digital environment, they made a creative team:

> Now that I'm building again, I'm using more of my own style, and those are things that come from me and not from Guarant. But I'm using her at the same time to help me create these things. Because she's the one who has the control and the power to make my ideas manifest, basically. So now ... it's like we're working together more. ... me and Guarant are a team.

This experience was so powerful, that Terri wanted to "strengthen" Guarant's influence in her life and "help her identity spread online." She therefore changed all her accounts on social networking sites like Facebook and Twitter, as well as her computer, to Guarant Teutonicus. In this way, she sought to move Guarant out of the confines of the virtual world in an attempt to absorb her control and power, i.e., her agency.

World

As the empirical illustrations above have suggested, the distinction between actual and virtual reality was not well defined. Relying on discursive and material practices, the participants dynamically apportioned motivations, skills and actions between themselves and their avatars. The same kind of dynamisms and ambiguity was apparent when it came to distinguishing between reality and fantasy:

> In role play, I was engaged in a battle with [a male avatar] ... and I lost. And the terms of the battle was, if I lost, then he claimed me as his mate in [the role play sim]. ... I lost the battle, and when [Mitt's SL partner] came back on and heard of that, even though it was role play, he had a hard time dealing with the fact that that was role play. He thought that it was betrayal.

> [The king in Yazhi's role play clan] doesn't even IM me. He just sends me a teleport. And at first I used to always go, because I was nervous in Second Life, I was like, "oh, what if I make the king angry [if I don't accept the teleport]?" I wasn't sure how much was real people [being rude and inconsiderate] and how much was role-play.

The cuts the participants made between actual and virtual reality were associated with what information they considered versus ignored. Maureen, for instance, would invoke RL details to make SL events less real and to reduce the power that role-play accorded certain individuals:

> [The king of the clan has] even made comments, he's very judgmental and said, "oh, you're very rash and immature or whatever with your writing." "Well, who are you in real life?" I mean, really? "Are you on the Newbury committee, that you know about young adult writing? What do you know? You're a computer programmer [in RL]!"

Invoking the logic of correspondence between the actual and the virtual world, Maureen described SL as a "lying" environment:

> We're just a bunch of adults lying to each other. … We're all lying! I mean, I don't look like Yazhi. I don't look anything like her.

Sara also described many of her interactions with her SL partner in terms of lies, but she also recognized the performative role such utterances played in terms of maintaining a co-constructed fantasy:

> So in some ways, we tell each other sweet little lies. And it's just very easy, because it's just part of the fantasy. I don't really consider it a lie. It's more just trying to give the other person back what they give to you.

Sara had experienced considerable difficulties with the distinction between actual and virtual reality. When she first joined SL, she got involved in a romantic relationship. Married for 20 years and with no intention of leaving her spouse, her emotional attachment to her SL partner surprised her. She found herself unable to distinguish between what was going for Mantis and herself. However, what surprised her even more, was her reaction after the SL relationship ended. Not only did it affect her physically (she was crying for weeks and struggled with sleeplessness and elevated blood pressure), but she also felt so hurt and rejected by the break-up that she started "picking up guys [in SL] and tossing them aside" just to make herself feel better. Because she was "not proud" of her "predatory" and "destructive" behavior, she even sought SL counseling to understand "why am I doing this?"

Over time, she developed ways of establishing a clearer distinction between a "long-distance relationship" and a "Second Life thing." She resolved that her current relationship in SL did not constitute an emotional affair, because she was not in love with the person behind her SL partner's avatar. Rather she argued that she and her SL partner were in love with "the fantasy the other represents; we love the IDEA of each other's affection, and we love how the fantasy unfolds each night in SL." As the following entry from one of her photo-diaries indicates, Sara regarded her SL relationship as "harmless" and while she noted the benefits of her SL liaison, she felt "safe" from any negative consequences:

> "In SL the greatest joy is the uncomplicated escape that a relationship provides. I feel it makes me overall quite a bit happier in my RL, and to me it is a harmless outlet for wandering thoughts and daring fantasies. I must admit, the ability to capture the attention of the opposite sex in any world is flattering. This harmless contact via the anonymity of a different name and a completely different look in SL feels much safer than a RL flirtation with RL consequences."

In order to help them make these agential cuts consistently on a daily basis, Sara and her SL partner relied on a number of discursive and material practices. They limited the amount of time they spent talking about RL things. Even though they caught each other up on their respective workdays, they kept these discussions on a superficial level as Sara felt that information about the messiness of real life ruined the perfection of the SL fantasy. They also actively sought out SL activities to serve as an escape or a daily "mini-vacation." For this, they relied on the different material environments that SL offered. They explored new sims and went shopping and bargain hunting. This fed fed into their continuous experimentation with their avatars' embodiments as they tried out new skins, shapes and clothes. By means of these material practices, the differences between actual and virtual reality were highlighted, thus reminding them that their virtual lives fell squarely in the realm of fantasy.

One material-discursive practice Mantis relied on to maintain the separation between "real-life and fantasy" was using only text-based communication (rather than voice and/or video). This ensured that conversations were mediated by her avatar and in 3rd person speech. For instance, when she wrote emote statements, they would show up on screen as "Mantis Avalon looks deeply into your eyes." To Sara, this created a text that resembled a romance novel, which further underscored the fictional nature of these exchanges.

Furthermore, she relied also on the physical materiality of her actual environment to make cuts between the virtual and the "real." Specifically, she started using a desktop computer located in the family den rather than her laptop that she could carry to private spaces. In this way, she had a legitimate reason to limit her communication to online chat. Furthermore, being in the same room as her TV-watching RL husband while she was in SL protected her from getting too deeply immersed and emotionally involved in her SL relationship.

Another discursive practice Sara used was to rely on words like SLove, SLex and SLives to describe her activities and emotions related to her SL partner as a "Second Life thing," rather than a "real" long distance relationship. She thus concluded:

> So I think I have a great deal of affection for [my SL partner], and I tell him that I love him in Second Life, because, you know, as Mantis, ... I really feel like we do have a love for each other. But it is very fantasy, you know, I mean, there's no actual real basis. ... I don't know what kind of chemistry there would actually really be in real life. I've thought about it, but it's just not something I really wish to explore....So the fantasy to me, even though it's a very complex fantasy,... at times it seems very real and I do invest a lot of my emotion in it, I really do feel firmly that it is a fantasy.

It is interesting to note that the material practices apparent in these examples, involve both digital and physical material. In other words, different boundaries between the virtual and the "real" world are enacted when people use voice vs. text-only, what their physical surrounding is like when they engage in the virtual world, and what actions the virtual world affords with respect to interactions with geographies, objects and people. Not only is the assemblage that is the avatar shaped by these agential cuts, but so is what people perceive as virtual and "real."

Discussion and Conclusion

Virtual worlds are utterly contrived and artificial simulacra of the actual world. As such, they offer exciting new opportunities to question taken-for-granted, supposedly naturally-occurring binaries such as subject/objects, human/non-human, and reality/fantasy and to explore computer-mediated work and play in ways that do not rely on *a priori* boundaries between people and technology, online and off-line identities, and actual and virtual reality. Given the inherently performative nature of virtual worlds (Schultze and Orlikowski 2010), this research has applied a performative ontology to answer the research question how virtual worlds users construct identity, agency and worlds within their in-world experience.

The empirical data highlights that the users of virtual worlds indeed experience their avatars as entanglements whose constitutive elements are difficult to discern. With regard to identity, for instance, it was unclear to them, whether their real selves or their avatars had primacy. They talked about becoming their avatar and their avatar becoming them. Furthermore, at different points in time, their avatar represented who they had been, who they were and who they wanted to be. Relying on discursive practices, such as referring to the avatar in third person, the users separated themselves from their avatar. Additionally, they relied on the material practice of adopting different virtual embodiments, i.e., alts, to draw identity boundaries.

With regard to agency, the users relied on both discursive and material practices to make agential cuts that separated human from technological agency. For instance, numerous users relied on the technological features of virtual worlds including the avatar's looping animations to fake their own presence and attention in-world. In other words, what appeared to be human agency directing the avatar was actually technological agency. However, the user him or herself was also witness to this technological agency because they also saw their avatar performing certain automated facial expressions and body language. This reflexive performativity (Powers 2003) also contributed to their view of the avatar as having cognition, emotions and intentionality independent of them. Additionally, by talking about the avatar as an autonomous agent, they discursively strengthened this separation. Also, if users viewed their avatar as interfacing with the technological features (e.g., menus, in-world chat), they were likely to attribute to them tremendous power and control over the virtual world.

With regard to the world dimension, it is interesting to note that users relied not only on discursive and digitally-material practices to make agential cuts that helped them deal with the ambiguous distinctions between reality and fantasy, but also on physically-material practices. This suggests that this boundary the most challenging for users to manage. For this reason, they developed numerous practices to help them draw the boundaries between the actual and virtual reality in a consistent manner on an ongoing basis.

In the spirit of sociomateriality, this paper highlights the role that material plays in the constitution of phenomena. In particular, it identifies practices that rely on both digital and physical material to enact agential cut in the assemblage that is the avatar. By so doing, this research acknowledge not only that social/discursive practices constitute technology, but that technology/materiality also constitutes the user. Thus, the ability to embody different versions of oneself into different avatars, makes people see themselves as being multi-faceted. Furthermore, being able to embody an idealized image of oneself and to enact a "perfect" relationship using digital material, constitutes an actual world that is deficient and characterized by constraints rather then possibilities. Thus, where, how and why users enact identity, agency and world cuts has implications for how users constitute both their actual and virtual lives.

Sociomaterial theorizing also highlights that agency does not reside in any one actor, e.g., human or technological. Instead, it is the result of the sociomaterial entanglement. This has consequences for moral agency, which is typically seen as human in nature. Can we really say that in virtual worlds, the user is ultimately responsible for avatar-based actions? To what extent is the avatar's material agency equally responsible for actions taken in-world?

The boundary drawing practices, and particularly the logic underlying them, have implications not just for virtual worlds, but also for contemporary organizational settings that are marked by globalization and virtual work. Here, individuals are increasingly experiencing their lives in a hybrid space that combines cyberspace and geographical space, as well as virtual and actual reality (Madge and O'Connor 2005). More and more, they engage in both spaces concurrently and recognize them as inextricably intertwined and mutually constitutive. It is in this liminal space where distinctions between the on- and the off-line identities, human and technological agency, and between "real" and virtual worlds are blurred, that organizational participants increasingly have to construct and manage their identities.

One need only look at how people's identities are increasingly constructed on Facebook to see how important socially agreed-upon boundary-drawing practices are becoming. For instance, which parts of Facebook are deemed to be separate from the user's "real" identity: wall-posts by friends or friends of friends? How will people use cuts between technical and human agency to reduce their responsibility for posts that are harmful to themselves and others?

This paper's key contribution is demonstrating such sociomaterial concepts as assemblage and agential cuts empirically. There has been considerable conceptual and theoretical research on sociomateriality (e.g., Leonardi and Barley 2008; Orlikowski 2007; Orlikowski and Scott 2008), however, with the exception of a few papers (e.g., Introna and Hayes 2011; Leonardi 2011) there have been few empirical applications of these concepts. Furthermore, demonstrating these concepts in the context of virtual world technologies is compelling, because on the one hand there such powerful parallels between bodies, objects and geographies in the real and virtual worlds, but on the other there is a clear recognition that virtual worlds are completely digital and designed, implying that it does not exist until it is rendered on a user's browser. As such, a priori boundaries between the social and the material are misplaced. In the virtual world, the user does not exist without the avatar and vice versa.

Because virtual worlds are inherently performative, it is easier to see the value of the performative lens in this context than it is in more traditional contexts such as email or ERP system use. Nevertheless, the peformative lens is equally valuable in those research contexts; it is just harder to discern because of the taken-for-granted cuts that both the research and user community has enacted in these settings over the years. Thus, this research might provide insight for how to theorize performative identity, agency and world-making relationships in more traditional information systems.

It is important to note, that the analytical cuts that were made in this paper to distinguish among the three dimensions of the avatar assemblage are problematic. Ultimately, these dimensions do not exist in practice. Indeed, the overlapping nature of the three categories was apparent throughout the theoretical and empirical discussion. Nevertheless, with the understanding that has been gained by distinguishing

along these three analytical dimensions, future research might explore what dimensions are created in practice.

While this research has focused only on how boundaries related to the avatar are drawn, future research might explore questions of when and why certain agential cuts are made and what patterns emerges by comparing these practices across the different domains of use. Furthermore, by comparing the boundary drawing practices across different virtual worlds, the material conditions of these practices should become clearer.

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