The Signature Effect:
How Signing One's Name Influences Consumption-Related Behavior

Keri Kettle
School of Business
University of Alberta
kkettle@ualberta.ca

Gerald Häubl
School of Business
University of Alberta
gerald.haeubl@ualberta.ca

June 5, 2010

Keywords: Signatures, Self-Identity, Priming.

The Signature Effect:
How Signing One's Name Influences Consumption-Related Behavior

Abstract

While consumers are often required to provide a signature, the question of whether, and how, signing their name might influence their subsequent behavior has not been investigated to date. In this article, we propose that signing one's name acts as a general self-identity prime that enables situational affordances to activate the relevant aspect of one's self-identity, which in turn leads to behavior that is congruent with that aspect. Evidence from four studies demonstrates this phenomenon in consumption-related domains. Merely signing their name – as opposed to printing it – in an ostensibly unrelated task leads consumers to become more (less) engaged when shopping in a product domain they (do not) closely identify with (studies 1 and 2), to identify more (less) closely with in(out)-groups (study 3), and to conform more closely with (diverge more strongly from) in(out)-groups when making consumption choices in preference domains that are relevant to signaling one's identity (study 4).

Your signature – the distinctive way in which you write your name – plays a vital role in your life. You often sign your name on documents to authorize, initiate, or complete transactions (e.g., credit card purchases), and by merely signing particular documents you can commit yourself to years of marriage, mortgage payments, or even military service. However, despite the importance of signatures and the frequency with which people sign their name, to date no research has examined whether, and how, providing a signature might influence subsequent behavior.

We posit that signing one's name acts as a general self-identity prime. Here, the term *self-identity* refers to the totality of all selves, identities, and schemas that form one's sense of self (Markus 1977). Building on the theory of affordances (Gibson 1977; Greeno 1994), we hypothesize that the general priming of one's self-identity (as a result of producing one's signature) makes it more likely that situational affordances activate the relevant *aspect* of that self-identity, and that this in turn leads to behavior that is congruent with the activated aspect.

Evidence from four studies demonstrates this phenomenon in various consumption-related domains. The findings show that merely signing their name – as opposed to printing it – in an ostensibly unrelated task induces consumers to become more (less) engaged when shopping in a product domain they (do not) closely identify with (studies 1 and 2), leads people to identify more closely with in-groups and less closely with out-groups (study 3), and causes consumers to conform more with in-groups and diverge more from out-groups when making consumption choices in preference domains that are relevant to signaling one's identity (study 4).

The present research makes three key contributions to our understanding of consumer behavior. Most importantly, it is the first to demonstrate that merely signing one's name influences subsequent behavior, and that it does so in a predictable manner. This finding

enhances our understanding of the role that signatures play in a number of consumption contexts, and has marketplace implications for retailers – who could influence their customers' behavior through a creative request for a signature (e.g., on a survey). This work also makes a novel contribution to the priming literature – which has focused on priming specific constructs or identities – by showing that the seemingly innocuous act of signing one's name acts as a general self-identity prime, and thus influences one's response to identity-relevant environmental cues (Berger and Fitzsimons 2008; Kay, Wheeler, Bargh, and Ross 2004; North, Hargreaves, and McKendrick 1997). Finally, we extend recent work suggesting that a given prime can produce different effects (Wheeler and Berger 2007) by demonstrating that a particular identity-relevant action – signing one's name – can have contrasting effects on behavior depending on which aspect of one's self-identity is pertinent in a specific situation.

Signatures and Identity

A basic premise that underlies our theorizing is that individuals strongly associate their signature with their identity. Although there are numerous ways in which people may present their identity to others, signing one's name has distinct economic, social, and legal implications (Fraenkel 1992; Harris 2000). Consumers must often sign their name to authorize an action or commit themselves to future action, such as when they withdraw money from their bank account or sign a contract (Kam, Gummadidala, Fielding, and Conn 2001; McCabe, Trevino, and Butterfield 1996; Mnookin 2001; Parizeau and Plamondon 1989). People are legally obliged to fulfill the conditions of contracts that they have signed (Knapp, Crystal, and Prince 2003), they indicate their understanding of a document – such as a consent form – by signing their name on it (Mann 2004), and signatures are required to authorize some of society's most important documents, including judges' rulings (LaFave and Remington 1964) and new legislation

(Jackson and Roosevelt 1953). Critically, because handwritten signatures are widely used as evidence of one's identity in civil and criminal courts of law (Mnookin 2001; Risinger, Denbeaux, and Saks 1989), individuals typically craft a signature that is unique, difficult to forge, and clearly distinguishable from others' signatures.

Although the relationship between signatures and identity has not been explicitly examined to date, prior work in several different disciplines suggests that these are indeed closely connected. In what follows, we examine the link between signatures and self-identity by reviewing the pertinent literature in the fields of graphology, psychology, and contract law, as well as the results of research on the consequences of signing particular documents.

For as long as humans have used handwriting, they have intuited that their distinct writing style reflects their inimitable set of personality and character traits (King and Koehler 2000; Rafaeli and Klimoski 1983). The act of signing one's name, in particular, is an expressive behavior (Harvey 1934; Warner and Sugarman 1986; Zweigenhaft and Marlowe 1973) and, consistent with people's belief that they themselves are unique (Simon, Pantaleo, and Mummendey 1995), individual signatures typically have distinctive characteristics (Bensefia, Paquet, and Heutte 2005; Kam et al. 2001). Many people take pride in their signature (Eaton 1985) and believe that the manner in which they sign their name reflects their social status, education, or intelligence (Briggs 1980; Hughes, Keeling, and Tuck 1983). The widely-held intuition about a personality-handwriting relationship manifests itself in graphology – a method of inferring a person's personality and character traits through an analysis of their handwriting (Neter and Ben-Shakhar 1989). For decades, graphology has been popular both as a domain of study and as a hobby (Downey 1919) and, despite the fact that scholars have long questioned – and even debunked – the accuracy of graphological inferences (Bar-Hillel and Ben-Shakhar

1986; King and Koehler 2000), it remains in wide use among organizations in the evaluation of potential employees (Driver et al. 1996).

Although an individual's character traits cannot be reliably inferred from examining his or her signature, research in psychology suggests that the size of one's signature is influenced by particular aspects of one's self-identity – such as self-esteem, need-for-uniqueness, dominance, and social status. For instance, people sign their name over a larger area when their self-esteem is high (Rudman et al. 2007; Stapel and Blanton 2004; Zweigenhaft 1977), and signatures tend to be larger for people with greater need-for-uniqueness (Snyder and Fromkin 1977), with more dominant personalities (Jorgenson 1977), and of more prominent social status (Aiken and Zweigenhaft 1978). Taken together, these findings indicate that signing their name provides an outlet for people to express aspects of their self-identity, which is consistent with the notion that signatures are linked with identity.

From a legal perspective, the relationship between signatures and identity goes back several centuries. Beginning with the English Parliament in 1677, most nations have adopted a "statute of frauds" requiring that contracts be signed to be legally binding (Knapp, Crystal, and Prince 2003). Because people and corporations are required to fulfill the terms of signed contracts, it is illegal to forge another person's signature (Lemert 1958), and handwritten signatures are used as evidence of one's actions and obligations in courts of law (Mnookin 2001; Risinger, Denbeaux, and Saks 1989). The legal importance of signatures is illustrated by the recent Sarbane-Oxley Act (2002), which mandates chief executive and financial officers to sign their corporation's filings to the Securities and Exchange Commission (SEC) as evidence of their knowledge of the firm's financial condition and performance (Weinberg 2002). While legal scholars acknowledge the critical role that signatures play in human economic life, they have

stopped short of examining the behavioral implications of signing one's name, instead focusing

on the enforcement of signed contracts (e.g., Schwartz and Scott 2007) and the ability of forensic

handwriting experts to discern forgeries (e.g., Dyer, Found, and Rogers 2006; Kam et al. 2001;

Sita, Found, and Rogers 2002). Behavioral research has revealed that people understand the

legal importance of signatures, demonstrating that forging someone else's signature (in a lab

setting) causes people to exhibit physiological responses (such as increased pupil dilation) that

are consistent with their experiencing guilt (Lubow and Fein 1996). In sum, the fact that a mere

signature can determine whether one is convicted – or absolved – of a criminal act or civil

liability is consistent with the importance of the association between one's signature and his or

her identity.

Some prior work has examined how signing a particular document – such as a contract or

honor code – influences behavior. Studies have shown that students who are required to sign a

university's (real or fictitious) honor code subsequently act more honestly (Mazar, Amir, and

Ariely 2008; McCabe and Trevino 1993, 1997; McCabe et al. 1996). Moreover, it has been

found that requiring people to sign a contract (about a specific target behavior) increases their

conformity to the contract terms. For example, signing their name on a contract has been shown

to raise the compliance rate of recovering drug addicts in a rehabilitation program (Anker and

Crowley 1981), increase the completion rate of geriatric patients in a prescribed walking

program (Williams Bezner, Chesbro, and Leavitt 2005), lead families to avoid undesirable

behaviors (Stevens, Olson, Gaffney, Tosteson, Mott, and Starr 2002), motivate patients in a

weight control program to lose more weight (Ureda 1980), increase seat belt usage (Rogers,

Rogers, Bailey, Runkle, and Moore 1988), and enhance employee commitment (Staw 1974). It

is important to note that, in most of these studies, behavior was influenced even though violating

the contract or honor code was legally and economically inconsequential (the exceptions being

Anker and Crowley's study, where participants faced a penalty if they failed to adhere to the

contract terms, and Staw's study, where employees who signed a contract could not leave the

organization as easily as those who did not sign one). Although this prior work points to the

important meaning associated with signing one's name – and thus supports the premise of a close

relationship between signatures and identity – in each of these studies the influence of the act of

signing one's name was confounded with that of other factors (e.g., entering into some form of

agreement). By contrast, the present research pinpoints the behavioral consequences of *merely*

signing one's name.

In sum, prior work in the fields of graphology, psychology, and contract law, along with

research on the consequences of signing particular documents suggests that people associate their

signature with their identity. We now turn to developing the proposition that signing one's name

acts as a general self-identity prime, and to outlining how we envision this to predictably

influence consumption-related behavior.

Self-Identity, Priming, and Behavior

Each of us has a sense of who we are. We perceive ourselves as having (or lacking)

certain physical attributes, character traits, and abilities, we believe that we belong to certain

social groups (and don't belong to others), and we aspire to attain certain characteristics,

abilities, and social identities. Several different terms have been used in the literature to describe

this overall sense of self, including "self-identity", "identity", "self", and "self-concept" (e.g.,

Gecas and Burke 1995; James 1890; Markus and Kunda 1986; Markus and Wurf 1987;

Rochberg-Halton 1984). These same terms have also been used to describe specific aspects of

one's overall sense of self, such as a "desired self" and an "extended self" (Belk 1988; Roberts and Donahue 1994), character traits (Lewicki 1984; Segal 1988), and "social identities" (Ellemers, Spears, and Doosje 2002; Howard 2000; Thoits 1983). In the present work, we use the term *self-identity* to refer to all of the selves, identities, and self-schemas that comprise people's sense of who they are. To illustrate our conceptualization of self-identity, figure 1 represents the self-identity of Amanda, a business student who enjoys running and photography, but not dishwashing. Amanda's self-identity includes multiple aspects – her gender identity, her social identities, and her identities as a runner and a photographer – and the schemas associated with each of these aspects of her self-identity.

Insert figure 1 about here

Prior research has shown that aspects of one's self-identity can be differentially activated, and that the activation of a particular aspect makes it more likely that one's judgments and decisions are congruent with that aspect (Berger and Heath 2007; DeMarrée, Wheeler, and Petty 2005; Forehand, Reed, and Deshpandé 2001; Reed 2004; Sela and Shiv 2009; Wheeler and Petty 2001). For example, priming consumers' ethnicity leads them to respond more favorably to same-ethnicity spokespeople and to advertisements that target their ethnicity (Forehand and Deshpandé 2001), and priming a relevant out-group leads people to diverge from the out-group's behavioral norms (Spears, Gordijn, Dijksterhuis, and Stapel 2004).

Our key proposition is that that signing one's name acts as a general self-identity prime. Although the nature of prime-to-behavior effects is well-established for contexts in which a specific identity (e.g., gender) or schema (e.g., hostility) is primed, we are not aware of any

research that examines how a general self-identity prime might influence behavior. To address this question, we now investigate the role of the *situation* in prime-to-behavior effects.

In order for a prime to influence an individual's behavior, the situation must provide an *affordance* – a component of the environment suggesting a particular behavioral response – that makes salient the primed aspect of one's self-identity (Dijksterhuis and Bargh 2001; Gibson 1977; Greeno 1994; Guinote 2008; Oyserman 2009). For example, asking consumers to evaluate advertisements featuring same-ethnicity spokespeople affords their ethnic identity (Forehand and Deshpandé 2001). Despite the fact that situational affordances are a necessary condition for observing prime-to-behavior effects, the role of affordances has received very little attention in the priming literature – presumably because the necessity of affordances is implicitly reflected in the design of most priming studies. In the context of a general self-identity prime, however, affordances are crucial because only certain aspects of one's self-identity may be relevant in a given situation. For example, one's identity as a runner (or, conversely, as a non-runner) is afforded (and relevant) at a running store, whereas one's identity as a student is afforded in a university class.

Affordances are preconditions for activity that are available to an individual's perceptual systems (Gibson 1977; Greeno 1994). Situational affordances serve as cues in the environment that can guide consumers' judgments and behavior (Greeno 1994; Guinote 2008). Our key prediction is that the prime-to-behavior effect of a general self-identity prime depends on which aspect of one's self-identity is afforded (i.e., cued) by the situational environment. For instance, in a running store, which affords the opportunity to purchase running gear, the products on display serve as perceptible cues that make the running-related aspect of one's self-identity more salient (Reed 2004). Specifically, we propose that a general self-identity prime (e.g., signing

one's name) makes it more likely that the situational affordances activate the relevant aspect of one's self-identity. Our theory does not require that only a single aspect is activated – merely that the relevant aspect is activated more strongly than others. For instance, suppose that a consumer enters a running store – where her identity as a runner (or as a non-runner) is afforded. We predict that providing a signature makes it more likely that the situational affordance (i.e., the opportunity to shop for running gear) activates the relevant aspect of her self-identity (i.e., being a runner or non-runner). Consistent with prior work suggesting that the activation of an aspect of one's self-identity leads to behavior that is congruent with that aspect (Chartrand and Bargh 1999; Dijksterhuis and Bargh 2001; James 1890; Wheeler and DeMarrée 2009), we propose that signing one's name causes subsequent behavior to be congruent with the salient aspect of one's self-identity.

To summarize, we hypothesize that signing one's name acts as a general self-identity prime and that this interacts with situational affordances to activate – and thus promote behavior that is congruent with – the relevant aspect of one's self-identity. This implies concrete predictions about a variety of behavioral consequences, depending on the particular situation that an individual is in. In this article, we test such specific predictions about consumption-related behavior in several domains.

Overview of Studies

We present evidence from four studies that examine the effect of signing one's name in situations that afford different aspects of a consumer's self-identity – strength of identification with particular product domains (studies 1 and 2) and social identities (studies 3 and 4). In each study, participants were randomly assigned to either sign or print their own name on a blank

piece of paper (ostensibly for a separate study about handwriting) before entering the focal situation. The first two studies examine how signing their name influences the relationship between how closely consumers associate their self-identity with a specific product domain and their level of engagement in a shopping task in that domain, both in a controlled laboratory setting (study 1) and in an actual retail environment (study 2). This is followed by study 3, which investigates how signing affects how closely people identify with referent social groups (study 3). Finally, study 4 examines how signing their name influences the extent to which consumers signal their social identity through their product choices.

Study 1

It is well-established that consumers use products and possessions to help define aspects of their self-identity (Kleine, Schultz, Kleine, and Allen 1995). Consumers have relationships with particular brands (Fournier 1988), they signal their social identity to others through the products they choose (Berger and Heath 2007; White and Dahl 2007), their extended selves include possessions (Belk 1988), and they consider their engagement in certain activities – and the use of products that are relevant to these activities – to be central to their sense of self (Ahuvia 2005; Vallerand, Blanchard, Mageau, Koestner, Ratelle, Léonard, Gagné, and Marsolais 2003). Because people are highly engaged with products and activities that they associate with their self-identity (Tyler & Blader 2003), it is congruent with one's identity to be more (less) behaviorally engaged when shopping in a product domain that is close to (distant from) one's sense of self. Based on our overall hypothesis that signatures serve as general self-identity primes and thus promote identity-congruent behavior, we predict that signing their name causes consumers to become more engaged when shopping in a product domain that is close to their self-identity, and less engaged in a domain that is distant from their self-identity.

To test this prediction, we examine the engagement of consumers in a shopping task as a function of how closely they associate the product domain with their self-identity. We selected two products – digital cameras and dishwashers – that are similar in terms of their technical complexity, price, and the frequency with which they are used, but that we expected to be more (cameras) or less (dishwashers) closely associated with consumers' self-identities.

Method

Participants. A total of 57 undergraduate students at a large North American university completed a series of studies for partial course credit.

Design. A 3 (handwriting task: sign, print name, control) × 2 (product category: cameras, dishwashers) between-subjects design was used.

Handwriting Manipulation. Each participant was given two sheets of paper (stapled together) and a pen. The top sheet contained a set of instructions, and a cover story indicating that this was part of a study about handwriting. The bottom sheet contained the instructions "Please sign (print) your name on the line below" at the top of the page, followed by a single blank line.

Procedure. The study was conducted in a university research laboratory. Participants began the study seated in private cubicles. First, they were randomly assigned to a handwriting condition. For the sign and print treatments, participants either signed or printed their name once. Participants in the control condition received the same written instructions as those in the signature condition, with one exception – the last sentence stated "Therefore, you will be asked to sign your name later in this session." Participants then proceeded to the second (ostensibly unrelated) portion of the study.

In the focal task, participants were randomly assigned to a product category (cameras or dishwashers). They were presented with three products from that category and asked to choose their preferred one from this set. Each of the three alternatives was described along 15 attribute dimensions. The descriptions of the three products were provided on a computer screen that was organized as a table with one row per attribute dimension and one column per alternative. For each alternative, its brand and model name, a product image, and its price were permanently displayed across the top of the table. The 45 pieces of attribute information were initially hidden, with 45 buttons appearing in their place in the table. Participants were told that they could inspect whichever pieces they wished by clicking the appropriate buttons. Once inspected, a piece of attribute information remained visible for the remainder of the task. Participants were informed that they were free to complete the task by selecting their preferred alternative whenever they felt ready to make their choice.

For each of the two product categories, three alternatives and their descriptions (see appendix A) were selected from the assortment of a large online retailer about a week before the study. The alternatives and attribute dimensions were randomly assigned to the columns and rows of the table, and this was done separately for each participant.

After choosing their preferred alternative, participants were directed to complete an unrelated task that took approximately 10 minutes. The purpose of the unrelated task was to mitigate the possibility of carryover effects from the handwriting manipulations. Participants then answered a series of questions about the product category (cameras or dishwashers) to which they had been assigned for the focal task. These included measures of how frequently they use the product (1 = never, 10 = frequently), their level of expertise regarding the product domain (1 = novice, 10 = expert), how important the product domain is to them (1 = not at all

important, 10 = very important), and how closely they associate their self-identity with the

product domain (1 = distant, 10 = close). Participants' responses to these four questions were

combined to form a composite measure of how closely they associated their sense of self with

that particular product domain (α = .80), which we refer to as "identity-product closeness."

Results

Preliminary Analyses. A 2 (product category: cameras vs. dishwashers) × 3 (handwriting

task: sign vs. print name vs. control) ANOVA was used to examine the level of identity-product

closeness for each of the two product categories. As expected, participants associated their self-

identity much more closely with digital cameras (M_{cam} = 5.5) than with dishwashers (M_{dish} = 3.7,

$F(1,51)$ = 8.8, $p < .01$). This was not moderated by the handwriting task ($F(2,51)$ = 0.28,

p = .75), nor did the latter have a main effect on identity-product closeness ($F(2,51)$ = 0.19,

p = .83).

Hypothesis Tests. Two measures of participants' engagement in the shopping task were

obtained in this study – the amount of information they inspected and the amount of time they

spent on the shopping task. On average, participants examined 30 pieces of attribute information

(*Min* = 10, *Max* = 45) and spent 2.6 minutes on the shopping task (*Min* = 1, *Max* = 5).

First, we examine the amount of information inspected by participants. A two-way

ANOVA reveals a significant handwriting task × product category interaction ($F(5,51)$ = 5.19,

$p < .01$; see figure 2A). A series of planned contrasts support our hypothesis that signing one's

name promotes identity-congruent behavior. First, across product categories, participants who

had signed their name differed, in terms of their engagement, from those who had printed their

name ($F(1,34)$ = 9.40, $p < .01$) as well as from those in the control condition ($F(1,35)$ = 6.51,

$p = .01$), with no difference between the latter two conditions ($F(1,33) = 0.23$, $p = .64$).

Consequently, we contrast the signature condition with the two other conditions combined. As predicted, for the product category more closely associated with consumers' self-identity (i.e., cameras), signing one's name caused greater engagement in the shopping task ($M_{sign\_cam} = 36.9$ attributes, $M_{other\_cam} = 24.1$; $F(1,32) = 8.59$, $p < .01$) whereas, for the product category less closely associated with participants' self-identity (i.e., dishwashers), signing resulted in less engagement ($M_{sign\_dish} = 24.4$, $M_{other\_dish} = 34.4$; $F(1,21) = 3.02$, $p < .10$).

Next, we examine the time-based measure of engagement in the shopping task using a two-way ANOVA. The shopping time data exhibited a right skew due to their inherent left-truncation (non-negativity constraint) and were log-transformed for analysis. (For clarity of exposition, we present all time-based results in original units. However, all statistical tests are based on models estimated on log-transformed data.) A handwriting task × product category interaction emerges ($F(2,51) = 2.45$, $p = .09$). Planned contrasts support our theory. Across product categories, participants who had signed differed, in terms of the amount of time spent on the task, from those who had printed their name ($F(1,34) = 2.53$, $p = .06$) as well as from those in the control condition (F(1,35) = 3.88, $p < .05$), with no difference between the latter two conditions ($F(1,33) = 0.27$, $p = .60$). For cameras, signing caused greater engagement in the shopping task ($M_{sign\_cam} = 2.8$ minutes, $M_{other\_cam} = 2.1$; $F(1,32) = 1.70$, $p = .10$) whereas, for dishwashers – the category less closely associated with participants' self-identity – signing led to less engagement ($M_{sign\_dish} = 1.7$, $M_{other\_dish} = 2.2$; $F(1,21) = 3.79$, $p < .05$), as predicted by our theoretical account.

Additional Analyses. If signing acts as a general self-identity prime, then providing a signature should moderate the relationship between how closely people identify with a product

category and their engagement while shopping in that category. To examine this, we ran an

ANCOVA on the amount of information inspected by participants. The results reveal a

significant handwriting task × identity-product closeness interaction ($F(2,51) = 3.7, p < .05$). To

investigate this further, we estimated a series of quasi-binomial regressions with the number of

pieces of information inspected as the dependent variable and handwriting task (sign vs. print

name vs. control), identity-product closeness, and their interaction as independent variables. The

results provide further support for our theoretical account. Among participants who had signed

their name, identity-product closeness had a significant positive effect on the amount of product

information inspected ($\beta = 0.11, p < .05$). This slope was significantly different (i.e., more

positive) than that for participants who had printed their name ($t(51) = 2.50, p < .05$) as well as

for those in the control condition ($t(51) = 2.29, p < .05$). Indeed, neither participants who had

printed their name ($\beta = -0.05, p = .23$) nor those in the control condition ($\beta = -0.02, p = .45$)

exhibited a significant relationship between identity-product closeness and the number of pieces

of information inspected, nor did the slopes differ between these two conditions ($t(51) = 0.45$,

$p = .65$).

The same pattern of results emerges when we examine the amount of time participants

spent on the shopping task. An ANCOVA again reveals a significant handwriting task ×

identity-product closeness interaction ($F(2,51) = 3.6, p < .05$). Among participants who had

signed their name, identity-product closeness had a significant positive effect on the amount of

time spent on the task ($\beta = 0.04, p = .05$). This slope was significantly more positive than that

for participants who had printed their name ($t(51) = 1.88, p < .05$) as well as for those in the

control condition ($t(51) = 2.04, p < .05$). Neither participants who had printed their name

($\beta = 0.01, p = .49$) nor those in the control condition ($\beta = 0.002, p = .86$) exhibited a significant

relationship between identity-product closeness and the amount of time spent on the task, nor did the slopes differ between these two conditions ($t(51) = 0.54$, $p = .59$).

```
--------------------------------
Insert figure 2 about here
--------------------------------
```

Discussion

Consistent with our theoretical account of the behavioral consequences of signing one's name, producing their signature caused participants in study 1 to behave in a manner congruent with the afforded aspect of their self-identity – it increased their engagement when shopping in a product domain that is close to their self-identity but decreased their engagement in connection with a domain that is distant from their self-identity. The results of this study also demonstrate that signing – but not printing – one's name changes behavior relative to a control group in which people neither sign nor print their name. This finding is consistent with our theoretical account that one's signature has a unique association with one's identity.

The next study also examines how signing impacts the effect of how closely consumers associate a product domain with their self-identity on their engagement in a shopping task in that domain, but it does so in a naturalistic retail setting.

Study 2

This study examines consumers' engagement while shopping in a field setting. Participants were sent to a specialty retail store (the name of which includes the word "Running") to choose a pair of running shoes for themselves. Based on our hypothesis that signing one's name makes it more likely that situational affordances activate the relevant aspect of one's self-identity – and thus leads to behavior congruent with the afforded aspect – we

predict that doing so leads to greater engagement with the shopping task for consumers who identify closely with running, and reduces engagement for consumers who do not identify with running.

Method

Participants. A total of 53 members of a volunteer research participation panel in a large North American city were recruited to complete a series of studies for a monetary reward.

Design. A two-level single factor (handwriting task: sign, print name) between-subjects design was used.

Procedure. The study involved two stages. The first was conducted in a university research laboratory, and the second took place at a retail store. In the first stage, participants were seated in private cubicles. Using a computer interface, they were (along with a large number of unrelated questions) asked to indicate their level of expertise with respect to running (1 = novice, 10 = expert), how frequently they run (1 = never, 10 = frequently), how interested they are in running (1 = not at all interested, 10 = very interested), and how close running is to their sense of self (1 = distant, 10 = close). Participants' responses to these four questions were combined to form a composite measure of how closely they associated their self-identity with running (α = .76), which we refer to as "identity-running closeness." Before they began the second stage of the study, participants completed a series of unrelated studies for approximately 30 minutes.

At the beginning of the second stage of the study, participants received directions to a coffee shop that was approximately a ten-minute walk from the laboratory. They were instructed to walk there (individually) to meet another researcher. Upon arrival at the coffee shop,

participants were randomly assigned to one of the two treatment conditions of the handwriting

task – i.e., asked to either sign or print their name five times (for a study about handwriting).

After completing that task, participants were given instructions for an ostensibly unrelated study

about running shoes. These instructions read as follows:

> "Your next task is to go to {name of running store} located 1 block south on {name of street}. We want you to choose a pair of running shoes for yourself. Your choice is consequential. One participant in this study (selected at random) will receive his/her chosen pair of shoes and a cash amount equal to $200 minus the price of the shoes.
> For example:
> - If your shoes cost $90, you will receive the shoes and $110 in cash.
> - If your shoes cost $190, you will receive the shoes and $10 in cash."

Participants were instructed to return to the coffee shop as soon as they had selected their

preferred pair of running shoes. Once they arrived there, they completed a brief questionnaire in

which they were asked to indicate the number of pairs of shoes they tried on in the store, the

brand name of the shoe they selected (e.g., Nike), its model name (e.g., Air III), and its pre-tax

price. The amount of time each participant spent in the store was measured and recorded

inconspicuously.

Results

Two measures of participants' engagement in the shopping task were obtained in this

study – the number of pairs of running shoes they tried on and the amount of time they spent in

the store. On average, participants spent 11.7 minutes in the store ($Min = 5$, $Max = 30$) and tried

on 1.1 pairs of running shoes ($Min = 0$, $Max = 5$).

First, we estimated a mixed-effects Poisson regression with the number of pairs of shoes

tried on as the dependent variable and handwriting task (sign vs. print name), identity-running

closeness, and their interaction as independent variables. Because the study was conducted over multiple days, we included a random intercept for the date. This analysis reveals a significant handwriting task × identity-running closeness interaction ($\beta = 0.32$, $p < .05$; see figure 3). To shed light on the nature of this interaction, we examine the effect of identity-running closeness on the number of pairs tried on for each handwriting condition. As hypothesized, for participants who had signed their name, identity-running closeness had a significant positive impact on how many pairs of running shoes they tried on in the store ($\beta = 0.30$, $p < .01$), whereas no such effect was observed for those who had printed their name ($\beta = -0.02$, $p = .88$). (The fitted regression lines for these two conditions are shown in figure 3.) A spotlight analysis (Aiken and West 1991; Fitzsimons 2008) at 1.5 standard deviations above the mean of identity-running closeness reveals that, for consumers who closely associate their identity with running, signing (vs. printing) their name caused an increase in the number of pairs of running shoes they tried on ($\beta = 0.79$, $p < .05$), as predicted by our theoretical account. The corresponding analysis at 1.5 standard deviations below the mean indicates that, for those who do not associate their identity with running, signing led to a reduction in the number of pairs of running shoes they tried on ($\beta = -1.07$, $p < .01$), as hypothesized.

Insert figure 3 about here

To examine the time-based measure of engagement in the shopping task, we regressed the (log-transformed) amount of time participants spent shopping for their pair of running shoes on the same set of independent variables. The results corroborate those for the number of pairs tried on. The handwriting task × identity-running closeness interaction is again significant ($\beta = 0.24$, $p = .06$). As predicted, for participants who had signed their name, identity-running closeness had a significant positive influence on how much time they spent shopping ($\beta = 0.16$,

$p < .05$), whereas this relationship was not significant in the print condition ($\beta = -0.08$, $p = .47$). A spotlight analysis at 1.5 standard deviations above the mean of identity-running closeness reveals a significant difference ($\beta = 0.87$, $p < .05$), indicating that, for consumers who closely associate their identity with running, signing caused an increase in the amount of time they spent shopping for their pair of running shoes, as hypothesized. The corresponding analysis at 1.5 standard deviations below the mean shows that, for consumers who do not associate running with their self-identity, signing reduced the amount of time spent shopping ($\beta = -0.54$, $p = .06$), again consistent with our prediction.

Discussion

The results of studies 1 and 2 support our hypothesis that signing one's name acts as a general self-identity prime that enables situational affordances to activate the relevant aspect of one's self-identity, which in turn leads to behavior that is congruent with that aspect. Evidence from three different product domains (digital cameras, dishwashers, and running shoes) shows that providing their signature induced consumers to behave in a manner congruent with the afforded aspect of their self-identity. Merely signing their name caused participants who associated a product domain more (less) closely with their self-identity to become more (less) behaviorally engaged when shopping in that domain – it led to an increase (decrease) in the number of pieces of product information inspected, in the number pairs of shoes tried on, and in the amount of time spent shopping in a specialty retail store.

Although these findings are fully consistent with our theoretical account of the signature effect, direct evidence that signing activates the specific aspect of one's self-identity that is afforded by the situation would provide even stronger support for this theory. To that end, studies 3 and 4 were designed to allow a more conclusive assessment of the proposed mental

mechanism, and they do so by examining the effect of signing one's name on behavior in connection with consumers' social identities.

Study 3

Each of us possesses *social identities* – associations with social groups – that are central to how we view ourselves (Tajfel 1974). We define ourselves through our membership in some groups ("in-groups") and our non-membership in others ("out-groups"). Prior research suggests that one's social identities can be differentially activated, and that this leads one to behave in a manner congruent with the particular identity that is currently active (Forehand and Deshpandé 2001; Lemm, Dabady, and Banaji 2005; Reed 2004). For instance, activating the ethnic identity of minorities leads them to evaluate same-ethnicity spokespeople more favorably (Forehand et al. 2002). Based on our overall hypothesis that signing one's name acts as a general self-identity prime – and thus makes it more likely that situational affordances activate the relevant aspect of one's self-identity – we predict that signing one's name in a situation that affords a particular social identity will lead to the activation of that social identity.

In this study, some participants were asked to name a group to which they belong (i.e., an in-group), whereas others were asked to name a group to which they do not belong (i.e., an out-group). All of them then responded to three questions pertaining to the specific group that they had selected – how closely they identify with the group, how much they like its members, and how similar they believe they are to its members.

We had two key predictions for this study. First, based on our theoretical account that signing one's name acts as a general self-identity prime, producing a signature should activate one's membership or non-membership in a group, but it should not affect how one perceives the

members of that group. Thus, we predicted that signing would increase (decrease) how strongly

people identify with in-groups (out-groups), whereas it should not moderate how much people

like members of each type of group, nor how similar they feel to the members of these groups.

Our second prediction was that, based on prior research showing that the activation of an identity

leads people to respond more quickly to statements that are pertinent to that identity (Brewer and

Gardner 1996; Wheeler and Fiske 2005), signing would cause individuals to take less time to

answer the questions regarding the group they had selected. Faster responses to these questions

would provide strong support for our account that the signature effect is driven by the activation

of the relevant aspect of one's self-identity.

Method

   Participants. A total of 118 undergraduate students at a large North American university

completed a series of studies for partial course credit.

   Design. A 2 (handwriting task: sign, print name) × 2 (reference group type: in-group,

out-group) between-subjects design was used.

   Procedure. The study was conducted in a university research laboratory. Participants

were randomly assigned to one of the four conditions. Seated in private cubicles, they first

completed the handwriting task – i.e., they either signed or printed their name once on a blank

sheet of paper (ostensibly for an unrelated study about handwriting). They were then asked to

turn to the computer in their cubicle and follow the instructions provided on the screen, which

read: "In the text box below, please type in the name of a social group that you like and consider

yourself quite similar to or belong to (dissimilar from or do not belong to). This group should be

a tightly knit group, consisting of individuals who are very similar to one another." After that,

participants were asked a series of questions about the reference group they had selected. They

rated how strongly they identify with that group (1 = very little, 7 = a great deal), how much they

like the people in the group (1 = not at all, 7 = a great deal), and how similar they believe they

are to the members of the group (1 = extremely dissimilar, 7 = extremely similar).

Results

Responses to the three questions were analyzed with 2 (handwriting task: print vs. sign

name) × 2 (reference group type: in-group vs. out-group) ANOVAs. First, an examination of

how closely participants identified with the reference group reveals a significant handwriting

task × reference group type interaction ($F(1,116) = 4.6, p < .05$; see figure 4). Planned contrasts

indicate that, as predicted, participants who had signed their name identified more closely with

in-groups ($M_{in\_sign} = 8.4, M_{in\_print} = 7.6; F(1,62) = 3.0, p < .05$) and less closely with out-groups

($M_{out\_sign} = 3.5, M_{out\_print} = 4.4; F(1,54) = 1.9, p < .10$) than those who had printed their name.

Thus, providing their signature had a polarizing effect on how strongly participants identified

with the two types of reference groups, which supports our hypothesis that signing makes it more

likely that situational affordances activate the relevant aspect of one's self-identity.

Insert figure 4 about here

By contrast, whether participants had signed or printed their name does not moderate how

similar they believed they were to the members of the group (handwriting task × reference group

type interaction: $F(1,114) = 1.0, p = .32$) nor how much they liked the members of the group

($F(1,114) = 1.4, p = .24$). As expected, participants felt less similar to out-groups than to in-

groups ($M_{in} = 7.7, M_{out} = 4.0; F(1,114) = 131.4, p < .001$), but the main effect of handwriting

task on similarity is not significant ($F(1,114) = 1.1, p = .29$). Participants liked in-group

members more than out-group members (M_{in} = 8.2, M_{out} = 6.4; $F(1,114)$ = 28.8, p < .001), and a main effect for handwriting task reveals that participants who had signed their name liked members of both types of reference groups slightly more than did those who had printed their name (M_{sign} = 7.7, M_{print} = 7.0; $F(1,114)$ = 4.0, p < .05).

Next, we examine the (log-transformed) total amount of time it took participants to respond to the three questions about the reference group they had selected. A 2 (handwriting task: sign vs. print name) × 2 (reference group type: in-group vs. out-group) ANOVA reveals a main effect of the handwriting manipulation, such that participants who had signed their name responded more quickly than those who had printed their name (M_{sign} = 27.5 seconds, M_{print} = 30.9 seconds; $F(1,114)$ = 2.3, p = .07). A main effect of reference group type also emerges (M_{in} = 27.7 seconds, M_{out} = 31.1 seconds; $F(1,114)$ = 3.5, p < .05), which is consistent with prior work showing that people tend to respond more quickly to statements about in-groups than to statements about out-groups (e.g., Pratto and Shih 2000). Critically, the handwriting task × reference group type interaction is not significant ($F(1,114)$ = 1.1, p = .31), suggesting that – consistent with our theory – signing activated the relevant aspect of participants' self-identity in both the in-group and the out-group condition.

Discussion

The results of study 3 support our hypothesis that providing a signature activates the aspect of one's self-identity that is afforded by the situation. Signing their name caused people to identify even more closely with groups to which they belong and even less closely with groups to which they do not belong. Critically, however, signing did not moderate how much they liked members of in-groups versus out-groups, nor how similar they felt to members of each group. Moreover, participants who had signed their name responded more quickly to identity-relevant

statements, which provides process evidence consistent with our account that the effect of signing one's name is driven by the activation of a relevant aspect of one's self-identity.

Study 4

This study examines the effect of signing one's name on product choices in situations that afford the social aspect of a consumer's self-identity. In addition, it provides an opportunity to obtain further evidence on the mental process implied by our theoretical account of the signature effect – identity activation.

As in study 3, some participants were asked to name a group to which they belong (in-group), whereas others were asked to name a group to which they do not belong (out-group). We used an identity-signaling paradigm adapted from Berger and Heath (2007) requiring participants to make choices in 19 different preference domains that vary in the extent to which they are relevant to a consumer's identity. Based on the results of Berger and Heath's study 2, we constructed identity-relevance scores such that the least identity-relevant preference domain (bike light) was assigned a value of 1 and the most identity-relevant one (music genre) was assigned a value of 19 (see appendix B for a complete list of the preference domains and their identity-relevance scores). For each of these domains, participants were asked to indicate which of three available options they would choose, having been provided with information about the preferences of the members of the in- or out-group they had selected. The three options varied in terms of how popular they were with the members of that specific reference group. Choice of the most popular option indicated conformity to the reference group, whereas choice of the least popular option indicated divergence from it (see Berger and Heath 2007).

We had three key predictions for this study. First, consistent with our overall theoretical framework, we hypothesized that signing their name would cause consumers to make more identity-congruent choices – i.e., to conform more with in-groups and diverge more from out-groups. Second, in line with the notion that the signature effect is driven by the activation of one's self-identity, we predicted that signing would have a stronger influence on subsequent choice in preference domains that are relevant to signaling one's identity to others (e.g., hairstyle), as compared to domains that are not relevant in this regard (e.g., toothpaste).

The third prediction for this study pertains to decision time. The choices participants were able to make can be classified as either identity-congruent (conforming with an in-group or diverging from an out-group) or identity-*in*congruent (diverging from an in-group or conforming with an out-group). Identity-incongruent choices reflect greater conflict than identity-congruent choices. Our theory suggests that signing one's name leads to the activation of the afforded aspect of one's self-identity – in the present context, specific social groups to which one does or does not belong. Activation of one's social identity should, in turn, amplify the conflict associated with identity-incongruent choices (and potentially also reduce conflict for identity-congruent choices). Thus, in line with prior work showing that the amount time individuals take to make a choice is an indicator of how much conflict the decision involves (Busemeyer & Townsend 1993; Diederich 2003; Tyebjee 1979), we predicted that signing would cause decision times to be shorter when making identity-congruent choices compared to identity-incongruent choices.

Method

Participants. A total of 145 undergraduate students at a large North American university completed a series of studies for partial course credit.

Design. A 2 (handwriting task: sign, print name) × 2 (reference group type: in-group, out-group) × 19 (preference domain) mixed design was used, with preference domain being manipulated within-subject and the two other factors being manipulated between-subjects.

Procedure. The study was conducted in a university research laboratory. Participants were seated in private cubicles, and they were randomly assigned to one of the four between-subjects conditions. The study involved three stages. In the first stage, participants completed a handwriting task identical to that used in study 3 – either signing or printing their name once – and then turned to the computer in their cubicle, where they were asked to enter the name of an in-group or out-group (depending on which condition they had been assigned to). The remainder of the study was computer-based.

In the second stage, participants chose one of three options in each of the 19 preference domains. The order in which these domains were presented was determined at random for each participant. For each domain, the following instructions were provided: "Imagine that we asked the members of the group you identified, {name of group}, to choose one of three {preference domain}. The figure below represents the proportion of group members that chose each option." This statement was accompanied by a pie graph (see figure 5) that indicated that 65% of the members of the group had chosen option A, 25% had chosen option B, and 10% had chosen option C. Below the pie graph, the following question appeared: "Which {preference domain} would you choose?" Participants indicated their choice by clicking one of three response buttons (labeled "Option A", "Option B", and "Option C").

Insert figure 5 about here

Finally, in the third stage, participants were asked a series of questions about the reference group they had selected. They rated how strongly they identify with that group (1 = very little, 7 = a great deal), how much they like the people in the group (1 = not at all, 7 = a great deal), and how similar they believe they are to the members of the group (1 = extremely dissimilar, 7 = extremely similar).

Results

Preliminary Analyses. As expected, participants identified more closely with in-groups than with out-groups (M_{in} = 7.4, M_{out} = 4.9; $F(1,141)$ = 48.5, $p < .001$), and they felt more similar to members of in-groups than to members of out-groups (M_{in} = 7.1, M_{out} = 4.7; $F(1,141)$ = 66.3, $p < .001$). This indicates that our manipulation of reference group type was effective. On average, participants liked members of out-groups (M_{out} = 7.1 out of 10), although they did like members of in-groups slightly more (M_{in} = 8.1; $F(1,141)$ = 12.9, $p < .001$). Unexpectedly, main effects of handwriting task emerged on how closely participants identified with the reference group (M_{print} = 6.7, M_{sign} = 5.9; $F(1,141)$ = 4.62, $p = .03$), and how similar they felt to members of the reference group (M_{print} = 6.4, M_{sign} = 5.7; $F(1,141)$ = 66.3, $p = .02$), but no such effect emerged on how much participants liked group members (M_{print} = 7.7, M_{sign} = 7.6; $F(1,141)$ = 0.20, $p = .66$). Critically, the handwriting task × reference group type interaction was not significant for any of these variables (strength of identification: $F(1,141)$ = 1.4, $p = .23$; similarity: $F(1,141)$ = 1.4, $p = .24$; liking: $F(1,141)$ = 0.4, $p = .55$). This pattern of results differs from that observed in study 3, which is not surprising given that these measures were taken after participants had made choices in 19 preference domains.

To further verify that our manipulation of the preference domains' identity relevance was successful, we performed a mixed-effects logistic regression with choice of option C (the one

least popular in the reference group) as the dependent variable and the identity-relevance score of

the domain as the independent variable. Consistent with the findings of Berger and Heath

(2007), the inclination to diverge was greater in preference domains that are relevant to signaling

one's identity to others ($\beta = 0.08$, $p < .001$). For example, while only 10% of participants chose

C in the domain of least identity-relevance (bike light), 24% chose C in the domain of greatest

identity-relevance (music genre). A similar logistic regression with choice of option A (the one

most popular in the reference group) as the dependent variable corroborates this result by

revealing that participants were less inclined to conform in preference domains that are relevant

to signaling one's identity to others ($\beta = -0.13$, $p < .001$).

Hypothesis Tests. Our first prediction was that signing would lead people to make more

identity-congruent choices. To test this prediction, we first performed a mixed-effects logistic

regression with choice of option C – indicating divergence – as the dependent variable and with

handwriting task (sign vs. print name), reference group type (in-group vs. out-group), and their

interaction as independent variables, along with crossed random effects for participant and

preference domain. This analysis reveals a significant handwriting task × reference group type

interaction ($\beta = -0.55$, $p < .001$). Planned contrasts show that, as predicted, signing caused

participants to diverge more from out-groups ($P_{sign\_out} = 23\%$, $P_{print\_out} = 18\%$; $\beta = -0.55$, $p < .01$),

and to diverge less from in-groups ($P_{sign\_in} = 16\%$, $P_{print\_in} = 21\%$; $\beta = 0.57$, $p < .01$). Additional

planned contrasts reveal that the difference in the extent of divergence between the two reference

group type conditions was significant among participants who had signed ($\beta = -0.80$, $p < .001$),

but not among those who had printed their name ($\beta = 0.31$, $p = .14$).

To complement the above results, we examine the influence of signing on conformity

using a similar logistic regression with choice of option A as the dependent variable. This also

reveals a significant handwriting task × reference group type interaction ($\beta = 0.80$, $p < .001$). As

predicted, signing increased conformity with in-groups ($P_{\text{sign\_in}} = 58\%$, $P_{\text{print\_in}} = 47\%$; $\beta = 1.12$,

$p < .001$) and reduced conformity with out-groups ($P_{\text{sign\_out}} = 44\%$, $P_{\text{print\_out}} = 49\%$; $\beta = -.52$,

$p < .05$). The difference in the extent of conformity between the in-group and out-group

conditions was significant for participants who had signed ($\beta = 1.49$, $p < .001$), whereas that was

not the case among those who had printed their name ($\beta = -0.16$, $p = .50$). Thus, as predicted,

signing caused participants to make more identity-congruent choices – i.e., to conform more with

in-groups and to diverge more from out-groups.

The second prediction for this study was that the effect of signing one's name would be

greater in preference domains that are more relevant to signaling one's identity to others. To test

this prediction, we ran additional mixed-effects logistic regressions for both dependent variables,

with handwriting task, reference group type, the identity-relevance score of the preference

domain, and all possible interactions as independent variables, along with a random effect for

participant. For choice of option C (indicating divergence), this analysis reveals a significant

three-way interaction ($\beta = -0.02$, $p < .05$). To shed light on the nature of this interaction, we

examine the reference group type × identity relevance interaction separately for each handwriting

condition. As predicted, this two-way interaction is significant for participants who had signed

($\beta = -0.05$, $p < .001$), but not for those who had printed their name ($\beta = 0.004$, $p = .74$). To

illustrate the interplay of these factors, we split the preference domains into two categories based

on their degree of identity relevance. Specifically, the ten domains with the highest identity-

relevance scores were categorized as "More Identity-Relevant" (Favorite Actor, Car Brand, Car

Model, Hairstyle, Jacket, Music Artist, Music CD, Music Genre, Sitcom, Sunglasses), and the

remaining domains were categorized as "Less Identity-Relevant" (Backpack, Bike Light,

Detergent, Dinner Entrée, Dish Soap, Power Tools, Sofa, Stereo, Toothpaste). Signing caused greater divergence from out-groups (P_{sign_out} = 33%, P_{print_out} = 23%) and less divergence from in-groups (P_{sign_in}= 20%, P_{print_in} = 28%) in the more identity-relevant preference domains, but it had no effect in the domains of lower identity relevance.

For choice of option A (indicating conformity), the mixed-effects logistic regression reveals a marginally significant three-way interaction (β = 0.05, $p < .10$). Consistent with our prediction, the reference group type × identity relevance interaction is significant for participants who had signed their name (β = 0.05, $p < .001$), although it is also marginally significant for those who had printed their name (β = 0.02, $p = .06$). In the preference domains of high identity relevance, signing caused greater conformity to in-groups (P_{sign_in} = 49%, P_{print_in} = 34%) and less conformity to out-groups (P_{sign_out} = 27%, P_{print_out} = 34%), whereas conformity did not vary across conditions in the less identity-relevant domains. Thus, as hypothesized, the effect of signing on participant's tendency to make identity-congruent choices – i.e., causing greater conformity with in-groups and greater divergence from out-groups – was stronger in the domains that are more relevant to signaling one's identity to others. For this category of preference domains, figure 6 illustrates the impact of signing on the different types of identity-congruent and identity-incongruent choices.

Insert figure 6 about here

Our third prediction was that signing would cause decision times to be shorter when individuals made identity-congruent choices – i.e., ones that reflect conformity with an in-group or divergence from an out-group – compared to identity-incongruent choices – i.e., divergence from an in-group or conformity with an out-group. We examined participants' (log-transformed)

decision times using a mixed-effects model with handwriting task (sign vs. print name), whether the chosen option was identity-congruent or identity-incongruent, and their interaction as predictor variables, along with crossed random effects for preference domain and participant. This analysis reveals a significant interaction effect ($F(2,2584) = 5.3$, $p < .01$). The nature of this interaction (see figure 7) provides strong support for our prediction. Signing caused participants to take more time to make identity-incongruent choices than identity-congruent choices ($M_{sign\_incon} = 5.00$ seconds, $M_{sign\_con} = 4.23$ seconds; $p < .01$), whereas there was no significant difference in decision times between the two types of choices for those who had printed their name instead ($M_{print\_incon} = 4.75$ seconds, $M_{print\_con} = 4.74$ seconds; $p = .87$). Thus, consistent with our theoretical account that signing one's name enables situational affordances to activate the relevant aspect of one's self-identity, providing their signature caused participants to make decisions more quickly when their choice was consistent with, as compared to when it was in conflict with, the afforded aspect of their self-identity.

Insert figure 7 about here

Additional Analyses. If signing one's name acts as a general self-identity prime, then doing so should moderate the relationship between how strongly people identify with a reference group and their tendency to diverge from that group in their consumption choices. To examine this, we ran a mixed-effects logistic regression with choice of option C as the dependent variable and with handwriting task, strength of identification with the reference group, and their interaction as independent variables (along with crossed random effects for preference domain and participant). This analysis reveals a handwriting task × strength of identification interaction ($\beta = -0.06$, $p = .10$). A follow-up analysis indicates a significant negative relationship between how closely one identifies with a reference group and choice of option C ($\beta = -0.11$, $p < .05$) for

participants who had signed their name, but no such effect for those who had printed their name ($p = .95$). It is worth noting that no such pattern of results emerges when liking or similarity is considered instead of strength of identification, which provides further support for our theoretical account that the signature effect is driven by the activation of one's self-identity.

Discussion

The findings of study 4 provide further evidence that signing one's name acts as a general self-identity prime by demonstrating that doing so has a systematic, predictable influence on consumption decisions. Consistent with our hypothesis, merely signing their name once had a polarizing effect on participants' choices in a setting where a social aspect of their self-identity was afforded – it caused them to diverge more from an out-group and conform more with an in-group. This effect is stronger in domains that are more relevant to signaling one's identity to others, and an analysis of decision times provides direct support for our hypothesis that the effect of signing one's name on behavior is driven by the activation of the relevant aspect of one's self-identity.

General Discussion

Consumers sign their name in many everyday situations, and they do so for a wide range of purposes – such as to identify themselves, to authorize payment, to enter into agreements, and to commit themselves to future obligations. Yet, despite the pervasiveness of handwritten signatures in human economic life, prior research has provided little insight into whether signing one's name influences subsequent behavior. This article seeks to fill this gap, and it does so by investigating the effect of signing on various consumption-related behaviors.

We have introduced the hypothesis that signing one's name acts as a general self-identity prime, thus making it more likely that situational affordances activate the relevant aspect of one's self-identity. Converging evidence from four studies – examining various consumption domains and involving different aspects of a consumer's self-identity – demonstrates that signing promotes behavior congruent with the specific aspect of one's self-identity that is afforded by the situation. Providing a signature causes shopping behavior to be more congruent with how closely consumers identify with a particular product domain. It increases (reduces) consumers' engagement when shopping in a domain that they identify (do not identify) closely with (studies 1 and 2), increases how closely they identify with in-groups and decreases how closely they identify with out-groups (study 3), and causes them to conform more to in-groups and diverge more from out-groups when they make consumption choices in preference domains that are relevant to signaling their identity (study 4). Moreover, we have presented process evidence showing that, in line with our theory, these effects are driven by the activation of the relevant aspect of one's self-identity – signing causes individuals to respond to identity-relevant questions more quickly (study 3) and to take less time to decide when choosing options that are congruent, as compared to incongruent, with the relevant aspect of their self-identity (study 4). These findings are based on evidence from both the lab and the field (i.e., a retail store), and they involve several important aspects of consumers' self-identity – how closely they identify with particular product domains or activities, as well as their social identities.

The present research is the first to demonstrate that merely signing one's name influences subsequent consumption-related behavior, and it shows that this effect is driven by the activation of the specific aspect of one's self-identity that is afforded by the situation. However, we do not claim that all behavioral changes that result from signing one's name on a document are driven

by the activation of one's self-identity. For instance, consumers who sign a binding contract

may behave differently also because they are aware of the legal and economic consequences of a

failure to abide by the contract terms. The key contribution of the present work is to demonstrate

that the mere act of signing one's name predictably influences behavior, and that it does so above

and beyond any behavioral consequences that might arise from the particular document that is

being signed.

This article provides a novel perspective on how signing a document may influence

subsequent behavior. Because people are more likely to engage in a behavior once they have

signed a contract or form indicating their intention to do so (Anker and Crowley 1981; Mazar et

al. 2008; McCabe and Trevino 1997; Rogers et al. 1988; Stevens et al. 2002; Ureda 1980;

Williams et al. 2005), one might assume that signing one's name implies a commitment (Cialdini

2001; Schwarzwald, Bizman, and Raz 1983). However, people often sign documents for other

purposes, such as to authorize the completion of an action (e.g., when a supervisor signs a

student's dissertation), to identify themselves (e.g., on a passport), or to acknowledge that they

have read and understand the content of a document (e.g., when signing an insurance form).

Thus, a signature does not necessarily imply commitment. However, it does always represent

one's identity. Note that our finding that signing causes people who do not identify closely with

a particular product domain to spend *less* time and effort when shopping in that domain (studies

1 and 2) is consistent with our theoretical account, but not with one based on commitment.

Another important contribution of this article is that it introduces the notion of a general

self-identity prime. In contrast to prior work on prime-to-behavior effects, which has focused on

how priming specific identities or constructs influences behavior, we show that the same action

(i.e., signing one's name) can produce contrasting behavioral effects contingent upon which

aspect of one's self-identity is afforded by the situation. While it has been shown that the same

person can be induced to behave in different ways depending on which aspect of his or her self-

identity is primed (e.g., Hong, Benet-Martinez, Chiu, and Morris 2003; Shih, Pittinsky, and

Ambady 1999), the present work is unique in that the intervention (or "prime") used – signing

one's name – is not related to any specific aspect of one's self-identity. Against the background

of recent work suggesting that the same prime can have different effects for different individuals

(Wheeler and Berger 2007), our findings demonstrate that the same prime can have different

effects on behavior for the *same* individual – depending on which aspect of his or her self-

identity is afforded by the situation.

Our findings also contribute to an emerging body of research on the role of cues in the

environment (e.g., Berger and Fitzsimons 2008; Kay et al. 2004; North et al. 1997) by

demonstrating that a simple, seemingly innocuous action can cause consumers to be more

sensitive to identity-relevant cues. Whereas prior work has focused on the role of cues in the

activation of particular constructs or identities, the present research shows how environmental

cues interact with a general self-identity prime to activate the relevant aspect of one's self-

identity. We also extend prior work on identity salience (e.g., Forehand et al. 2002; Reed 2004)

– which has demonstrated that particular social identities may be more or less relevant in a

different situations – by showing that signing can lead to the activation of one's relevant social

identity, thus promoting identity-congruent behavior.

Implications and Directions for Future Research

This article's key finding – that merely providing a signature predictably influences

subsequent behavior – has important implications for consumers. Although people routinely

sign their name in consumption-related situations, very few would anticipate that doing so might

influence their subsequent behavior (in unrelated domains). For instance, a recreational runner

who has just purchased groceries using her credit card is probably not aware that signing the

credit card slip is causing her to now spend more time shopping in the sporting goods store next

door.

Our findings also identify novel interventions that sellers (e.g., retailers) could use in

seeking to influence consumer behavior. For instance, a retailer could ask consumers to their

sign their name after completing a survey, to enter a prize draw, or to enroll in a loyalty program,

since doing so should lead to greater engagement in consumers who identify closely with the

store's products. However, marketers should approach signature interventions cautiously –

signing tends to reduce engagement in more distant customers. For instance, Bass Pro Shops

might seek signatures at a sport fishing show, but avoid them at a Mother's Day celebration.

The present work suggests several directions for future research. First, although our

results highlight the robustness of the signature effect – it holds for different aspects of one's

self-identity, it can be obtained both in the lab and in field settings, and a single signature is

sufficient to change behavior – future work could aim to identify boundary conditions for the

effect. One possible condition is the presence of any factor that inhibits consumers' opportunity

to properly produce their signature. In line with recent work indicating that writing with one's

non-dominant hand can shake one's self-view confidence (Gao, Wheeler, and Shiv 2009), we

expect that a disruption of the process of signing – such as by forcing people to sign in a

constrained space (e.g., on a small slip of paper) or with utensils that prevent them from

precisely replicating their signature (e.g., on an electronic signature pad) – should diminish the

signature effect (and perhaps even produce contrasting effects on behavior, such as causing

consumers to subsequently choose self-view bolstering products to restore their confidence).

Moreover, although our results indicate that signing leads to the activation of the specific aspect of one's self-identity that is hypothesized to be afforded by the situation, that aspect may not be the only one that is operating. Real-world situations (particularly complex ones) may afford more than one aspect of one's self-identity, and this may well lead to the joint activation of different aspects. While we have been careful to avoid such situations in the present studies, prior work indicates that certain situations can simultaneously afford multiple, conflicting aspects of one's self-identity (e.g., Hong et al., 2003; Shih et al., 1999). We believe that enhancing our understanding of what happens when multiple aspects of one's identity are simultaneously afforded is an important area for further research.

Future work should also investigate what other actions or stimuli may act as general self-identity primes. Although the focus of the present work has been on the effect of providing a signature, we do not argue that signing one's name is the only action that can serve as a general self-identity prime. Indeed, we believe that characterizing the set of actions and stimuli that have this property would constitute an important contribution to the literature. Future research could examine other means of identifying oneself – such as saying one's name aloud – or investigate conditions under which printing one's name might also activate one's self-identity.

Finally, it would be important to examine how signing one's name in more naturalistic consumption contexts (e.g., on a credit card slip) influences behavior in a retail setting. One limitation of the present work is that participants signed their name on blank pieces of paper. Although this enhances the internal validity of our findings by clearly isolating the act of signing from the consumption-related situation, it does so at the expense of external validity. Future research should investigate how signing one's name interacts with the nature of the document being signed. For example, is the signature effect diminished or enhanced when consumers sign

important documents – such as mortgage agreements – as compared to when they sign credit card slips for small purchases? Similarly, does the purpose of the signature – e.g., verifying that a course of action has been completed versus committing to a future course of action – moderate its effect on subsequent behavior? Because consumers sign their name (or can be asked to do so) in many consumption contexts, it is important to develop a deeper understanding of how this simple action influences subsequent behavior.

References

Aarts, Henk, and Ap Dijksterhuis (2003), "The Silence of the Library: Environment, Situational Norm, and Social Behavior," *Journal of Personality and Social Psychology*, 84 (1), 18-28.

Ahuvia, Aaron C. (2005), "Beyond the Extended Self: Loved Objects and Consumers' Identity Narratives." *Journal of Consumer Research*, 32 (June), 171-184.

Aiken, Leona S. and Stephen G. West (1991), *Multiple Regression: Testing and Interpreting Interactions*, Newbury Park: Sage Publications.

Aiken, Lewis R., and Richard L. Zweigenhaft (1978), "Signature Size, Sex, and Status in Iran," *The Journal of Social Psychology*, 106, 273-274.

Anker, Antoinette L., and Thomas J. Crowley (1981), "Use of Contingency Contracts in Specialty Clinics for Cocaine Abuse," In L.S. Harris (Ed.), *Problems of Drug Dependence* (pp. 452-459), Rockville, MD: National Institute on Drug Abuse.

Bar-Hillel, Maya, and Gershon Ben-Shakhar (1986), "The A Priori Case Against Graphology," In B. Nevo (Ed.), *Scientific Aspects of Graphology* (pp. 263-279), Springfield, IL: Charles C. Thomas.

Bearden, William O. and Michael J. Etzel (1982), "Reference Group Influence on Product and Brand Purchase Decisions," *Journal of Consumer Research*, 9 (2), 183–94.

Belk, Russell W. (1988), "Possessions and the Extended Self," *Journal of Consumer Research*, 15, 139-168.

Bensefia, Ameur, Thierry Paquet, and Laurent Heutte (2005), "Handwritten Document Analysis for Automatic Writer Recognition," *Electronic Letters on Computer Vision and Image Analysis*, 5 (2), 72-86.

Berger, Jonah, and Graínne Fitzsimons (2008), "Dogs on the Street, Pumas on Your Feet: How Cues in the Environment Influence Product Evaluation and Choice," *Journal of Marketing Research*, 45 (1), 1-14.

Berger, Jonah, and Chip Heath (2007), "Where Consumers Diverge From Others: Identity Signaling and Product Domains," *Journal of Consumer Research*, 34 (4), 121-134.

Blair, Irene V., and Mahzarin R. Banaji (1996), "Automatic and Controlled Processes in Stereotype Priming," *The Journal of Personality and Social Psychology*, 70 (6), 1142-1163.

Brewer, Marilynn B., and Wendi Gardner (1996), "Who Is This 'We'? Levels of Collective Identity and Self Representations, *Journal of Personality and Social Psychology*, 71 (1), 83-93.

Briggs, Dennis (1980), "A Study of the Influence of Handwriting upon Grades Using Examination Scripts," *Educational Review*, 32 (2), 185-193.

Busemeyer, Jerome R., and James T. Townsend (1993), "Decision Field Theory: A Dynamic-Cognitive Approach to Decision Making in an Uncertain Environment," *Psychological Review*, 100 (3), 432-459.

Chartrand, Tanya L., and John A. Bargh (1999), "The Chameleon Effect: The Perception-Behavior Link and Social Interaction," *Journal of Personality and Social Psychology*, 76 (6), 893-910.

Cialdini, Robert B. (2001), "Harnessing the Science of Persuasion," *Harvard Business Review*, 79 (9), 72-79.

DeFriese, Gordon H., and W. Scott Ford (1969), "Verbal Attitudes, Overt Acts, and the Influence of Social Constraint in Interracial Behavior," *Social Problems*, 16 (4), 493-505.

DeMarrée, Kenneth G., S. Christian Wheeler, and Richard E. Petty (2005), "The Effects of Stereotype Activation on Behavior: A Review of Possible Mechanisms," *Psychological Bulletin*, 127 (November), 797-826.

Diederich, Adele (2003), "Decision Making Under Conflict: Decision Time as a Measure of Conflict Strength," *Psychonomic Bulletin & Review*, 10 (1), 167-176.

Dijksterhuis, Ap, and John A. Bargh (2001), "The Perception-Behavior Expressway: Automatic Effects of Social Perception on Social Behavior," in M. Zanna (Ed.), *Advances in Experimental Social Psychology*, 33, 1-40.

Dittmar, Helga, Jane Beattie, and Susanne Friese (1996), "Objects, Decision Considerations, and Self-Image in Men's and Women's Impulse Purchases," *Acta Psychologica*, 93, 187-206.

Downey, J. E. (1919), *Graphology and the Psychology of Handwriting*, New York: World Book Company.

Driver, Russell W., M. Ronald Buckley, and Dwight D. Frink (1996), "Should We Write Off Graphology?," *International Journal of Selection and Assessment*, 4 (2), 78-86.

Dyer, Adrian G., Bryan Found, and Doug Rogers (2006), "Visual Attention and Expertise for Forensic Signature Analysis," *Journal of Forensic Sciences*, 51 (6), 1397-1404.

Eaton, William E. (1985), "American School Penmanship: From Craft to Process," *American Journal of Education*, 93 (2), 252-267.

Ellemers, Naomi, Russell Spears, and Bertjan Doosje (2002), "Self and Social Identity," *Annual Review of Psychology*, 53, 161-186.

Fitzsimons, Gavan J. (2008), "Death to Dichotomizing," *Journal of Consumer Research*, 35 (1), 5-8.

Forehand, Mark R., Americus Reed II, and Rohit Deshpandé (2002), "Identity Salience and the Influence of Activation of the Social Self-Schema on Advertising Response," *Journal of Applied Psychology*, 87 (6), 1086-1099.

Forehand, Mark R., and Rohit Deshpandé (2001), "What We See Makes Us Who We Are: Priming Ethnic Self-Awareness and Advertising Response," *Journal of Marketing Research*, 38 (3), 336-349.

Fraenkel, Béatrice (1992), *La Signature: Genèse d'un Signe*, Paris: Gallimard, Bibliothèque des Histoires.

Frideres, James S., Lyle G. Warner, and Stan L. Albrecht (1971), "The Impact of Social Constraints on the Relationship Between Attitudes and Behavior," *Social Forces*, 50 (1), 102-112.

Gao, Leilei, S. Christian Wheeler, and Baba Shiv (2009), "The 'Shaken Self': Product Choices as a Means of Restoring Self-View Confidence," *Journal of Consumer Research*, 36 (1), 29-38.

Gardner, Wendi L., Shira Gabriel, and Laura Hochschild (2002), "When You and I Are We, You Are Not Threatening: The Role of Self-Expansion in Social Comparison," *Journal of Personality and Social Psychology*, 82 (2), 239-251.

Gecas, Viktor, and Peter J. Burke (1995), "Self and Identity." In K.S. Cook, G.A. Fine, and J. House (Eds.), *Sociological Perspectives in Social Psychology*, Needham Heights, MA: Allyn & Bacon, 41-67.

Gibson, James J. (1977), "The Theory of Affordances." In R. Shaw & J. Bransford (Eds.), *Perceiving, Acting, and Knowing: Toward an Ecological Psychology*, Hillsdale, NJ: Lawrence Erlbaum, 67-82.

Green, B. Christine (2001), "Leveraging Subculture and Identity to Promote Sport Events," *Sport Management Review*, 4 (1), 1-19.

Greeno, James G. (1994), "Gibson's Affordances," *Psychological Review*, 101 (2), 336-342.

Guinote, Ana (2008), "Power and Affordances: When the Situation Has More Power Over Powerful Than Powerless Individuals," *Journal of Personality and Social Psychology*, 95 (2), 237-252.

Harris, Roy (2000), *Rethinking Writing*, London: The Athlone Press.

Harvey, O.L. (1934), "The Measurement of Handwriting as a Form of Expressive Movement," *Character & Personality*, 2, 310-321.

Hedges, Larry V., and Amy Nowell (1995), "Sex Differences in Mental Test Scores, Variability, and Numbers of High-Scoring Individuals," *Science*, 269, 41-45.

Hong, Ying-Yi, Veronica Benet-Martinez, Chi-Yue Chiu, and Michael W. Morris (2003), "Boundaries of Cultural Influence: Construct Activation as a Mechanism for Cultural Differences in Social Perception," *Journal of Cross-Cultural Psychology*, 34 (3), 453-464.

Howard, Judith A. (2000), "Social Psychology of Identities," *Annual Review of Sociology*, 26, 367-393.

Hughes, David C., Brian Keeling, and Bryan F. Tuck (1983), "Effects of Achievement Expectations and Handwriting Quality on Scoring Essays," *Journal of Educational Measurement*, 20 (1), 65-70.

Jackson, Robert H. and Franklin D. Roosevelt (1953), "A Presidential Legal Opinion," *Harvard Law Review*, 66 (8), 1353-1361.

James, William (1890), *The Principles of Psychology (Vol. 1)*, New York: Holt.

Jorgenson, Dale O. (1977), "Signature Size and Dominance: A Brief Note," *Journal of Psychology*, 97 (2), 269-270.

Kam, Moshe, Kishore Gummadidala, Gabriel Fielding, and Robert Conn (2001), "Signature Authentication by Forensic Document Examiners," *Journal of Forensic Sciences*, 46 (4), 884-888.

Kay, Aaron C., S. Christian Wheeler, John A. Bargh, and Lee D. Ross (2004), "Material Priming: The Influence of Mundane Physical Objects on Situational Construal and Competitive Behavioral Choice," *Organizational Behavior and Human Decision Processes*, 95 (1), 83-96.

King, Roy N., and Derek J. Koehler (2000), "Illusory Correlations in Graphological Inference," *Journal of Experiment Psychology: Applied*, 6 (4), 336-348.

Kleine, Susan Schultz, Robert E. Kleine III, and Chris T. Allen (1995), "How is a Possession 'Me' or 'Not Me'? Characterizing Types and an Antecedent of Material Possession Attachment," *Journal of Consumer Research*, 22 (December), 327-343.

Knapp, Charles L., Nathan M. Crystal, and Harry G. Prince (2003), *Problems in Contract Law: Cases and Materials 5th Edition*, New York: Aspen Publishing.

LaFave, Wayne R., and Frank J. Remington (1964), "Controlling the Police: The Judge's Role in Making and Reviewing Law Enforcement Decisions," *Michigan Law Review*, 63, 987-1027.

Lemert, Edwin M. (1958), "The Behavior of the Systematic Check Forger," *Social Problems*, 6 (2), 141-149.

Lemm, Kristi M., Marilyn Dabady, and Mahzarin R. Banaji (2005), "Gender Picture Priming: It Works With Denotative and Connotative Primes," *Social Cognition*, 23 (3), 218-241.

Lewicki, Pawel (1984), "Self-Schema and Social Information Processing," *Journal of Personality and Social Psychology*, 47 (6), 1177-1190.

Lubow, R.E., and Ofer Fein (1996), "Pupillary Size in Response to a Visual Guilty Knowledge Test: New Technique for the Detection of Deception," *Journal of Experimental Psychology: Applied*, 2 (2), 164-177.

Magleby, David B. (1985), "Ballot Access for Initiatives and Popular Referendum: The Importance of Petition Circulation and Signature Validation Procedures," *Journal of Law and Politics*, 2 (Fall), 287-311.

Mann, Traci (1994), "Informed Consent for Psychological Research: Do Subjects Comprehend Consent Forms and Understand Their Legal Rights?" *Psychological Science*, 5 (3), 140-143.

Markus, Hazel (1977), "Self-Schemata and Processing Information About the Self," *Journal of Personality and Social Psychology*, 35, 63-78.

Markus, Hazel, and Ziva Kunda (1986), "Stability and Malleability of the Self-Concept," *Journal of Personality and Social Psychology*, 51 (4), 858-866.

Markus, Hazel, and Elissa Wurf (1987), "The Dynamic Self-Concept: A Social Psychological Perspective," *Annual Review of Psychology*, 38, 299-337.

Mazar, Nina, On Amir, and Dan Ariely (2008), "The Dishonesty of Honest People: A Theory of Self-Concept Maintenance," *Journal of Marketing Research*, 45 (6), 633-644.

McCabe, Donald L., and Linda K. Trevino (1993), "Academic Dishonesty: Honor Codes and Other Contextual Influences," *The Journal of Higher Education*, 64 (5), 522-538.

McCabe, Donald L., and Linda K. Trevino (1997), "Individual and Contextual Influences on Academic Dishonesty: A Multicampus Investigation," *Research in Higher Education*, 38 (3), 379-396.

McCabe, Donald L., Linda K. Trevino, and Kenneth D. Butterfield (1996), "The Influence of Collegiate and Corporate Codes of Conduct on Ethics-Related Behavior in the Workplace," *Business Ethics Quarterly*, 6 (4), 461-476.

McElroy, Susan L., Paul E. Keck Jr., and Katherine A. Phillips (1995), "Kleptomania, Compulsive Buying, and Binge Eating Disorder," *Journal of Clinical Psychiatry*, 56 (4), 14-26.

Mnookin, Jennifer L. (2001), "Scripting Expertise: The History of Handwriting Identification Evidence and the Judicial Construction of Reliability," *Virgina Law Review*, 87, 1723-1801.

Neter, Efrat, and Gershon Ben-Shakhar (1989), "The Predictive Validity of Graphological Inferences: A Meta-Analytic Approach," *Personality and Individual Differences*, 10 (7), 737-745.

North, Adrian C., David J. Hargreaves, and Jennifer McKendrick (1997), "In-Store Music Affects Product Choice," *Nature*, 390 (1), 132.

O'Guinn, Thomas C., and Ronald J. Faber (1989), "Compulsive Buying: A Phenomenological Exploration," *Journal of Consumer Research*, 16 (1), 147-157.

Oyserman, Daphna (2009), "Identity-Based Motivation," *Journal of Consumer Psychology*, 19, 250-260.

Parizeau, Marcel, and Rejean Plamondon (1989), "What Types of Scripts Can be Used for Personal Identity Verification?" In R. Plamondon, C.Y. Suen, and M.L. Simmer (Eds.). *Computer Recognition and Human Production of Handwriting*, Hackensack, NJ: World Scientific, 77-90.

Pratto, Felicia, and Margaret Shih (2000), "Social Dominance Orientation and Group Context in Implicit Group Prejudice," *Psychological Science*, 11 (6), 515-518.

Rafaeli, Anat, and Richard J. Klimoski (1983), "Predicting Sales Success Through Handwriting Analysis: An Evaluation of the Effects of Training and Handwriting Sample Content," *Journal of Applied Psychology*, 68 (2), 212-217.

Reed, Americus, II (2004), "Activating the Self-Importance of Consumer Selves: Exploring Identity Salience Effects on Judgments," *Journal of Consumer Research*, 16 (2), 286-295.

Risinger, D. Michael, Mark P. Denbeaux, and Michael J. Saks (1989), "Exorcism of Ignorance as a Proxy for Rational Knowledge: The Lessons of Handwriting Identification 'Expertise'," *The University of Pennsylvania Law Review*, 137 (3), 731-792.

Roberts, Brent W., and Eileen M. Donahue (1994), "One Personality, Multiple Selves: Integrating Personality and Social Roles," *Journal of Personality*, 62 (2) 199-218.

Rochberg-Halton, Eugene (1984), "Object Relations, Role Models, and Cultivation of the Self," *Environment and Behavior*, 16 (3), 335-368.

Rogers, Richard W., JoEllen S. Rogers, Jon S. Bailey, William Runkle and Bernie Moore (1988), "Promoting Safety Belt Usage Among State Employees: The Effects of Prompting and a Stimulus-Control Intervention," *Journal of Applied Behavior Analysis*, 21 (3), 263-269.

Rudman, Laurie A., Matthew C. Dohn, and Kimberly Fairchild (2007), "Implicit Self-Esteem Compensation: Automatic Threat Defense," *Journal of Personality and Social Psychology*, 93 (5), 798-813.

Schwartz, Allan, and Robert E. Scott (2003), "Contract Theory and the Limits of Contract Law," *The Yale Law Journal*, 113, 541-619.

Schwarzwald, Joseph, Aharon Bizman, and Moshe Raz (1983), "The Foot-in-the-Door Paradigm: Effects of a Second Request Size on Donation Probability and Donor Generosity," *Personality and Social Psychology Bulletin*, 9 (3), 443-450.

Segal, Zindel V. (1988), "Appraisal of the Self-Schema Construct in Cognitive Models of Depression," *Psychological Bulletin*, 103 (2), 147-162.

Sela, Aner, and Baba Shiv (2009), "Unraveling Priming: When Does the Same Prime Activate a Goal Versus a Prime?," *Journal of Consumer Research*, 36 (3), 418-433.

Shih, Margaret, Todd L. Pittinsky, and Nalini Ambady (1999), "Stereotype Susceptibility: Identity Salience and Shifts in Quantitative Performance," *Psychological Science*, 10 (1), 80-83.

Simon, Bernd, Giuseppe Pantaleo, and Amélie Mummendey (1995), "The Accentuation of Intergroup Differences Versus Similarities as an Indicator of the Individual Self Versus the Collective Self," *Journal of Personality and Social Psychology*, 69 (1), 106-119.

Sita, Jodi, Bryan Found, and Doug K. Rogers (2002), "Forensic Handwriting Examiners' Expertise for Signature Comparison," *Journal of Forensic Sciences*, 47, 1-8.

Snyder, C.R., and Howard L. Fromkin (1977), "Abnormality as a Positive Characteristic: The Development and Validation of a Scale Measuring Need for Uniqueness," *Journal of Abnormal Psychology*, 86 (5), 518-527.

Spears, Russell, Edwin Gordijn, Ap Dijksterhuis, and D.A. Stapel (2004), "Reaction in Action: Intergroup Contrast in Automatic Behavior," *Personality and Social Psychology Bulletin*, 30 (5), 605-616.

Stapel, Diederik A., and Hart Blanton (2004), "From Seeing to Being: Subliminal Social Comparisons Affect Implicit and Explicit Self-Evaluations," *Journal of Personality and Social Psychology*, 87 (4), 468-481.

Staw, Barry M. (1974), "Attitudinal and Behavioral Consequences of Changing a Major Organizational Reward: A Natural Field Experiment," *Journal of Personality and Social Psychology*, 29 (6), 742-751.

Stevens, Marguerite M., Ardis L. Olson, Cecilia A. Gaffney, Tor D. Tosteson, Leila A. Mott, and Pamela Starr (2002), "A Pediatric, Practice-Based, Randomized Trial of Drinking and Smoking Prevention and Bicycle Helmet, Gun, and Seatbelt Safety Promotion," *Pediatrics*, 109, 490-497.

Tajfel, Henri (1974), "Social Identity and Intergroup Behavior," *Social Science Information*, 13, 65-93.

Tajfel, Henri, and J.C. Turner (1986), "The Social Identity Theory of Intergroup Behavior," in S. Worchel and L.W. Austin (Eds.), *Psychology of Intergroup Relations*, Chicago: Nelson Hall.

Thoits, Peggy A. (1983), "Multiple Identities and Psychological Well-Being: A Reformulation and Test of the Social Isolation Hypothesis," *American Sociological Review*, 48 (2), 174-187.

Tyler, Tom R., and Steven L. Blader (2003), "The Group Engagement Model: Procedural Justice, Social Identity, and Cooperative Behavior," *Personality and Social Psychology Review*, 7 (4), 349-361.

Tyebjee, Tyzoon T. (1979), "Response Time, Conflict, and Involvement in Brand Choice," *Journal of Consumer Research*, 6 (3), 295-304.

Ureda, John R. (1980), "The Effect of Contract Witnessing on Motivation and Weight Loss in a Weight Control Program," *Health Education Behavior*, 7 (1), 163-185.

Vallerand, Robert J., Céline Blanchard, Geneviève A. Mageau, Richard Koestner, Catherine Ratelle, Maude Léonard, Marylène Gagné, and Josée Marsolais (2003), "Les Passions del'Âme: On Obsessive and Harmonious Passion," *Journal of Personality and Social Psychology*, 85 (4), 756-767.

Warner, Rebecca M., and David B. Sugarman (1986), "Attributions of Personality Based on Physical Appearance, Speech, and Handwriting," *Journal of Personality and Social Psychology*, 50 (4), 792-799.

Weinberg, John A. (2003), "Accounting for Corporate Behavior," *Federal Reserve Bank of Richmond Economic Quarterly*, 89 (3), 1-20.

Wheeler, Mary E., and Susan T. Fiske (2005), "Controlling Racial Prejudice: Social-Cognitive Goals Affect Amygdala and Stereotype Activation," *Psychological Science*, 16 (1), 56-62.

Wheeler, S. Christian, and Jonah Berger (2007), "When the Same Prime Leads to Different Effects," *Journal of Consumer Research*, 34 (October), 357-268.

Wheeler, S. Christian, and Kenneth G. DeMarrée (2009), "Multiple Mechanisms of Prime-to-Behavior Effects," *Social and Personality Psychology Compass*, 3 (4), 566-581.

Wheeler, S. Christian, and Richard E. Petty (2001), "The Effects of Stereotype Activation on Behavior: A Review of Possible Mechanisms," *Psychological Bulletin*, 127 (November), 797-826.

White, Katherine, and Darren W. Dahl (2007), "Are All Out-Groups Created Equal? Consumer Identity and Dissociative Influence," *Journal of Consumer Research*, 34 (3), 525-536.

Wilder, David A., and Peter N. Shapiro (1984), "Role of Out-Group Cues in Determining Social Identity," *Journal of Personality and Social Psychology*, 47 (2), 342-348.

Williams, Bernadette R., Janet Bezner, Steven B. Chesbro, and Ronnie Leavitt (2005), "The Effect of a Behavioral Contract on Adherence to a Walking Program in Postmenopausal African American Women," *Topics in Geriatric Rehabilitation*, 21 (4), 332-342.

Zweigenhaft, Richard L. (1977), "The Empirical Study of Signature Size," *Social Behavior and Personality*, 5 (1), 177-185.

Zweigenhaft, Richard L., and David Marlow (1977), "Signature Size: Studies in Expressive Movement," *Journal of Consulting and Clinical Psychology*, 40 (3), 469-473.
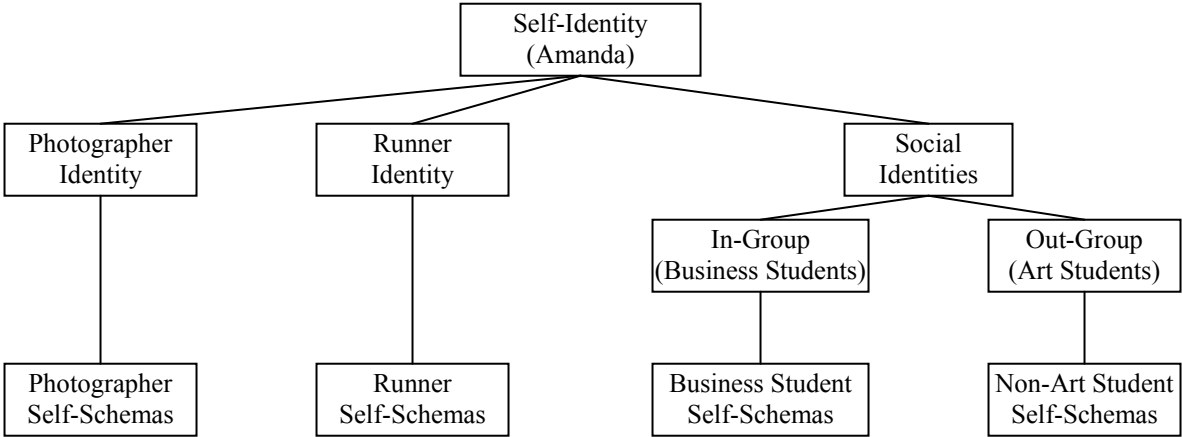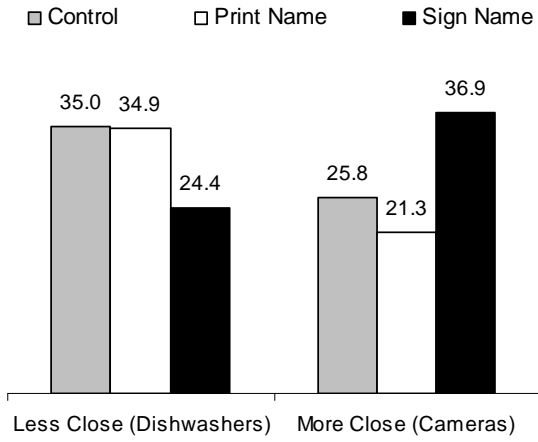
FIGURE 1.
EXAMPLE OF SELF-IDENTITY

FIGURE 2.

A. EFFECT OF PRODUCT CATEGORY AND HANDWRITING TASK ON PIECES OF PRODUCT INFORMATION INSPECTED

☐ Control   ☐ Print Name   ■ Sign Name

B. EFFECT OF IDENTITY-PRODUCT CLOSENESS AND HANDWRITING TASK ON PIECES OF PRODUCT INFORMATION INSPECTED

——— Control   – – Print Name   ——— Sign Name

Identity-Product Closeness
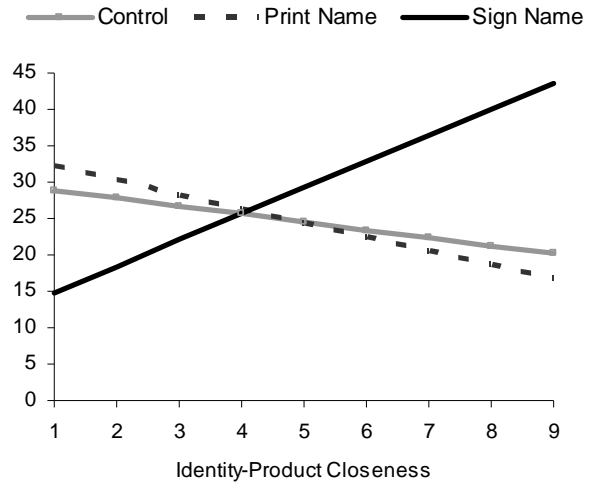
FIGURE 3.
EFFECT OF IDENTITY-PRODUCT CLOSENESS AND HANDWRITING TASK
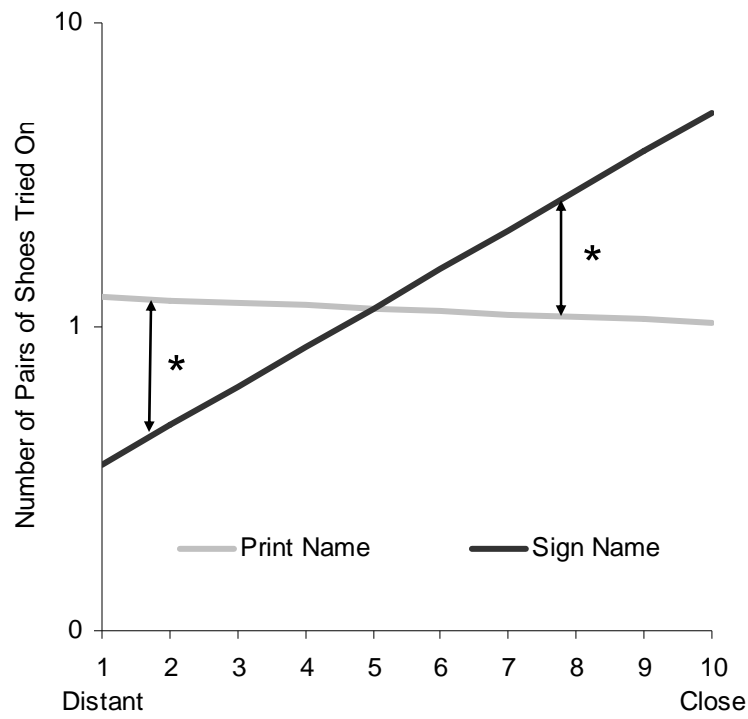ON ENGAGEMENT IN SHOPPING TASK (STUDY 2)

FIGURE 4.
CLOSENESS OF IDENTIFICATION AS A FUNCTION OF REFERENCE
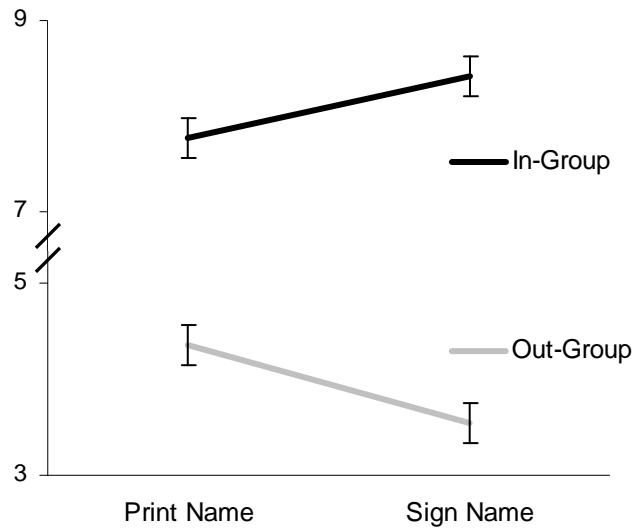GROUP TYPE AND HANDWRITING TASK (STUDY 3)

FIGURE 5.
PIE GRAPH REPRESENTING THE PREFERENCE DISTRIBUTION
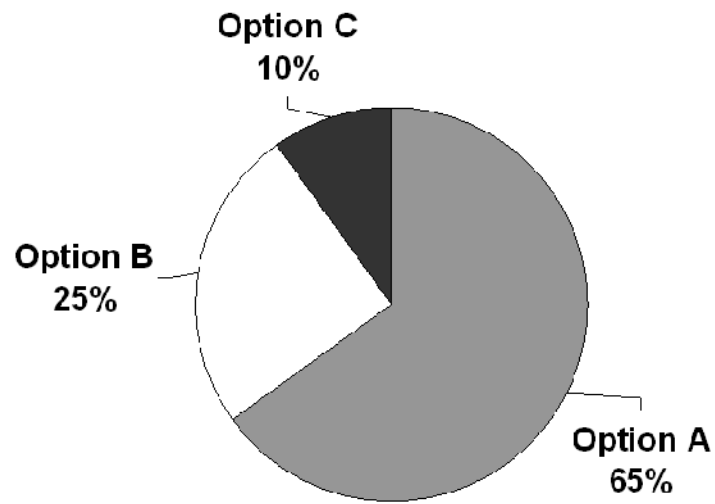OF GROUP MEMBERS (STUDY 4)

FIGURE 6.
IDENTITY-INCONGRUENT AND IDENTITY-CONGRUENT CHOICES IN PREFERENCE
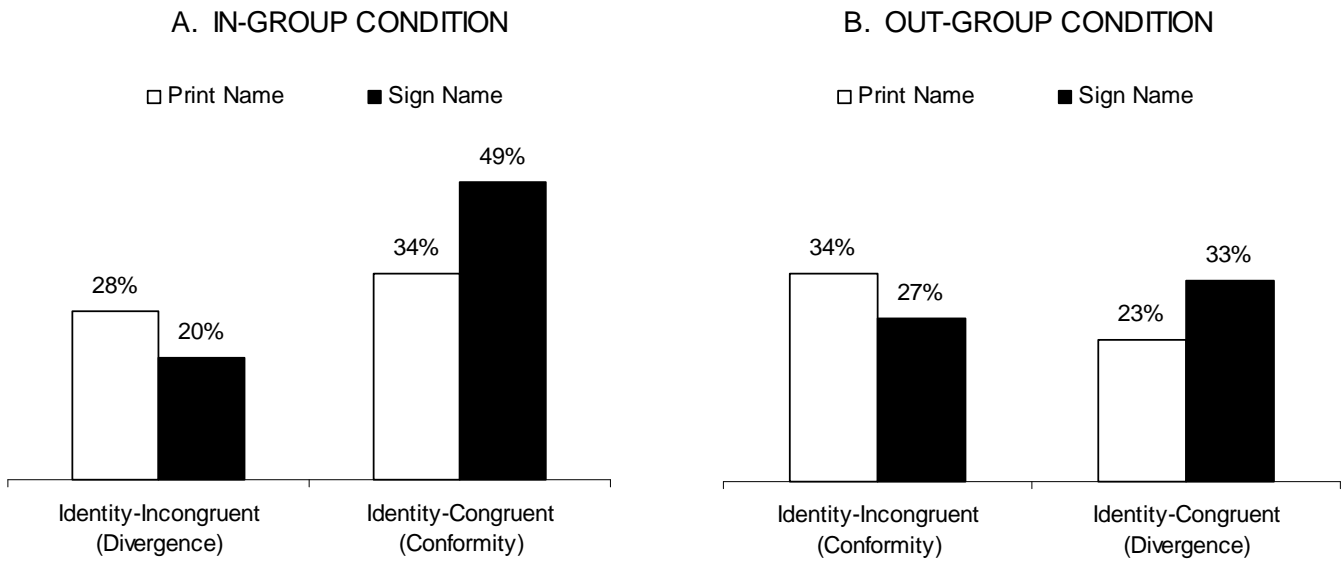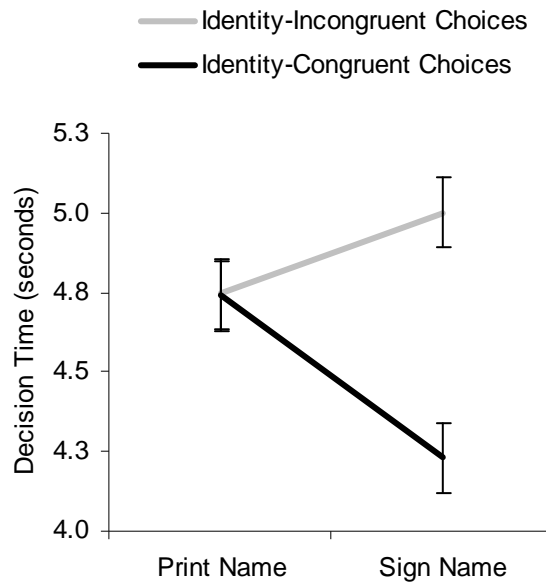DOMAINS RELEVANT TO SIGNALING ONE'S IDENTITY (STUDY 4)

A. IN-GROUP CONDITION

B. OUT-GROUP CONDITION

FIGURE 7.
DECISION TIME AS A FUNCTION OF HANDWRITING TASK
AND IDENTITY CONGRUENCE (STUDY 4)

APPENDIX A. PRODUCT DESCRIPTIONS (STUDY 1)

Product Categories

Digital Cameras				Dishwashers			
Brand	Nikon	Olympus	Sony	Brand	Frigidaire	Maytag	Whirlpool
Model	P80	SP 570	DSC-H50	Model	GLD 225	MDB 560	DU 1055
Price	$400	$400	$400	Price	$500	$500	$500
35mm Equivalent Zoom	486 mm	520 mm	465 mm	Filtration System	100% Filtration	Micro-Fine Plus	Automatic Purge Filtration
Viewfinder Type	Electronic	Optical	Optical	Delay Start Options	2, 4, 6 hrs	1-6 hrs	2-4 hrs
Digital Sensor Size	10.0 MP	10.0 MP	10.0 MP	Drying Options	Heat, No Dry	Heated Dry	Heated Dry
Digital Zoom	4.0 X	5.0 X	2.0 X	EnerGuide Rating	343 KWh / Year	346 KWh / Year	370 KWh / Year
Effective Size of Digital Sensor	10.7 MP	10.0 MP	9.1 MP	Interior Finish	Dura Life	Plastic	Plastic
Flash Range	9 meters	7 meters	18 meters	Number of Cycles	4	4	4
Focus Range	40 cm	16 cm	120 cm	Product Dimensions	60.6 (W) x 84.7 (H) x 61.3 (D) cm	60.6 (W) x 87.6 (H) x 60.6 (D) cm	60.6 (W) x 87.6 (H) x 62.2 (D) cm
Internal Memory	52 MB	45 MB	15 MB	Warranty	1 Year Parts & Labor	1 Year Limited	1 Year Limited
LCD Monitor Size	2.7 inches	2.7 inches	3 inches	Weight	33 kg	42 kg	42 kg
Aperture Range	f/2.8 – f/45	f/2.8 – f/45	f/2.7 – f/8.0	Sensors	Smart Soil	Precision Clean & Turbidity	Auto Soil Sensor
Optical Zoom	18 X	20 X	15 X	Short (Econo) Wash	Yes	No	No
Shutter Speed	1 / 4000 sec	1 / 2000 sec	1 / 4000 sec	Wash System	Precision Wash	Jetclean II Wash System	Sheer Clean Wash
Weight	365 grams	131 grams	554 grams	Wash Levels	5	3	5
Warranty	2 Years Parts & Labor	1 Year Parts & Labor	1 Year Parts & Labor	Rack Material	Nylon	Vinyl	PVC
Camera Dimensions	11.0 (W) x 7.9 (H) x 7.8 (D) cm	11.7 (W) x 7.9 (H) x 7.9 (D) cm	11.6 (W) x 8.1 (H) x 8.6 (D) cm	Lock Type	Squeeze	Pull	Latch Engage

APPENDIX B. PREFERENCE DOMAINS (STUDY 4)

Domain	Identity-Relevance Score
Bike Light	1
Dish Soap	2
Detergent	3
Toothpaste	4
Power Tools	5
Stereo	6
Sofa	7
Backpack	8
Dinner Entrée	9
Sunglasses	10
Car Model	11
Favorite Actor	12
Car Brand	13
Jacket	14
Sitcom	15
Favorite CD	16
Music Artist	17
Hairstyle	18
Music Genre	19

Note: Based on Berger and Heath (2007, study 2)