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Chia-Wei Joy Lin, University of Tennessee at Chattanooga, USA
Yinlong Zhang, University of Texas at San Antonio, USA
Lawrence Feick, University of Pittsburgh, USA

We proposed that when virtual identity is accessible as compared to the actual identity, consumers tend to be more impulsive. This is because virtual identity is associated with multiple possible selves which tend to induce identity conflict and self-control resource depletion. Four studies confirm our hypotheses.

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EXTENDED ABSTRACT

The ubiquity of the Internet has dramatically changed how consumers define their identities in recent years (Rosen 2012). For example, Palfrey and Gasser (2006) showed that generations grown up with the Internet have started to form a new identity (i.e., virtual identity) in this virtual environment. Virtual identity is the self the individual construes on the Internet (e.g., Bargh, McKenna, and Fitzsimons 2002). Recent research has found that virtual identity does exist (e.g., Turkle 1995), is different from actual identity (e.g., Bargh and McKenna 2004), the identity people display in offline life, and will influence how people see themselves and interact with others (e.g., McKenna and Bargh 1998). Thus, it is necessary for researchers to further understand the consumption consequences of virtual identity. Surprisingly, no theoretical-based research has been conducted to investigate these consequences. This research aims to fulfill this gap by examining the effect of virtual identity on impulsive consumption, which is associated with critical consumer issues, such as obesity (Nederkoorn et al. 2006) and credit card debts (Norvilitis et al. 2006). To provide a solid understanding on the connection between virtual identity and impulsive consumption, we developed theoretical arguments based on possible-self, self-determination, identity conflict, and self-regulation theories.

First, the virtual environment opens the restrictions of social norm and allows people to explore possibilities of themselves beyond the expectation of the social background (Nagy 2010; Suler 2002). Therefore, it is conducive to people developing new possible identities (Bargh et al. 2002). This stream of literature suggests that conceptually people’s virtual identity is a reflection of their possible selves, the selves people think they cannot realize in their daily life but may become in the future (Markus and Nurius 1986).

According to the self-determination theory, people are driven to realize the self-goals associated with their possible selves (e.g., Higgins and Kruglanski 2000; James 1890; Oyserman 2007). People typically want to achieve as many self-goals as possible. However, people’s resource is limited (Vohs and Faber 2007), and it is nearly impossible to realize all possible selves. In short, sensing the multiple possible selves can make consumers aware of the competing pressure on their limited self-control resource to realize these possible selves. Accordingly, the potential conflicts among multiple possible selves can lead to self-control resources depletion (Oyserman, Gant, and Ager 1995). Finally, the self-regulation literature has extensively shown that when individuals have depleted self-control resources, they are less likely to regulate themselves; in other words, they behave in an impulsive manner (e.g., Hofmann, Rauch, Gawronski 2007).

In summary, we propose that a virtual identity will tend to be associated with reduced self-control resources and these reduced self-control resources will lead to greater consumer impulsiveness (see figure 1). More formally, we hypothesize:

**Hypothesis 1:** Individuals will consume more impulsively when their virtual identity is accessible than when their actual identity is accessible.

**Hypothesis 2:** The effect of salient virtual identity on impulsive consumption is mediated by self-control resources.

Furthermore, to test our theoretical explanation for the virtual identity effect, we investigated a theory-driven moderator: self-construal. Prior works have demonstrated that independent individuals are more likely to consume impulsively than interdependent individuals due to low control resources (Zhang and Shrum 2009). Hence, we predict that self-construal will moderate the effect of virtual identity on impulsive consumption. Specifically, independent individuals will be more likely subjected to the influences of virtual identity than interdependent individuals. Formally, we hypothesize:

**Hypothesis 3:** Self-construal moderates the effect of virtual identity on impulsive consumption. Specifically, the effect of virtual identity on impulsive consumption will be stronger for individuals with an independent self-construal than those with an interdependent self-construal.

We conducted four studies to test these hypotheses. Study 1 confirms the existence of a relationship using multiple measures and methods. Studies 2 and 3 test our process hypothesis. Using different methods, both studies support the mediating effect of self-control resources -- individuals who have lower self-control resources exhibit a greater impact of virtual identity on impulsive consumption. Finally, study 4 supports the hypothesized moderating impact of self-construal, i.e., we observe the effect for individuals with an independent but not interdependent self-construal.

**Study 1A**

**Method**

Study 1a is a survey in which we develop and validate a measure of virtual identity and then examine its correlation with impulsive consumption. We asked participants to complete a series of scales that included measures of virtual identity and impulsive consumption. Then they reported basic demographics and their usual patterns of using the Internet. The chronic virtual versus actual identity was measured via items adapted from Luhtanen and Crocker (1992), Phinney (1992), and Tu, Khare, and Zhang (2012) whereas impulsive consumption was measured via the impulsive consumption scale (Rook and Fisher 1995).

**Result and Discussion**

To test H1 we ran a regression on impulsive consumption with the chronic virtual identity score as a predictor. The overall model was significant ($F (1, 221) = 11.32, p = .001$, $R^2 = .05$) as was the coefficient of the predictor ($β = .22, t = 3.36, p = .001$): individuals with greater virtual identity scores are more likely to report greater impulsive consumption. Study 1a provides the initial support for hypothesis 1; individuals whose virtual identity is chronically more accessible have a greater tendency toward impulsive consumption. Because 1a use correlation analysis from survey data, we designed study 1b, an experiment, to begin to address causation.

**Study 1B**

**Method**

Study 1b is a lab experiment in which we primed virtual identity and then measured the impact on impulsive consumption. Ninety
undergraduates from a large US university participated in this study in exchange for course credit. Participants were randomly assigned to one of the two conditions and told that they would be taking part in two unrelated studies. In the first study, participants worked on a short writing task within which we primed virtual or actual identity (modified the paragraph-writing task from Trafimow, Triandis, and Goto 1991). In the virtual condition the description read: The writing task concluded with questions regarding the task. We captured the main dependent variables when participants completed a series of measures, which we framed as a prescreening session for another study. Finally, participants reported on basic demographics.

Result and Discussion

In line with H1, the ANOVA results comparing the effect of virtual identity versus actual identity on impulsiveness revealed a significant main effect \( F(1, 89) = 4.45, p = .04 \); individuals with salient virtual identity showed greater impulsiveness than individuals with salient actual identity \( (M_v = 4.51, M_a = 3.78) \). To our knowledge, study 1 (a and b) is the first to demonstrate that consumer impulsiveness is affected by virtual identity. In subsequent studies we attempt to explicate and test the mechanism linking virtual identity and consumer impulsiveness, and examine alternative explanations.

Study 2

Method

Studies 2 replicated the effect of virtual identity with a more subtle virtual identity manipulation, scrambled-sentence task (adapted from Srull and Wyer 1980) and a behavioral measure of impulsive consumption, grocery-shopping scenario (Vohs and Faber 2007), to enhance the external validity. Participants were 286 undergraduates from a large U.S. university who participated in the study in exchange for partial course credit. We randomly assigned participants to one of two conditions: virtual identity and actual identity. Participants were told that they would be completing multiple tasks. In the first task they read the manipulation of virtual-actual identity. In the second task we told them that we were interested in people’s everyday choices and we asked them to imagine a grocery-shopping scenario (Vohs and Faber 2007; Zhang, Winterich, and Mittal 2010). In the ostensibly unrelated third task, participants completed a questionnaire that included measures of potential mediators and demographic characteristics. We used the self-control scale (Tangney et al. 2004) to measure self-control resources. In order to test alternative explanations, we also use the seven-item public self-consciousness and six-item private self-consciousness subscales of the self-consciousness scale (Fenigstein, Scheier, and Buss 1975) to measure public or private self-consciousness. The self-consciousness was considered because that a frequently-mentioned feature of the online world is that it is more anonymous than the real world (e.g., Bargh and Biehal 2005). In the “second study,” we measured impulsive consumption (same as study 1a) and the second manipulated independent/interdependent self-construal (Hamilton and Biehal 2005). In the “second study,” we measured impulsive consumption (same as 1b) and self-control resources (same as study 2). Participants were thanked and dismissed after they completed demographic questions.

Result and Discussion

The 2 (virtual vs. actual identity)* 2 (high vs. low self-control resource) ANOVA on impulsive consumption showed a significant two-way interaction \( F(1, 150) = 8.12, p = .005 \). Specifically, the effect of virtual identity on impulsive consumption was only significant for the high self-control resource condition \( (M_v = 4.86, M_a = 3.96, p = .02) \), but not the depleted self-control resource condition \( (p = .12) \). This supports H2. Study 3 provides additional support for hypothesis 2. We showed that if we independently reduce self-control resources through our manipulation, we are able to eliminate the impact of virtual vs. actual identity on impulsiveness. Individuals whose self-control resources were not depleted, however, showed the expected connection between identity and impulsiveness.

Study 4

Method

Study 4 tested the moderator, self-construal. It is a 2 (identity: virtual identity vs. actual identity) X 2 (self-construal: independent vs. interdependent) between-subjects experiment in which 250 undergraduates from a large US university participated for course credit. Participants completed two written exercises: the first manipulated virtual/actual identity (same as study 1a) and the second manipulated independent/interdependent self-construal (Hamilton and Biehal 2005). In the “second study,” we measured impulsive consumption (same as study 1b) and self-control resources (same as study 2). Participants were thanked and dismissed after they completed demographic questions.

Result and Discussion

The ANOVA conducted on impulsive consumption revealed a significant main effect of virtual versus actual identity \( (F(1, 284) = 3.87, p = .05) \). Individuals with a salient virtual identity indicated greater impulsiveness than did those with a salient actual identity \( (M_v = 4.89, M_a = 4.07) \). This result provides additional support for hypothesis 1.

The results from PROCESS (Hayes 2013) revealed a significant indirect effect via self-control that did not include zero (95% CI: 0.235 to .2136). In addition, we ruled out private and public self-consciousness as alternative mediators. Using the same analysis, the results showed that when private self-consciousness (95% CI of -.1555 to .0684) or public self-consciousness (95% CI of -.1318 to .0082) were included as mediators, the CIs included zero. In sum, we found support for self-control resources as a mediator between virtual identity and impulsive consumption and evidence that allowed us to rule out self-consciousness as a mediator.

Study 3

Method

In study 3, we used the moderation-of-process method by manipulating self-control resource via the white bear task (Wegner et al. 1987). Participants were 154 U.S. respondents to a request posted on Amazon Mechanical Turk (MTurk) who participated and received a small cash incentive. This was a 2 (identity: virtual identity vs. actual identity) X 2 (self-control resources: high vs. low) between-subjects design and participants were randomly assigned to one of the four conditions. Participants were told they were responding to two different studies. They completed two written exercises: our virtual identity/actual identity prime and then the manipulation of self-control resources. In the ostensibly unrelated second study, participants first completed the grocery-shopping scenario from study 2 and then the manipulation check and demographics.

Result and Discussion

The 2 (virtual vs. actual identity)* 2 (high vs. low self-control resource) ANOVA on impulsive consumption showed a significant two-way interaction \( F(1, 150) = 8.12, p = .005 \). Specifically, the effect of virtual identity on impulsive consumption was only significant for the high self-control resource condition \( (M_v = 4.86, M_a = 3.96, p = .02) \), but not the depleted self-control resource condition \( (p = .12) \). This supports H2. Study 3 provides additional support for hypothesis 2. We showed that if we independently reduce self-control resources through our manipulation, we are able to eliminate the impact of virtual vs. actual identity on impulsiveness. Individuals whose self-control resources were not depleted, however, showed the expected connection between identity and impulsiveness.
In our theorizing, the impact of our independent variable (Virtual/actual identity) on the mediator (self-control resources) should be moderated by self-construal. We ran PROCESS model 7 (Hayes 2013) to test this moderated mediation. The results are supportive. When self-control resources was examined as the mediating factor, the mediating pathway from the virtual identity by self-construal interaction to impulsive tendency was significant. In particular, in neither the indirect effect of an independent self-construal (-.2016 to -.0051) nor an interdependent self-construal (-.0839 to -.0444) did the confidence interval include zero.

**General Discussion**

The central idea of this research is that consumer impulsiveness is more likely when individuals’ virtual identity is salient. We first demonstrate the relationship between virtual identity and impulsive consumption by both measuring (in study 1a) and manipulating (in study 1b) virtual identity. The results showed that participants with a more salient virtual identity indicated higher levels of impulsiveness than if it were less salient. Studies 2 and 3 provide further support for the main effect of virtual identity by using a different virtual identity manipulation and a choice scenario measure of consumer impulsiveness. The use of different measures supports the robustness of the results. In addition, studies 2 and 3 provide direct support for our proposed mechanism in which the link between identity and consumer impulsiveness is mediated by self-control resources. Finally, study 4 tested one theoretically related moderator: self-construal. Compared to individuals with an interdependent self-construal, participants with an independent self-construal were more likely to have their virtual identity result in impulsive consumption. In addition to showing that we can turn on and off the effect of virtual identity by manipulating a conceptually related variable, study 4 also reinforces our conclusion from studies 2 and 3 about mediation. That is, we found that the interaction of virtual identity and self-construal on impulsive consumption operates through self-control resources.

The current research makes these contributions. Ours is among the first papers to study the impact of virtual identity on consumer decisions. It is surprising that little academic research has investigated the effects of this important consumer identity, given the central role of identity in consumer decision-making (Berger and Heath 2008; Reed et al. 2012). Recently, Hershfield et al. (2011) examined the impact of interaction with online self-avatars on consumers’ savings in real life. Our research is related in that it also examines the impact of the virtual world on real life decisions. In addition, our research contributes to the literature on impulsive consumption. We find that social identity can serve as a driver for impulsiveness. Typically research linking impulsiveness and self-control resources has focused on the depletion of this resource by engaging in other energy-draining tasks (e.g., the suppression of emotion (Vohs and Heatherton 2000)). Our research suggests that a focus on a virtual identity can also cause a decrease in self-control and thereby an increase in consumer impulsiveness.

**REFERENCES**


