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Virtual Commerce (V-Commerce) in Second Life: *The Roles of Physical Presence and Brand-Self Connection*

By Seung-A Annie Jin and Justin Bolebruch, Boston College

Abstract

Second Life, in a form of advergaming (a portmanteau of “advertising” and “gaming”), can be an innovative venue for marketing communication and brand management in virtual commerce (v-commerce). Virtual shopping malls in three-dimensional (3D) environments provide interactive and immersive settings that complement strong offerings of electronic commerce. The ability to offer vivid and engrossing social interactions with spokes-avatars within 3D environments is the key advantage of interactive marketing in Second Life. This study particularly focused on the “physical presence” (i.e., the degree to which consumers feel as if virtual products and retail settings were real) dimension of interactive brand marketing in 3D virtual environments and its impact on brand-self connection and consumers’ evaluation of a spokes-avatar’s credibility. Data analyses show that an increased level of physical presence positively influences consumers’ brand-self connection and evaluation of spokes-avatar credibility (expertise and trustworthiness) in 3D virtual environment-based brand marketing.

Keywords: V-commerce; Second Life; advergaming; brand marketing; physical presence; brand-self-connection.

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Virtual Commerce (V-Commerce) in Second Life: *The Roles of Physical Presence and Brand-Self Connection*

By Seung-A Annie Jin and Justin Bolebruch, Boston College

The term “virtual world” describes an electronic environment that visually mimics physical spaces where people can interact with virtual actors and virtual objects (Bainbridge, 2007). In three-dimensional (3D) virtual environments, users are represented by animated characters (avatars) and communicate with others by typing messages in a chat channel or through optional voice communication (Damer, 1998). *Second Life (SL)* is a virtual environment-based social networking site (SNS). In addition to being an entertainment medium for multiplayer online gaming and social networking, *SL* is a bustling forum of online shopping and e-commerce (Jin, 2009). *SL*'s website contains detailed economic statistics, including users' monthly spending, resident transactions, total dollar supply, land sales by residents, land for sale, and so forth (*Second Life*, 2009). The in-game environment has its own currency, Linden Dollars, and an exchange rate that fluctuates against the US dollar. Given its rapid growth and capacity to reach such a diverse population on the Web, *SL* is an innovative terrain for interactive marketing and advergaming (Jin, 2009; Jin & Bolebruch, 2009). This study examined the impact of avatar-based brand marketing in the 3D virtual environment of *SL* on consumers' brand evaluation.

Conceptual and Theoretical Frameworks

Brand Marketing in Virtual Environments-Based Commerce (V-Commerce)

A brand primarily functions as an indicator of quality or some feature that differentiates the product or service from that of a competitor (Chen, 2001). While the Internet was originally seen as a threat to brands, the key features of e-commerce (e.g., widespread availability of information, price depth and quality, and seemingly unlimited choice) have had quite the opposite effect. Instead of reducing the value of brands, the Internet has rendered the successful establishment of brands on the Web more important. Building e-brands has become the key to the success of online business. In the novel retail setting of interactive brand marketing in 3D virtual worlds, the majority of consumers are “inexperienced” shoppers in a new, sometimes intimidating environment. Faced with uncertainty arising from imperfect and asymmetric information in many product markets, consumers look to brands when making choices in *any* marketplace (Erdem, Swait, & Louviere, 2002). Thus, in the unfamiliar terrain of virtual shopping centers, consumers rely on brands more heavily than usual.

Web-based shopping allows for a completely different experience than shopping in a physical store. Online retailers such as *Amazon.com* differentiate themselves from other online marketers as well as traditional brick-and-mortar stores by offering complex recommendation systems in the form of text-based lists that aid consumers in the search-to-purchase process. In doing so, *Amazon* has not only created their own powerful Web brand but also forced marketers to adapt to new consumer purchasing patterns. Two important aspects of online shopping that marketers must bear in mind are (1) different buying patterns for different types of products and different types of customers, and (2) the strong influence of non-rational factors such as emotional attachment on purchasing decisions (Chen, 2001). Virtual reality shopping malls such as *SL* have pushed the envelope even further. The idea that consumers are purchasing not just the

product but also the packaging, image, and other additional values can now be fully realized online just as in physical stores. In fact, virtual shopping malls in 3D environments provide a heightened interactive and immersive experience. Brands assume an even greater swaying significance, as consumers sometimes experience information overload; the virtual “shelf” of products often seems unlimited and overwhelming (Chen, 2001).

The use of recommendation avatars and immersive, realistic interactions with them increase favorable brand attitudes and brand-self connection among consumers. In avatar-based 3D virtual environments, corporations can establish locations as information databases for their companies. The ability to offer vivid and immersive multi-modal social interactions with spokes-avatars is the key advantage of brand management in 3D virtual environments (Jin, 2009). This study specifically focused on the “physical presence” dimension of brand marketing in virtual worlds and its impact on consumer experience.

Physical Presence in V-Commerce

This study proposed that physical presence is a perceptual sensory antecedent factor that influences brand-self connection in online shopping environments. Physical presence is “a psychological state in which virtual (para-authentic or artificial) physical objects are experienced as actual physical objects in either sensory or non-sensory ways” (Lee, 2004). Physical presence occurs when consumers do not notice either the para-authentic nature of mediated objects and environments or the artificial nature of simulated objects and environments. In brand marketing in 3D virtual environments, physical presence refers to the degree to which consumers feel as if virtual products and retail settings were real. The promise of e-commerce is based on the effective utilization of graphic representations in the 3D interface that mimic the real world (Huizingh, 2000). Physical presence in 3D virtual environments is a key factor that induces not only consumers’ perceptual/social realism in their online shopping experience but also their transportation to a virtual world where e-commerce transpires. 3D virtual environments enhance social realism by providing realistic or plausible portrayals of the real world inside a virtual world and inducing perceptual realism through lifelike creations of the physical world with rich sensory stimuli (Lee, 2004). Ultimately, physical presence in brand marketing in 3D virtual environments can positively influence brand-self connection and other subsequent outcome variables such as source credibility (expertise and trustworthiness).

H1: *Physical presence positively influences consumers’ brand-self connection in brand marketing within 3D virtual worlds.*

H2: *Physical presence positively influences consumers’ evaluation of spokes-avatars’ (a) expertise and (b) trustworthiness in brand marketing within 3D virtual worlds.*

Brand-Self Connection in V-Commerce

Brands become linked to the self when a brand helps consumers achieve self-motivated goals (Escalas & Bettman, 2005). The strength of the cognitive and emotional bond connecting the brand with the self reflects the extent to which consumers view the brand as integral to their identity (Chaplin & Roedder, 2005). The ultimate impact of a brand is contingent upon the quality of consumers’ experiences (Escalas & Bettman, 2003; Fournier, 1998). One facet of the

brand relationship quality (BRQ) construct is strength properties of the attitudinal connection between consumers and brands (Fournier, 1998). The concept of brand-self connection explains the strength of the consumer-brand relationship and investigates this emotional bond. Prior research has shown that brand-self connection significantly influences consumers' brand evaluations, attitude strength (Moore & Miles, 2008), and behavioral intentions (Escalas, 2004). Brand-self connection captures the strength of the "connection" between perceived brand meaning (including image and brand personality) and the consumer's self-concept (Moore & Miles, 2008). This study aimed to identify the exogenous variable (physical presence) and endogenous variables (source credibility) of brand-self connection in e-commerce within 3D virtual worlds.

Source Credibility and the Mediating Role of Brand-Self Connection in V-Commerce

Spokes-avatars employed in brand marketing in 3D virtual environments are perceived as the source of the promotional message. Perceived credibility of spokes-avatars is an important endogenous variable in e-commerce and virtual environment-based interactive marketing. Credibility, a key element of success in web-based information, agent-assisted shopping, and e-market contexts (Citera, Beauregard, & Mitsuya, 2005), has two main components: trustworthiness and expertise (Erdem & Swait, 2004). In order for a source to be credible, consumers must perceive that it has the ability (i.e., expertise, companies' perceived capability to deliver on promises) and willingness (i.e., trustworthiness) to deliver continuously and consistently what has been promised (Erdem & Swait, 2004). Expertise refers to the extent to which a communicator is perceived to be a source of valid assertions and the degree of confidence in the communicator's intent (Hovland, Janis, & Kelley, 1953). Trustworthiness, referring to consumers' perceptions of companies' willingness to carry through on promises made, also exerts a significant impact on consumers' brand consideration and choice (Erdem & Swait, 2004). This study proposed and examined the effects of brand-self connection on source credibility in brand marketing within 3D virtual worlds.

H3: *Brand-self connection positively influences consumers' evaluation of spokes-avatars' (a) expertise and (b) trustworthiness dimensions of source credibility in brand marketing within 3D virtual worlds.*

Despite the importance of brand-self connection in marketing, little is known about the mediating mechanism that explains "how" brand-self connection ultimately leads to brand evaluation. This study proposed that brand-self connection functions as a mediator in linking the effects of the external exogenous variable (increased level of physical presence in 3D brand marketing) with brand communication in virtual stores.

H4: *The effects of physical presence on the dependent variables are mediated through brand-self connection.*

Method

Participants, Procedure, and Manipulation stimuli

The sample consisted of 58 (N = 58) undergraduate students (30 males and 28 females) at a university in the United States. Participants were told that they would use *SL* and be given a promotional message about a brand and its products from a spokes-avatar representing the brand inside the 3D virtual retail store. The author created a fictitious brand, promotional messages

about the brand, and a spokes-avatar that represented the brand and delivered the promotional message (Figure 1). When the participant entered the virtual retail store, the spokes-avatar representing the fictitious brand welcomed the participant. After a brief greeting message, the spokes-avatar (avatar controlled by a human experimenter) delivered the promotional message.



Figure 1. Snapshot: Interaction Between a Female Consumer Avatar (Left) and the Brand's Spokes-Avatar (Right)

Measures

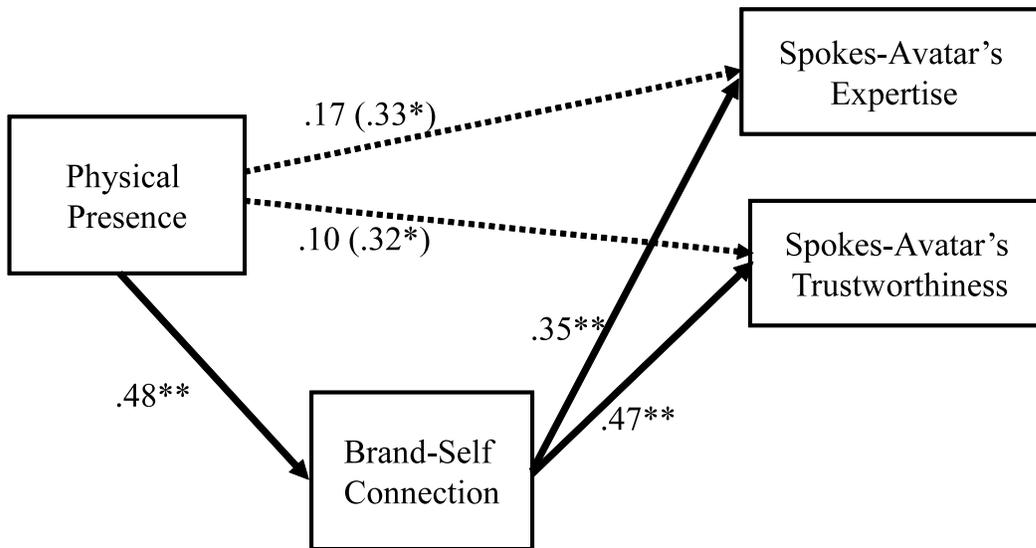
Physical presence was measured with the following four items using a 7-point Likert scale ranging from not at all [1] to very much [7]: While you were shopping in *Second Life*, how much did you feel as if (1) the objects on the screen were real? (2) you and the objects on the screen were in the same place? (3) you were inside the company's retail store? (4) you had visited the company's retail store? (Cronbach's $\alpha = .78$). *Brand-self connections* were measured with the following seven items using a 7-point Likert scale ranging from strongly disagree [1] to strongly agree [7]: (1) This brand reflects who I am; (2) I can identify with this brand; (3) I feel a personal connection to this brand; (4) I use this brand to communicate who I am to other people; (5) I think this brand helps me become the type of person I want to be; (6) I consider this brand to be "me" (it reflects who I consider myself to be or the way that I want to present myself to others), and; (7) This brand suits me well. ($\alpha = .96$). *Expertise of the spokes-avatar* was

measured with the following five items using a 7-point semantic differential scale: (1) not an expert to expert; (2) inexperienced to experienced; (3) unknowledgeable to knowledgeable; (4) unqualified to qualified, and; (5) unskilled to skilled ($\alpha = .92$). *Trustworthiness* was measured with the following five items: (1) undependable to dependable; (2) dishonest to honest; (3) unreliable to reliable; (4) insincere to sincere, and; (5) untrustworthy to trustworthy ($\alpha = .92$).

Results

Linear regression analyses were conducted to test H1, H2, and H3. Physical presence was a significant predictor of brand-self connection, $F(1, 56) = 16.35, p < .001$. The regression of brand-self connection on physical presence resulted in the following regression equation, $Y' = .54X + 1.32$. A standardized regression equation was $Z_{\text{Brand-self connection}} = .48 Z_{\text{Physical presence}}$. About 21 % of the variability for brand-self connection was accounted for by physical presence (Adjusted $R^2 = .21$). Physical presence was a significant predictor of the spokes-avatar's expertise, $F(1, 56) = 7.01, p < .05, Y' = .33X + 4.06, Z_{\text{Expertise}} = .33 Z_{\text{Physical presence}}$ (Adjusted $R^2 = .10$) and trustworthiness, $F(1, 56) = 6.39, p < .05, Y' = .33X + 3.49, Z_{\text{Trustworthiness}} = .32 Z_{\text{Physical presence}}$ (Adjusted $R^2 = .09$). H1 and H2 were supported. Brand-self connection was a significant predictor of the spokes-avatar's expertise, $F(1, 56) = 12.56, p < .001, Y' = .38X + 3.93, Z_{\text{Expertise}} = .43 Z_{\text{Brand-self connection}}$ ($R^2 = .17$) and trustworthiness, $F(1, 56) = 20.36, p < .001, Y' = .47X + 3.09, Z_{\text{Trustworthiness}} = .52 Z_{\text{Brand-self connection}}$ (Adjusted $R^2 = .25$). H3 was supported.

A path analysis was conducted to test H4. Brand-self connection functioned as a mediator because it met the following five conditions specified by Baron and Kenny (1986): (1) physical presence significantly predicted the mediator ($\beta = .48, p < .001$), (2) the mediator significantly predicted the dependent variables (expertise, $\beta = .43, p < .01$; trustworthiness, $\beta = .52, p < .01$), (3) when the dependent variables were regressed on physical presence without the mediator, the regression equations were significant (expertise, $\beta = .33, p < .05$; trustworthiness, $\beta = .32, p < .05$), (4) when both the independent variable and the mediating variable were used as predictors, the effect of the mediator remained statistically significant (expertise, $\beta = .35, p < .05$; trustworthiness, $\beta = .47, p < .01$), (5) but the effect of the independent variable declined and became non-significant. H4 was supported, as demonstrated in Figure 2.



* $p < .05$, ** $p < .01$

Note. The number inside the parentheses is standardized beta coefficient when the dependent variable is regressed on the independent variable (physical presence) alone without including the mediating variable (brand-self connection) in the regression equation.

Figure 2. Path Diagram: The Mediating Role of Brand-Self Connection

Discussion

This study examined the effects of physical presence, a newly added characteristic of interactive brand marketing in 3D virtual environments, on consumers' brand-self connection and source credibility. Results show that an increased level of "physical presence" positively influences consumers' brand-self connection, as well as their evaluation of spokes-avatar credibility. Consumers' brand-self connection mediated the effects of external media characteristics (physical presence) on source credibility. These results demonstrate that positive relationship building with a brand and increased brand-self connection are important determinants of brand credibility. The newly-added characteristic of immersive brand marketing in 3D virtual environments can induce brand-self connection and positively affect brand credibility. Perceived vividness/realism of virtual environments increases physical presence, thus leading to more positive brand evaluations. Additionally, technical sophistication of avatar designs and advanced designs of realistic retail settings can increase consumers' feelings of physical presence and contribute to positive brand communication.

In addition to vivid avatar-mediated interaction and technical sophistication made possible by 3D computer graphics, this study examines consumers' perception of and relationship with brands. The present study suggests that consumers can form a brand-self connection even after a brief interaction with a brand's spokes-avatar, which in turn increases brand credibility. With the emergence of 3D multimedia technologies, companies can invest in the design of spokes-avatars that represent their brand favorably (Donath, 2007). They can experiment with a wide variety of sales-avatars to maximize the effectiveness of brand communication and customer interaction in the novel context of interactive marketing and e-brand management. In addition to examining the effects of external media characteristic of virtual worlds (i.e., increased physical presence), this study explored the mediating role played by consumers' brand-self connection in avatar-based brand marketing. Ultimately, consumers' brand-self connection mediated the effects of external media characteristics (physical presence) on their evaluation of the brand's spokes-avatar's source credibility (expertise and trustworthiness) in virtual shopping environments.

One of the limitations of the current research is that the sample recruited from U.S. undergraduate students did not consist of real *SL* users. A majority of participants were novices in virtual environments. Future studies can benefit from recruiting real *SL* users who frequently visit and shop in *SL*. Employing this particular population in future studies would provide helpful insights into actual shopping behaviors in virtual worlds. Giving consumers Linden Dollars (*SL*'s currency) and prompting them to actually engage in transaction behaviors would enrich our understanding of purchasing behaviors in the virtual retail setting. A researcher can create a scenario in which real *SL* users are prompted to buy items for their own avatars. Given the unlimited possibility to design virtual creations, online virtual worlds offer great potential as sites for advertising and marketing research.

Bibliography

- Bainbridge, W. S. (2007). The scientific research potential of virtual worlds. *Science*, 317(5837), 472-476.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical consideration. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Chaplin, N., & Roedder, J. D. (2005). The development of self brand connections in children and adolescents. *Journal of Consumer Research*, 32(1), 119-129.
- Chen, S. (2001). Assessing the impact of the internet on brands. *Journal of Brand Management*, 8(4&5), 288-302.
- Citera, M., Beauregard, R., & Mitsuya, T. (2005). An experimental study of credibility in E-negotiations. *Psychology & Marketing*, 22(2): 163-179.
- Damer, B. (1998). *Avatars: Exploring and building virtual worlds on the internet*. Berkeley, CA: Peachpit Press.
- Donath, J. (2007). Virtually trustworthy. *Science*, 317, 53-54.
- Erdem, T., Swait, J., & Louviere, J. (2002). The impact of brand credibility on consumer price sensitivity. *International Journal of Research in Marketing*, 19, 1-19.
- Erdem, T., & Swait, J. (2004). Brand credibility, brand consideration, and choice. *Journal of Consumer Research*, 31, 191-198.
- Escalas, J. E. (2004). Narrative processing: Building consumer connections to brands. *Journal of Consumer Psychology*, 14, 168-180.
- Escalas, J. E., & Bettman, J. R. (2003). You are what they eat: The influence of reference groups on consumer connections to brands. *Journal of Consumer Psychology*, 13(3), 339-458.
- Escalas, J. E., & Bettman, J. R. (2005). Self-construal, reference groups, and brand meaning. *Journal of Consumer Research*, 32, 378-389.
- Fournier, S. (1998). Consumers and their brands: Developing relationship theory in consumer research. *Journal of Consumer Research*, 24, 343-73.
- Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communications and persuasion: Psychological studies in opinion change*. New Haven, CT: Yale University Press.
- Huizingh, E. K. R. E. (2000). The antecedents of Web site performance. *European Journal of Marketing*, 36, 1225-1247.
- Jin, S. A. (2009). The roles of modality richness and involvement in shopping behavior in 3D virtual stores. *Journal of Interactive Marketing*, 23(3), 234-246.

- Jin, S. A., & Bolebruch, J. (2009). Avatar-based advertising in *Second Life*: The role of presence and attractiveness of virtual spokespersons. *Journal of Interactive Advertising*, 10(1), <http://www.jiad.org/article124>
- Lee, K. (2004). Presence, explicated. *Communication Theory*, 14, 27-50.
- Moore, D. J., Miles, H. P. (2008). Self-brand connections: The role of attitude strength and autobiographical memory primes. *Journal of Business Research*, 62, 707-714.
- Second Life. (2009). *Second Life: Economic statistics*. Retrieved on October 5, 2009, from Second Life Web site: <http://secondlife.com/statistics/economy-data.php>