Compulsive Creativity: Virtual Worlds, Disability, and Digital Capital

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In this article, we analyze the intersection of creativity and agency by examining what might appear to be a very different intersection: disability and the digital. We do this by exploring what we term "compulsive creativity" as experienced by persons living with Parkinson's disease who are active in the virtual world Second Life. To address forms of social and cultural capital, we introduce the notions of "digital embodied states" and "digital objectified states." In doing so, we suggest ways that compulsive creativity speaks to questions of cultural capital in the context of disability online and emerging creative economies.

Keywords: creativity, digital culture, disability, ethnography, virtual worlds, social capital

Introduction

In this article, we analyze the intersection of creativity and agency by examining disability and the digital. We do this by exploring what we term *compulsive creativity* as experienced by persons living with Parkinson's disease (PD) who are active in the virtual world Second Life. We then extend our analysis to illuminate how online technologies do more than "compensate" for disability: New possibilities for selfhood and community can emerge. This is important because a dominant "mode of ordering disability . . . works by way of compensation . . . to turn disabled people into competent normal subjects" (Moser, 2006, p. 383). One of our key goals is thus to contribute to an understanding of technology and disability beyond a model of compensation.

We use compulsive creativity as an ethnographic exemplar to illustrate the value in expanding discussions of social capital to include *cultural capital*. These concepts were introduced by Pierre Bourdieu,

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Date submitted: 2015–11–23

but only the former is commonly addressed in discussions of digital cultures. Cultural capital refers to forms of cultural status and power, distinct from the interpersonal connections that make up *social capital*, that can be converted into economic capital. We show that attending to cultural capital foregrounds embodiment and artifacts, taking the analysis of capital beyond density and quality of social networks. To achieve this, we introduce two concepts—*digital embodied states* and *digital objectified states*—to suggest ways that compulsive creativity speaks to questions of cultural capital in the context of disability, selfhood, and emerging creative economies online.

Following a discussion of methods and ethics, we review literatures relevant to our research. Here, we briefly summarize the clinical literatures on PD and the associated phenomenon of compulsion. PD, for which no cure currently exists, affects the central nervous system and involves the loss of brain cells that generate dopamine. Approximately 500,000 people in the United States have PD, with about 60,000 new diagnoses annually. Common symptoms include tremors, rigidity of the limbs and torso, bradykinesia (slow movement), and impaired balance. Many experience depression or anxiety, which can contribute to social isolation. People with PD must often curtail employment or retire.

PD is a member of those classes of disease that despite a fairly well-defined diagnosis can manifest very differently, encompassing physical, psychological, and social symptoms. Responses to medications are similarly broad. Most relevant to our analysis is that dopaminergic drugs often used to treat PD can contribute to impulse control disorders (Bastiaens, Dorfman, Christos, & Nirenberg, 2013). These can take the form of compulsions with negative implications, including gambling and sexual addiction.

We are highly sensitive to these damaging compulsive behaviors; some of our interlocutors have experienced them. However, our focus is on a positive compulsion experience. Since the early 2000s, clinicians have described cases of persons with PD experiencing bursts of creativity that are uncontrolled in some fashion. These include visual creativity such as painting and verbal creativity such as poetry (Schrag & Trimble, 2001; Walker, Warwick, & Cercy, 2006), and often involve artists, but can also involve persons who had little prior artistic activity (Joutsa, Martikainen, & Kaasinen, 2012). The creativity in question is idiosyncratic, and many clinical reports describe one or two cases. However, it may be more widely experienced: One survey of 376 PD patients in Finland found that 19.3% of respondents "reported increased artistic creativity after the diagnosis" (Joutsa et al., 2012, p. 79).

The phrase *compulsive creativity* has been used on occasion outside our fieldwork, but not to our knowledge as an analytical concept.[2] Although our discussion is limited to virtual worlds and a social, not clinical, analysis, we hope the phrase can be useful with regard to the physical-world experiences discussed in the medical literatures cited above. It is important to recognize these medical dimensions without medicalizing compulsive creativity by reducing them to a pharmacological side effect. Our claim is

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[2] Because we use *compulsive creativity* as an analytical concept, we use it to refer to persons even if they would not necessarily use the term to describe themselves. Both of the key persons discussed did use the term for self-reference on occasion (one of them does not do so in the ethnographic materials presented in this article).

not that digital cultural capital is a meaningful concept only with reference to compulsive creativity. Rather, compulsive creativity highlights important aspects of digital cultural capital, helping draw attention to its implications for disability and for digital culture and media more broadly.

Method and Ethics

Our analysis is based on a four-year ethnographic study of an online PD community. We got to know this group through our prior fieldwork extending back to 2004. As members of this group described their experiences of compulsive creativity, we were struck by how these experiences revealed manifestations of cultural capital online.

Our research entailed extensive virtual-world participant observation with members of this group in everyday activities. Some of these activities foregrounded PD, and others were more general, such as dances, exploring parts of the virtual world, and so on. It also included more than 150 hours of weekly informal discussions and 20 hours of interviews. This corpus of data was then coded and analyzed with regard to the themes relevant to our analysis.

With regard to the key questions of generalization and scope, it bears emphasizing that field-based methods such as ethnography focus not on what is generalizable or predictable, but what is possible. If you study street youth in Rome, the goal is not to predict what the lives of street youth in Bangkok are like, but to provide a better understanding of street youth in Rome. The research might give us some themes to explore in Bangkok, but this comparative value is not the same as generalization. Geertz (1973) summed this up by stating that the goal of ethnographic research is "not to generalize across cases but to generalize within them" (p. 26). He and others thus articulated the goal of ethnography as seeking to understand the broader implications of everyday meanings for the human condition.

When presenting their research findings, ethnographers usually focus on subsets of a larger group—or even a single individual, when a detailed exploration of that individual's life can effectively illustrate broader cultural logics. Often, the choice to focus on a smaller group is based on conceptual goals. Indeed, there are many famous examples of entire books based on a single informant. Classic instances of this are Crapanzano's (1985) *Tuhami: Portrait of a Moroccan*; Behar's (1993) *Translated Woman: Crossing the Border With Esperanza's Story*; and Biehl's (2005) *Vita*, which centers on a single woman, Catarina. Even contemporary work on digital cultures sometimes discusses a single person (e.g., Hollett & Ehret, 2015; Moser, 2006). We focus on two individuals, allowing us to provide rich detail on their experiences with regard to compulsive creativity and cultural capital.

Our study received Institutional Review Board approval from both the University of Oregon and the University of California, Irvine. All interviews were recorded, transcribed, and saved to protected databases. Particularly because we have encountered persons claiming that Internet research is less ethically bound because it is "not real," we join those asserting that online sociality is as real as physical-world sociality. This means that ethics is just as real, and should be considered with regard to research design and publication (see Boellstorff, Nardi, Pearce, & Taylor, 2012; Markham & Buchanan, 2012). It is

typically important to protect persons discussed in ethnographic studies via anonymization. In addition to physical-world names and details of one's offline life, this should include screen names and other identifying data regarding online activities. We encountered an exception to this protocol that can occur when working with artists who wish to be acknowledged as the authors of their work. With Institutional Review Board permission and additional consent forms, we use the physical and online names of the two artists whose stories are at the center of our discussion: David Denton (DB Bailey in Second Life) and Deborah Foster-Salsa (Solas Nagealai in Second Life).

Literature Review: Virtual Worlds, Disability, and Affordances

Virtual worlds are places of human culture online. Early virtual worlds were composed entirely of text, but the majority now feature three-dimensional graphics and avatar bodies. Some are oriented toward gaming or role-play (e.g., World of Warcraft, League of Legends); others more flexibly allow for gaming or nongaming activity, such as Minecraft and Second Life. We focus on virtual worlds knowing that social network sites (e.g., Facebook) and mobile devices (e.g., iPhones) dominate scholarly discussions of digital media. However, virtual worlds remain a significant genre of digital culture, particularly given emerging forms of virtual reality technology. Our analysis of compulsive creativity and cultural capital is focused on virtual worlds, and we hope it provides lines of inquiry and research questions for scholars working on other aspects of digital cultures as well. At the time of the research on which this article is based (2012–2015), Second Life was an intermediate-sized virtual world, with approximately 50,000 residents online at any time and an active population of approximately 500,000. It is a free-to-access virtual world where residents can engage in a range of activities.

Disability is "a profoundly relational category, always already created as a distinction from cultural ideas of normality" (Ginsburg & Rapp, 2013, p. 54); it is also "a category anyone might enter through aging or in a heartbeat, challenging lifelong presumptions of stable identities and normativity" (Ginsburg & Rapp, 2013, p. 55). The range of conceptual approaches in disability studies and activism is staggeringly broad. Key themes include medical models emphasizing treatment or cure versus social models distinguishing impairment as an individual condition from disability as culturally constructed. Another line of analysis challenges the category of disability itself (for instance, in some Autistic and Deaf communities).

Despite our focus on PD, our attention to compulsive creativity and cultural capital leads us to reject a medical model and draw instead on the rich body of contemporary work in critical disability studies that uses social models of disability to explore how an "ideology of ability . . . defines the baseline by which humanness is determined" (Siebers, 2013, p. 273; see also Garland-Thomson, 2011; Snyder & Mitchell, 2006; Tremain, 2005). This work addresses a range of issues, including disability art and a disability aesthetics that "refuses to recognize the representation of the healthy body . . . as the sole determination of the aesthetic" (Siebers, 2006, p. 64). It also has attended to questions of communications given that disabled persons often have been at the forefront of creative technological transformations in "disability media worlds" (Ginsburg, 2012; see also Ellis & Kent, 2010; Goggin & Newell, 2002; Watling, 2011).

We are particularly interested in contributing to work in disability studies that engages with theories of affordances (e.g., Borioli & Brandner, 2007; Dokumacı, 2014; Loveland, 1991), which includes some work addressing virtual worlds (Stendal, Molka-Danielsen, Munkvold, & Balandin, 2013). The notion of affordances was first developed by Gibson (1977) in regard to the psychology of visual perception. Two key aspects of Gibson's influential formulation "are, first, that affordances are objective features in contingent combinations, and, second, they only exist as affordances relative to the properties of some *other* perceiving and acting entity" (Keane, 2014, p. 7). To take one of Gibson's examples, if a flat surface of support is sufficiently broad and strong, we can call it a *chair*—but only if it is at the correct knee height for a person, and furthermore "knee-high for a child is not the same as knee-high for an adult, so the affordance is relative to the size of the individual" (Gibson, 1977, p. 128). Although Gibson did not address disability, clearly some disabled adults might find "knee-high for an adult" unworkable; affordances are relative to ability as one aspect of human diversity.

The notion of affordances has moved into many disciplines, including anthropology (Juris, 2012; Keane, 2014), but also other social sciences including communications (boyd, 2010; Hine, 2008; Hutchby, 2001; Postigo, 2014; Wellman et al., 2003). In communications, the notion provides an alternative to determinism and constructionism (Juris, 2012). Technology shapes what is possible (a virtual world is not the same as a social network site; a joystick is not the same as a keyboard), but that "shaping" is not all determining. Rather, we find "imagined affordances" that "emerge between users' perceptions, attitudes, and expectations; between the materiality and functionality of technologies; and between the intentions and perceptions of designers" (Nagy & Neff, 2015, p. 5). The notion of affordances thus allows us to explore phenomena that are relatively platform-specific—for instance, when discussing digital embodied states and digital objectified states later in this article.

Below, we use two extended analyses to explore how individuals living with PD worked with the affordances of virtual worlds in the context of compulsive creativity. We came to know DB and Solas as regular members of the PD community we engaged with over the four-year research period. This sets the stage for the subsequent analysis regarding what compulsive creativity reveals about digital cultural capital. For reasons of space, we primarily limit our analysis to these two cases, but we do also briefly discuss Susan, whose experiences with poetry provide an interesting contrast.

A First Tale of Compulsive Creativity

November 29, 2012, was to be a regular meeting of the weekly discussion group, held in a virtual cabin surrounded by flowers and green fields. This day, however, DB suggested we meet in a structure he had been creating. We teleported to the new location and were dazzled by what might be provisionally described as a kaleidoscopic cathedral a quarter-mile high (see Figure 1). Members of the group commented on its overwhelming intensity and beauty. Susan exclaimed, "It's outrageous!" "Compulsive creativity, it's called," DB replied.[3]

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[3] DB's use of this term reflected his knowledge of medical literatures that discuss compulsive behaviors among persons with PD, and was a key insight that stimulated us to investigate how this notion might help us clarify our own analytical goals.
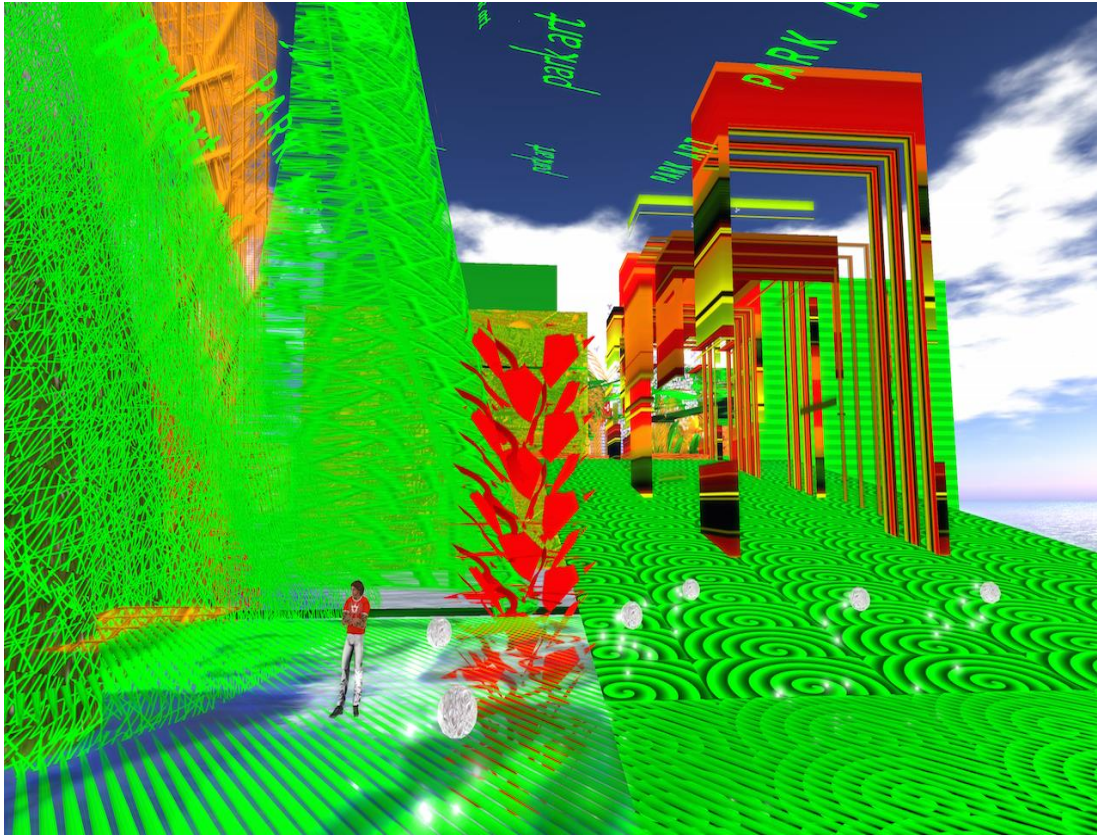
Figure 1. DB's building.

As we walked through the structure, Mary—another person living with PD—exclaimed, "Well, this is incredible. I'm just—I've never seen anything like this. This is just—all I can say is just sheer creativity." DB responded, "Parkinson's will do that to you. On top of it, I can't stop." One room featured poems that Susan had written. She noted,

> I started writing the poetry—after I was diagnosed with Parkinson's. I never, you know—
> I never wrote poetry before. I don't sit down and plan it, it just pops into my head. . . .
> it just comes to me, and I don't think ahead; I just write it.

This interaction demonstrates how many of our interlocutors shared an experience of creativity that expressed their inner selves yet had a compulsive dimension. It did not always mean extending a talent one already possessed: Susan, for instance, had not written poetry prior to her diagnosis. In many cases, however, compulsive creativity did build on the past. DB's virtual building reflected his successful career as an architect (for instance, while working in the studio of Frank Gehry, he had collaborated on the design of Los Angeles's Disney Concert Hall). After his diagnosis in the early 2000s, DB found architecture increasingly difficult. Around 2007, he read a news story about Second Life:

I wasn't more than two paragraphs into the article and knew I had to have it immediately. . . . I just knew instantly this is what I had been looking for for a long time. For me, it is the ultimate design tool.

After becoming familiar with Second Life, on several occasions DB was able to use it for physical-world consulting work. This allowed him to avoid the difficulties of travel—for instance, when contributing to a project in Egypt. In this case, there was the added benefit of an interactive prototype that clients could experience three-dimensionally, in real time.

For DB, building in Second Life:

was about realizing that I could build entire worlds. Complete environments. That I could sit in a space like this and have total control over everything that I saw. That is just a very powerful thing for an architect to be able to do.

These references to creating "entire worlds" and "complete environments" reveal something noteworthy: Most of DB's virtual creations intentionally had no offline analogue. His kaleidoscopic building did not simulate a physical structure. It originated in the compulsion to create, as well as a desire to craft meaningful experiences that could educate others about PD and demonstrate the potential of virtual worlds for disabled persons. DB once explained a particularly jarring structure he had created—complete with what appeared to be animated lightning strikes, moving floors, and deep red-colored layers—by saying he wanted visitors to "feel what it was like to be inside the head of someone with Parkinson's."

The fact that DB never intended most of his buildings to take a physical form meant that he could use the affordances of the Second Life platform to shape his compulsive creativity in unexpected ways. Befitting the notion of adulterated agency implied by "compulsion," these affordances were not always features intentionally designed to be part of the platform. For instance, in an interview conducted inside one of his creations, DB reflected on what we might term the mutual contingency of self and platform when discussing *alpha maps*—transparent textures that cause visual errors when combined:

Look at the reflection of light on the side of your [virtual] shoes. It's all about light. I've been fortunate to take advantage of all the weaknesses of Second Life, which have proven to be the strong point of my work, in that struggling with—the alpha maps, most people completely avoid them. Because they tend to fight with each other for dominance. . . . It's like training wild animals; they're ferocious, the way they fight with each other. You have to outsmart them to get them to do what you want them to do. But in the process of figuring out how to do that, you stumble upon all kinds of interesting effects. . . . And I found that very exciting, because I had no control over where it was going.

DB's compulsive creativity was shaped by both PD and emergent affordances of Second Life. His sense of "no control" was due to disease symptoms, but also to flaws in the rendering of alpha maps that

made them "ferocious" virtual objects that "fight with each other." These platform effects extended to the physical interface. One reason DB quit working was the challenge of using a keyboard and mouse given his tremors. In Second Life, however, this could become an emergent affordance:

> I have an unfortunate and fortunate problem, which is that my second finger, which works the right button, is sometimes difficult for me to control, and it's very close to the delete button. So frequently, that finger decides to go renegade, and will hit the button, and something will happen, and I would say fifty percent of the time what happens is that it looks better. . . . Things I would never have the nerve to do myself, like accidentally making this whole floor disappear, "Oh my God, I just lost that beautiful floor; well, here it is, look what happened!" So that's sort of my magic finger, it has a mind of its own.

In a later interview, DB reinforced this sense of creativity paired with a loss of control experienced as pleasurable: "It's more like an artist with a blank canvas who has Parkinson's and can just barely control the brush. And you don't know what's going to happen." But despite being pleasurable, there remained a powerful sense of compulsion. As DB put it during a group meeting, creativity in Second Life:

> really is something that, with Parkinson's, I very much need to do. But it's hard to get people to understand that that's really a medical necessity as much as it is something that's enjoyable or relaxing. Gotta have that dopamine.

A Second Tale of Compulsive Creativity

In the discussion of DB's kaleidoscopic building, Solas was another one of the PD community members present. Solas lives with what is often known as "young-onset" PD: She first experienced symptoms in her mid-30s and received an official diagnosis in her early 40s. This was particularly distressing because the diagnosis came right when she was enjoying success as a fashion designer with labels including Levi's, Royal Robbins, and Jessica McClintock:

> The hardest part was to accept that I had to stop working. Because designing was one of the things I wanted to do from age five. . . . So, to actually have to walk away from that because of the stress, because I couldn't travel, because I couldn't deal with the deadlines anymore . . . that was what made me the most depressed. It wasn't the getting the Parkinson's; it's what the Parkinson's took from me.

Creativity and sociality itself were at risk, to the point that Solas' doctor warned her that "you have to stay social. Parkinson's people have a habit of locking themselves away from the world." She sought out physical-world discussion groups, but they were of limited use because most participants were in the older age brackets typically associated with PD. In addition, Solas lived in a rural area; attending a physically located discussion group was difficult, exacerbated by the fact that, like many persons with PD, Solas can no longer drive. To nurture her love of fashion, she tried creating costumes for a local

community theater, but found the rigor of the schedule exhausting, to the point that her symptoms worsened.

To combat her isolation, Solas took online courses and socialized on Facebook and Twitter. One of her favorite things to do became participating in text-based role-play with a medieval theme. After entering Second Life, Solas became part of a medieval role-play community. To a greater degree than DB, then, Solas' entry into virtual-world creativity was shaped by participation in a social group, and moreover one that was not organized around disability.

A new urge to create began when Solas decided to try designing avatar clothing for her medieval role-play group:

> The head of the knights found out that in real life I was a fashion designer, so you know, automatically, "Oh, well good, design us a cloak" . . . that basically was my start to figuring out how to work with the textures, how to work with the templates, how to work with prims [virtual objects].

These references to textures, templates, and prims underscore how, as for DB, her creativity did not just replicate previous physical-world creativity. "Figuring out" technological affordances presented new opportunities:

> And I've had to relearn, I've had to rethink fashion to work in a virtual world. Where you would pick up a piece of fabric, and it would be physics and gravity in real life so to say, in Second Life there's none of that. So for my creations to look like I want them to, I had to figure out how physics work in a virtual world, and my dresses, the thing is I want them to hang and flow in certain ways, so I need to, I had to learn all that.

The broader affordances of the virtual world enabled these transformational possibilities:

> Part of the wonderful thing about Second Life is I can handle a mouse, I can type, I can do all that and the tremors or the shaking doesn't disturb it. But if I was to stand and drape a costume, you know, out of fabric, I would have issues. Putting the pins in, I would have issues . . . to see me on a sewing machine . . . your hands shake and, it would just be frustrating. So you're limited. But in Second Life I don't have Parkinson's, and I can challenge myself, and it's fascinating.

We will return to Solas' statement "in Second Life I don't have Parkinson's," but first it is crucial to note the compulsive aspects of Solas' creativity:

> I'll log in around 8 or 9 a.m. and have to rest around 1 p.m., and then rest and maybe a little [in the afternoon], so that's maybe what, six hours a day. . . . To satisfy that little side of me . . . the most important thing about Second Life is as an outlet for my creativity.

Solas sometimes felt that she was spending too much time in Second Life, but found it hard to pull herself away. At one point, she noted that a medication she had started to take, one associated with impulse control disorder, seemed to have increased her compulsion to create. Yet, Solas experienced compulsive creativity as therapeutic:

> It's funny, because my husband has told me this a few times, Second Life relaxes me. I can sit here, I can build, I can be creative, I can be within in my own little world. Maybe people say, "Oh it's addictive, you're having Second Life withdrawals"—but sometimes if I get antsy or stuff, or start driving my husband crazy, he'll say, "Go on Second Life, you need to calm down" type of thing. He calls it "my therapy." So yeah, in ways I think it's self-medicating. Because it makes me feel good, if that makes sense. I don't know if it's seeing Solas, and Solas is being Solas and I'm trying to make her the way I used to be. . . . I loved making things happen, and when that was taken away it was devastating. I was lost, I wasn't too sure what to do.

Two aspects of Solas' experience are particularly revealing with regard to compulsive creativity. First is a movement back and forth across the gap between mind and body. One thing Solas and many others with disabilities teach us (regardless of our disability status) is that the mind–body dualism is not a Cartesian imposition. Body and mind are linked in multiple ways, and psychosomatic experience is central to human being, but body and mind are not reducible to each other—a point patently clear for many disabled persons. On various occasions across multiple interviews, Solas reflected on this dualism of body and mind:

> I used to be "mind over matter," push push push, but now unfortunately when the mind's the thing that's the matter, you have limits, and it's knowing your limits and accepting your limits in terms of accepting your new self. Because I will never be the self I used to be. . . . It's hard to slow your mind down to the same, to be where your body is, actually I don't want to slow my mind down to be where my body is.

Solas' sentiment was echoed in a poem Susan wrote entitled "Minds," displayed in DB's kaleidoscopic building, "Make your choices, fight your fight / Remember your bodies may be lost / But your minds are still boss." When Solas states that "Second Life offers us the chance to have our body keep up with our mind," she is gesturing toward a body–mind relationship inflected by the virtual that could have important consequences.

A second striking aspect of Solas' experience is a movement back and forth across the gap between online and offline. Compulsive creativity here partakes in a broader pattern in which the physical and virtual are distinct but linked; in most cases, the latter is neither a substitute for, nor an evasion of, the former. It is at this juncture that we can return to Solas' claim "I don't have Parkinson's in Second Life and that makes me so happy." We need to take seriously and theorize deeply this claim, beginning from the obvious point that it is not a denial of the embodied self. Rather, it is a statement about the multiple implications of moving between the online and offline. In some (but not all) online contexts, one aspect of this movement is the possibility of anonymity, about one's identity but also one's embodied physical self.

The distinction between more and less visible disabilities is well known, as is the fact that online contexts can make normally visible disabilities invisible (e.g., a person who uses a wheelchair in the physical world using an avatar who can walk).

The possibility of having one's disability less visually apparent was a positive aspect of the online/offline gap for persons who experienced compulsive creativity during our research, including Solas: "I feel more comfortable in Second Life, because people don't see me shaking. . . . To see Solas sitting there and not twitching or not have a tremor, it's nice. People in Second Life don't know I have Parkinson's." (This experience of a "self without a tremor" is a form of the digital embodied state that we explore in more detail below as an aspect of digital cultural capital.) However, more emphasized was the value of the online/offline gap with regard to physical fatigue. As Solas once noted,

> What's great about Second Life is, I mean number one you are doing it for yourself, so
> you get tired, you step back, you can shut it off and go take a nap, and then when you
> come back, you just pick it up.

Solas also observed how this was linked to a sense of control that also shaped the experience of creativity: "It gives us control over our own lives, and I think when you have an illness that takes that control away, it's important to find areas where you do feel in control."

Creativity and Capital

These case studies illustrate several key features of compulsive creativity. In this section, we discuss what compulsive creativity reveals about how cultural capital can manifest online.

The precise mechanism linking PD to creativity is unknown, but the dominant theory involves "dopaminergic imbalance in the limbic system" (Kulisevsky, Pagonabarraga, & Martinez-Corral, 2009, p. 816; see Faust-Socher, Kenett, Cohen, Hassin-Baer, & Inzelberg, 2014). The hypothesis is familiar enough to be discussed by some persons with PD. For instance, during the group informal discussion held in DB's building, he and Susan discussed how they had heard that their creativity might have a physiological explanation linked to medication. But whereas negative compulsive behaviors often lead persons with PD to change regimen, reduce dosage, or cease using dopaminergic drugs altogether, compulsive creativity is often experienced as pleasurable and even therapeutic. Indeed, there are documented cases of persons with PD intentionally using "dopaminergic drugs to maintain or enhance their artistic creativity" (Schwingenschuh, Katschnig, Saurugg, Ott, & Bhatia, 2010, p. 493).

Of course, compulsive creativity is not merely a side effect of medication; it is informed by cultural narratives linking creativity to illness, even madness, that have a long history in diverse contexts worldwide. Such narratives often center on an image of individual genius as tortured soul, but by the end of the 20th century, a growing body of research explored how creativity could be unleashed in the context of a range of disorders including "stroke, migraine, epilepsy, autism, Alzheimer's disease and fronto-temporal dementias" (Chatterjee, Hamilton, & Amorapanth, 2006, p. 105; Miller et al., 1998). We hope our analysis of compulsive creativity as it relates to cultural capital will contribute to broader explorations

of selfhood and disability, particularly as shaped by the digital as a social phenomenon.

In this regard, there is no better place to begin than by noting that online creativity is far from the exclusive provenance of persons with PD: Notions of creativity are foundational to technology itself. *Techne*, the Greek root of *technology*, originally referred to crafting and the ability for humans to transform the world and their own abilities as a straw allows a person to breathe underwater. Connections between creativity, technology, and production also go back centuries, but have taken on new forms since the rise of industrial capitalism.

In the digital era, Internet entrepreneurship reflects a dynamic of creationist capitalism, "a mode of capitalism in which labor is understood in terms of creativity, so that production is understood as creation" (Boellstorff, 2015, p. 206). The rise of creationist capitalism reflects a dynamic in which notions of creative classes, creative industries, sharing economies, and maker cultures transform relationships between selfhood, labor, and value (Caves, 2000; Florida, 2002; Gauntlett, 2011). This includes new forms of precarity in which workers "are now expected to transform themselves into a brand so as to be (and remain) hirable as flexible agents in pursuit of other jobs" (Gershon, 2014, p. 282).

These skills, assets, and alliances—which include creativity itself—increasingly reframe wage labor as the rubric framing productivity, identity, and social belonging. A rich body of scholarship demonstrates that the selfhood presumed under this neoliberal ideology is normatively male, White, heterosexual—and able-bodied. It is no coincidence that many persons with PD (including those experiencing compulsive creativity) have had to reduce employment or stop working altogether, with consequences for selfhood beyond the financial.

Compulsive creativity also speaks to how disability can intersect with participatory culture in the context of social media (Ellis, 2010; Ellis & Goggin, 2015). This includes broader discussions of participatory media use (Becker, 1982; Ellcessor, 2012; Jenkins, 1992), particularly forms of "vernacular creativity . . . that emerge from highly particular and non-elite social contexts and communicative conventions" (Burgess, 2006, p. 206). Although DB and Solas had training in architecture and fashion, respectively, they did not have training in digital or media production: Compulsive creativity in this sense "vernacularized" their creative experimentation in social contexts of participation in which they were not technological experts.

These convergences of creativity, participation, disability, and social media move us beyond a "vulgar" base/superstructure model and into the rich literature on the cultural dimensions of capitalism. This harks back to the Marx of *The German Ideology* as well as Weber and Durkheim, through Lukács, Althusser, and Gramsci, as well as Williams, Hall, and many other thinkers. For our purposes, we hone in on theorizations of social capital (e.g., Coleman, 1988; Ellison, Steinfield, & Lampe, 2007; Katz & Rice, 2002; Putnam, 2000). In the Internet era, this approach has been placed into conversation with scholarship on media effects. Many earlier iterations of this work presumed a unidirectional causal arrow from producer to consumer, while allowing for forms of reappropriation (Horkheimer & Adorno, 1969; Lazarsfeld, Berelson, & Gaudet, 1948; McLuhan, 1964). Newer scholarship on digital media rethinks questions of media effects in the context of a creationist capitalism increasingly predicated on cycles of

user-generated content and peer production (Postigo, 2014). It is in this context that forms of digital social capital and digital cultural capital become pivotal.

Social capital is quite consistently defined in terms of interpersonal networks: "It inheres in the structure of relations between actors . . . it is not lodged either in the actors themselves or in physical implements of production" (Coleman, 1998, p. S98). Like others who have employed the notion of digital social capital (e.g., Mandarano, Meenar, & Steins, 2010), we use the phrase to underscore emergent consequences of online networked socialities. Digital social capital draws from the principles of traditional social capital in that it refers to relationships and resources shared among individuals. It can build or maintain ties among friends and family, civic organizations, and work communities.

To further appreciate the significance of digital capital with regard to compulsive creativity, we turn to Bourdieu's distinction between social capital and cultural capital (we do not address economic and symbolic capital in this article). Bourdieu's (1986) understanding of social capital harmonizes with other canonical discussions: "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition— or in other words, to membership in a group" (p. 248). But Bourdieu defined cultural capital differently. It exists in an *embodied state*, "which, insofar as it implies a labor of inculcation and assimilation, costs time, time which must be invested personally by the investor. Like the acquisition of a muscular physique or a suntan, it cannot be done at second hand" (1986, p. 244). There is no form of referral or recommendation from another, as can happen with social capital: "All effects of delegation are ruled out" (1986, p. 244). Cultural capital also exists in an *objectified state* manifest in "material objects and media, such as writings, paintings, monuments, instruments, etc." (1986, p. 246; see also Bourdieu, 1985).[4]

Alongside a small but growing group of scholars (e.g., Bastos, 2010; Seale, 2013; Solaroli, 2015), we develop the concept of *digital cultural capital* to extend analyses of the cultural, subjective, and affective dimensions of online capital. Although a few digital scholars have mentioned cultural capital, this has been with reference to physical-world embodiment and objects (e.g., Costa, 2013). Our key theoretical intervention is to consider cases in which cultural capital is digital in a specifically online sense. We thereby follow Bourdieu's own insistence that "because technologies do not have an existence independent of social practice, they cannot be studied in isolation from society or from one another" (Sterne, 2003, p. 381). This moves us beyond the interpersonal networks foregrounded by the notion of social capital, and into the rich domains of what we term *digital embodied states* and *digital objectified states*. An attention to digital embodied states links social capital to the role of avatar embodiment in selfhood and interaction (Behm-Morawitz & Mastro, 2009; Boellstorff, 2011; Davis, 2011; Martey,

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[4] A third form of cultural capital mentioned by Bourdieu (1986) is "institutional," which refers to "the objectification of cultural capital in the form of academic qualifications" (p. 247) such as competitive exams. As noted earlier, DB and Solas both have such qualifications, which are aspects of the broader questions of class and expertise. Because these do not take digital forms with regard to our argument, we do not discuss institutional capital independently in this article. However, an important topic for further research is how what we would term *digital institutional capital* (for instance, with regard to online education) shapes culture and power online.

Stromer-Galley, Banks, Wu, & Consalvo , 2014; Yee & Bailenson, 2007). For instance, when virtual-world residents have flexibility in avatar embodiment, digital embodied states can manifest in the perceived beauty or distinction of that embodiment, or even one's mastery at online roleplaying. Recall that Solas stated, "In Second Life I don't have Parkinson's"; DB expressed a similar sentiment when noting, "My body is falling apart but in Second Life my avatar will be like this forever." These are not self-deluded ideas that Second Life could replace the physical world. Rather, the affordances of digital embodied states could transform experiences of disability precisely because the psychosocial experience online was no less real than that offline.

In contrast to digital embodied states, the notion of digital objectified states foregrounds the importance of digital materiality—of virtual "objects and media, such as writings, paintings, monuments, instruments, etc." For both DB and Solas, virtual objects from clothing to buildings were as important as embodiment.

Figure 2. Solas' shop.

In Solas' case, we find a particularly clear link between digital objectified states and creationist capitalism. Not long after beginning to make avatar clothes in earnest, Solas opened a shop (see Figure 2). Digital objectified states, as a form of digital cultural capital, made such an enterprise possible, which "helped nurture the business side of me; I love to build businesses, and so I'm having fun watching [my shop] grow." In 2014, Solas was nominated for an "Avi [Avatar] Choice Award" for the quality of her avatar clothing (Avi Choice Awards, 2014). What is striking is that this digital cultural capital translated primarily to digital social capital, rather than financial gain:

> So to be able—even though [my store] doesn't make a whole lot of money in Second Life, it makes enough to pay for the land, and it lets me work, you know? I had never worked for money, I worked because I loved it. And that's what, you know, the strategy behind growing a business, the marketing behind getting people to realize you're there— to me, that's a big part of me, and Second Life allows that . . . all of a sudden seeing someone in your Victorian dress. It's like, "Wow!" I always give people gift certificates if I see them in my stuff.

Digital social capital in isolation can be taken to simply mean the establishment of social networks online based on levels of trust and reciprocity, such that "friending" someone on Facebook can be seen as establishing digital social capital *tout court*. But a notion of digital cultural capital accounts for the pivotal role of virtual embodiment and virtual materiality in the establishment and maintenance of digital social capital and the phenomenon of creationist capitalism generally. Solas noted that Second Life was a valuable "creative outlet" because it allowed her to:

> socialize with people of like minds. And I really missed that, being surrounded by the fashion industry and my work friends, and the traveling, and I really missed the social connection. And so Second Life brought that to me. It gave me the freedom—I didn't even realize how much freedom it gave me. Because I'm not mobile any more . . . so I'm not sitting there dwelling on the fact of all the things I cannot do. . . . It gives you a sort of freedom from your disability, does that make sense? . . . Freedom to design, freedom to create. To take the negative in your life and make it positive, and visually see it. Because you don't get that from Facebook. You don't get it from Twitter.

Solas' observations perfectly summarize how it is at this conjunction of digital social capital and digital cultural capital that the experiences of disabled persons, including experiences of compulsive creativity, are so illuminating.

Conclusion: What Compulsive Creativity Reveals About Digital Cultural Capital

Using the experiences of DB and Solas to frame our discussion of the relationships between compulsive creativity and digital cultural capital has been aided by the fact that they were members of the same community. But their interactions regarding creativity went further than that. We remember our surprise when they first showed us a part of DB's kaleidoscopic building modified to include some of Solas' work (see Figure 3). Solas noted how meaningful this collaboration had been:

> Working with DB has really, really pushed me . . . last week I was saying "DB, I just don't know how to contribute to this. You know, you're a genius, and what you do is genius." I said, "What I do is not abstract at all, so I don't know what to do." And so he said, "Give me a texture of one of your dresses," and then he did this incredible thing with it. Just blew my mind. So he's kind of teaching me to push my design and artistic abilities . . . kind of what I do is like architecture on the body.

Figure 3. Solas and DB's work together.

This collaboration is nicely summarized by the metaphor "architecture on the body," which links digital embodied states and digital objectified states. It reflects how throughout this article we have endeavored to set out the kind of multidimensional analysis that we feel is necessary to understand what compulsive creativity reveals about digital cultural capital in terms of materiality and embodiment. Compulsive creativity appears to be associated with the dopaminergic drugs used to treat PD, and at that level belongs to the subset of disabilities linked to disease. But compulsive creativity also speaks to debates regarding the social construction of disability and the limits of constructionist approaches (Beckett & Campbell, 2015; Siebers, 2001). This includes questions of agency, but it also includes questions of cultural capital in a context in which "creativity" has moved to the center of the digital economy. This broader context must be kept in mind lest compulsive creativity be reduced to an individual side effect. An attention to digital cultural capital reveals how for DB and Solas compulsive creativity became, in a sense, an asset. They were able to use this side effect of PD not only to alleviate disease symptoms (they both reported not experiencing tremor or depression when engaged in these activities), but to build new resources through their digital creations, community, and improved self-image.

Our analysis is intentionally provisional, intended to suggest further lines of inquiry. For social researchers such as ourselves, we see three directions where future investigation holds particular promise. First, what are the precise senses of selfhood in play with regard to compulsive creativity as it intersects with digital cultural capital? Are there patterns in terms of gender, younger versus older onset, salience of creativity in one's past experience? Second, what changes when compulsive creativity is experienced in virtual worlds or other online social contexts? In what ways is it a matter of access to tools versus novel configurations of creativity? How does cultural capital shift in digital contexts? Third, how and when is compulsive creativity experienced as a community phenomenon? If compulsive creativity is experienced primarily through, say, Instagram, how does that change the understanding of creativity, of compulsion, of disability? How are notions of cultural capital shifted by these community dynamics, including class dynamics?

Certainly, there are fascinating avenues for further research beyond those just mentioned. What is clear from our discussion is that the experiences of disabled persons inform us about disability, but much more as well. The experiences of DB, Solas, and others indicate that an ableist theorization of virtual worlds, and of digital culture generally, would presume key issues regarding online agency, embodiment, and community, depriving us of powerful insights regarding the human experience of the virtual.

Our analysis is founded in the classic anthropological insight that smaller communities are as revealing of human nature as larger ones. For the members of the PD community discussed in this article, compulsive creativity provided not only access to a social network, but forms of embodied engagement, object creation, and life satisfaction previously lost because of their illness. In other words, the benefit cannot be described only in terms of digital social capital; it is also shaped by forms of digital cultural capital. For some time now, a series of thinkers have decried the demise of social capital, often citing technology as a key factor (Putnam, 2000; Turkle, 2010). DB, Solas, and other members of their community illustrate counterexamples to such dystopic narratives. Although no outcome is inevitable,

possibilities exist for emergent forms of agency and community that creatively rework potentials and limitations, online and offline, and in so doing forge new life possibilities.

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