

Persuasive Avatars: Extending The Self Through New Media Advertising

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The media landscape is rapidly shifting, with virtual worlds becoming a bigger part of our daily lives. Fifty-nine percent of U.S. Americans play video games, contributing to \$21.53 billion in sales in 2013.¹ Furthermore, virtual reality technology, once reserved for sophisticated research facilities, is fast becoming much more affordable and accessible. Large corporations such as Facebook, Sony, Microsoft, and Samsung are vying to develop the next consumer-grade hardware that will allow people to experience virtual reality simulations and games in the comfort of their homes.² Advertisers are beginning to pay attention to these novel opportunities, excited at the opportunity to provide vivid and engaging brand experiences.³

Despite high levels of interest and much discussion on the potentials of virtual worlds, advertising practice and scholarly investigations of virtual worlds in the context of advertising have lagged behind current technological advancements. Fruitful topics of investigation include *avatars*, or digital representations controlled by a human in the virtual world, and *agents*, which are digital representations controlled by a computer or an algorithm.⁴ For example, if Bryan plays a video game, the character he controls is an avatar. If he plays with his friend Helen, her character is also an avatar. They might play against an agent, such as a boss character that is controlled by the computer. Because avatars and agents serve as channels through which people think, feel, and behave in the virtual world, understanding them may be comparable to gaining insight into the minds of users.

The current chapter aims to discuss avatars and agents who resemble people (i.e., *virtual humans*), explore how they represent the self and others in virtual worlds, and suggest how they may be developed and applied in advertising contexts. Moreover, we explore theories and empirical findings on how people are influenced by the avatars they control and agents they

observe. This discussion is important because most scholars and advertisers are familiar with identity expression through avatars and agents but may not realize that these virtual representations can also influence identity, attitudes, and behaviors in the physical world.

Defining Avatars and Agents

In the physical world, people have limited capacity to manipulate their appearance of the physical self through wearing makeup or clothing, changing hairstyles, or undergoing cosmetic surgery. In comparison, manipulating the appearance of an avatar is much simpler: at the click of a button, an avatar may be transformed into a multitude of permutations, bound only by the software's limitations. This ease of creation also means that a user is able to simultaneously construct several parallel universes with multiple avatars that may look differently. Through this collection of virtual microcosms, users who are unsatisfied with the actual self may experiment with different renditions of the ideal self—one has the liberty of being a hero in one game and a villain in another while maintaining the security of the familiar physical world.⁵

The word *avatar* originates from the Sanskrit word *avatara*, meaning “descent,” to describe an incarnation or a bodily manifestation of an immortal being in Hinduism. Hindu deities are believed to come to Earth as avatars to help humans in their struggle toward enlightenment and salvation. Conceptually speaking, any form of representation that marks a user's entity can be considered an *avatar* in a broad definition. A name, a voice, a photo, or a top hat used in a game of Monopoly: these can all serve as a user's avatar although they may not look or behave like the user.⁶ In the past, avatars typically served as mere visual markers of users (i.e., icons with limited movement), while much of the actual interaction in the virtual worlds relied on text-based communication.⁷ Although avatars sometimes resembled human figures, they were blocky and primitive in form, rendered with coarse graphics. Also, individual

customization was limited to simple options such as changing the color of clothing or selecting the sex of the avatar.

Over time, avatars have become more complex creations, rendered in three-dimensional forms with an extensive range of animated movements that aid in the expression of the avatar's personality and supplement various social interactions. Options for individual customization of avatars have increased significantly as well, allowing users to modify a number of physical features including eye color, hair style, height, body shape, clothing, and even facial expressions.

Avatars are distinguished from *agents*, another form of digital representation, by the element of control: avatars are controlled by human users, whereas agents are controlled by computer algorithms.⁸ In virtual worlds, users not only control their own avatars but can also interact with computer agents during the course of their interactions. However, a meta-analysis that tested differences between avatars and agents found that avatars are able to exercise greater influence on persuasion and attitude formation than agents.⁹ Agents, on the other hand, may be more cost- and labor-effective applications because they do not require human controllers. They are also much more predictable and offer a high degree of control because their words and actions may be pre-programmed. In the current chapter, we will discuss the use of both avatars and agents in the context of advertising and consider the costs and benefits regarding the two different categories of virtual representations. We refer to both avatars and agents designed to look like people as *virtual humans*.

Using virtual humans to deliver persuasive messages would allow advertisers some unique advantages for advertising in virtual worlds. For one, similar to brand and product placement in media content, virtual humans may carry an advertiser's message without interfering with activities in the world while also maximizing exposure to the user as the avatar is

usually in constant view during encounters with other avatars and other virtual interactions. For instance, users may be exposed to other virtual humans in the virtual world using specific brands or products or they might interact with the brand or product on their own, all as a part of their virtual interactions and not as a discrete advertising experience.

Furthermore, users are often able to personalize their avatars to great detail. Based on the findings of an earlier study which demonstrated that users project their idea of an ideal self when creating their avatars¹⁰, tracking data on how users personalize their avatars may serve as a window through which scholars and advertisers may gain insight into the personal preferences and values of individuals. Based on this insight, advertisers can create persuasive virtual humans that are highly tailored to match each individual audience. Imagine a scenario in which an individual visits a dealer to purchase a car and meets a salesperson who already has a good understanding of his or her preferences and values. The individual is likely to feel very positively about the salesperson and the brand by association.

Despite such potentials, research efforts on advertising within virtual worlds have been mostly focused on relatively peripheral elements and largely remaining within the boundaries of traditional advertising scholarship, such as size of the product in video game spaces¹¹, repetitive game play¹², product involvement¹³, and brand characteristics such as relevance to consumers.¹⁴ One relevant study examined computer agents that served as spokes-characters for a brand.¹⁵ The use of spokes-characters has evolved from animated, two-dimensional characters speaking for the product or providing visual demonstrations on product usage¹⁶ to presenting them on the homepages of commercial products and then to featuring them in advergimes¹⁷. However, spokes-characters in these contexts differ significantly from virtual humans in their relative lack

of sophistication, interactivity, customizability, and perceived realism of the interaction experience.

Compared to other symbolic representations of people (e.g., names), avatars and agents are able to behave in a human-like manner¹⁸, giving them unique capabilities to influence users in ways that traditional advertising cannot. Extant research has demonstrated that, like human interactions, social interactions with agents and avatars can be used to modify users' attitudes and behaviors. Agents and avatars can vary along many dimensions and different traits of virtual humans may determine their effectiveness as persuasive tools. For example, when representations appear more human-like in form (i.e., anthropomorphic), users may develop social expectations for subsequent interactions.¹⁹ Representations that demonstrate high behavioral realism, including interactivity and situational appropriateness, may facilitate more natural interactions.^{20 21} The following sections examine the influence of virtual humans that vary along the dimensions of form and behavior and how interacting with different virtual humans may influence the attitudes and behaviors in the physical world.

Virtual Doppelgängers – A Virtual Clone

According to Jeremy N. Bailenson and his colleagues²², one of the unique advantages of virtual technologies over traditional forms of interpersonal communication is the ability to easily manipulate one's self-representation. Users have the freedom to choose avatars that are accurate or inaccurate representations of themselves²³ and change their avatar's height, weight, or hair color in a virtual environment. Some video games now enable the player to scan or snap a photograph, which is then used as the basis for building his or her highly realistic and self-similar avatar.

The appearance of a source can make a difference in online persuasion efforts.²⁴In particular, when virtual representations look like humans, consumers may treat them similarly to how they treat real people. Thus, virtual salespeople that look like humans may be more effective than other common types of interaction in digital sales contexts, such as using a text-based chat.

Virtual doppelgängers represent the user within virtual worlds and are created with digital photographs of the user so that they bear photorealistic resemblance to the self²⁵. Because these virtual humans bear such striking similarities to the self, they lead to novel contexts wherein the physical self may view the virtual self as a third person, much like looking into a mirror. The virtual doppelgänger can be programmed to behave independently of the physical self so that a virtual human that looks like the physical self may be controlled by a third party, creating unique situations for advertising and novel opportunities of persuasion.

The psychological association between physical me and virtual me

One of the main underlying processes that connect the physical self to the virtual avatar is thought to be *identification*, or the extent to which an individual relates to another person (i.e., model) and feels that he or she is similar to the model.²⁶ The process of identification can be a powerful source of social influence wherein the model may persuade the individual.²⁷ According to social cognitive theory, identification increases the likelihood of learning and imitating behaviors that are performed by the observed model.^{28 29} In the virtual world, then, if users identify with their avatars, they may imitate the behaviors they observe in these models.

Avatars also present the unique opportunity to actually *become* a different persona as the avatar becomes a proxy for the physical self in the virtual world. As Biocca noted, during avatar embodiment “the mental model of the user’s body (body schema or body image) may be influenced by the mapping of the physical body to the geometry and topology of the virtual body,

[and] the virtual body may have a different social meaning (i.e., social role) than the user's body" (n.p.).³⁰ Due to these processes, embodiment may create a realistic and particularly potent experience as users may be subject to shifts in their sense of self and identity. Thus, avatar embodiment may present a unique persuasive context that may have powerful effects on users' beliefs, attitudes, and behaviors both online and offline.^{31 32 33}

In his seminal piece discussing how individuals tend to associate the self to a brand or a product, Russell W. Belk argued that consumers regard their possessions as extensions of the self.³⁴ With the rapid development of advanced digital technology, consumers may now easily create multiple virtual self-representations and the constraints of physical bodies no longer bind individuals, shifting our understanding of the self.³⁵ Accordingly, the idea of the extended self has been revised in this digital context, recognizing that our physical selves may be extended into the virtual world as avatars.³⁶ Referring to the process of *reembodiment*, Belk) discussed how individuals design and create avatars, and while learning how to operate it, individuals merge their conceptualization of physical and virtual selves—a shared identity with one's avatar wherein you are not simply imagining or role-playing, you *are* your avatar.³⁷ Consequently, the effects of virtual experiences that individuals undergo while controlling their avatars are likely to transfer into the physical world to influence the attitudes and behaviors of the physical selves.

Furthermore, their inherent interactivity allows avatars to present dynamic models for users that surpass the persuasive potential of traditional media. Klimmt, Hefner, and Vorderer distinguish video game avatars from other media characters because, unlike a television or book character, avatars respond continuously to users' actions.³⁸ As such, users often have the ability to manipulate their avatars' appearance, physical movements, decision-making processes, and interactions with other virtual entities. Such high levels of interactivity may bolster people's

perception of identification with the avatar. Klimmt et al. (2009) further clarify identification as “a temporary alteration of media users’ self-concept through adoption of perceived characteristics of a media person” (p. 356).³⁹ If users develop or embody avatars with which they highly identify, this identification may augment the effects of avatar use. Indeed, several studies have found that avatars that yield high identification have greater impact on users’ attitudes and offline behaviors than low-identification avatars.^{40 41 42 43} That is, when a person feels that an avatar is a good representation of the self, their experiences with the avatar in the virtual world have greater impact on their physical world thoughts and behaviors than when a person feels that an avatar does not represent him or her well.

Evidence of the influence of virtual doppelgängers

To explore the conceptualizations proposed above, several studies have tested the hypothesis that virtual doppelgängers are more influential than virtual humans that do not look like the self. The experimental contexts of these earlier studies range from advertising to health, and even to the formation of false memories. The results have yielded important insight into the effects of virtual doppelgängers and informed further extensions of the original concept.

Imagine coming home from school or work and turning on the television. An advertisement for a soft drink comes on. A model who looks oddly familiar eagerly sips the soft drink and looks directly at the camera. You blink and realize that the model is you. “You know you like this drink. Pick some more up at the store when you go shopping tomorrow,” your virtual self in the advertisement tells your physical self. You know for a fact that you have never starred in an advertisement but the model has all your distinct features, including your looks and mannerisms. This is your virtual self and someone else is controlling it. When an entity that looks exactly like you tries to persuade you, can you say no?

Sun Joo (Grace) Ahn and Bailenson provided initial evidence on the potential of applying virtual doppelgängers in the context of advertising in two-dimensional virtual worlds, wherein virtual doppelgängers in the form of digital photographs may be manipulated and used to endorse a particular brand or product to the physical self.⁴⁴ In this study, participants were shown a two-dimensional online advertisement for an unfamiliar soft drink brand featuring either their virtual doppelgänger (self-endorsing) or an unfamiliar virtual other (other-endorsing). Thus, one group of participants saw their digital self posing in an online advertisement to endorse a brand of soft drink that they had never heard of, whereas another group of participants saw an unfamiliar digital other in the same advertisement. Results confirmed that self-endorsing yielded more favorable brand attitude and higher purchase intent than other-endorsing. These results imply that even when the virtual doppelgänger behaves differently from the physical self (i.e., appear in an advertisement without the physical self's knowledge), self-endorsing with a virtual doppelgänger that shares the physical self's looks yields positive brand attitudes and purchase intentions.

Another study looked at the use of virtual doppelgänger to promote exercising behavior.⁴⁵ In this study, participants were randomly assigned to three groups—one group saw a virtual doppelgänger running on a treadmill in the virtual world, another group saw a virtual human of an unfamiliar person running on a treadmill, and the final group saw a virtual doppelgänger loitering. Twenty-four hours following exposure, participants who saw a virtual doppelgänger running engaged in significantly greater levels of physical activity during the day than those in other conditions. These results suggest that using a virtual doppelgänger is more effective than a generic virtual human in encouraging modeling behaviors, wherein the physical self is persuaded to model and follow the behaviors of the virtual self.

The last study discussed in this section may not be directly related to advertising but has psychological implications that may be applied in advertising contexts, particularly in the context of advertising and children.⁴⁶ In this study, preschool (ages 4-5) and elementary (ages 6-7) children took part in two experimental sessions. In the first session, each child was introduced to a short narrative that described the child participating in a fabricated and implausible event, wherein the child was depicted to be swimming underwater with two orca whales, Fudgy and Buddy. Next, the child was exposed to one of four different memory prompt conditions: idle, mental imagery, virtual doppelgänger, and virtual other. In the idle condition, children waited quietly until the next procedure. In the mental imagery condition, children were asked to imagine swimming with the orcas. Children in the virtual doppelgänger condition saw a virtual simulation of themselves swimming underwater with the orcas, and children in the virtual other condition saw the same simulation featuring a virtual human that they did not recognize. Result indicated both age-based and treatment-based differences. Preschool children were equally likely to form false memories about the fabricated event, regardless of their assigned treatment. On the other hand, elementary children were significantly more likely to form false memories in the mental imagery and virtual doppelgänger conditions. The authors emphasize that the potential of virtual doppelgängers lies in their power to form false memories even when the children were passively watching this simulation of the self, and that this was just as powerful as the treatment which asked children to invest cognitive energy to create mental imageries.

New applications of virtual doppelgängers in advertisements

With avatars that look and behave like the self, individuals would be able to watch their virtual selves consume a product or service in the virtual world as if they were watching a third person. This perception of the virtual self is likely to influence the perception of the physical self

because with the element of control, the individuals will be able to intimately experience the virtual consumption; in addition, the virtual self is a striking image of the physical self. For instance, if an individual were to watch the self avatar consuming a soft drink in the virtual world, having observed this in the third person perspective may encourage the individual to consider that the physical self also prefers this soft drink, even if he or she has no prior experience with the soft drink. To take advantage of this scenario, companies could sponsor products to be placed in virtual worlds, much like traditional product placement, and promote opportunities for avatars to try out the product in the virtual world so that users may watch carefully as they control their photorealistic virtual selves to use the product.

In another example, a website promoting a health club could encourage users to build avatars that look like themselves. Then, using motion tracking sensors built into consumer grade gaming systems, such as the Microsoft Kinect, users could exercise in the physical world as their avatar exercises with them in synchrony and instantly loses weight. Using avatars, users would be able to train with their personal trainer of choice without having to visit the health club in person. Seeing an avatar that looks like the self experience become fitter in the virtual world as the user exercises in the physical world may encourage people to join and participate in more activities at the health club.

Furthermore, when third parties gain control over the virtual doppelgänger, the virtual self may serve as an effective endorser. Whereas relying on celebrity endorsers often carry the risk of negative consequences when the celebrity becomes involved in a scandal, virtual doppelgängers are likely to benefit from the lifelong positive biases that people have about the self.⁴⁷ Therefore, ranging from commercial advertisements that attempt to increase brand preferences and purchase intentions to public service announcements that promote prosocial and

desirable behaviors, virtual doppelgängers hold immense potential in encouraging the physical self to follow the virtual self's choices and behaviors.

Because virtual worlds may offer sufficiently realistic experiences that mimic real life experiences, virtual experiences that do not match physical experiences may pose interesting questions for using virtual doppelgängers in the advertising context.⁴⁸ For instance, if a person has never tried a product or a service in the physical world, but is able to watch and/or control their doppelgänger as it consumes a product or takes part in a service looking exactly like the physical self, how does the self-perception of the virtual or physical self influence attitude and behavior?

As social networking services expand and more personal information becomes publicly available, more elements of the virtual self will be at the disposal of advertisers. In this environment, creating virtual doppelgängers of consumers to persuade their physical counterparts will not pose great difficulties.⁴⁹ In addition, experience has taught advertisers and marketers of recent that incorporating elements of the self within advertising messages can elicit favorable responses ().⁵⁰ Facebook has been employing users' photographs and names to promote a variety of goods and services to their networked friends and LinkedIn's advertisement campaign has also used names and photographs to promote a job position for a specific company.

Considering its ease of creation relative to its persuasive strength, self-endorsing offers a simple, practical, and innovative means to break through the clutter of persuasive messages that surround an individual on a daily basis. However, its relative ease of creation and resultant persuasive power brings forth some important ethical questions yet to be addressed on incorporating the extended self within advertising contexts. Although self-endorsing triggers favorable responses because certain physical similarities are registered in the mind as the self, is

it just a stranger masquerading in the guise of the self if the physical self is not in control of the virtual self? When the familiarity and the positivity biases we hold regarding ourselves make it difficult for us to negate anything that is said by our virtual selves, is this communication tactic on the borderline of manipulation rather than persuasion? These, and many others, are fascinating questions that challenge the traditional paradigm of persuasive communication.

Furthermore, these developments pose the possibility of powerful but potential controversial scenarios for new types of advertising that may be highly effective to vulnerable audiences, such as children or the elderly. As earlier studies have demonstrated that children, even at a later age when they start elementary school and are better able to distinguish fantasy from reality, tend to form false memories when being exposed to their virtual doppelgängers engaged in activities and events that never happened in the physical world. Consequently, it is likely that using children's virtual doppelgängers in advertisements may trigger favorable brand preferences or purchase intentions based on personal memories that were fabricated. For example, after watching a television advertisement featuring him- or herself playing with Mickey Mouse, a child may develop strong affinity for Mickey Mouse characters and related products although this event never occurred in the physical world.

Modified Virtual Doppelgängers

Transforming self representations do not stop at merely replicating photorealistic features of the self. Virtual worlds offer several other ways in which the user is able to transcend physical and temporal boundaries of the physical world by further modifying virtual doppelgängers to depict the self and the self's perspective in ways that may be difficult or impossible to portray using traditional media platforms. We first present empirical evidence of the influence of these modified virtual doppelgängers and then discuss potential applications for advertising.

Modifying appearances

One such modification to virtual doppelgängers is a result of the virtual acceleration of time, which involves digitally rendering the cause and effect relationship in a virtual “fast-forwarding” of time.⁵¹ Traditional advertising already presents viewers with suggestions of positive outcomes or rewards to increase demand for the product or service, but it is relatively more difficult to express the passing of greater lengths of time (e.g., decades) with traditional advertising methods without the help of advanced computer graphics. For example, it would be difficult to depict the same model in a single advertisement using the product satisfactorily over several years. Conversely, once virtual doppelgängers are created, they may be transformed and aged at a click of a button, and this passage of time may also be vividly depicted using an aged version of the same character.

One study looked at how altering the body structure of a virtual doppelgänger to depict the self in the future could yield stronger influence on promoting exercising behaviors in the physical world compared to a non-changing virtual doppelgänger of the current self.⁵² When observers identify with models, they are more likely to imitate their behavior, and the likelihood of imitating the model’s behavior is propelled by *vicarious reinforcement*, or the rewards and punishments the model experiences as a result of engaging in the behavior. In the study, participants were assigned either a virtual doppelgänger (high identification) or an avatar that did not look like themselves (low identification). While participants physically exercised or remained inactive, their behavior was vicariously reinforced via their avatars: participants either saw their avatars synchronously rewarded for participants’ real world exercise (i.e., the avatars would appear to lose weight) or punished for their physical inactivity (i.e., the avatars would appear to gain weight). After this treatment, participants who saw the future consequences of

exercise and inactivity on their virtual doppelgänger exercised significantly more than participants who were assigned an avatar that did not look like them.

Modifying the body structure of virtual doppelgängers was also effective in promoting desirable eating behavior. Ahn and colleagues demonstrated that when used in tandem with traditional health pamphlets, virtual doppelgängers might be more effective than virtual others in eliciting perceptions of personal relevance in discussing the health risks of soft drink consumption.⁵³ In the study, participants first read a traditional health pamphlet on the negative consequences of soft drink consumption and were then randomly assigned to three experimental conditions. In the virtual doppelgänger group, participants saw a simulation of their virtual self gaining significant weight following daily soft drink consumption over two years. Participants in the virtual other group saw the same simulation with an unfamiliar virtual human. Participants in the control group received just the traditional health pamphlet. The results indicated that virtual doppelgängers lead to self-referent thoughts (i.e., thinking about the self in relation to the consequences), as well as to high presence. As a result, participants felt that the future negative health consequences of soft drink consumption were personally relevant. A follow-up study further found that using virtual doppelgängers increases perceived involvement with the issue of reducing soft drink consumption and leads to greater intentions to reduce consumption.⁵⁴

In another study, researchers modified facial appearances to depict the face of the self in the future. Hal Ersner-Hershfield and colleagues demonstrated that embodying aged virtual doppelgängers (vs. non-aging doppelgängers) could encourage undergraduate students to allocate more resources toward their retirement savings.⁵⁵ Participants in this study were given either a virtual doppelgänger of their current selves (mean age of 20.13 years) or an aged doppelgänger that looked like themselves at 70 years of age. A series of replications confirmed that embodying

a 70-year-old avatar of themselves impacted their financial decisions: these people allocated significantly more money toward their future compared to participants who embodied an avatar that looked like their current selves.

Even a subconscious perception of similarity in appearance may influence attitudes. For instance, a study confirmed that digitally mixing a certain ratio of physical features of the self into photos of political candidates led people to prefer that candidate more, particularly if the participants were weak partisans or independents.⁵⁶ These participants were not aware of their facial features being incorporated in the photos but seemed to be subconsciously attracted to the candidates that shared similar facial features with themselves. This study suggests that morphing even a small ratio of the self's physical features into an agent to trigger perceptions of similarity and familiarity can meaningfully increase its persuasive power, even if the agent is not a *doppelgänger*.

New applications of modified virtual doppelgängers in advertisements

These modifications open up a host of novel and engaging opportunities for advertisers that may not be available with pure virtual *doppelgängers*. For instance, the Mazda 2015 Driving Matters campaign features how Mazda cars may serve a consumer at every stage of his or her life by depicting a teenage boy grow up driving Mazda cars that serve different needs in his life as his family expands, switching from hatch to sedan to crossover. However, because they could not age the actual model, different models had to be used to film different stages of a man's life. Using virtual *doppelgängers*, this may be done with a single virtual human, digitally aged and his physical structure changed to reflect different stages of his life, to maximize the realism of the media content.

The ability to modify one's doppelgänger to reflect virtual acceleration of time would also be useful in health advertising and green advertising, because both of these topic areas deal with long temporal gaps between present behavior and future outcomes. For example, consider weight-loss products that are commonly advertised with before and after photographs. Using virtual doppelgängers, the process of weight loss may be vividly rendered using computer graphics in a matter of minutes, and individuals may be able to vicariously experience the favorable outcomes of product use through the virtual self. To advertise green products, virtual doppelgängers may be portrayed over time, enjoying the benefits of earth conscious products, healthier and happier due to a healthy environment.

Furthermore, users may not necessarily desire for their avatars to share physical similarities in some situations. In fact, some studies have demonstrated that having individuals customize their avatars to look like their ideal selves (vs. actual selves) and control them in a virtual world led to greater persuasion and motivation to change their behaviors.⁵⁷ In the same logic, having individuals virtually experience a health-relevant product or service while embodying an avatar, which reflects their ideal self, may instigate stronger motivations to obtain the ideal self in the physical world as well through the health-relevant product or service.

There may also be instances, particularly for more sensitive products or services, wherein the individual does not wish to be identifiable by being embodied in an avatar that looks exactly like the physical self. For example, through the use of virtual worlds and customized avatars, people may be able to visit therapists or specialized clinics set up in virtual worlds under the cloak of virtual anonymity by creating an avatar that looks nothing like the self.⁵⁸ Reducing privacy concerns by constructing a non-photorealistic avatar may allow for more open dialogue and in-depth discussions within virtual worlds.

Advertising with The Proteus Effect

Even if the virtual representation does not share physical similarities with the self, avatars can persuade users through the mere experience of control and agency. Bem's *self-perception theory* suggests that people infer their own attitudes and expected behaviors by observing themselves as if from a third party, eliciting people to behave in ways that are associated with persons with those physical features.⁵⁹ That is, people have normative expectations about how persons with certain physical features (e.g., attractiveness, ways of dressing) should behave, and when reminded about their appearance, people strive to behave in ways congruent with those expectations. In much the same way, as individuals are able to see the appearance of their avatars on the screen, they are likely to behave in ways that are associated with that avatar, even if it conflicts with their appearance in the physical world. For instance, Nick A. Palomares and Eun-Ju Lee assigned male and female users same sex or cross-sex avatars. They found that users who were assigned cross-sex avatars demonstrated language behaviors associated with the sex of their avatar rather than their own sex. That is, men who were assigned female avatars showed stereotypically female linguistic behaviors rather than stereotypically male linguistic behaviors.⁶⁰ Fox and colleagues (2013) also demonstrated that when females were assigned sexualized avatars, they internalized their avatar's appearance and became more preoccupied with their body and appearance than those who embodied nonsexualized avatars.⁶¹

This avatar-driven transformation, labeled the *Proteus effect*, occurs when a user's virtual self is modified in a meaningful way that is often dissimilar to the physical self. The user then embodies and controls the virtual self, observes the virtual self behaving in the virtual world as a third person would, and draws inferences regarding his or her internal beliefs or attitudes based on such observations. Following embodiment, the user's behavior conforms to the beliefs and

attitudes fitting for the virtual representation regardless of whether or not they are fitting for the physical self.

One study tested the Proteus effect by exploring how wearing avatars with certain physical features would impact individuals' attitudes and behaviors. In the study, participants were assigned either a tall or short avatar to embody in the virtual world.⁶² After exposure, they engaged in a negotiation task. Results demonstrated that regardless of actual height, participants that embodied tall avatars in the virtual world adopted significantly more aggressive negotiating strategies compared to participants who embodied short avatars. People generally perceive tall individuals to be more competent⁶³ and more likely to emerge as leaders.⁶⁴ Embodying a tall avatar in the virtual world is thought to have led participants to feel as if he or she is actually tall, and thus, to behave as a tall person would in the real world. A follow-up study confirmed that the effect of embodying and perceiving the appearances of their virtual selves transferred into the physical world—participants who were given taller avatars were more aggressive in a negotiation task in the physical world regardless of their actual height.⁶⁵

The Proteus effect was confirmed once again in the multiplayer online fantasy game *World of Warcraft*.⁶⁶ Upon surveying players in the game world, researchers found that regardless of their actual sex, gamers performed actions that were associated with the avatars they were represented by. For instance, playing with female characters led gamers to perform what is stereotypically considered to be a more feminine action (healing) rather than what is stereotypically considered to be a more masculine action (combat).

New applications of the Proteus Effect in advertising

Traditionally, advertisers have relied on celebrity endorsers to elicit modeling behavior⁶⁷ or transfer of the celebrity's positive qualities to the product or brand.⁶⁸ Using virtual humans,

advertisers and marketers may now tailor celebrity endorsements to each individual viewer; the same advertisement for the same product or service may feature the celebrity preferred by each viewer. For example, interactive advertisements may be developed wherein individuals may take control of an avatar that looks like the celebrity or athlete he or she idolizes. Following this virtual experience, individuals are likely to be much more favorable to the products that the celebrities or athlete might endorse; a person might be interested in athletic gear and clothing after embodying the avatar of a famous athlete, for instance.

Embodying virtual selves that are different from the physical world would also be helpful in encouraging new product trials to a new audience segment. For instance, older people have been found to be more cautious in the adoption of new technology such as social networking sites.⁶⁹ Given this barrier, if older users are given the opportunity to embody a younger avatar in a virtual world, they may perceive the stereotypical traits associated with youth (e.g., risk taking, early adoption), and this perception is likely to influence their attitudes and behaviors in the physical world. Thus, advertisements that offer this opportunity to older audiences before promoting a technology related product or service might be more successful in encouraging adoption.

The Power of Control in Virtual Worlds

One final characteristic to be discussed in this chapter regarding the novel features that differentiate avatars from spokespeople and other traditional persuaders in advertising contexts is *interactivity*—the degree to which a medium allows the user to influence the form or content of the mediated experience.^{70 71 72} Whereas the earlier avatars presented on advertising websites have been typically static or offer only limited movements at best, recent technical advancement offers relatively greater levels of interactivity by allowing users to control avatars in real time

using actual physical movements. For instance, with the motion sensing technology of Microsoft's Xbox Kinect, users are able to play with nothing but their own bodies as controllers—physical movements are tracked and rendered back to the avatar in the game so that the avatar mimics the user's physical movements. When a virtual object, human, or world responds to the user's inputs by changing and providing feedback in response, users feel that the virtual experience is realistic. This perception of reality, in turn, leads to persuasion.⁷³ For instance, compared to a static online advertisement for a product, an interactive advertisement that allowed participants to virtually experience a product led to higher perceptions of realism and ultimately to more favorable brand attitude.⁷⁴

A large body of relevant literature describes how merely going through the motions of certain activities is tightly connected to the construction of mental schemas. To this extent, any physical experiences that trigger similar affective responses are remembered together in the same schematic category.⁷⁵ In much same way, when using actual physical movements to control their avatars, those physical experiences trigger relevant mental schemas in individuals, which may encourage them to change their attitudes and behaviors in the real world.⁷⁶ For instance, it may be possible that a game that uses a swiping motion of the hand to control the avatar may trigger mental schemas related to the iPad which also uses a similar swiping motion, resulting in a favorable attitude toward the brand and product.

Reflecting increasing interest in the role of interactivity, some researchers have begun to investigate how digital games can promote favorable attitudinal and behavioral changes. For instance, studies have looked at using games to address some of the most persistent problems in the health arena including diet, exercise, nutrition, and adherence to therapy.^{77 78} These interactive games show promise in supplementing traditional health advertisements and

campaigns with a highly engaging yet affordable platform accessible to a variety of users. Moreover, several studies suggest that the ability to control objects in the virtual world and see immediate, direct feedback from one's actions leads to feelings of enjoyment.⁷⁹ High enjoyment is likely to increase engagement in the mediated environment⁸⁰ as well as memory of various elements presented in that environment⁸¹, which is why scholars and advertisers anticipate games and virtual worlds to be effective in the context of persuasion.

Virtual worlds also allow users to transform their spatial situations, allowing them to freely enter the virtual world in multiple perspectives.⁸² Earlier studies exploring the effect of first and third person perspectives have demonstrated that entering the virtual world in the first person perspective of their self avatars led to greater involvement and more satisfaction of the virtual experience than participants who engaged in the experience in the third person perspective, watching their avatar as a third person.⁸³

Ahn and Bailenson's study also reported similar positive effects of the first person perspective in an advertising context. In this study, the participant entered a virtual conference room in the first person perspective and was able to look down him or herself (i.e., virtual self), wearing a t-shirt with a brand logo printed on the arms and the chest area. On the opposite side of the participant sat another virtual human (i.e., virtual other), wearing a t-shirt printed with a different brand logo. In one experimental group, the participants interacted with the virtual other in a brief conversation task and were made well aware of the fact that they had full control of the virtual self wherein their physical movements were synchronized with their virtual movements. Furthermore, by nature of the first person perspective in the virtual world, participants likely felt high identification with the virtual self. In another experimental group, the participants interacted with the agent in the same task, but were able to control the virtual other. That is, although they

were able to look down at their virtual selves, their physical movements were synchronized with the virtual movements of the virtual other. When participants were given virtual selves that they identified and had control over, preferences for the brand worn by their virtual selves were significantly higher than that of the virtual other's brand. When participants identified with the virtual self but did not have control over them (i.e., controlled the virtual other), they reported significantly negative brand preferences.⁸⁴

Another study focused on how engaging in a first person perspective virtual experience could influence pro-environmental behavior. In this study, participants either controlled an avatar in the first person perspective to cut down a tree in the virtual forest or imagined cutting a tree down. Results confirmed that controlling an avatar to cut down a virtual tree led to approximately 20 percent less paper consumption in the physical world compared to merely imagining cutting the tree.⁸⁵ A follow-up study also confirmed that controlling avatars produced pro-environmental attitudes that persisted for up to one week following experimental treatments.⁸⁶

To test the effect of interactivity and control independently of identification with an avatar, a recent study by Michael D. Hanus and Jesse Fox (in press)(in press) addressed the question of how controlling *someone else's* avatar may affect the process of persuasion. Participants either customized a salesperson's avatar or watched a video of someone else customizing the avatar. Then, they entered a virtual world and listened to a sales pitch from the avatar about a new energy drink. Participants who customized the salesperson's avatar reported more positive attitudes toward the product as well as higher purchase intentions compared to those who did not customize the avatar.⁸⁷ This study demonstrated that having control over the source's avatar might increase persuasion. Although advertisers may be wary of ceding control

of an avatar for their company, providing some customization opportunities while limiting other options may create a suitable persuasive experience.

The concept of “virtual direct experiences,” wherein consumers are able to digitally experience a product in an online environment, was introduced more than a decade ago.⁸⁸ However, these earlier conceptualizations of virtual direct experiences lack much of the experiential aspects of product consumption because users are not present in the virtual world, embodied in an avatar, to interactively consume products. If a person is unable to use his or her own avatar’s hands to handle and experience the product, but instead has to rely on maneuvering the mouse or keyboard, these virtual direct experiences described in earlier work may not be as direct as the label implies. On the other hand, engaging in the virtual world as an avatar is likely to yield sensations of firsthand experience in handling the product even if the avatar does not look like the physical self.

Unintended Influences of Extended Selves

Despite the potentials of using virtual humans in the context of new media advertising, there may also be some unintended drawbacks that should be considered. One such concern lies in the fact that virtual doppelgängers may be controlled by a third party, unbeknownst to users. Social psychologists have confirmed that individuals react negatively and exhibit opposition or resistance when they feel that their freedom has been threatened.⁸⁹ Similarly, when advertisement exposure is perceived to be forced and intrusive, as is in the case of pop-up ads, studies have demonstrated that people feel irritated and seek to avoid the advertisements.⁹⁰ Highly personalized e-mail solicitations have resulted in negative responses particularly when the individual feels that the advertised service was perceived to be of low utility.⁹¹ Consequently,

when individuals are exposed to their doppelgängers that are controlled by another party, they may feel that it is intrusive and respond negatively to the advertised brand or product.

Relatedly, studies have demonstrated that when viewers perceive an ulterior motive to persuade from being exposed to a message, the persuasion knowledge serves as a cognitive defense mechanism.⁹² As a result, viewers become more critical in processing the information given in the message and feel less trust in the advertisement, leading to a diminished desire to purchase the product or service.⁹³ Seeing the virtual self endorse a product or service that the physical self is not familiar with may activate persuasion knowledge, heighten skepticism, and result in negative brand preferences and purchase intentions.

Given the constant challenge to break through the clutter of existing advertisements, using virtual humans in persuasion contexts may initially be an effective strategy for persuasion, as evidenced by a number of studies presented in this chapter. However, the unintended consequences of repeated exposure to virtual humans is relatively unknown at this point. Prior research on repeated exposure to print advertisements⁹⁴ and product designs⁹⁵ suggest that perceived complexity of the stimulus is a key moderator of preferences; preferences increase when high complexity is perceived and decrease when low complexity is perceived. Thus, following repeated exposures to virtual humans in advertising contexts, individuals may still perceive complexity due to the sensory-rich environment of virtual worlds and maintain high preferences for the brand, or become desensitized to the sensory-rich stimuli and feel negatively about the brand.

Finally, with the boundary between the virtual and the physical self blurred, and virtual humans' abilities to decouple form from behavior, ethical concerns remain. When an individual embodies the virtual body of another person, or when one's virtual doppelgänger is being

controlled by a third party, where is the line between a persuasive virtual experience and identity theft? Also, when virtual worlds are used to depict an accelerated progression of time to show future outcomes of product use, such as weight loss products, or when users' avatars instantaneously lose weight in the virtual world as a result of brief exercises in the physical world, where is the line between taking advantage of novel media features and exaggerated claims? When children are exposed to virtual worlds and develop false memories that may influence their future decisions, where is the line between creative messages and deception? These are some of the important but underexplored questions that should also be asked when considering the use of avatars and agents in the next generation of advertising.

Conclusion

Despite being the pivotal element in any virtual interaction, avatars and agents have not received much attention from advertising practitioners and scholars until recently.⁹⁶ The importance of studying how people consume mass media in order to better understand the process of persuasion has been discussed earlier.⁹⁷ By studying how individuals differ in their ways of consuming and understanding mass media and their contents yields insights into the way they interpret persuasive messages. In much the same way, we argue that studying how individuals may create and control their avatars and agents will allow researchers to understand how they interpret advertisements. Furthermore, avatars and agents, in and of themselves, have been shown to serve as effective vehicles of persuasion.

The current chapter also offers innovative methods of using avatars and agents to deliver persuasive messages. Rather than relying on traditional advertising methods with emerging technology, we suggest taking advantage of the new affordances that virtual worlds offer, from personalizing and modifying appearances to offering new levels of interactivity and control.

Rather than simply receiving a message, users in virtual environments can have an advertising experience.

In sum, these discussions suggest immense potential for avatars and agents to be seen as effective vehicles of persuasion in virtual contexts. These virtual humans offer room for seemingly unlimited creativity in advertising implementation while keeping the message highly tailored to each individual's preferences. Considering the extensive number of hours that gamers currently spend controlling their avatars, the results from these controlled studies in which participants controlled their avatars for only several minutes could be dramatically intensified. To this extent, avatars and agents may harbor far greater powers of persuasion than have been found in laboratory studies and merit further research. Furthermore, the technology once considered to be available only to those in sophisticated laboratories has now become accessible to an extremely wide range of users through the development of consumer technology such as game consoles and consumer grade virtual reality devices. We hope that the discussions presented here will stimulate further research to shift and expand the current paradigms of advertising within virtual worlds from relying on traditional methods to exploring the new affordances of newer media in their full capacities.

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