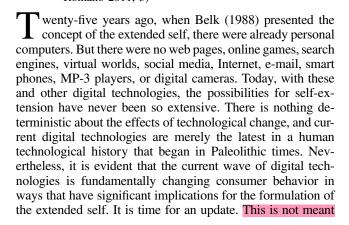# Extended Self in a Digital World

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The extended self was proposed in 1988. Since it was formulated, many technological changes have dramatically affected the way we consume, present ourselves, and communicate. This conceptual update seeks to revitalize the concept, incorporate the impacts of digitization, and provide an understanding of consumer sense of self in today's technological environment. It is necessarily a work in progress, for the digital environment and our behavior within it continue to evolve. But some important changes are already clear. Five changes with digital consumption are considered that impact the nature of self and the nature of possessions. Needed modifications and additions to the extended self are outlined, and directions for future research are suggested. The digital world opens a host of new means for self-extension, using many new consumption objects to reach a vastly broader audience. Even though this calls for certain reformulations, the basic concept of the extended self remains vital.

All this content forms a rich collection that reflects who you are and what you think. . . . When others respond with a comment or re-tweet, they're adding value to your collection. As more . . . photos, . . . movies, and e-mail messages are created, the entire collection becomes a fuller reflection of you. (Carroll and Romano 2011, 3)

Twenty-five years ago, when Belk (1988) presented the concept of the extended self, there were already personal computers. But there were no web pages, online games, search engines, virtual worlds, social media, Internet, e-mail, smart phones, MP-3 players, or digital cameras. Today, with these and other digital technologies, the possibilities for self-extension have never been so extensive. There is nothing deterministic about the effects of technological change, and current digital technologies are merely the latest in a human technological history that began in Paleolithic times. Nevertheless, it is evident that the current wave of digital technologies is fundamentally changing consumer behavior in ways that have significant implications for the formulation of the extended self. It is time for an update. This is not meant as a challenge to or repudiation of the extended self, which remains more vital than ever in the digital world. Rather, it is meant to consider what is similar, different, and in need of change, that is, an update.

This conceptualization begins with a brief review of the original formulation of the extended self. Five changes emerging from our current digital age are then presented: (1) Dematerialization, (2) Reembodiment, (3) Sharing, (4) Co-construction of Self, and (5) Distributed Memory. These changes are assessed in terms of implications for our understanding of the self, the nature of possessions, and our relationships with things in a digital world. I conclude with suggestions for promising future research issues regarding the digital extended self.

THE ORIGINAL EXTENDED SELF FORMULATION

Drawing on James, Simmel, Fromm, Csikszentmihalyi, and many others, Belk (1988) posited that "knowingly or unknowingly, intentionally or unintentionally, we regard our possessions as parts of ourselves" (139). The article posited an individual self with an inner core self as well as aggregate selves ranging from family to neighborhood to nation. Enhancing these self constructions are various possessions, which are regarded by their owners as having different degrees of centrality to one or more of their individual or aggregate senses of self. The focus on possessions rather than brands highlighted the singularity of our relation with objects once they are separated from their commodity origins. Based on several studies that he and colleagues conducted, Belk (1988) summarized that "the major categories of extended self [are our] body, internal

TABLE 1

SUMMARY OF DIGITAL MODIFICATIONS OF THE EXTENDED SELF

Digital dimension	Self	Possessions
Dematerialization		Attachment to and singularization of virtual possessions; almost, but not quite the same
Reembodiment	Avatars affect offline self; multiplicity of selves	Attachment to avatars
Sharing	Self revelation; loss of control	Aggregate possessions; sense of shared place online
Co-construction of self	Affirmation of self; building aggregate extended self; "Attachment to Virtual Possessions in Videogames"	
Distributed memory	Narratives of self	Digital clutter; digital cues to sense of past

processes, ideas, and experiences, and those persons, places, and things to which one feels attached. Of these categories, the last three appear to be the most clearly *extended.* However, given the difficulties in separating mind and body in philosophies and psychologies of the self . . . objects in all of these categories will be treated as . . . parts of the extended self" (141).

Among the important points here are that the self is seen as embodied (i.e., not merely thoughts) and that material things (i.e., objects in the noun categories) most clearly make up the extended self. Other people are both constit-uent of the self (i.e., levels of the aggregate self) and potentially "objects" that form part of the extended self (as seen in the "tendency to claim casual acquaintances as close friends and drop prominent names in conversations [to] enhance perceptions of one's popularity and status . . . dubbed 'pronoia'"; Goldner 1982, 156).

Belk (1988) noted that possessions comprising the ex-tended self serve not only as cues for others to form im-pressions about us but also as markers for individual and collective memory. The memory marker objects of ex-tended self function both intentionally and unintentionally to prompt recollections of our prior experiences, linkages to other people, and our previous selves (Belk 1991). The existence of concrete markers was not taken to mean that the memories are veridical; both the objects we preserve and the memories associated with them were described as self-enhancing and nostalgic. The self was expected to continually change over the life course, and photographs, gifts, and souvenirs were seen as prominent among the objects anchoring an individual's or group's memories of such change. Inevitably it was not simply facts but emo-tions that were found to be cued by these objects.

The original article (Belk 1988) also detailed various evi-dence that objects form a part of extended self (e.g., our pain when they are lost or stolen); specified processes by which objects are cathected as a part of self; derived implications for object care; considered how the existential states of hav-ing, being, and doing are related; detailed the ontological processes by which we selectively relate to our environments; and outlined various areas of consumption likely to be im-

pacted by the concept of the extended self. These areas include collections, pets, money, organ donation, gifts, and product disposition and disuse. None of these areas require specific unpacking here, but several contrasts in the digital extended self will be developed.

THE EXTENDED SELF IN A DIGITAL WORLD—WHAT'S NEW?

In the five sections that follow, I first present major changes that are taking place due to each digital phenomenon, then follow with discussion of the updates needed to the concepts of self and possessions in order to accommodate these changes. Table 1 offers a summary of these updates. An overriding issue that backgrounds these changes is the degree to which virtual self construction online transfers into nonvirtual self construc-tion offline. As will be argued in the section on reembodiment, the old idea of a core self is an illusion. As such, the relationship between online and offline personas becomes a key to defining the self in a digital age.

Dematerialization

Things are disappearing right before our eyes. The first of five areas of change in a digital world is the demater-ialization of many of our possessions. Today our informa-tion, communications, photos, videos, music, calculations, messages, "written" words, and data are now largely invis-ible and immaterial until we choose to call them forth. They are composed of electronic streams of ones and zeroes that may be stored locally or in some hard to imagine cloud. For example, rather than a row of records, CDs, or DVDs that we can handle, rearrange, examine, and dust, our music has come to reside somewhere inside our digital storage devices or on servers whose location we will never know.

In digitizing his CD collection, Dibbell (2000) reflected on Walter Benjamin's (1930/1968) "Unpacking my Library" and considered what may be lost in dematerialization:

> For Benjamin, . . . collecting was a passion, erotic at heart, and like all such passions it approached the soul of its object

through the body, through the object's physical manifestation and the history written palpably on its surfaces. Benjamin loved his books not so much for the words they contained as for the indissoluble blend of content, craft, and wear-and-tear that told the story of each book's fateful journey to its place in his library.

So, at first blush much was lost as Dibbell's 1,000-plus CDs migrated into digital ciphers of their former physical selves. But he goes on to suggest that this is a new kind of collecting that is also magical, thrilling, and enthralling. He marvels at the ease of online acquisition, the ease of instantly recategorizing and rearranging tunes, and the ease of sharing them with distant others. He found a new kind of intimacy with his music, released from its plastic prison and potentially informed by the comments of legions of unseen aficionados. Although this may be an overly optimistic appraisal of compensatory gains, it does hint at new possibilities with digital music.

We can begin to see here some basic behavioral changes. What was previously a more private act of music acquisition and appreciation can become more of a group practice. In terms of Goffman's (1959) presentation of self, the ability to publish our playlists online can say a great deal more about us than opening the windows and cranking up our stereo. And it appears that we can judge others' personalities quite well based on the music that they listen to (e.g., Rentfrow and Gosling 2003, 2006). Not only is this true of individuals, but musical tastes are often shared and mutually shaped such that group identities are also expressed and coalesced through shared musical preferences (Brown and Sellen 2006; O'Hara and Brown 2006; Voida, Grinter, and Ducheneaut 2006). Horst, Herr-Stephenson, and Robinson (2010) found that, for the California teens they studied, listening to music together was a focus of hanging out as well as sharing musical tastes. Their digital sharing did not stop with music, but also involved links to videos, information about artists, and lyrics. Thanks to dematerialization and the Internet, we can also share such enthusiasm with a much broader imagined community (Born 2011).

It is true that musical tastes and marker goods could eventually become known in predigital conversations and by swapping CDs (Ritson and Elliott 1999) and vinyl disks (Magaudda 2011), but with nothing like the speed of browsing someone's iTunes library, perusing their playlists on Facebook, scanning their online dating profile, or reading their blog or forum comments. And music is just one of the dematerialized artifacts that are transforming the ways in which we represent ourselves, get to know other people, and interact. Siddiqui and Turley (2006) observe that collections, pictures, letters, music, and greeting cards have all been transformed into dematerialized digital artifacts. There are also digital possessions that never had a material analog existence, as with magic swords and shields in virtual game worlds.

The burning question that remains is whether a dematerialized book, photo, or song can be integral to our extended self in the same way as its material counterpart can be. If

these items are stored on a remote server, are they really ours? Or is physical possession a part of predigital thinking that has given way to access? The subsections that follow offer some insight.

Needed Extended Self Updates due to Dematerialization: 1. Attachment and Singularization. The emergence of dematerialized and nonmaterial possessions raises the question of whether consumers can become as attached to immaterial possessions as they can to material possessions (which include digital devices) and whether we can gain status and an enhanced sense of self from virtual possessions. Following Belk (1988), we may also ask whether we mourn the loss of digital possessions and feel a diminished sense of self. Denegri-Knott and Molesworth (2010a, 110) propose that virtual goods occupy a liminal category between the material world and the imaginary world. They point out that "DVC [digital virtual consumption] also differs from material consumption as the object of consumption lacks material substance and cannot be used in material reality (a digital virtual sword cannot cut; a digital virtual car cannot be used to transport its owner)."

Lehdonvirta (2012) takes issue with this distinction, arguing that "there is no such thing as completely immaterial consumption" (22). As Slater (1997) emphasizes, "even material commodities appear to have a greater non-material component. This includes . . . design, packaging and advertising imagery" (193). Lehdonvirta (2012) also argues that we spend money on virtual goods when we buy services like movies and gambling. And he argues that virtual goods are no less real or able to satisfy desires than material goods, but rather their use is restricted to certain situations just as garden and kitchen tools are used in different situations. Finally, Lehdonvirta (2012) argues that phenomenologically digital goods are very real to their owners and that on the Internet it is material goods that are not real.

These points are well taken, but they do not negate Denegri-Knott and Molesworth's (2010a) argument that digital virtual goods may work differently than material goods. Specifically, they suggest four functions that virtual consumption can fulfill: (1) it can stimulate consumer desire for both material and virtual goods; (2) it can actualize possible daydreams, such as those of wealth and status by enacting them in video games; (3) it can actualize impossible fantasies, such as being a magician or space pirate with magical objects; and (4) it can facilitate experimentation, such as being a criminal in a video game or being a producer selling goods on eBay. Lehdonvirta might have more successfully argued that all identities are virtual identities. That is, whether they are expressed through material or virtual goods, our external identity and internal sense of self are imaginary constructs or working hypotheses subject to constant reform.

These perspectives on the nature of digital possessions stop short of answering the questions of whether virtual possessions are capable of attachment, self-extension, singularity, fear of loss, and other features that attend material self-extending possessions. Do the rituals of possession and

disposition employed with material objects apply to virtual objects as well? Or, if Denegri-Knott and Molesworth's (2010a) are right that such objects are liminal, are they merely bridges to fantasies, daydreams, "real" material objects, and entrepreneurial ambitions?

In 2007 there was estimated to have been $1.5 billion in sales of virtual goods either within the game realm, on eBay, or on specialized sites selling virtual artifacts for real money (Solomon and Wood 2009). Virtual shopping, acquiring virtual consumer goods, and displaying and protecting these acquisitions play a prominent role in a number of online consumer games and virtual worlds. In *The Sims*, consumption is the raison d'être for playing the game and includes buying a house and filling it with consumer goods (Bogost 2006; Molesworth 2006). As Frasca (2001) observes, "*The Sims* is designed in a way that makes it hard to have fun unless you buy a lot of stuff." In *Gran Turismo*, players progress through the game by buying ever more expensive branded cars (Molesworth and Denegri-Knott 2007, 2013). In *Habbo Hotel*, teenagers buy their avatars fashionable clothing and furnish their guest rooms with trendy furniture (Lehdonvirta, Wilska, and Johnson 2009). *Second Life* and *Ultima Online* have generated lucrative markets for "skins" (avatar looks), virtual clothing, furnishings, art, electronics, cars, and boats (Martin 2008). *Second Life* has also experienced a real estate boom, creating millionaire virtual property developers. For, as one of Boellstorff's (2008) informants put it, "What good is stuff if you don't have a place to put it?" (227). Even in games whose goal is not to accumulate things and show them off (e.g., *World of Warcraft*, *EverQuest*, *Maria*) players advance by acquiring magical swords, armor, weapons, and sacred items (Denegri-Knott and Molesworth 2010a; Mauco 2009).

The motivations for acquiring these objects, often with real money, are similar to those for acquiring material consumer goods: gaining status and prestige as seen by other players (Wang, Zhao, and Bamossy 2009), solving real or imagined problems (Lehdonvirta 2010), expressing identity (Bryant and Akerman 2009), increasing attractiveness to others, and marking group identity (Martin 2008). There are also motives, not to appear as a "newbie" (Boellstorff 2008) and, especially for younger players and in games like *The Sims*, to explore ownership of luxury goods that they are unlikely to be able to afford outside of the digital realm. As a result, players work hard in order to acquire "the very best 'stuff'" (Denegri-Knott and Molesworth 2010a). Branded items like virtual Versace, DNKY, J Crew, Nike, and Gucci command premium prices and are clicked ten times as often as unbranded goods (Chahal 2010).

There is evidence that consumers become attached to such virtual consumer goods, fear and mourn their loss, and singularize them. Just as Belk (1988) found that theft of possessions inflicts injury on the extended self, Martin (2008) notes a *Second Life* resident who lost her inventory of possessions due to a code bug. Even when the goods were restored, she wrote that "my inventory is back but I'm a shadow of my former self" (13). Odom, Sellen, et al. (2012)

find that teens sometimes obsessively back up their files for fear that their digital belongings might be lost if the devices are stolen or crash. Lehdonvirta (2012) reports that virtual goods are now some of the most valued commodities for cybercriminals, who attempt to hack into games and steal virtual possessions to resell. Mauco (2009) even reports a suicide by an *EverQuest* player who was robbed of his digital possessions. Part of virtual goods attachment is simply due to the amount of work involved in acquiring them through long hours spent in-world. The fact that most goods must be obtained through virtual labor leads to a "time aristocracy" rather than a "money aristocracy" (Lehdonvirta 2009). Nevertheless, because such goods are simply computer code, they are potentially endlessly replicable. Game producers make them artificially scarce in order to further enhance their value (Lehdonvirta 2009). Thus there was great angst when some *Second Life* players used CopyBot to duplicate rare items, garnering uniqueness and status without paying the price (Martin 2008).

It is perhaps possible for consumers to singularize or decommoditize virtual possessions just as they can with real world possessions (Appadurai 1986; Belk 1988). And just as McCracken (1986) describes consumer rituals that help to singularize material goods, Denegri-Knott, Watkins, and Wood (2012) find that consumers ritually transform digital commodities into meaningful possessions. Receiving virtual objects as gifts is an example of a singularizing exchange ritual. We also invest psychic energy in virtual possessions with which we spend extended amounts of time. Carefully backing up, archiving, and storing the possessions are other meaningful curatorial ritual practices. Denegri-Knott et al. (2012) report a woman who acquired a new house in *The Sims* and then spent considerable effort personalizing the furnishings in order to make it "hers." Another woman obsessively cleaned her *Sims* home and found it ironic that her own apartment was a mess. Others print out and save screen shots of their prized digital possessions. In each case, singularization is accomplished by these special possession rituals.

*Needed Extended Self Updates due to Dematerialization:
2. Almost, but Not Quite, the Same (What Virtual Possessions Lack).* Despite protests by Lehdonvirta (2012) and others that virtual possessions are as real as material possessions and that the distinction between the physical world and the virtual world is collapsing, there are some key differences that should be noted. These differences prompt a rethinking of Belk's (1988) original formulation of the extended self in the realm of digital possessions rather than just saying that the same feelings of attachment, singularization, fear of loss, and so forth apply, only the possessions are digital. Siddiqui and Turley (2006) examined the perceived equivalence of e-mail, e-cards, e-books, digital journals, photos, newspapers, audio/video files, and musical instruments, compared to their nondigital counterparts. They found that there was uncertainty about the control and ownership of many of these digital goods, leading to making backup copies,

making hard copies, and yet regarding them as less "authentic." They argue that the lesser physical presence of music without discs, dust covers, or jewel cases makes it less a part of the extended self. And they learned, for example, that it is much easier to delete an e-card than to discard a physical greeting card. These factors may explain why others have found that digital music is perceived as having less emotional and monetary value than its physical counterparts on CD or vinyl (Fox 2004; McCourt 2005; Styvén 2010). Lack of ability to display digital music files has been cited as one reason for many people preferring CDs or records, at least for music that they truly like (Brown and Sellen 2006). Digital family mementos such as maps, cards, photos, and artworks have also been found to be regarded as less valuable than physical mementos (Petrelli and Whittaker 2010).

At a more general level considering multiple types of digital possessions, Watkins and Molesworth (2012a; see also 2012b) conclude: "Digital virtual possessions appear to lack some of the characteristics that invite attachment to material possessions. For example, they are intangible, held only within software parameters, are apparently easily reproduced, and may not gather the patina of well-loved material possessions."

We might add to this that digital possessions as well as most digital devices lack the soft tactile characteristics of clothing and furniture that make it possible to almost literally embed our essence in such possessions (Belk 2006). This essence is the characteristic that Benjamin (1936/1968) called "aura" and that Belk (1988) described as contamination (contagion)—the soul of the person rubbing off on or impregnating the object (Fernandez and Lastovicka 2011). Furthermore, for virtual possessions that are endlessly replicable, it is difficult to regard them as perfectly unique, nonfungible, and singular, even if we have custom-crafted them or employed suitable possession rituals. Such assessments suggest that, while digital possessions can be objects of self extension, they may not be as effective as material possessions. They may also operate within a different realm. For example, possessions in *Second Life* may only be seen as part of extended self by other residents of *Second Life*. Likewise, your Facebook profile, timeline, and friends may only act as part of your extended self for those granted access and only while they are online.

There may also be an age difference in the tendency to regard digital possessions as a part of the extended self. Cushing (2012) reports that older consumers (ages 58–67) were less likely than younger consumers in her study to see digital possessions as part of their extended self. For instance, one man "mentioned that he had spent more of his lifetime with physical items than digital items, so he considers the physical possessions to be of more value and to represent his identity more than digital possessions" (160). Whether this is due to growing up in a predigital age or having accumulated more memories in nondigital possessions remains an open question.

These findings temper some of the conclusions about dig-

ital possessions forming part of the extended self, but they do not negate them. Certainly, among digital enthusiasts, whether in MMOGs (Massively Multiplayer Online Games), virtual worlds, blogs, forums, or social media, digital content means a great deal. Shared digital music and shared musical tastes may mark us as part of an imagined community (Born 2011). We may also become quite attached to our own digital content. Digital music owners, for example, often report that they are strongly reluctant to delete songs or albums even if they no longer listen to them (Odom, Zimmerman, and Forlizzi 2011). But it is well to think about the realms within which digital possessions play a role in our contemporary extended self and whether their role changes if we leave or turn off our digital device.

Reembodiment

Not only have our possessions lost the constraints of their former physical bodies, so have we. As a famous *New Yorker* cartoon put it, "On the Internet, no one knows you're a dog" (Peter Steiner, cartoonist, July 5, 1993). The first wave of digital studies—when representations of ourselves online were primarily textual messages on MOOS, MUDS, e-mails, and bulletin boards—led to forecasts that we would be emancipated from our bodies and take on whatever persona we wished (e.g., Castronova 2007; Haraway 1991; Turkle 1997). Discrimination due to gender, race, class, and physical handicaps would fall away, and we would enter an online age of total equality. But this changed with what Bolter (1996) characterizes as the "breakout of the visual" online, leading to "new constructions and definitions of the self." In a more visual Internet environment of social media, virtual worlds, online games, blogs, web pages, photo- and video-sharing sites, Internet dating sites, and so forth, we are disembodied and reembodied as avatars, photos, and videos. With the help of PhotoShop and purchased "skins" and accessories, we have considerable leeway in our visual self presentations online, despite a fairly high degree of similarity to our physical appearance (Bryant and Akerman 2009; Meadows 2008; Zhao, Grasmuck, and Martin 2008). Yee (2007) defines avatars as "digital representations of ourselves" (iv). As Meadows (2008) explains, "When you make an avatar of the same gender, age, and race, it feels like you on a psycho-physiological level. You can identify with it" (90). He does go on to note, however, that there are "very few morbidly obese, elderly, or handicapped avatars in virtual worlds."

Reembodiment in an avatar is characterized by Biocca (1997) as a progressive process. Together with designing our avatar, giving it a name, learning to operate it, and becoming comfortable with it, we gradually not only become reembodied but increasingly identify as our avatar (Binark and Sütcü 2009; Robinson 2007; Taylor 2002). Based on *World of Warcraft*, Tronstad (2008) concludes that "if we obtain a feeling of 'being the character,' it is most often through embodied empathy with an entity that is partly (an extension of) ourselves, and partly a separate entity that can be identified as a character in *World of Warcraft*" (259).

Identification with our avatars is one evidence against the glib charge that the Internet is merely another medium in which the same principles of communication and entertainment apply. Based on his research in the virtual world of *Second Life*, Boellstorff (2008) observes that he can meet a lover, attend a wedding with friends, or buy property in *Second Life*, all things that are impossible in a novel or a television program. Similarly, Denegri-Knott and Molesworth (2010a) emphasize that, while people may describe the action of a film or novel in the second person (they did this, that happened), *World of Warcraft* is strictly first person (we did this, I will get a sword to kill trolls).

Moreover, we are not just placed into an alternate avatar body; we have some choice in selecting, modifying, and accessorizing this representation of self (Bryant and Akerman 2009; Kamel 2009). The relative freedom of configuring our avatar bodies has led some to suggest that our avatars represent our ideal selves (Kozinets and Kedzior 2009; Robinson 2007; Taylor 2002), possible selves (Young and Whitty 2012), aspirational selves (Martin 2008; Wood and Solomon 2010), or a canvas on which we can "try out" various alternative selves (Biocca 1997; Denegri-Knott and Molesworth 2010a). In support of these contentions, Turkle (2011) reports: "Online the plain represented themselves as glamorous, the old as young, the young as older. Those of modest means wore elaborate jewelry. In virtual space, the crippled walked without crutches, and the shy improved their chances as seducers" (158).

In MMOGs, thanks to the characteristics of presence or telepresence (feeling you are there) and immersion ("a loss of self by the player, who then 'becomes' their character"; MacCallum-Stewart and Parsler 2008, 228), it is often said that during game play the player *is* the avatar: "A persona is a player, in a virtual world. That's *in* it. Any separate distinction of character is gone—the player *is* the character. You're not role-playing a being, you *are* that being; you're not assuming an identity, you *are* that identity; you're not projecting a self, you *are* that self" (Bartle 2004, 155).

But this is the most extreme level of immersion. Eladhari (2007) distinguishes several levels of immersion, progressing from avatar to character to persona. At the *avatar* level, where players start, it is more like operating puppets. A *character* "is an extension of the player's self, a whole personality for the player when s/he is in-game" (174). And at the *persona* level, the player no longer distinguishes between himself and the avatar.

We may employ anonymous and pseudononymous identities online, as 49% of all those who post online do (Madden and Smith 2010). We can also enact wild fantasy identities in online games and virtual worlds. In predigital times, we could try out new identities by buying new clothes or cars, changing hair styles, or cultivating new friends and hangouts. But, in the present digital age, our online physical invisibility and command of the virtual reembodiment of self-created avatars provide an easier and less risky environment for such self experimentation. For example, people often come out in new sexual identities after first doing so

online (Boellstorff 2008; Ruvio and Belk 2012). In Bartle's (2004) appraisal: "Virtual worlds let you find out who you are by letting you be who you want to be" (161). This gets to the heart of the portability of virtual identities to the real world (RW). Whereas online games and virtual worlds involve largely fictional representations of self, blogs, forums, and social media normally involve real-life issues and real-life representations of self (Benwell and Stokoe 2006, 247). While both are part of the digital extended self, the real-life representations are likely more easily portable into the RW, but they also involve less dramatic changes.

Nevertheless, we know that our behavior changes when we don a mask or a costume (e.g., Makarius 1983). Besides enacting the character we portray, the mask can grant us some anonymity and safety, even to violate taboos. But, since we are inside a mask or costume, we do not see ourselves and must rely on feedback from others. With an avatar, however, we are not only inside, anonymous, and recipients of feedback from others; we are also outside and constantly looking at ourselves as avatar. Although focused on the alter ego of the avatar, this is a much more effective mirror and reinforcement than simply relying on others' feedback.

Needed Extended Self Updates due to Reembodiment: 1. Attachment to Avatars. Regardless of the level of immersion, players get quite attached to their avatars, especially their "first born" (Bryant and Akerman 2009; Wang et al. 2009). And as Kelly 2 (2004) summarizes, "Whether players see their characters as pure extensions of themselves, as their children, as their bodies, or as reifications of their own ideals, MMORPG characters acts [*sic*] as a powerful draw for many people and may actually hold them in the virtual world for years at a time" (61).

Such reembodiment, immersion, and telepresence challenge the central role that the physical body was seen to play in Belk's (1988) formulation of the extended self. Those who have an avatar may have in-world autobiographical memories attached to this character, including their interactions and friendships with other avatars, their missions and experiences, and in some cases even virtual sex, marriage, and divorce (Boellstorff 2008). Thus, it is ironic that the code that creates most of these characters is actually owned by the game company (Kelly 2 2004).

Needed Extended Self Updates due to Reembodiment: 2. Proteus Effects. Even slight differences between our RW bodies and our virtual reality (VR) bodies can have effects on our offline behavior. Although the James Cameron film *Avatar* dramatized our identification with our avatar in virtual worlds and game play, it is not too farfetched: "*Avatar's* fiction is supported by science: dozens of psychological experiments have shown that people change after spending even small amounts of time wearing an avatar. A taller avatar increases people's confidence, and this boost persists later in the physical world. Similarly, a more attractive avatar makes people act warm and social, an older avatar raises people's concern about saving money, and a

physically fit avatar makes people exercise more" (Blas-covich and Bailensen 2011, 4).

This phenomenon has been labeled the Proteus effect after the ancient Greek god who could take on whatever form he wished (Yee 2007; Yee, Bailenson, and Ducheneaut 2009). The mind is an embodied mind, but it is also now a reembodied mind extended into our avatar.

Still, these are experimental results in which people are assigned an avatar rather than choosing or creating one of their own. Again, portability to the RW is likely to face limits: "VR bodies are thin and never attain the thickness of flesh. The fantasy that says we can simultaneously have the powers and capabilities of the technologizing medium without its ambiguous limitations, so thoroughly incorporated into ourselves that it becomes living body, is a fantasy of desire" (Ihde 2002, 15).

Needed Extended Self Updates due to Reembodiment: 3. Multiplicity. Eladhari (2007) notes that many MMOG and virtual world participants have multiple characters. Sometimes these "alts" are just a way to gain some anonymity to act out of character online. But sometimes they are a way to explore different personality possibilities. This also resonates with recent research suggesting that consumers may house multiple dialogical or multiphrenic selves, who may bargain with or confront one another when facing a potential consumer choice (Ahuvia 2005; Bahl and Milne 2010). For example, Tian and Belk (2005) observed the battle that can take place between the "home self" and the "work self" as the time and place boundaries that once distinguished the two melt. But whereas the multiple selves, subpersonalities, alter egos, or subselves that concern these authors are entrenched parts of identity, the multiple selves adopted by some people online may be a much more expedient form of "identity tourism" (Nakamura 2002), as one online dater revealed:

> I was a bit fed up with no return so I just made up something that I'm very wealthy. I'm some entrepreneur and used my friend's Porsche, and pictures and stuff like that. . . . and guess what? I get returns, absolutely everywhere. I'm telling you it is coming like I don't even have to approach people. I named myself as entrepreneur 23. (Whitty 2008, 246)

Naming is an important initial act of identity construction online, but that and demographics alone don't create a sufficient back-story or biography to enable carrying out such a potential deception over an extended period of time. Although William James (1892/1963) suggested that we may have as many social selves as the number of social situations we face, he also pointed out the difficulties of attempting to maintain multiple personas:

> I am often confronted by the necessity of standing by one of my empirical selves and relinquishing the rest. Not that I would not, if I could, be both handsome and fat and well-dressed, and a great athlete, and make a million a year, be a wit, a bon vivant, and a lady-killer, as well as a philosopher, a philanthropist, statesman, warrior, African explorer, as well

as a "tone poet" and saint. But the thing is simply impossible. The millionaire's work would run counter to the saint's; the bon vivant and the philanthropist would trip each other up; the philosopher and the ladykiller could not well keep house in the same tenement of clay. (James 1892/1963, 174)

If anything, the challenge of segregating multiple personas is more difficult in a digital age. For example, consider trying to control the Facebook content that different audiences see. One of Odom et al.'s (2011) teenage informants feared that if certain photos and messages were displayed to his parents, "Mom would kill me" (1495). And others of their informants reported carefully deleting Facebook comments by family members lest their friends see them.

There are, to be sure, multiple selves evident in some online activity. This can be freeing and fun or involve serious self-experimentation, but it is more apt to involve role playing and use of avatars as parts of the extended self rather than true multiple personalities or what is now called dissociative identity disorder (Ross 1999). Schwartz (1999) puts this in simpler terms and refers to the self as having a soul-like inner state that serves as an executive ego leading the subpersonalities in a way that preserves a healthy inner state. As we will see in a subsequent section, memory is another constraint on embracing very different multiple selves too seriously. Ironically, despite the possibility of multiple online identities, the difficulty in separating online audiences may create more rather than less self consistency online than in the predigital era of narrower audiences in which the extended self was originally conceived.

This does not negate the multiphrenic and dialogical selves detected by Ahuvia (2005) and Bahl and Milne (2010). It is possible, in fact, that our multiple online personas mirror these multiple self conceptions. But it does suggest that online personality is not as fragmented and fluid as some postmodern theorists suggest (e.g., Firat and Dholakia 1998; Firat and Venkatesh 1995). Nor is the contemporary self as vacuous as Dean (2010, 73) cynically observes: "There is no me (although I can google myself to see if I turn up)." Anyone who has built up an elaborate Facebook presence has experienced the illusion of an evolving coherent core self. This evolution is evident in Sorapure's (2003) observation that "in an online diary, pieces of information about the self may be brought together in different configurations, signifying multiple and shifting ways of understanding the self" (8). That is, the sense of self changes as it did in predigital days, incrementally as we progress through life (James 1890/1981).

But, contrary to Belk (1988), there is no singular core self. As Hood (2012) observes, "authorship of actions requires the illusion of a unified sense of self" (134). It is this powerful illusion of a singular purposeful core self in control of our actions that leads us to over-attribute positive outcomes to our self rather than others or the situation. And, by extension, our perceived control of our digital extended self leads us to feel that these things are a part of us. The feeling of tenuousness in actually controlling ephemeral digital possessions is another reason that leads us to feel vul-

nerable and regard them as less central to identity compared to tangible possessions.

Sharing

It takes only a moment of surfing the web to realize that the Internet is a cornucopia of information, entertainment, images, films, and music—mostly all free for accessing, downloading, and sharing with others. This wealth of goodies is there in the first place because others have shared. You have no doubt shared online—if not wiki entries, movies, and music (e.g., Giesler 2006), then surely manuscripts, papers, comments, vendor ratings, reviews, URLs, or interesting bits and pieces posted or sent to help or entertain others. Sometimes the sharing model is commercialized, as with all the .com "sharing" sites that are more accurately short-term rental sites (Bardhi and Eckhardt 2012; Botsman and Rogers 2010; Gansky 2010). But in many other cases the sharing model is being applied in a noncommercial manner (Belk and Llamas 2012). And the mechanisms of blogs, social media, and photo- and video-sharing sites have sharing as their primary rationale (John 2012). The question that remains is how sharing possessions online enhances our individual and aggregate senses of self.

Sharing itself is not new and has arguably been around as long as humankind (Belk 2010). But digital devices help us share more, as well as more broadly, than ever before. For those active on Facebook, it is likely that their social media friends know more than their immediate families about their daily activities, connections, and thoughts. Diaries that were once private or shared only with close friends are now posted as blogs for anyone to read. In posting photos on sites like Flickr or Photobucket the use of arm's-length self-photography marks a change. In older family albums, the photographer was not often represented in the album (Mendelson and Papacharissi 2011), whereas with arm's-length photos, they necessarily are included. In addition, the family album of an earlier era has become more of an individual photo gallery in the digital age. As Schwarz (2010) points out, we have entered an unprecedented era of self-portraiture. Together with blogs (Cohen 2005; Dean 2010) and web pages (Papacharissi 2002; Schau and Gilly 2003), this has arguably led to greater self-reflection as well as more digital bits of the extended self to represent us, sometimes with multiple daily updates.

Facebook is now a key part of self presentation for one-sixth of humanity. This has led some participants and researchers to become concerned with actively managing identity and reputation and to warn against the phenomenon of "oversharing" (Labrecque, Markos, and Milne 2011; Shepherd 2005; Suler 2002; Zimmer and Hoffman 2011). With Facebook's Timeline feature, users also intentionally or automatically create a receding depiction of how they were and the events of importance in their lives, thus aiding a sense of past (Belk 1991) as well as providing a more complete self narrative with an idealized view of how we would like to remember ourselves (Van Dijck 2008). I will consider such effects further in the section on distributed memory.

Many American teenagers, as well as some adults, share something even more intimate with their partners: their passwords (Gershon 2010; Richtel 2012). This may be the ultimate act of intimacy and trust or the ultimate expression of paranoia and distrust of our partner. Gershon's (2010) research suggests that the results are seldom cordial and can also lead to sabotage and a very public break-up via Facebook News Feeds. As with the transformation of private diaries into public revelations of inner secrets, the lack of privacy in many aspects of social media can leave the users feeling vulnerable, leading to compulsively checking news feeds and continually adding tweets and postings in order to appear active and interesting. This has been called fear of missing out (FOMO; e.g., Grohol 2011; Wortham 2011).

A part of the reason for so much sharing and self disclosure online is the so-called disinhibition effect (Ridley 2012; Suler 2004). The lack of face-to-face gaze-meeting, together with feelings of anonymity and invisibility, seems to free us up to self-disclose but also to sometimes "flame" others ("toxic disinhibition"). The resulting disinhibition leads many to conclude that they are able to express their "true self" better online than they ever could in face-to-face contexts (e.g., Bargh, McKenna, and Fitzsimons 2002; Taylor 2002; Tosun 2012). This does not mean that there is a fixed "true self" or that the self is anything other than a work in progress, but apparently self revelation can be therapeutic, at least with the aid of self-reflexive applications (Morris et al. 2010). Just as psychoanalysis was once disparaged as "the talking cure" (Hampton 2003), we might see the self-care of blogging and engaging in social media and forum conversations as a form of self-therapy by talking things through. Buechel and Berger (2012) and Forest and Wood (2012) find that less emotionally stable people are especially likely to attempt to enhance well-being in this manner. Whether this is effective therapy or not remains an open question; Turkle (1996) found in the earlier world of MUDs that some people effectively talked things through online while others merely acted out by repeating old conflicts in new settings. But it does appear that we now do a large amount of our identity work online. For the Internet constantly asks us: "Who are You?" "What do you have to share?" Coupled with new self-revealing proclivities, this incites more open self extension than in a predigital world.

If disinhibition results in a greater amount of online sharing, impetuses for confession lead to greater depth in self-disclosures. Confession is a practice that is as old as antiquity and as new as contemporary accounting, psychoanalysis, criminology, and videotaping (Aho 2005; Renov 1996; Taylor 2010). In addition to sharing the good things we experience, many of us also share the bad, embarrassing, and "sinful" things we experience. While some of these revelations are relatively anonymous, others, like Jarvis's (2011) blogs about his prostate cancer battle, are made without benefit of pseudonymity. These accounts are not unlike Van Maanen's (1988) ethnographic confessional tales that involve "mini melodramas of hardships endured" (73). Such narratives may also be facilitated by the lack of eye contact

with our online audiences, just as the psychoanalytic couch and the Catholic confessional make it easier to confess by screening us from the eyes of the listener. Blogs and social media are the primary digital fora on which such confessions occur, but they can also be found in photo- and video-sharing sites on which our blunders and bad moments are also preserved and shared (Strangelove 2011).

Why confess to unseen and anonymous others online? In Foucault's (1978, 1998) view, confessing our secret truths feels freeing, even as it binds us in a guilt-motivated self-governance born of a long history of Christian and pre-Christian philosophies and power structures. Prominent written public confessions, like those of St. Augustine and Jean-Jacques Rousseau, helped to reinforce this imperative for self-confession in an earlier era, just as others' online diaries and blogs do today (Napolitano 1996; Rettberg 2008; Serfaty 2004). But the Internet has made once private confessions far more public. In Foucault's (1998) view, confession, along with contemplation, self-examination, learning, reading, and writing self-critical letters to friends are a part of the "technologies of the self" through which we seek to purge and cleanse ourselves.

In the West, we now live in a society "where we are all compelled to confess and to explore our interior lives. Our culture is essentially autobiographical" (Abercrombie, Hill, and Turner 1986). We can also see these public confessions in contemporary television talk shows (Gamson 1998; Grindstaff 2002; Lury 1998) and on home shopping channels (White 1992). McNeill (2003) makes the similarity explicit: "After several hours of reading these journals, I often feel sick, as if I've watched too many tell-all talk shows on daytime television" (24). Hevern (2004) refers to these practices as a "reflective *self-colloquy*, speaking out loud what otherwise would be internal and inaccessible to others" (327). He gives the following example from one man's blog: "I've never seen a shrink. . . . Certain music makes me cry. . . . My limited [sexual] experience: 3 partners (was 2 until this month). . . . I don't think I believe in Jesus" (328). This corresponds to Foucault's contention that sex is the foremost secret that we should confess (Barnard 2000). Even nonbiographical blogs often have partly confessional "bio" or "about me" pages. One woman's self description includes these statements: "'I believe in God.' 'I also believe in reincarnation.' 'I bite my nails.' 'I am the child of an alcoholic'" (Sorapure 2003, 6). Revelations of theological beliefs in both examples suggest that the religious traditions of confession continue to influence the nature of online admissions as well. There is also a sense, at least since Rousseau, that confession requires introspection and supposed discovery of the inner or true self (Taylor 2010). Practices as diverse as psychoanalysis, Weight Watchers, cosmetic surgery, and sex reassignment surgery are often couched in terms of discovering the "true self." What was once a religious prelude to doing penance has collapsed into a medicalized practice of healing by revelation. That is, the confession is itself the penance that is expected to heal. And on the Internet the technique

that Foucault (1978) called *Exomologesis* or "publishing oneself" has never been easier to accomplish.

But there is another possible explanation for the rise of confessional practices on the Internet. Despite the veil of invisibility, writers on the Internet write for an unseen audience (Serfaty 2004). Both the number and feedback of readers provide self-validation for the writer and a certain celebrity (O'Regan 2009). Despite the tension between privacy and potential celebrity, our online confessions are also part of the self-therapeutic aspect of sharing. Confessional blogs may also be therapeutic for the audience to read, allowing both sincere empathy and the voyeuristic appeal of witnessing a public confession (Kitzmann 2003).

But the Foucaultian guilt-based motivation for online confessions has been characterized as applying primarily to Western, individual, guilt-based cultures (Abercrombie et al. 1986). In more aggregate Eastern shame-based cultures, rather than an internalized feeling of guilt, behavioral compliance is more often externally imposed by creating feelings of shame. Solove (2007) illustrates with the story of a young woman's small dog that defecated on a subway in South Korea. When other passengers asked her to clean it up, she refused and told them to mind their own business. But a fellow passenger had photographed the incident and put the pictures up online along with an account of the event. Within days, readers had identified the girl, and her parents and relatives started receiving inquiries about her; an online shaming campaign started, and it became national news in South Korea. As a result, the girl dropped out of her university. Small-scale societies and neighborhoods have long used shaming as a social compliance–inducing technique. Before the Internet, it was likely that such shaming would quickly fade from memory, and the offender would gradually be welcomed back into the community. But the Internet doesn't forget or draw geographic boundaries around shaming. Moreover, with the ubiquitous surveillance of amateur and CCTV recordings, confession is no longer in the hands of the confessor and may be repeated by others who did not personally witnesses the indiscretion.

Needed Extended Self Updates due to Sharing: 1. Self Revelation. The sharing of information about self online facilitated by the disinhibition and confessional effects means that it is now far easier to present our selves in ways that would have been awkward at best in predigital times. It would be considered rude, crass, or naive to introduce ourselves to someone at a social gathering by telling them about our house, the kind of car we drive, and our stock portfolio. But it is quite acceptable to show such things in photos we post online, to list them in our various online profiles, or to discuss them in a blog we write. There is not only an inward turn in self-consciously crafting our autobiographies (Zhao 2005), there is also an outward turn in terms of presenting these self displays for all the world to see. As noted earlier, this has led some researchers to emphasize actively managing identities. Côté (1996) sees this as part of a historical progression from ascribed to achieved to managed social identity. As one piece of suggestive evi-

dence, Madden and Smith (2010) report that 57% of American adults admit online "ego searching" for information about themselves—more than search for information about past (46%) or present (38%) friends.

Needed Extended Self Updates due to Sharing: 2. Loss of Control. At the same time, because of others' sharing, contemporary processes of self management are not fully under our control. Even if we restrict certain content to a designated circle of online friends, there is no guarantee that the information will not be reposted, retweeted, or quoted. Sharing confidences with friends is not new, but the potential audience is now far broader. As some have learned the hard way, appearing literally or figuratively naked before the world can come back to haunt us in school admissions, hiring, promotions, and friendships. What was once private is now more likely to be public. While we may exercise self-control, it is far harder to control all our digital self representations when others may reshare with unintended audiences.

Needed Extended Self Updates due to Sharing: 3. Shared Digital Possessions and Aggregate Self. When things are jointly owned, they are also likely to be more relevant to the aggregate level of self encompassing those with whom they are shared. In the digital realm, however, we are part of imagined communities whose members may not be personally known aside from their pseudonyms and online contributions (Born 2011). A case in point is file sharers who jointly assemble and share ownership of a set of musical files. This need not be so-called pirated music like that of Napster and its successors (Dibbell 2000; Giesler 2006). It could be a group of friends who swap music in person. It could also be a channel or group within YouTube or Vimeo. Both the act of sharing and the sense of joint possession enhance the sense of imagined community and aggregate extended self in a digital age. Moreover, the acts of sharing either the files or information about the subject matter (e.g., a musical or film genre) on forums, in blogs, or via ratings and comments on sites like Amazon and iTunes, create feelings of group identity (Brown and Sellen 2006; O'Hara and Brown 2006). Joint identity is also found in open-source software collaborations like Linux (Hemetsberger and Reinhardt 2009). Thus, the possibilities of digital sharing online foster feelings of community and aggregate sense of self, even with others we would not recognize in person.

Needed Extended Self Updates due to Sharing: 4. Shared Sense of (Cyber)Space. The sense of aggregate self can also extend to a shared sense of space online. The overlap between digital aggregate extended self among those seeking access rather than ownership (Bardhi and Eckhardt 2012; Chen 2009) is apparent when we consider cyberspace as a public place that is occupied by a partially rotating set of participants. Although there is ownership of property within *Second Life* and retail web sites like Amazon.com have owners, on these sites there is a sense that these are public access spaces. They invite interaction, comments, ratings, and other forms of Web 2.0 participation by anyone. Indi-

viduals may feel proprietary toward their blogs, web sites, and social media spaces and may even own a domain name (Hodkinson and Lincoln 2008), but in most of these cases shared access is sought more than ownership. The whole point of Web 2.0 and most digital devices is to facilitate access and communication.

The Internet and many digital devices free us from the constraints of time and place and create other, virtual, times and places. Kozinets and Kedzior (2009) call this process of virtual place creation "re-worlding," meaning taking us out of the constraints of our physical space and providing us with new abilities: "The ability to remodel the virtual environment extends the identity project far beyond the body. . . . Therefore, places in virtual worlds can also be considered to be vivid markers of virtual identity" (12).

Besides individual self identity, the entire realm of cyberspace that we occupy can be considered a part of the aggregate extended self shared with other participants. In this re-worlding, we experience transcendence of the body, time, and space (Biocca 1997; Sherry 2000). A number of authors have referred to the Internet consumer as enjoying the same pleasurable feelings as Charles Baudelaire's and Walter Benjamin's flâneur (or flâneuse) delighting in the boulevards, cafés, shops, and street scenes of nineteenth-century Paris (e.g., Denegri-Knott and Molesworth 2010a, 2010b; Lehdonvirta 2012; Lehdonvirta et al. 2009; Molesworth 2012). This aestheticization of life takes place online as the participant soaks in the digital spectacle in "window shopping" for real world goods. Denegri-Knott and Molesworth (2010b) find that eBay is effectively a giant shopping arcade used to incite consumer desires in a way that merges the virtual with the real. Molesworth (2012) also criticizes such flânerie, noting that it is a largely passive and solitary experience. But contrary to this charge that the digital consumer is alone and not really "there," through telepresence the consumer really *is* there phenomenologically (Hoffman and Novak 2009; Taylor 2002).

This feeling of being there with others, many of whom are "regulars," has led some to conclude that digital realms constitute what Oldenburg (1999) called "third places" (e.g., Eladhari 2007; Steinkuehler and Williams 2006). A third place is a place that is neither the first place of home nor the second place of work, but at which people hang out, enjoy themselves, and feel accepted. Brick-and-mortar third places include pubs, cafés, and coffee shops, where a rotating cast of regulars get to know, accept, and support one another. Based on a careful analysis of Oldenburg's (1999) criteria for third places (neutral ground, status leveling, conversation, accessibility, regulars, a low profile, a playful mood, and a home away from home), Steinkuehler and Williams (2006) conclude that MMOGs are excellent examples of third places where participants can "be themselves." Following Anderson (1991), they note that physical co-presence is not needed for a rich sense of imagined community at such sites. Based on the games they analyzed, they also find that Putnam's (2000) concept of bridging capital and Granovetter's (1973) concept of weak ties are both more apt at

such sites than bonding capital and strong ties. That is, the participants are mostly from diverse social, age, and economic strata and know each other in less intimate detail than close neighborhood friends would. Nevertheless, online third places provide an anchor for online aggregate sense of self that is shared with and mutually constructed by other regulars.

Co-construction of Self

Although there are single-player video games and a person can surf the Internet or listen to music in solitude, for the most part our digital involvements are social in nature. Our blogs invite comments, social media thrive on interaction, and while cell phones may be decreasingly used for telephone calls and e-mails, they are increasingly used for text messaging, taking and posting photos and videos, and geo-locating to connect with others. These others increasingly help in constructing our individual and joint extended sense of self through an updated version of Cooley's looking glass (Zhao 2005). Turkle (2011) calls this the collaborative self. Social networking sites are now seen as important sites of psychological development, especially between adolescence and adulthood (Steinfield, Ellison, and Lampe 2008). According to 2010 data, 86% of US teens post comments on friends' social media pages and 83% comment on friends' pictures. Larsen (2008) finds that most of these messages are phatic communications that can be translated as "Hi, I am still your friend and I care about you." It's like reciprocal smiling, which reassures us from infancy. The comments that others add to photos of us online are metadata that have been referred to as adding "digital patina" (Davies 2007; Odom, Sellen, et al. 2012). That is, the photos accrue different and richer meanings in the same way that the provenance of a painting or an antique can add to its value.

In the constant digital gaze to which we expose ourselves on social media like Facebook, we enter a voluntary panopticon. As Floridi (2012) observes: "The scope for naïve lying about oneself on Facebook is increasingly reduced (these days everybody knows if you are, or behave like, a dog online)" (562). But this may not be universal. In Thailand, Facebook users routinely use false names and photos in order to avoid breaching restrictions on freedom of speech. Because insulting the king is a punishable offense, some Thais put "love the king" on their Facebook pages, while those opposing him use subtle alternative phrases like "love my parents" (Hongladarom 2011). They rely on friends who know what they really mean to help bridge the apparent gap between an online self and an offline self.

Needed Extended Self Updates due to Co-construction of Self: 1. Affirmation Seeking. Friends also help to co-construct and reaffirm each others' sense of self though their postings, tagging, and comments. Drenton (2012) found that 13 teenage girls uploaded a total of 2,055 photos to their Facebook pages during a 1-month period and garnered a total of 2,356 comments. These photos were not only part

of their extended selves; they also aided in the process of co-construction of self:

> Giggling and chatter comes streaming through the dressing room door as three teenage girls stand inside, trying on dresses covered in rhinestones and beads. One of the girls pulls out her cellular phone and turns on the camera feature. Instinctively, the other two girls strike a pose alongside their camera-wielding friend as she snaps a digital photograph of their reflection in the dressing room mirror. With the touch of a button, the picture is uploaded from the girl's mobile phone to her Facebook profile. Almost simultaneously, her online friends begin posting comments: "Cute dress!" "Looks great—you should definitely get it!" Thus, a consumption experience that was once only privy to the girls physically inside of the dressing room is now displayed for public viewing and feedback on the World Wide Web. (Drenton 2012, 3)

While the girls in the dressing room act as extended self purchase pals in the traditional sense of the term (Hartman and Kiecker 1991), they can now receive reassurance from many far-flung online purchase pals.

Teens also add sometimes self-disparaging comments on photos of themselves that they post in an apparent effort to seek validation or reassurance (boyd 2010; Forest and Wood 2012). Drenton (2012, 15) provides an example of one such posting to which the response from a friend was: "omg, please! I wish I was as pretty as you on a 'rough' day!" The process is reciprocal. As one of boyd's (2010) informants explained, "If someone's nice enough to say something to you, then you have to be nice enough to say it back" (111). Unlike face-to-face reassurance seeking, such comments remain visible for all to see. And because they are messages from others, they appear less egoistic than saying these things about ourselves (Larsen 2008).

Blogging can also be seen as a form of affirmation seeking. Rather than a one-way offering of opinions, experiences, and insights, most blogs today have invitations for feedback and interaction. Compared to personal web pages, blogs are seen as more dynamic, less cluttered, interactive, and "authentic" (Nardi et al. 2004). Kitzman (2003) finds that bloggers regard "allowing public access to personal thoughts and personal space as . . . a way to make one's life significant through the feedback and support of readers" (56). The affirmation by readers, even if only in page view counts (Dean 2010), likely provides confidence to extend the self in new directions. The co-construction of self also takes place offline in face-to-face encounters (Mathews 2008), but the online disinhibition effect makes it easier to try out new selves online. The same disinhibition makes it easier for others—both friends and anonymous readers—to provide feedback for the co-construction of self. Moreover, the cumulative comments build up and continue to enhance extended self long after they have been posted.

Needed Extended Self Updates due to Co-construction of Self: 2. Building Aggregate Extended Self. Affirmation of self is also often an affirmation of the aggregate self comprised of friends or lovers. Manghani (2009) compares the

back-and-forth text and e-mail messages between lovers an "addictive call and response," in which the shared exchange can be seen as truly collaborative writing that brings the participants closer together. As such strings of short messages accumulate and as photos and other postings accrue digital patina, they become less an expression of one person and more a joint expression and possession of the couple or group that has composed them (Baym 2007; Odom et al. 2011).

Another part of the online building of an aggregate shared self is coming to a shared understanding of what is a good look, a terrible movie, or "our kind" of music. This is an exercise in forming a coherent sense of aggregate self with friends. Manghani (2009) observes that such exchanges constitute "tender technologies of the self," expanding Foucault's (1998) idea that we can cultivate the self partly "with the help of others." Whereas Belk (1988) spoke of aggregate levels of self from a purely individual perspective, it now appears that it is more properly considered to be a joint project resulting in an aggregate self that belongs as much to the others who have helped to form it as it does to oneself. Suler (2004) explains: "What others know or don't know about me is not always clear. . . . As a result this altered state of consciousness in cyberspace tends to shift or destabilize self-boundary. The distinction between inner-me and outer-other is not as clear. . . . Boundaries between self and other representations become more diffuse, and thinking becomes more subjective. . . . Within the transitional space of online communication, the psyches of self and other feel like they might be overlapping."

This can be a positive thing, but it can also be perceived as an invasion of our private world. That is, the online communities in which we participate can create either a desired or undesired aggregate extended self. And when political leaders we had supposed to represent us do not, we can use blogs, forums, and social media to disassociate ourselves.

Although Belk (1988) posited aggregate extended self, he emphasized other people as extending the individual sense of self more than participating in a shared aggregate self that transcends both individuals. Self-transcendent possibilities are magnified in the digital world.

Distributed Memory

Nondigital objects that form a part of the extended self are often able to provide a sense of past through their association with events and people in our lives (Belk 1991). These objects include furniture, souvenirs, photographs, records, books, collections, clothing, and letters. However, in a digital world, there is a new set of devices and technologies for recording and archiving our memories. These technologies allow access to an expanded archive of individual and collective autobiographical memory cues (e.g., Baumgartner 1992; Baumgartner, Sujan, and Bettman 1992), as well as links to facts like the number of planets in our solar system. For factual information, Tian and Belk (2005) found that memory devices in the workplace included various "pros-

thetic" technological extensions of self (e.g., computer and phone contact lists, calendars, files, and calculators). An increasingly ubiquitous use of prosthetics is in "outsourcing" our memory to hard drives and search engines, prompting Carr (2008, 2010) to ask, "Is Google making us stupid?" Similarly, Hochschild (2012) criticizes the outsourcing of many of the intimate things we used to do for ourselves (e.g., child care, elder care, financial planning) as resulting in a diminished rather than enhanced extended sense of self. But both criticisms are more about independence and self-sufficiency than diminished selfhood.

Outsourcing memory has been taken to the extreme by Microsoft engineer Gordon Bell, who has attempted to digitize his entire life, including his photos, documents, possessions, books, business meetings, and every bit of his past that can be reproduced digitally. A camera around his neck starts recording when it senses movement and this too goes into his digital archive, which is instantly accessible, searchable, and securely backed up (Bell and Gemmell 2009). This is an elaborate self-extension and self-enhancement, but Mayer-Schönberger (2009) worries that the allure of perfect memory is illusory because in retrieving bits and pieces we decontextualize these events. But the same charges might be made about photographs and souvenirs as well as searching for scholarly material online. Without taking digitizing our lives to the extreme of Gordon Bell, we are increasingly documenting and annotating our lives thanks to ubiquity of digital photography, social media updating, photo- and video-sharing sites, blog archives, electronic calendars, and other digital crumbs that we leave behind in a digital age. Whether this actually improves memory accuracy is another matter (Scholsser 2006). Whether the self literally extends into these traces is also a disputed philosophical question (Olson 2011).

In the case of personal autobiographical memory (AM), Bluck (2003) suggests three functions of such memories that she labels *self*, *social*, and *directive*. Autobiographical knowledge aids *self* formation and preservation by providing a sense of continuity over time. This is a further limit to the multiplicity of self discussed in the section on reembodiment, in that we likely lack separate biographies for each persona. Bluck (2003) suggests that the *social* function of AM may be the most important. It helps us bond with others through sharing stories, fosters empathy with others, and makes conversations seem more truthful and believable. The *directive* function of AM also helps us learn from the past and guides our future behavior. Personal stories are particularly significant to selfhood, as the second subsection below discusses.

Beyond the functional capabilities of Google to help us recall factual information, such search engines and social media also help us remember other people, emotions, and events of significance in our lives. We can look up old friends, see photos with others' comments from a party we attended, and interact with others who help to jointly construct the memory of a shared event like a war, a World Cup, or the latest wonder of technology. Our memories benefit not only from our online actions but those of others who

post images of us and "tag" us in them. Thus, just as self is co-constructed online, so is the shared portion of our memory co-constructed with others on social media (Van Dijck 2007). Photography plays a key role in facilitating AM. As Belk and Yeh (2011) suggest, a photograph can be message from a former self to a future self that is intended to recreate the emotion of the original experience. Lury (1998) and Shove et al. (2007) suggest that digital photography in particular aids this process through its instantaneousness and lack of marginal costs, resulting in an abundance of images that facilitate intimacy through shared experiences and secrets. And while e-mail facilitates sharing with others who participate in the co-construction of AM and the extended self or selves of which it is a part, social media, photo- and video-sharing sites, blogs, and home pages expand the number of potential others co-constructing AM exponentially.

Perhaps it was inevitable, but the rise of the virtual self and online memory has led some to envision an immortal virtual self, perpetuated indefinitely on the Internet after the physical body has died. One premise is that we can now have virtual representations of ourselves available online to act as a memorial and a "gravesite" where others can come to mourn and pay tribute to us after death (e.g., Lim 2013; Odom et al. 2010; Wahlberg 2010). But another premise is that we can create these memorial sites while we are still alive through services such as Bcelebrated.com, PartingWishes.com, and MyWonderfulLife.com (Carroll and Romano 2011), as well as Facebook applications like ifidie (Ward 2012), and various devices through which consumers might access "the digital remains of their loved ones" (Odom, Banks, et al. 2012). Living users can craft their ultimate self presentation, leaving detailed funeral and cremation or burial instructions, saying final goodbyes, and otherwise shaping their post mortem extended self and digital estate. Just as we have physical possessions that we may bequeath to others, such sites suggest that we have a digital legacy that we may wish to pass on to others as well. It is possible to make arrangements so that this legacy will remain indefinitely available online. Carroll and Romano (2011) also suggest declaring a digital executor who is empowered to go through the deceased's computer and delete things like adult content and sensitive e-mails that might prove embarrassing, if indeed we can be embarrassed after death. If blogs and homepages propel an integration and unification of self, living obituaries further idealize the self. One Twitter-based service, _LivesOn, promises "When your heart stops beating, you'll keep tweeting," suggesting post mortem pseudo-agency verging on life after death.

Needed Extended Self Updates due to Distributed Memory: 1. Digital Clutter. Without judicious planning, given the sheer abundance our digital traces, those left behind may well be left with an unfathomable surfeit of files, links, e-mails, and other digital flotsam and jetsam. As Barnet (2001) observes, we "have learned to sift through information like superfine flour, to squirrel it away in gigabytes for a feast that never comes" (217). Such digital clutter may bother us less than physical clutter, but our distributed memories run

a very real risk of becoming ephemera that will never be accessed by our survivors. Perhaps Facebook's Timeline feature will reduce this problem by selecting what is retained and putting it in chronological order.

But there is another perspective on what might otherwise appear to be digital clutter. It is the strategy of keeping everything and then searching for what we want to reconnect with at a later point in time (Cushing 2012). With physical possessions we have only so much room to store things, but given the now inexpensive cost of digital storage and the efficiency of digital searches, there is little incentive to discard digital possessions. Weinberger (2007) provides an example of the old-fashioned library card catalog, on which only a limited amount of metadata could be stored, versus the current possibility of doing full-text searches. His strategic information system rule is therefore: filter on the way out, not on the way in (to storage). It seems likely that the increasing adoption of such an outlook by individuals will result in more accumulation of digital information than with hard copies of books, letters, and journals. Although contrarians (e.g., Carr 2008, 2010) suggest that we are becoming shallower, less competent, and less knowledgeable due to our reliance on such prosthetics, this charge has no more merit than saying that we cheat when we use wristwatches or mobile phones to know the time and date, GPS devices to find our way, or books to remember what others have thought.

Needed Extended Self Updates due to Distributed Memory: 2. Narratives of the Self. As Giddens (1991, 54) notes, our "identity is not to be found in behavior, nor—important though this is—in the reactions of others, but in the capacity *to keep a particular narrative going.*" This he says is done by continually integrating events in the outside world into our ongoing story about the self. But following the principle of sorting on the way out, we now seem more content to collect cues for a series of self-related vignettes that we hope will somehow selectively cohere into an integrated sense of self. These little stories about the self may appear to reveal a postmodern fragmented self. But, given the ease of storage, the purposeful selectivity of retrieval, and faith in our ability to cobble together bits and pieces into a coherent narrative, or more multi-sensory collage, when needed, we may be beginning to see the extended self as comprised of whatever seems apropos to the situation, whether it is travel stories, tales of great beauty beheld, or our childhood adventures. As Kernis and Goldman (2005, 112) observe, digital technologies "allow for self-relevant information to be instantaneously accessed, refined, indeed, even fabricated" in self presentation.

The recent introduction of Facebook's timeline feature appears to be an attempt to facilitate a linear narrative rather than a more random collage of posted photos, comments, updates, and links. Blog archives are also generally arranged by date to accomplish something similar. Rather than the hope of later sorting miscellaneous material into a meaningful narrative, such efforts provide at least a temporal ordering. It seems likely that other storage, retrieval, and

display options will emerge in the future to facilitate narrative construction from such material.

Needed Extended Self Updates due to Distributed Memory: 3. Digital Cues to Sense of Past.   Distributed digital memory also operates at the level of collective memory and aggregate extended self. The proliferation of our online photos, videos, posts, blogs, and timelines also provides cues that link us to memories constituting both individual and collective sense of past. This is not to say that the resulting memories are accurate. Just as our family photo albums were selective representations of happy times, new possessions, and smiling people on celebratory occasions (Belk 1988), so are our online memory repositories. Furthermore, Chalfen (2002) suggests that, with the advent of digital cameras and camcorders, we have begun to shift from "taking pictures" to "making pictures." Digital self-presentation not only benefits from digitally altered photographs (Solomon 2010) but also either suffers or benefits from tags and comments added by others (Davies 2007). As we have seen, we can even attempt to manage our final digital legacy through digital software leaving post mortem farewells, instructions, and representations of self. But despite growing attention to managing our digital estate, it seems fair to conclude that this perspective is not, or not yet, widely shared: "However, much . . . physical objects can be bequeathed [that] the recipient feels obligated to keep . . . the products of our digital lives are either little considered in this respect or we are too early into the digital revolution for this to be relevant" (Kirk and Sellen 2010, 26).

This may change. Laws are still in flux, and some families struggle in court to access their deceased loved ones' e-mail and social media pages (Fowler 2013). Cushing (2012) found some concern among her participants to maintain digital items for posterity, but this is usually a vague project with little assurance that even close family members will be interested.

A part of the way in which online communities foster aggregate sense of self is by sharing digital artifacts and developing collective memories around them. For example, Nguyen and Belk (2007) found that, on their web sites, former US soldiers who fought in the Vietnam War showed great consistency in the objects they photographed and the way in which they photographed them. Americans were often shown in dominant positions, with empowering upward camera angles, and happy smiles, whereas Vietnamese were shown in submissive positions, with downward infantalizing camera angles, and fearful faces. As the authors note, individual memory is nested within collective memory. Collective memory is also shaped by individual memories as well as various media depictions. Landsberg (2004) and Van Dijck (2007) make a similar point and note that collective memory is also cultural—in this case distinctly American—as well as generational. Landsberg (2004) emphasizes the role of "prosthetic memory"—here the web presence of photographs of Vietnam—in shaping shared memories by contrasting self and Other. A distinct difference from the predigital age is the much wider audience compared to what was once the private family album. This can have unanticipated consequences, as with the horrific photos of American soldiers torturing and humiliating Iraqi prisoners in Abu Ghraib. In such cases, the digital artifact has considerably more far-reaching consequences than the nondigital artifact.

SUMMARY OF CHANGES IN DIGITAL SELF

In terms of the original formulation of the extended self (Belk 1988), we see that, with the proliferation of multiple online personas, the core self idea crumbles but the illusion of a core self remains a strong and viable concept. The existence of a core self is a belief rather than a fact. In the digital world, the self is now extended into avatars, broadly construed, with which we identify strongly and which can affect our offline behavior and sense of self. Another difference from the predigital age is in the extent to which we now self-disclose and confess online, transforming the once semi-private to a more public presentation of self. This is also evident in the more shared nature of the self which is now co-constructed with much more instantaneous feedback that can help affirm or modify our sense of self. The aggregate self can no longer be conceived from only a personal perspective and is not only jointly constructed but shared, that is, a joint possession with others. We continue to have traces of our consumption that act as cues to personal and aggregate sense of past, except that rather than being encoded only in private possessions, productions, and photos, we are now more likely to turn to digitized and shared mementos online. We increasingly outsource our memories for both facts and feelings. These memory cues are likely to be commented on or responded to by others in a much more active co-construction of collective sense of past. At the same time, our ability to store virtually limitless digital traces means that we can apply the principle of sorting on the way out rather than on the way in and hope that we can create a coherent self narrative in response to the situations in which we find ourselves. However, our lessened ability to segregate audiences for our self presentations also means that we cannot easily present conflicting selves. Some conscious management of our online presentations of self is increasingly detected and advocated. All in all, the self is much more actively managed, jointly constructed, interactive, openly disinhibited, confessional, multiply manifest, and influenced by what we and our avatars do online. All of this is dramatically new and suggests that only studying extended self offline is missing a large part of the influences on our contemporary self concepts and our and others' activities in creating them.

Besides changes in the presentation and construction of self, the other half of self extension, comprising people and possessions, has also changed markedly. Digital possessions are found to be almost, but not quite, the singular objects of attachment that their physical counterparts are, especially among those not "born digital." Prosthetic possessions also amplify our abilities and become (re)embodied parts of self.

Although the potential permanence of the Internet promises a sort of immortality, to date it appears that ease of storage has resulted in more digital clutter than careful self-memorializing. As with other aspects of the digital extended self, the battle is to both adapt to and control all of the new possibilities for self-presentation. And in a visible shared digital world, such control becomes increasingly difficult.

AREAS FOR FUTURE RESEARCH

Digital-age extended self and possessions raise many additional research questions. Some of these have been suggested in the preceding discussion, but several can be singled out here. Two of these areas, collecting and gift-giving were also discussed in Belk (1988), but these take on a quite different character in a digital world. Three other areas to be discussed, rematerialization, virtual brand communities, and digital social relations, were not considered in the original paper.

Collecting

As Benjamin and Dibbel noted, collecting has long been focused on material things (Belk 1995). How do we collect nonmaterial things, and how do they contribute to our sense of self? Although online auction sites like eBay have greatly facilitated finding, obtaining, selling, and trading nonmaterial objects (e.g., Belk, forthcoming; Denegri-Knott and Molesworth 2010b; Hillis and Petit 2006; Koppelman and Frank 2008), we don't know much about collecting them. The primary exception is digital music collecting (e.g., Giles, Pietrzykowski, and Clark 2007; McCourt 2005; Sklar 2008). This research suggests that digital music collections are seen as more nebulous and vulnerable to loss. Although digital files are the preferred mode for exploring new music, for their favorite music, many people also acquire CD or vinyl recordings that are seen as more concrete and permanent. There is also some suggestion of generational differences, with those who grew up in a digital age being less insistent on tangibilizing their music collections. Similar generational differences have been observed with digital photos versus printed copies (e.g., Van Dijck 2007, 2008). Given the findings discussed earlier that digital possessions are seen as almost, but not quite, the same as material possessions, it might be expected that virtual forms of music and photos are less central to extended self, although this may not be as true for those heavily invested in sites that display their collected photos and playlists.

One deficiency in the original extended self formulation is highlighted by digital collections: besides the individual objects in a collection, the ever-changing collection as a whole is part extended self. Zwick and Dholakia (2006a, 2006b) call such evolving objects "epistemic consumption objects." Other examples of epistemic digital objects include blogs and web pages, Facebook, *Second Life*, *World of Warcraft*, X-Box, Apple products, and digital places. In addition to involving specific objects to which we may be attached, enthusiasts are attached to the changing experiences of the collection as a whole. Such epistemic objects are a needed addition to the extended self, both digitally and nondigitally. They could mean, for example, that even a digital object that we do not regard highly (e.g., music we have outgrown, our prior publications we now find embarrassing) may remain in our collection because it is the evolving set of objects, rather than each individual object, that we cherish as comprising our extended self.

It may be that the immateriality of digital collectable objects may also tempt the collector to be less selective in acquiring objects, relying here too on sorting on the way out to provide the sense of coherence that defines a collection. Unlimited storage of digital objects means that we can create and keep large collections not previously possible. And if access rather than ownership is an ascendant mode of relating to objects, it may be the act of assembling links to digital objects rather than the objects themselves that define a collection. But much remains to be discovered about digital collections by both individuals and institutions.

Gift-Giving

If it is the thought that counts, might digital gifts and cards be perfect gifts? One factor that makes some gift-giving unique in the digital realm is that, when a digital virtual good is given, it may be that nothing is lost since the giver has merely copied the original. Digital music, videos, software, and photos are examples. Such gift-giving still requires time, thoughtfulness, and effort to give, even without material loss or cost. And, as Boellstorff (2008) notes, digital gift-giving creates value and underscores the social meaningfulness of digital objects. It also helps to forge bonds of friendship and community and can provide a collective sense of identity and aggregate extended self (Voida et al. 2006). Nevertheless, Brown and Sellen (2006) report that digital music files are not as desirable as CDs and records as gifts. Not only is the intangible file not quite as good as the tangible recording, the lesser effort and cost to acquire and present it diminishes the perceived giver sacrifice that is a characteristic of "the perfect gift" (Belk 1996).

There is a more subtle form of costless gift-giving online that is perhaps the most pervasive type of digital giving. As Schwarz (2010) observes: "[Digital] Comments function as gifts, both because most comments are compliments, that is, public recognition of the receiver's worth, and because (independent of content) every comment raises the receiver's content-count" (169).

Text messages are also a common digital gift (Taylor and Harper 2002). As previously noted, being tagged in photographs adds another type of gift in the form of patina or metadata that enhances the provenance of such digital objects (e.g., Davies 2007). The intangibility of such gifts may not diminish their ability to help create a sense of aggregate self. Gifts that cost money or effort are also common in virtual worlds like *Second Life.* One of Martin's (2008) *Second Life* informants helps newbies shed their standard newbie look by giving them more fashionable clothing. Newbies also give gifts in order to facilitate their acceptance

in online communities (Benwell and Stokoe 2006). Open-source software contributions are another Internet example of contributing the gift of free labor to the group (Coyne 2005; Hemetsberger and Reinhardt 2009).

Various motivations are seen in analyses of digital gift-giving, ranging from reciprocity-seeking, ingratiation, and status-seeking to altruism and love (Coyne 2005; Denegri-Knott, et al. 2012; Lampel and Bhalla 2007; Martin 2008). Even in studying an online group exchange of free sex pictures captured online, Slater (2000) found that reciprocity was expected. The initial wave of enthusiasm that the Internet was ushering in an unprecedented gift economy has not disappeared, but it seems tempered in light of such expectations and the success of counter-forces focused on intellectual property (Giesler 2006; Hyde 2010; Lessig 2004). Nevertheless, hope remains for large-scale gift economies (e.g., Eisenstein 2011), and this possibility is also ripe for research.

Rematerialization

Can digital self definition help save the planet? It might seem that consumer participation in the digital world leaves a small environmental footprint. When we acquire, collect, or give digital objects as gifts, we are not using up valuable resources as we would with analog objects. Such practices might be seen as part of a postmaterialistic society in which our desires for tangible consumer goods are replaced by desires for virtual goods. With unlimited free copies and virtual currencies, it might even seem that real money has been rendered irrelevant. But such a conclusion is likely overly idealistic.

Quite apart from the apparent need to tangibilize digital artifacts by printing out digital photos, duplicating music files on CDs or DVDs, and generating hard copies of electronic papers and books, there is a material and financial superstructure supporting our digital delights: "Ours [online gaming] is an absurdly expensive pastime. You need an HD TV, a console (often with some peripherals) and an Internet connection before you spend a single dollar on software or subscription services from Xbox and PlayStation. . . . The real elites are the people who can afford a dozen new games every year" (Sullentrop and Totilo 2012).

Magaudda (2011, 2012) similarly emphasizes the material accessories created by digital music: an iPod, a computer, an external hard drive, USB keys, and headphones. He also sees a cycle leading from digital music files to vinyl records and necessitating a turntable. We might add to this: speakers, amplifiers, MP3-compatible car stereo systems, and the next new music-playing device, computer, or iPhone model. The digital extended self can have a big material and monetary footprint. But there are green benefits nevertheless. As Lehdonvirta (2012) points out, digital goods involve no physical transportation, do not leave behind waste at disposal, and do not increase material consumption proportional to the number of digital units purchased.

Goffman (1961) wrote of the "identity-kits" that people carry with them in order to feel secure in their self-identity and presentation of self. These kits are routinely removed in "total institutions" like prisons, hospitals, and military training facilities, effectively depersonalizing and dehumanizing the inmates, patients, and soldiers. Such identity-kits might consist largely of clothing, cosmetics, and other personal possessions. But for many today our most relevant identity-kit is a mobile device that allows us to call up a list of contacts, communicate with them in various ways, take and store photos and videos as well as upload them to the web, add to our online representations of self, check our social media feeds, and perform a variety of other functions with a few flicks of our fingers. Mobile phones are replacing other devices and, for example, are now the cameras most used for photos, potentially reducing our device inventory.

By including the ability to capture visual images and upload them, we have implicitly added the places shown in the background of these images to the array of "possessions" that we use to represent our selves to others. By including lists of interests, friends, favorite music, and trails of online posts and feeds, every time we check our social media sites we are effectively checking to see who we are, who we were, and who we seem to be becoming. But none of this would be possible without the digital device, Internet access, and data and phone fees. Increasingly these are likely to be seen as ubiquitous computing necessities rather than luxuries. Just as the true costs of material objects is greatly expanded beyond their purchase price when we consider the trail from production to disposition (e.g., Patel 2009), the true costs of digital objects must also take into consideration their collateral material impacts.

Virtual Brand Communities

Co-constructed shared aggregate selves have been most appreciated in work on brand communities and tribes (e.g., Cova, Kozinets, and Shankar 2007; Maffesoli 1996; Muñiz and O'Guinn 2001). In the digital world, aggregate levels of self in such communities are also much larger and more geographically diverse than the family, neighborhood, and national levels of aggregate self envisioned by Belk (1988). It has also been suggested that the anonymous lack of individual identity in many online virtual communities leads to placing greater emphasis on aggregate group-level identity (McKenna and Seigman 2006). In addition, rather than necessarily being defined by their joint reverence for an unchanging object like Guinness stout, these communities are often defined by their loyalty to a brand that changes over time like James Bond films or the MINI Cooper automobile, which are evolving epistemic consumption objects. Shared online communities can be strong enough that participants in one online game community that closed were found to migrate en masse to other virtual worlds in an attempt to recreate the place that had become central to their aggregate extended self (Pearce and Artemesia 2009).

Offline display of one's self extension to and identification with a particular brand generally requires ownership (e.g., Muñiz and O'Guinn 2001; Schouten and McAlexander 1995). However, homepages can express these affinities

without the financial commitment of brand purchase (Schau and Gilly 2003). Think of it as conspicuous virtual consumption. Distinguishing "real" aficionados from poseurs still requires the cultural capital of detailed brand knowledge (Schouten and McAlexander 1995), but this too can often be acquired online. Consumers can also join virtual anti-brand communities and use blogs and forums to disassociate themselves from brands that are regarded as antithetical to their sense of self. While online consumption communities have been well studied (e.g., Schau, Muñez, and Arnould 2009), a focus on sense of self is still missing. Extended aggregate self in virtual brand communities is a concept waiting to be explored. This, too, represents an addition to the original formulation of extended self, which focused only on singularized possessions rather than brands.

Digital Relationships

Digital devices like mobile phones and digital communications media like e-mail, text messaging, instant messaging, VOIP (voice over Internet protocol), and social media mean that those participating in the digital world are more connected than ever before and can access each other instantaneously and virtually anywhere. Forums, blogs, and message walls also provide asynchronous communication possibilities so that we need not be online at the same time to participate in the discussion. Coupled with affinity groups, brand communities, and other virtual groups online, we can sustain an aggregate sense of self with a large number of others. This challenges conclusions that we have lost our sense of community (Putnam 2000). But are we really closer to others as a result? Do we really know our Facebook or Linked-In friends when they number in the hundreds or thousands? It has been suggested that we instead experience "networked individualism" (Boase et al. 2006; Wellman 2001) and that we are coming to feel that we are "alone together" (Turkle 2011).

Perhaps this is least likely to be true among teenagers, whose online friends are most often also their offline friends. Teens make little distinction between online and offline communication, and digital mediation can help their romantic relationships by removing the awkwardness that is present in face-to-face relationships (Manghani 2009). Such connections can be a key to their developing selves and a key part of their social identity negotiations: "Much like homecoming, prom, and graduation, Facebook, MySpace, and other spaces of networked public culture have now become part and parcel of the coming-of-age process for teenagers in the United States" (boyd 2010, 93). Besides communications per se, playing videogames with partners, either together or at long distances, is increasingly a part of courtship as well (Molesworth, Jenkins, and Eccles 2011).

With more distant social media friends, there are sometimes status competitions for numbers of "friends" and especially for including local celebrities among them (the new "pronoia"; Lehdonvirta 2009; Schwarz 2010; Zhao, Grasmuck, and Martin 2008). But there is a difference between these more distant "friends" and more immediate peers. For example, those with whom one shares what used to be mix tapes or mix CDs (now mix USB keys) are closer than those who are on the same network and can access your iTunes library, who are in turn closer than those anonymous others who download your music via Napster's successor services (Voida et al. 2006). Despite the fact that all three forms of sharing have some similarities, in terms used by Belk (2010), the first form of sharing is likely to involve "sharing in," which forges and reinforces bonds to others as part of extended aggregate self, while the latter two forms likely involve "sharing out," which is unlikely to result in inclusion in extended self. These distinctions are also related to Granovetter's (1973) strong ties versus weak ties and Putnam's (2000) bonding versus bridging social capital.

In considering digital consumption's potential to extend aggregate self, we should also recognize that negative interpersonal relationships can also be fostered in the digital world. In online games, virtual worlds, and photo- and video-sharing sites, there is sometimes evidence of xenophobia (Binark and Sütcü 2009), racism (Mauco 2009; Nakamura 2002), sexism, and homophobia (Strangelove 2011). There has been at least one prominent case of virtual rape in an online world (Dibbell 1993). There is also an increasingly direct link between video games and computerized and online gambling, in which the effect on addicted players is best described as the annihilation of self rather than self extension (Livingstone 2005; Schüll 2012). Even at a more benign level, there are charges that social media and smart phones make us narcissistic, selfish, deceitful, dishonest, compulsive, and vicious (e.g., Aboujaoude 2011; Twenge 2009). Ultimately, we need to consider not only how the digital world helps us extend our sense of self but also what type of self and relationships it helps us extend.

CONCLUSION

There are many more research implications of the digital extended self than I have been able to explore here. Most of the research to date has been in a Western context, and cultural differences also need to be explored. There are additional linkages between online and offline worlds that need to be examined. For instance, there are now a number of applications that allow you to meet people in your neighborhood (Stross 2012; Tedeschi 2007) as well as for bringing neighbors together to share physical possessions (Belk and Llamas 2012). Our attention to digital possessions also shapes the nature of our public interactions with others. Östergren and Juhlin (2006) describe drivers listening to digital music in their cars as experiencing "accompanied solitude." They are aware of other drivers, but they are in their own little worlds. But we don't need a vehicle to get into this state. Walking along with earbuds or headphones on, listening to digital music, or talking to someone on our mobile phone, or playing a mobile video game are also forms of accompanied solitude. We can think about these phenomena as involving the privatization of the self. Rather than meeting our neighbors, they provide us with an excuse to avoid their gaze. And we don't even need to leave our

home and family for this privatization to emerge. Mr. and Mrs. Gude of East Lansing, Michigan, look back fondly on the days when they chatted as they ate breakfast together while reading the paper, with the television as the only competition for the attentions of their teenage sons. Now Mr. and Mrs. Gude check their e-mail, Facebook, and Twitter accounts while the boys send text messages, play video games, and monitor their Facebook news feeds (Stone 2009). As argued and demonstrated here, the concept of the extended self (Belk 1988) is alive and well in the digital world, but there are a number of differences. There are many new possessions and technologies through which we present and extend our self, and they operate quite differently than in predigital days. They also create different ways through which we can meet, interact with, and extend our aggregate selves through other people while experiencing a transcendent sense that we are part of something bigger than us alone. In the future, a growing movement for the rights of robots suggests that robots may become parts of our extended self just as avatars are today. Or not. Perhaps they will remain an Other, as suggested by people's willingness to "kill" robots in replications of Milgram's obedience experiments (Chioke et al. 2005).

The concept of self is also challenged and changed by the new possibilities offered in our digital world. The facets of change and their effects discussed here and summarized in table 1 are based on the digital world of the still early twenty-first century. Technologies of the future and the possible selves and possessions they engender will doubtless change this picture. Prosthetic digital self-extensions today are one thing, but future forecasts of cyborgs and post-humans could bring dramatically different technologies into the picture. With 3D printing it will be possible to make hard copies of some digital possessions, further eliding the virtual/tangible divide. Nano technology, the Internet of things, and genomic personalized medicine are just a few further examples of possible changes on the horizon. The concepts of the extended self and what it means will need to change accordingly. In the meantime, there are many new areas for research that can extend our understanding of the extended self in a digital world.

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