TELLING OURSELVES AND OTHERS WHO WE ARE: THE ROLE OF BRANDS*

by

L. Lasry
D. Ariely
R. Shachar

Working Paper No 21/2011 December 2011

Research No. 04790100

*This is based on Liraz Lasry's PhD dissertation.

This paper was partially financed by the Henry Crown Institute of Business Research in Israel.

Abstract

People use brands not only for their functional attributes, but for their symbolic attributes as well. The symbolic attributes of a brand enable the individual who uses it to express, or *signal*, her *identity*. While most previous research has focused on the reasons people use brands and on the effects that this brand usage has on *others*, the aim of the current research is to explore whether, and how, a brand can produce a change in the user's *own* behavior and perceptions, and to explore the underlying mechanism of these effects. The current research aims to demonstrate that the consumer's *behavior* and *perceptions* depend (in the sense of causality) on the "personality" of the brand(s) s/he consumes and it's social visibility. Specifically, within the identity-signaling framework, the current research distinguishes between two types of signaling through brand usage: *Private signaling*, wherein signaling is visible to the user only, and *Public signaling*, wherein signaling is visible to others as well. We further examine these signaling effects under various conditions, such as desirable and undesirable as well as voluntary and involuntary signaling.

A series of eight studies, designed to explore research questions, is presented. The first study (A) demonstrates some counterintuitive results that show that identity signaling has a significant effect on the user's self-perception not only through public signaling, but even through private signaling (visible to the self only). Furthermore, results from study A demonstrate that the identity-signaling effect on the user can occur under an involuntary, compulsory, task. The first study also presents and validates a new experimental methodology for demonstrating identity-signaling effects; Study B replicates the results of study A, and elaborates by demonstrating the signaling effect on user's actual behavior. Furthermore, study B results suggest that the signaling effect on behavior is mediated by user's perception of others. Alternative explanations are then eliminated both theoretically (dissonance), and experimentally (reactance - study C, and priming - study D) and Studies E, F and G directly test and confirm the different aspects of this hypothesis, and provide deeper and more specific insight into the psychological mechanism. Finally, Study H examines the effects of free choice of the signaled identity (versus a compulsory task). The findings provide researchers, policy-makers, consumers, and marketers with an additional new understanding of the effects that brand usage has on the user's behavior and perceptions, and of a brand's ability to influence them.

1. Introduction

People use brands not only for their functional attributes, but for their symbolic attributes as well (see Aaker 1997, 1999). The symbolic attributes of a brand enable the individual who uses it to express, or *signal,* her *identity*. In fact, people signal through their brand choices in nearly every aspect of their lives, from fashion, to cars, to living environments, food, and beverage (e.g., a wine brand in a restaurant), and even spiritual or religious choices (e.g., Madonna's and other celebrities' adopting of Kabbalah). The current research refers to *any brand that can be used to signal or express the user's identity* as an "*identity brand*"[1].

While previous research has focused on the reasons people use identity brands (e.g., Berger and Heath 2008; Ariely and Levav 2000) and on the effects that these brands' usage has on *others* (e.g., Berger and Heath 2008; Berger and Rand 2008; Fennis and Pruyn 2007), the aim of the current research is to explore whether, and how, an identity brand has the ability to produce a change in the *user's own* behavior and perceptions[2], and to explore the underlying psychological mechanism.

For example, can an individual convince *herself* — or be convinced though unaware thereof — that s/he is "someone else" (say, a tougher negotiator), merely through using an identity brand (such as wearing a Harley-Davidson t-shirt)? Does s/he perceive a change in the way others think about her (more deferentially, say) while using it? The current research intends to demonstrate that the consumer's *behavior* and *perceptions* depend (in the sense of causality) on the "personality" of the brand s/he consumes (based on it's social visibility).

Specifically, the current research distinguishes and examines the differences between two types of signaling through brand usage (within the identity-signaling framework) based on their visibility to the self and others: *Private signaling*, wherein signaling is visible to the user only, and *public signaling*, wherein signaling is visible to others as well.

Furthermore, we specifically examine the effects of voluntary signaling (active signaling usage voluntarily chosen and engaged in by the user) as well as involuntary signaling (signaling use engaged in compulsorily, or even unconsciously and passively), and intend to demonstrate that even *compulsory* signaling affects behavior. We further examine these signaling effects under

---

[1] Take, for example, the case of external hard drives reported recently in the *Wall Street Journal* (Clark 2008): These previously strictly-functional products, which previously competed on attributes such as size, speed, and memory, are now introducing fashionable designs and competing on self-expression attributes such as style and color. Thus, these hard drive brands can now be referred to as *identity brands*.

[2] While there can be different motivations for identity-signaling, at this point we do not make a motivation-based distinction. Rather, we focus on understanding the effects of the *actual* identity-signaling message first, regardless of what has lead to it. We believe that the latter, de-facto, perspective is more interesting at this point, since in many life situations (as in most of our studies) the identity signaling is done un-voluntarily rather than voluntarily (e.g. – printed slogans on t-shirts, shopping bags, uniforms, etc.).

another interesting condition, the case of desirable and undesirable signaling, and to explore the psychological mechanism leading to these effects.

Gaining a comprehensive understanding of signaling effects under various conditions will have implications for researchers, social policy-makers, consumers, and marketers. For researchers, we wish to provide insights and new additional explanations to why, and when, consumers use identity brands and to the symbolic utilities embedded therein. Of course, such findings can have significant social policy implications as well, for example, consider the issue of school uniforms: Do they deprive students of manipulating their own identities and behaviors into desired ones? Furthermore, perhaps policy-makers can deliberately create more successful and disciplined students through using a specific identity brand as the mandatory school uniform, or even simply printing specific identity words thereon. The same may apply to army (or any public service) uniforms.

From consumers' perspective, the expected findings can facilitate the usage of signaling in various contexts: Can an individual deliberately and consciously manipulate herself into engaging in a desired behavior merely via the usage of a specific identity brand? Can s/he deliberately manipulate her perceptions of herself, and actually perceive herself as a different person? And what of others' behavior? Can we manipulate *other* people? Could an individual, for example, make his wife more romantic simply by buying her Victoria's Secret socks or a t-shirt?

Finally, findings may have various practical implications for marketers and practitioners, indicating the kind of marketing messages that are most effective for each type of product, consumption occasion, or motivation. For example, can Nike promote branded boxers as improving running performance? In addition, expected findings and insights might provide marketers with a new tool for influencing consumers' behavior and perceptions: Can marketers, for example, create more favorable consumers simply by providing them free use of the appropriate identity brand? For example, will a consumer standing in line for customer service actually be more relaxed and positive if wearing a free baseball cap embossed with the slogan “I'm relaxed”? Will walking down the store aisles using a free “I'm rich“ shopping bag cause the consumer to spend more money, or choose more costly brands? Or will it cause an opposite, more modest, behavior? The implications of the current research are numerous, and have the potential to provide researchers, policy-makers, consumers, and marketers with better understanding of, and influence on, peoples’ behaviors and perceptions.

We begin by reviewing the relevant literature. We then present a series of eight studies designed to explore the various aspects of our research questions. Finally, we present and discuss the results and conclusions.

2. Theoretical Background

The idea that individuals use brands to signal their identities is not new: It is well established that people do not buy products just for what they do, but also for what they mean (Levy, 1959). Even as far back as 1890, psychologist William James rather obliquely observed, “It is clear that the line between what a man calls me and what he simply calls mine is difficult to draw“. More specifically, it has been demonstrated that self-brand connections, which represent the extent to which individuals have incorporated brands into their self-concept, are formed when the consumer uses brands to construct her self-concept (in relation to the reference group; Escalas and Bettman 2005). Moreover, self-image congruence models posit that brands are chosen based on their matching to the self (Solomon and Rabolt 2004), thus enabling the consumer to signal her self through using her chosen brand.

A distinction should be drawn, though, regarding types of signaling. Identity brands can be used to signal either to others and / or to the self only. The existing literature focuses on the *intended* target of signaling and refers to *social signaling* (to others; e.g., Batra et al. 2000) and *self-signaling* (to the self; e.g., Bodner and Prelec 2001, 2003; Quattrone and Tversky 1984). Of course, in reality, in nearly all cases wherein others are exposed to the brand, the signaling individual is exposed too: Even when signaling is engaged in for the purpose of social signaling, the *self* is signaled to as well. This additional private, individual effect of brand usage — the effect on the *user herself* — lies at the core of the current research. Since both types of signaling have the potential to influence the *user*, regardless of the intended target, we first describe and discuss the two types of signaling described in previous literature.

Social signaling

Social signaling refers to external, social aspects of signaling for the purpose of signaling to others. Social signaling has been the focus of most signaling research, and has been found to serve important social goals: For instance, it has been found that one's possessions can serve the function of conveying one's social ties (Munitz and O'Guinn 2001); possessions can also serve the function of forming a distinctive identity within a larger group (Tian, Bearden, and Hunter 2001), since using material possessions has the merit of satisfying the need for uniqueness without risking severe social penalties (Snyder 1992). More specifically, it has been found that consumers make identity-signaling choices that ensure that they effectively communicate desired identities while avoiding having others make undesired identity inferences (Berger and Heath 2007).

As previously noted, when others are exposed to a brand, the individual is likewise exposed. Thus, when an individual is signaling to others, s/he is also signaling to *herself*. However, while signaling to the self as a part of social signaling may not be at all intentional (or even engaged in

consciously), it may take place in another, more *deliberate* manner known as *self-signaling*. Next, self-signaling and relevant literature are presented and discussed.

Self-signaling

Self-signaling generally refers to the usage of brands in order to satisfy *individual* needs: rather than the above-mentioned (social) need of expressing and communicating ones' self to *others*, people also have a basic psychological need to create and build their own self-concept or self-identity (e.g., Escalas and Bettman 2003; McCracken 1989; Belk 1988; Levy 1959). The mechanism of self-signaling allows people to satisfy this need through using brands — or other signaling actions — in order to learn something about *themselves*. As people rarely have all the information they need to render accurate self-judgments, and achieving self-knowledge is an inherently difficult task (Dunning et al. 2004), they learn to be concerned about how they look to themselves just as they learn to be concerned about how others see them (Bandura 1977; Bem 1972).

Voluntary self-signaling

Most previous research referred to self-signaling as a *deliberate* action aimed at acquiring "good news" about oneself, and therefore focused on *voluntary*, rational self-signaling (e.g., Bodner and Prelec 2001, 2003; Quattrone and Tversky 1984). For example, Bodner and Prelec (2001, 2003) specifically define a self-signaling action as an action *chosen* in order, at least partly, to secure good news about one's traits or abilities, even when the action has no causal impact on these traits and abilities. This definition relates to *pure self-signaling*, separate from any desire to be regarded well by others, and regards the *specific desire* to learn good things about oneself as its motivation.

Similarly, Self-Impression Management asserts that an individual *acts* to show — and see — herself in a positive light, even when s/he is the only observer of her own behavior (Murningham et al. 2001): "People are most driven to discover and hear favorable, flattering things about themselves" (Baumeister 1998, p. 689).

A theoretical justification for the conjecture that people can learn from their own actions has been given based on the recognition that we often do not know their own preferences or motives, and tend instead to infer them from their own actions (Benabou and Tirole 2000; Bem 1972). Moreover, it has been empirically proven that such diagnostic considerations affect behavior (Shafir and Tversky 1992; Quattrone and Tversky 1984).

A sub-distinction within self-signaling can be drawn between intrinsic (i.e., self-image) signaling and instrumental (the disposition's consequences) self-signaling (Bodner and Prelec 2001, 2003); and between "private" information (that cannot be communicated to future selves except through actions) and "public" information, which is available to all selves, in a multiple-

self context. The latter distinction, too, upholds the *rationality* of the individual's *decision-making* process at a given point in time (Benabou and Tirole 2000).

Involuntary (compulsory) signaling

The aforementioned having been said, in many life - and consumption - situations, the signaled identity is often forced upon the user and dictated by the firm. Take for example the case of uniforms, or even slogans on shopping bags, wherein the user is forced to use a product that not only doesn't match her own identity, but actually signals an identity chosen by the marketer.

The existing literature does not explore such cases; rather, it focuses on cases wherein the signaled identity is *voluntarily chosen* by the user (as demonstrated earlier). Additionally, it neglects the question of identity signaling in *compulsory* cases. For example, in the case of school uniforms, research has indicated that their mere usage has a positive impact on discipline (Lopez 2003), achievement orientation (Caruso 1996; Paliokas et al. 1996; Holloman 1995), and confidence and self-esteem (Caruso 1996).

Other studies report that school uniforms have no direct effect on attendance, problem behavior, or substance use (Brunsman and Rockquemore 1998), and even indicate disadvantages (King 1998). However, neither specifically addressed the specific question of identity signaling and the influences thereof on the wearer of the compulsory uniform. Thus, the current research specifically distinguishes between *voluntary*, *free- choice* signaling and *compulsory*, *involuntary* signaling.

The current research draws a further distinction within involuntary signaling, that is, between the effects of *undesirable* signaling (which may lead to an undesirable, or negative self-image, as could occur in cases of uniform usage), and *desirable*, or positive signaling, which has been the focus of previous research and the literature described above.

Signaling visibility: The target of signaling

As noted earlier, previous literature focused on the *intended* target of signaling, and used the term *social signaling* only when targeted at others, as opposed to self-signaling, which is targeted only at the self. In reality, however, the results of the two overlap, in that in nearly all cases, when others are exposed to the signaling brand, the user is likewise exposed, regardless of the latter's original intention. This means that in fact, the potentially influenced targets of signaling are determined by the *revealed*, or *visible*, signaling, rather than the *intended* signaling. Thus, the current reseacrh uses a differing terminology that distinguishes between two types of signaling based on the latters' *visibility* to the self and others: *Private signaling*, i.e., signaling revealed to the self (the user) only, such as a brand name printed on a pair of underwear, visible and known only to the user herself; and *Public signaling*, i.e., signaling visible

to others as well as to the user, such as a brand name on the outside of a t-shirt (in contrast to *social signaling*, which is targeted at others *only* and ignores the influence on the self).

Note that these definitions refer solely to the *visibility* of signaling, rather than the *social context* wherein it takes place. For example, private signaling, visible to the self only (as in the case of the underwear), can take place in a public, crowded, social context (such as a restaurant or workplace. See Table 1 for examples of the various combinations of visibility and social context types).

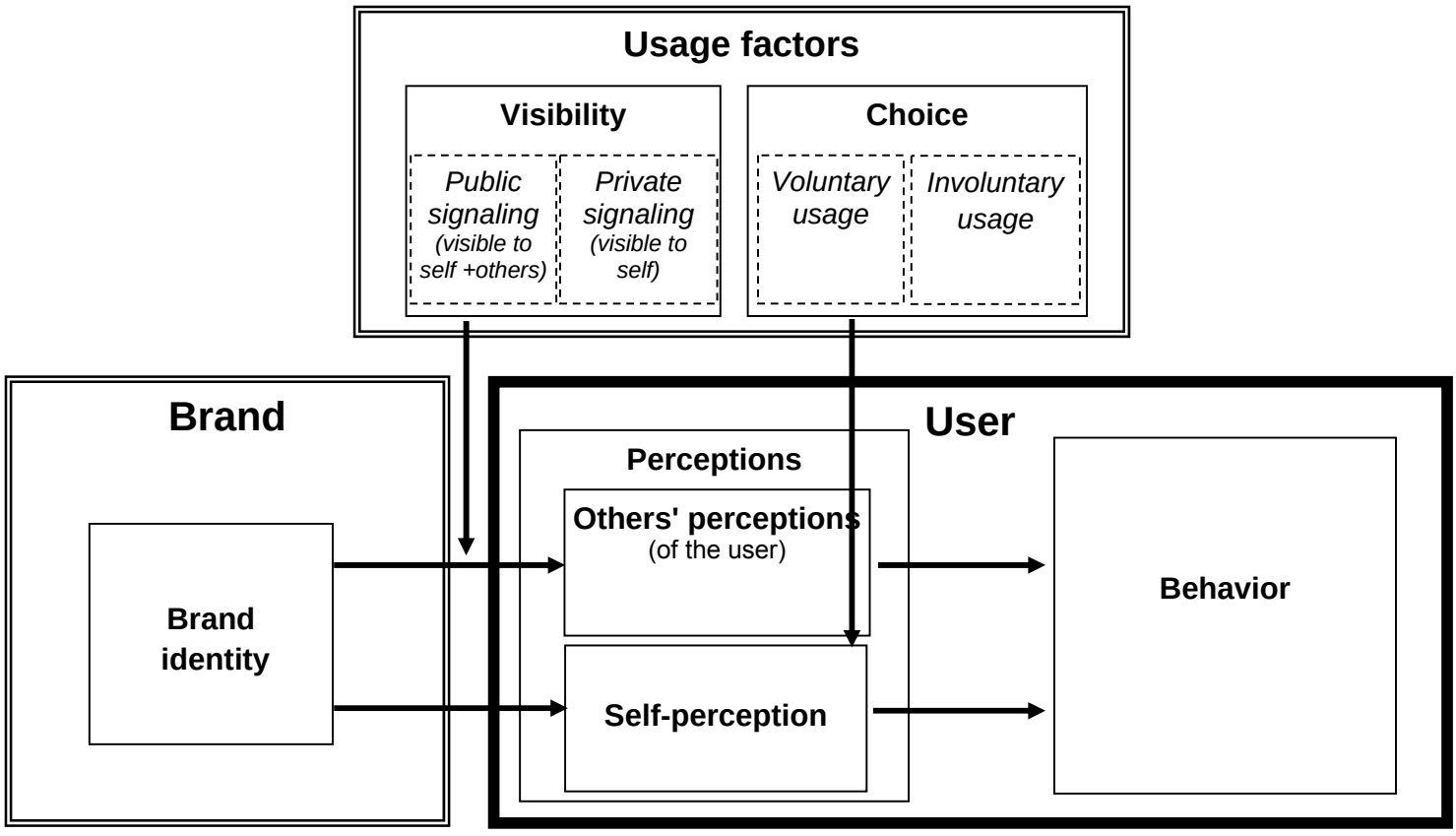
TABLE 1
EXAMPLES OF THE VARIOUS COMBINATIONS OF VISIBILITY AND SOCIAL CONTEXT TYPES

		Signaling Visibility of the identity brand (brand usage factor)	
		Public signaling (visible to the self + others)	**Private signaling** (visible to the self only)
Social context wherein identity signaling takes place (situational factor)	**Public social context** (i.e., busy / crowded social environment)	*Wearing a Harley-Davidson **t-shirt** at a **big party***	*Wearing Harley-Davidson **underwear** at a **big party***
	Private social context (i.e., sparse social environment)	*Wearing a Harley-Davidson **t-shirt** in a room with **only a few people***	*Wearing Harley-Davidson **underwear** in a room with **only a few people***

To sum up our research questions, our general theoretical question asks whether signaling – both private and publicly visible – has the ability to produce a change in the signaling individual's behavior and perceptions. More specifically, we ask whether identity brands have the ability to produce a change in the user's: (1) Own behaviors, (2) Own self-perceptions, (3) Perceptions of others' (those *signaled to*) traits, (4) Perceptions of others' perceptions of her; and (5) Perceptions of others' (those *signaled to*) behaviors toward her.

We examine these questions under the various conditions and dimensions of public signaling and private signaling; desirable signaling and undesirable signaling; and voluntary and involuntary signaling. We further demonstrate some non-trivial effects. More specifically, we demonstrate that even private signaling (not visible to others) has a significant effect on one's behavior, and to provide evidence for the counterintuitive suggestion that undesirable (and not only desirable) signaling affects behavior, even though it likely contradicts a desired ideal self. Moreover, we provide evidence for yet another interesting finding that compulsory signaling can affect behavior even though it is not voluntary or freely chosen. We further eliminate possible alternative explanations for these effects (such as dissonance, reactance and priming) and examine the psychological mechanism trough which these effects occur (see Diagram 1 for a summary of the suggested influences).

DIAGRAM 1
SUMMARY OF SUGGESTED INFLUENCES



3. Experiments and Results

3.1 Study A – Can brands tell us who we are?

The effects of identity signaling on the user's self-perception

Study A aims at testing if, and to what extent, subjects' self-perception changes as a result of using an identity brand and the social context in which it is used. Specifically, it demonstrates that when an individual uses a product that signals a certain level of selfishness, the self-perception scale measurement of benevolence reflects the same level of selfishness, and does so regardless of the signaling visibility to others. Next, we describe the manipulation and the experimental procedure.

Manipulation

The identity-signaling product

Regular t-shirts were used as the manipulation product, and were transformed into identity products by printing identity words thereon that are characterized by two dimensions:

Visibility - the target of signaling. Two types of identity signaling were examined: private signaling (visible to the self only), and public signaling (visible to others as well). Public signaling was achieved by printing the identity word on the outside of the shirt, while private signaling was achieved through printing the identity word on the inside of the shirt.

The identity signaled. We each possess multiple social identities that become more or less salient in various contexts (Abrams 1994). Since the next studies use experimental economic games of a social / moral nature, the manipulation included identities that will be relevant to, and that might affect, the subjects' decisions vis-à-vis the other player(s) (signalee). Aquino and Reed (2002) defined *moral identity* as a self-concept organized around a set of moral traits, and noted that it can be activated or suppressed by contextual, situational, or even individual difference variables. Aquino and Reed further provided and validated a trait-based conceptualization of moral identity, including a set of traits that can invoke one's moral identity. Their results showed that the most necessary traits for an individual to be considered moral were honesty (mean = 4.8 on a scale of 1 to 5), fairness (mean = 4.5), and caring (mean = 4.2); while the least necessary trait was selfishness (mean = 1.5). Therefore, the three identities chosen for our experimental manipulations are: *Egoistic* – It was hypothesized that subjects signaling this identity would rank themselves lowest on Benevolence self-perception; *Caring* – It was hypothesized that subjects signaling this identity would rank themselves highest; *Neutral* – No specific identity signaled.

Thus, Study A used a 2x3 between-subjects design (identity x visibility) in each game. 138 subjects, all undergraduate students, participated in the study. Seven were removed from the

sample (either because they discovered the manipulation and gave biased answers, or because they did not want to participate in the experimental economic games).

Measurements

The dependent variable was designed to measure the subjects' self-perceptions. More specifically, we measured subject's *self-perception* of her own *benevolence* (defined as "Preservation and enhancement of the welfare of people with whom s/he is in frequent personal contact; helpful, honest, forgiving, loyal, responsible" by Schwartz, 1992, 1994, 1996, 2001)

Procedure

The procedure included a "cover story" experiment, meant to dress the subjects in the identity shirts without revealing the true purpose of the study.

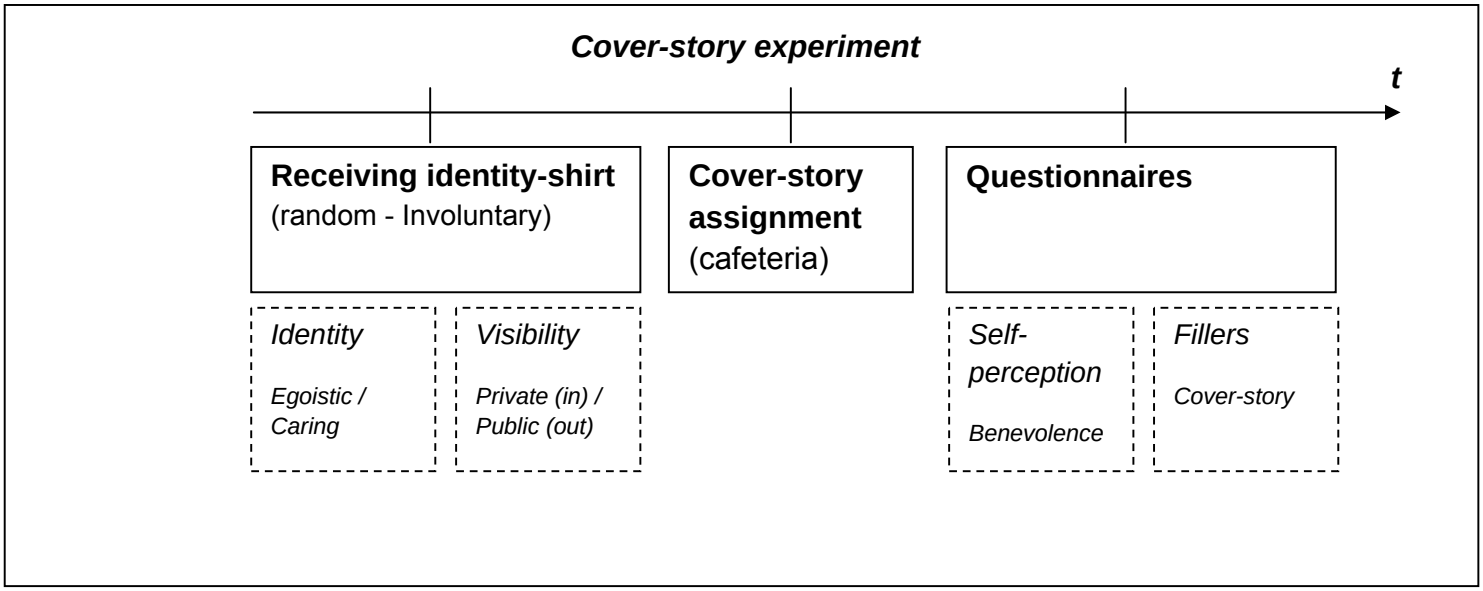
Undergraduate students were offered the opportunity to participate in an experiment (the cover story) for a participation fee of ₪35 (approximately $10). According to the cover story, the experiment's purpose was to examine the influence of color on information processing. It was explained that during the specific day wherein the experiment was conducted, the color being investigated was black, and therefore subjects received a black t-shirt to wear. For registration and indexing purposes, subjects provided their ID numbers, yet remained anonymous. In order to explain the words printed on the shirts, subjects were told that a t-shirt maker had provided discounted leftover colored t-shirts, so some shirts may have various words printed thereon. The "identity" assigned to each subject, and whether or not it was visible, were noted. In addition, few t-shirts in various colors and with different prints were casually thrown near the experimenter in order to strengthen the cover story. A big mirror was placed at the registration desk to allow subjects to view their reflections after putting on the shirts.

Subjects (now wearing the identity t-shirts) were then instructed to go to a public place (a large cafeteria on campus wherein they were exposed to a social environment) and asked to peruse the various menus (supposedly to examine how the t-shirt's color affected their information processing).

When subjects returned, they were asked to list the food items they recalled from their perusal of the cafeteria menus. They then filled out a value questionnaire, returned their shirts, and got paid for the cover story experiment and thanked for their participation. Diagram 2 presents the graphic timeline for each subject in study A.

DIAGRAM 2

STUDY A – GRAPHIC TIMELINE FOR EACH PARTICIPANT



Results and Discussion

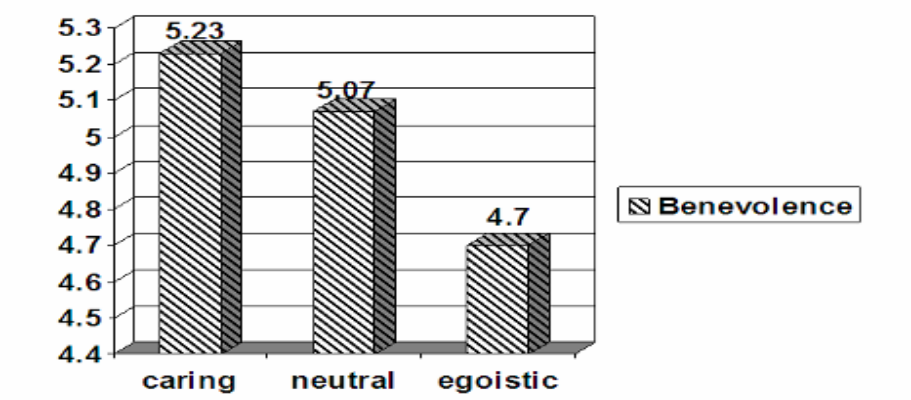
The effects of signaling on self-perception

As previously noted, upon completion of all tasks, subjects filled out Schwartz' short value questionnaire (Schwartz 1992, 1994, 1996, 2001). The purpose of the value questionnaire was to examine the effects on subjects' self-perception, and more specifically, their perceptions of their own levels of benevolence (defined as *preservation and enhancement of the welfare of people with whom one is in frequent personal contact: helpful, honest, forgiving, loyal, responsible;* Schwartz 1992, 1994, 1996, 2001). A significant effect of the signaled identity on self-perception was found ($F(2,125) = 5.9$, $p < 0.005$): Subjects wearing the “caring“ identity scored significantly higher (mean = 5.2) on benevolence than did subjects wearing the “egoistic' identity (mean = 4.7) (Figure 1), demonstrating that the identity manipulation worked, and regardless of the signaling visibility.

FIGURE 1

THE EFFECTS OF IDENTITY ON BENEVOLENCE SELF-PERCEPTION

Benevolence = Preservation and enhancement of the welfare of people with whom one is in frequent personal contact (helpful, honest, forgiving, loyal, responsible) (Schwartz 1992, 1994, 1996, 2001)



Conclusions

Results show that identity signaling has a significant effect on self-perception, not only through public signaling to others, but through private signaling as well. Moreover, signaling had an effect not only when the signaled identity was desirable and positive, but also when it was undesirable. Thus, study A provides support to the hypothesis that private signaling (as well as public signaling) has an effect on self-perception; that undesirable private signaling affects perceptions as well as desirable private signaling; and that these effects occur even when the signaling is compulsory (as opposed to willingly). The first study also tested and validated the suggested basic experimental methodology.

Our next step, than, is to explore whether identity-signaling has behavioral effects, and whether these effects resemble the perceptual effects found in study A.

3.2 Study B – Can brands affect our behavior, and does the company matter?

The effects of identity signaling on the user's behavior and the influence of the social context

While study A focused on subjects' self-perception, study B aimed at testing if and to what extent subjects' actual *behavior* changes as a result of using an identity brand. Specifically, study B demonstrates that when an individual uses a product that signals a certain level of selfishness, the *behavioral* measure of generosity differentially reflects that level of selfishness, based on signaling visibility to others (behavioral generosity being operationalized as the sum of money s/he sends to a stranger in two experimental economic games). In addition, study B replicates the self-perception results found in study A. Next, we describe the manipulation and the experimental procedure.

Manipulation

The identity-signaling product

Study B uses the same identity-signaling t-shirts that were used in study A, i.e., characterized by two dimensions: *visibility* (word printed in/out) and *the signaled identity* (study B focuses on the two extreme identities – Egoistic and caring).

Thus, the current study uses a 2x2 between-subjects design (identity x visibility) in each game. 286 subjects, all undergraduate students, participated in the study. 33 subjects were removed from the sample (either because experimenters revealed they were pre-informed about the cover story by previous participants, because they have discovered the manipulation by themselves and gave biased answers, or because they did not want to participate in the experimental economic games).

Measurements

The dependent variables were designed to measure the subjects' behavior and self-perceptions. More specifically, we measured:

Subject's *behavior* (decisions in the experimental economic game, i.e., how much money the subject decided to *send* to the other player in each of the economic games)

For the purpose of measuring *self-perception*, Study B uses a different measurement of self-perception that is both more relevant to the experimental procedure used in this study and more closely related to the printed words and the measured behavior: the Agreeableness measurement. Agreeableness is defined as "A tendency to be compassionate and cooperative

rather than suspicious and antagonistic towards others. The trait reflects individual differences in concern for social harmony. Agreeable individuals value getting along with others. They are generally considerate, friendly, generous, helpful, and willing to compromise their interests with others. Agreeable people also have an optimistic view of human nature. They believe people are basically honest, decent, and trustworthy" (measurement was taken from the short version of the Big 5 scale; John and Srivastava 1999).

Economic games

Three types of experimental economic games are used to explore the effects of identity signaling on subjects' behavior: the trust game, the dictator game, and the ultimatum game. Next, the standard experimental economic game is briefly described followed by descriptions of the three specific game types mentioned above (for a review see Camerer and Fehr 2002).

In the *standard experimental economic game*, participants are separated into two rooms, Room A and Room B. Each player in Room A ("sender") has the opportunity to make economic decisions that involve sending money to an anonymous counterpart in Room B. The rules of the game are known to both players prior to starting the game and the subjects get paid with the sum they gain.

In the *trust game*, any money passed from Room A to Room B is tripled by an experimenter along the way. Each player in Room B ("returner") then decides how much to send back. The trust game is played one-shot under double-blind anonymity to prevent investments in reputation or an experimenter effect. Given this setup, the sum sent initially can be taken as a measure of the sender's trust, and the sum returned as a measure of the returner's reciprocity or trustworthiness. If subjects care only about their monetary payoffs, the subgame-perfect equilibrium prediction in this game is straightforward: Returning money reduces the returner's payoff; hence, the returner would never send anything back. Anticipating this, senders would not send money initially. Both players would be at least as well off if the Room A player were to send any portion of her endowment, and the Room B player were to return at least the sum sent, but this potential Pareto improvement is foregone because Player B cannot make a binding commitment to share the surplus.

In the *dictator game*, Player A, the dictator, divides a fixed sum of money between herself and one other, the recipient (Player B). Player B has no choice but to accept the allocation.

In the *ultimatum game*, Player A offers any sum (larger than 0) of the $10 to Player B. If Player B accepts, the $10 is divided according to the terms of the offer; if Player B rejects, each player gets 0. The subgame perfect Nash equilibrium is to offer $1 (or 0) if there are 10 one-dollar bills, and for Player B to accept.

Most research found that people tend not to play according to the simple economic theory's perfect equilibrium, but rather give more to the other player (around 40% in the ultimatum game and around 30% in dictator game; e.g., Camerer and Fehr 2002).

For the purposes of our studies, a few adjustments were made in the procedure of the experimental economic games: First, The classic economic game design entails conducting the experiment in two classrooms simultaneously, i.e., players in Room A, and players in Room B. However, since the current study is interested in A's behavior only, there was actually only one B player, who submitted his reactions to all possible scenarios in advance, so that for each A player's decision, the experimenter had B's counter-decision at hand (subjects were be debriefed of there being only one B player at the end of the research).

Second, after wearing the t-shirts, subjects were informed that they must make their decisions for all three games (trust, ultimatum, dictator) in advance, i.e., before receiving B's reactions. However, in order to shorten the manipulation and avoid reputation effects, subjects were also notified that not all three games would actually be played through, but rather one only, and that they would get paid only for the one game chosen. In each game, Player A received a virtual sum of 10 NIS (equivalent to appx. $2.50) to be distributed (or not) at her choosing. After receiving subject A's decisions for all three games, the experimenter threw dice in order to choose which one of the three games should be played through. Only then did Player A receive Player B's decision for the one game chosen, and the sum of money s/he earned in this game.

Finally, all participants received an additional sum of 9 NIS (approximately $2.5) for their participation, regardless of what they may or may not earn in the game chosen. The order of the three games was chosen randomly for each subject. Subjects were pre-informed about the procedure and rules.

Procedure

The procedure in study B included two parts: the basic 'cover story' experiment (meant to dress the subjects in the identity shirts without revealing the true purpose of the study), and the economic games experiment, meant to measure their behavior.

As in study A, undergraduate students were offered the opportunity to participate in an experiment (the cover story) for a participation fee of 35 NIS (approximately $10), supposedly to examine the influence of color on information processing. As previously done, subjects (now wearing the identity t-shirts) were sent to a public place (large cafeteria) and asked to peruse the various menus.

However, when subjects returned, they were asked to wait outside for five minutes. While waiting, they 'accidentally' met another experimenter, who offered them an opportunity to participate in another short study (the economic games experiment) being conducted next

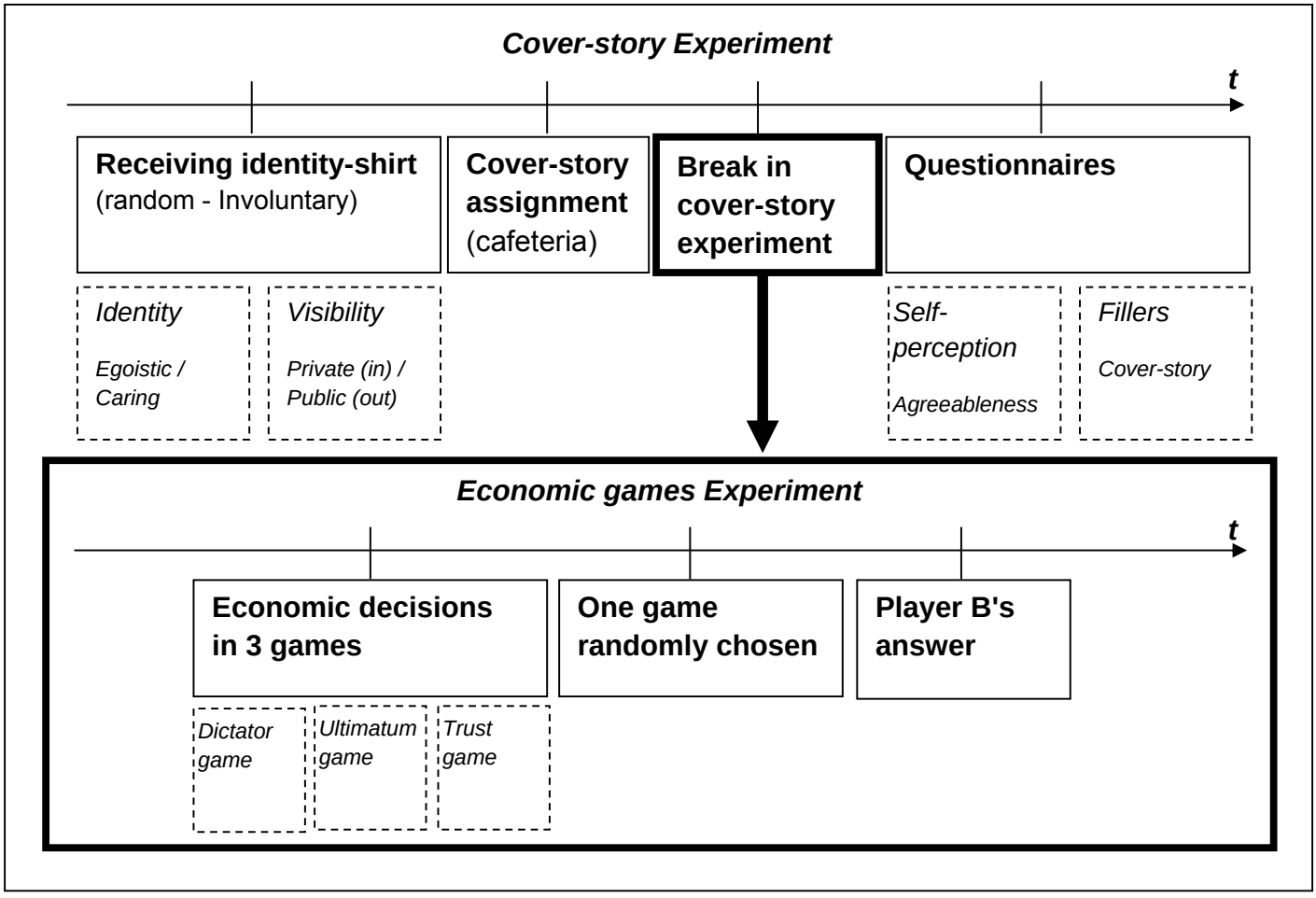
door, and earn up to 30 NIS. All of the subjects agreed and thus participated in the economic games experiment while still wearing the identity-shirts.

Upon completion of the second experiment (economic games), subjects were paid what they earned. They then returned to the first experiment (cover story), and were asked to list the food items they recalled from their perusal of the cafeteria menus. They then filled out a value questionnaire, returned their shirts, and got paid for the cover story experiment and thanked for their participation.

Diagram 3 presents the graphic timeline for each subject in study B.

DIAGRAM 3

STUDY B – GRAPHIC TIMELINE FOR EACH PARTICIPANT



Results and Discussion

The effects of signaling on self-perception

Similarly to findings in study A, a significant main effect of the signaled identity on self-perception was found ($F(2,119) = 3.999$, $p < 0.05$): Subjects wearing the “Caring“ identity scored higher (mean = 4.11) on agreeableness than did subjects wearing the “Egoistic" identity (mean = 4.02), demonstrating that the identity manipulation worked.

The effects of signaling on behavior

A 2 x 2 ANOVA on Player A's behavior (*sum of money sent to Player B out of 10NIS in each game*) was conducted. Independent variables were *Identity* (Egoistic / Caring) and *Visibility* (public signaling = identity printed outside / private signaling = identity printed inside). Next, results in each game are presented and explained.

Dictator game. Participants gave Player B an average of 2.17 NIS. No significant effects were found.

Ultimatum game. Participants gave Player B an average of 3.9 NIS. No significant effects were found.

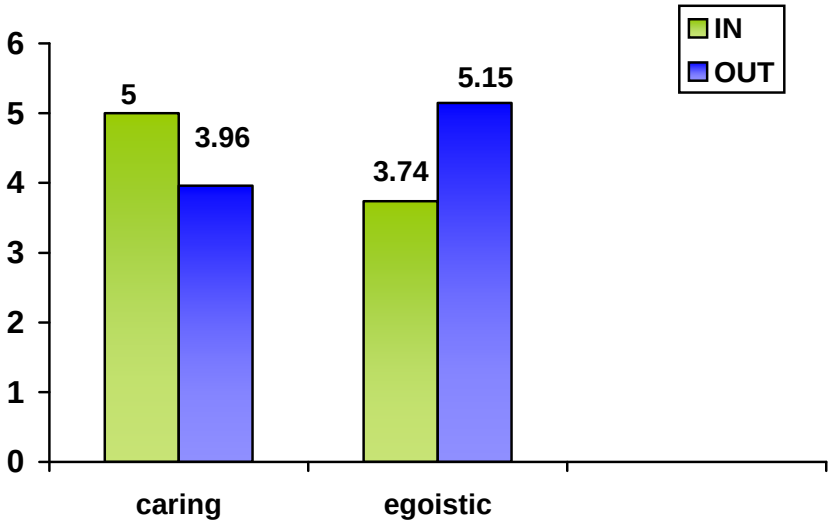
Trust game. Participants gave Player B an average of ₪4.5 in this game. A significant identity*visibility interaction was found ($F(1,265)=8.827$; $p<0.005$): Under the *private signaling* condition, a significant difference between the “egoistic“ and “caring“ identities was found ($t = -1.9$; $p = 0.05$), as subjects wearing the “caring“ identity gave on average ₪5 to the other player, while subjects wearing the “egoistic“ identity gave considerably less: on average only ₪3.74 (Figure 3). In other words, subjects were *directly* affected by the identities they signaled *when no one else was exposed to them.*

However, under the *public signaling* condition, the signaling effect on behavior was opposite: an opposite significant difference between the “egoistic“ and “caring“ identities was found ($t = 3.002$; $p < 0.005$), as subjects wearing the “caring“ identity gave on average ₪3.96 to the other player, while subjects wearing the “egoistic“ identity gave considerably *more*: 5.15 NIS on average (Figure 3). In other words, subjects were *oppositely* affected by the identities they signaled *when their signaling was visible to others.*

FIGURE 3

TRUST GAME:

THE EFFECTS OF IDENTITY AND VISIBILITY ON AVERAGE GIVING TO PLAYER B



Conclusions

Results of study B replicate the findings of study A in regards to the signaling effect on self-perception: identity-signaling *directly* effects *self-perception*, regardless of the signaling visibility. In a similar manner to the results of study A, signaling has an effect on self-perception not only when the signaled identity is desirable and positive, but also when it is undesirable.

Results also suggest that the signaling effect on the actual *behavior* itself depends on signaling *visibility*: when signaling is *private* (not visible to others) behavior is *congruently* affected by the identity the user signals. However, when signaling is *visible to others* (pubic) – behavior is affected in an *opposite* direction.

Thus, study B appears to support the hypotheses that private signaling and public signaling have similar effects on self-perception, but opposite effects on behavior; that undesirable signaling affects behavior and perceptions as well as desirable signaling; and that these effects occur even when the signaling is compulsory (as opposed to willingly). Study B also tested and validated the elaborated experimental methodology.

Why was subjects' behavior oppositely affected by the identity-signaling when signaling was visible to others? This behavioral phenomenon seems surprising, since self-perceptions measures indicate that users' self-perception was directly affected in the direction of signaling, regardless of signaling visibility. Next, we explore and discuss the possible underlying psychological mechanisms that might account for the opposite effect identity-signaling has on behavior when it is visible to others.

3.3 Possible mechanisms for the opposite behavioral effect

We next suggest and test four possible mechanisms that might explain the behavioral phenomenon previously depicted: Dissonance, Reactance, Priming, and the user's perceptions of others.

3.3.1 Ruling out Dissonance

Theoretical explanation

Does identity-signaling cause a dissonance which explains the opposite behavioral effect? If a dissonance effect (Festinger, 1957) takes place, than even tough wearing an "egoistic" t-shirts make users perceive themselves as egoistic, the inherent human wish to 'be good' drives them into an extremely opposite generous behavior in order to resolve the dissonance.

However, had dissonance been the mechanism driving the opposite behavior - it would have been expected to operate not only under the public signaling condition, but under the private signaling condition as well. Yet, the opposite behavior has occurred only when signaling was visible to others.

This indicates that the underlying mechanism is most probably related to user's perceptions of others. This hypothesis is tested in studies E, F and G, but first we address and rule out other possible mechanisms that are not other-related.

3.3.2 Study C – Ruling out Reactance

According to the "theory of psychological reactance" (Brehm, 1966), an individual experiences reactance when his/her behavioral freedom is eliminated or threatened. The magnitude of the reactance is determined by the importance of the influenced behavior for the individual and the magnitude of the exertion of influence, i.e. the amount of freedom eliminated or threatened. Brehm classified various effects of reactance into two categories (Brehm, 1972): mental effects (perceptual or judgmental changes), and behavioral effects (observable by others). As the

theory deals with opposing behavior, consequences of reactance have been also referred to as "boomerang effects" (Clee and Wicklund, 1980). Thus, one could argue that the opposite behavior caused by public signaling actually represents such a boomerang reaction to what may be perceived by the subject as an attempt to dictate her behavior via the identity-signaling t-shirt.

Study C aims at directly testing the reactance alternative explanation, as well as replicating the behavioral effect found in study B.

Manipulation

The identity-signaling product

Study C uses the same identity-signaling t-shirts that were used in studies A and B (i.e., Egoistic and Caring), and focuses on the public signaling condition (words printed outside the shirt only).

Thus, the current study has two main conditions. 120 subjects, all undergraduate students, participated in the study. 26 subjects were removed from the sample (either because experimenters revealed they were pre-informed about the cover story by previous participants, because they have discovered the manipulation by themselves and gave biased answers, or because they did not want to participate in the experimental economic games).

Measurements

The dependent variables were designed to measure the subjects' behavior and reactance levels. More specifically, we measured:

Subject's *behavior* (decisions in the experimental economic game, i.e., how much money the subject decided to *send* to the other player in each of the economic games)

Reactance. Two measures have been taken in order to test for reactance, a direct measurement and an indirect one:

Direct measurement – *Reactance scale*. We used the most commonly used and validated reactance scale developed by Hong, 1992 and Hong and Faeida 1996: A (-7) – (7) point scale, with endpoints 'strongly disagree' and 'strongly agree'. Only the scale's total score was analyzed since recent research (Thomas et al., 2001) questions the factorial validity of its four subscales. As the original scale is more of a trait-level scale, items were rephrased to represent a situational context (e.g. the item "I find contradicting others stimulating" was rephrased into "I find contradicting others stimulating *today*[3]").

[3] No italics emphasis was used on the scale that was presented to subjects.

Indirect indication - *Satisfaction from the decision making process*. Fitzimmons and Lehamn (2004) noted that previous research (e.g., Brehm 1966, Fitzsimons 2000, Zhang and Fitzsimons 1999) has shown that reactance-style responses involve a variety of affective, cognitive, and behavioral dimensions. Thus, they expected – and found - that particular forms of recommendations elicited reactance within the decision maker and lead to reduced satisfaction with the decision process and increased difficulty in making a decision. Therefore, in study C, after subjects made decisions in the economic games, they were asked to rank their satisfaction from their decision making process on a (5) to (-5) scale.

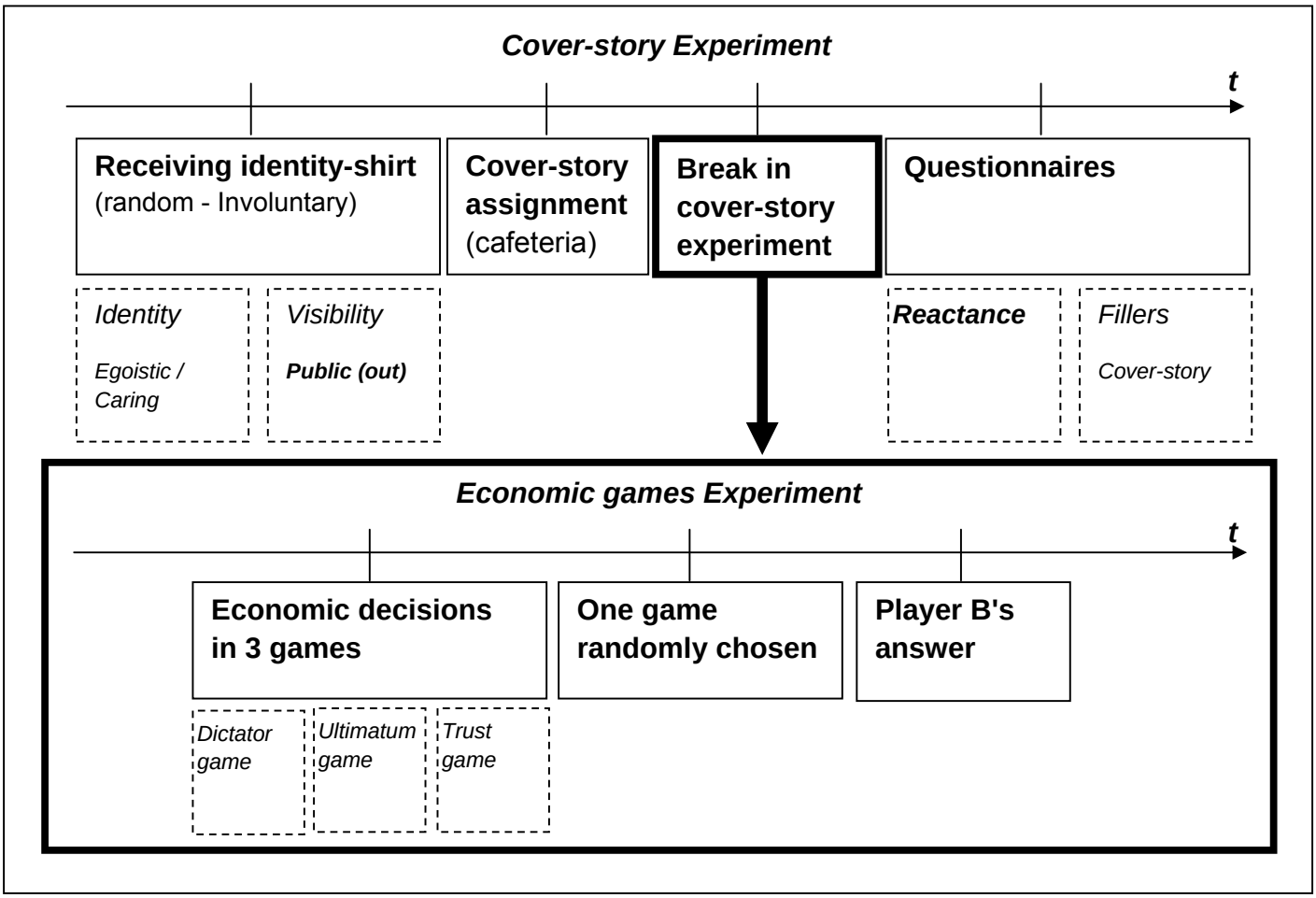
Procedure

Study C uses the same procedure and manipulation that were used in study B, but this time reactance and satisfaction from decision making were measured.

Diagram 4 presents the graphic timeline for each subject in study C.

DIAGRAM 4

STUDY C – GRAPHIC TIMELINE FOR EACH PARTICIPANT



signaling (visible to others) condition only. Next, results in each game are presented and explained.

Dictator game. Participants gave Player B an average of 2.3NIS. No significant effects were found.

Ultimatum game. Participants gave Player B an average of 4.5NIS. No significant effects were found.

Trust game. Participants gave Player B an average of 4.43NIS in this game. A significant identity effect was found: under the public signaling condition, a significant difference between the "Egoistic" and "Caring" identities is found ($t = 0.241$; $p = 0.05$), as subjects wearing the "Caring" identity gave on average 3.86NIS to the other player, while subjects wearing the "Egoistic" identity gave considerably more: on average 5.04NIS. In other words, subjects were, again, *oppositely* affected by the identities they signaled *when their signaling was visible to others.*

The effects of signaling on Reactance

No significant effect of the signaled identity on reactance levels was found, as subjects wearing the "Caring" identity scored on average 3.75 on the reactance scale, while subjects wearing the "Egoistic" identity scored on average 7.76 ($p>0.05$). Similarly, no significant effect of the signaled identity on satisfaction from decision making was found either.

Conclusions

Results of study C replicate the findings of study B by demonstrating once again the opposite effect identity-signaling has on behavior when signaling is socially visible.

Results of study C also rule out reactance as a possible mechanism explaining this socially opposite behavioral effect.

3.3.3 Study D – Ruling out priming

Previous priming research had addressed signaling-related domains in a limited way and examined some specific aspects only: For example, a recent study by Fitzsimons et al (2008) has partly answered this question as it had focused solely on the effects of priming through *subliminal* exposure to goal-oriented brands (such as Apple) on subjects' behavior (i.e. creativity task), and demonstrated that the basic priming effects can exist through brands; Berger and Fitzsimons (2008) examine how *environmental* cues (such as pen or trees color) influence choice and behavior (i.e. color-related products); and Maimaran and Wheeler (2008) examine how

exposure to different visual stimulus graphic arrays influence variety and uniqueness seeking in consumer choice.

While the current research is indeed interested in the effects of top-of-mind words on behavior, it intends to demonstrate some effects that can not be explained by priming alone: It examines the effects of the *actual usage* of the brand on the user's *own* behavior and *self*-perception, focuses on *identity-signaling* brands that can have the ability to signal something about the *user's* identity or traits, and suggests fine subtleties and distinctions that are not explained by the general priming framework.

More specifically, as previously noted, the current research distinguishes and examines the differences between two types of signaling through brand usage (within the identity-signaling framework) based on their visibility to the self and others: *Private-signaling*, in which signaling is visible only to the user, and *Public-signaling*, in which signaling is publicly visible to others as well.

Furthermore, we later specifically examine the effects of voluntary signaling (active signaling usage that was voluntarily chosen and performed by the user) as well as un-voluntary signaling (signaling usage that was performed in a compulsory, or even unaware and passive, manner). We further examine the signaling effects under various interesting conditions, such as the case of desirable and undesirable signaling.

In addition to the theoretical distinction presented above, study D specifically addresses the Priming alternative explanation and directly examines whether the current research merely demonstrates a simple priming effect.

Manipulation

The identity-signaling product

Study D uses the same basic methodology as studies B and C, in the sense of using the printed t-shirts as the identity tool, and the experimental economic games as a means of measuring generosity. All subjects were randomly assigned to one of the t-shirts, and were wearing them in a busy social environment ('public' condition) with the word printed outside.

Measurement

Behavior - The dependent variable was designed to measure the subjects' behavior. More specifically, as in previous studies, we measured Subject's behavior, in the sense of his decisions in the experimental economic game, i.e., how much money the subject decided to send to the other player in the trust game.

Procedure

As previously noted, study D uses the same procedure and manipulation as in studies B and C. However, subjects in study D were randomly assigned to one of two conditions:

"*Signaling*" – in which subjects were wearing the identity-shirts themselves (in a similar manner to previous studies).

"Priming" – in which the identity-shirt was hung on the wall (rather than worn by the subject). The identity shirt was hung in a prominent well-visible place, right in front of the eyes of the subject and was not discussed. In order to fill the gap in the cover story (which supposedly examines the effect of color), subjects were shown a black cardboard card (instead of being given a black shirt to wear).

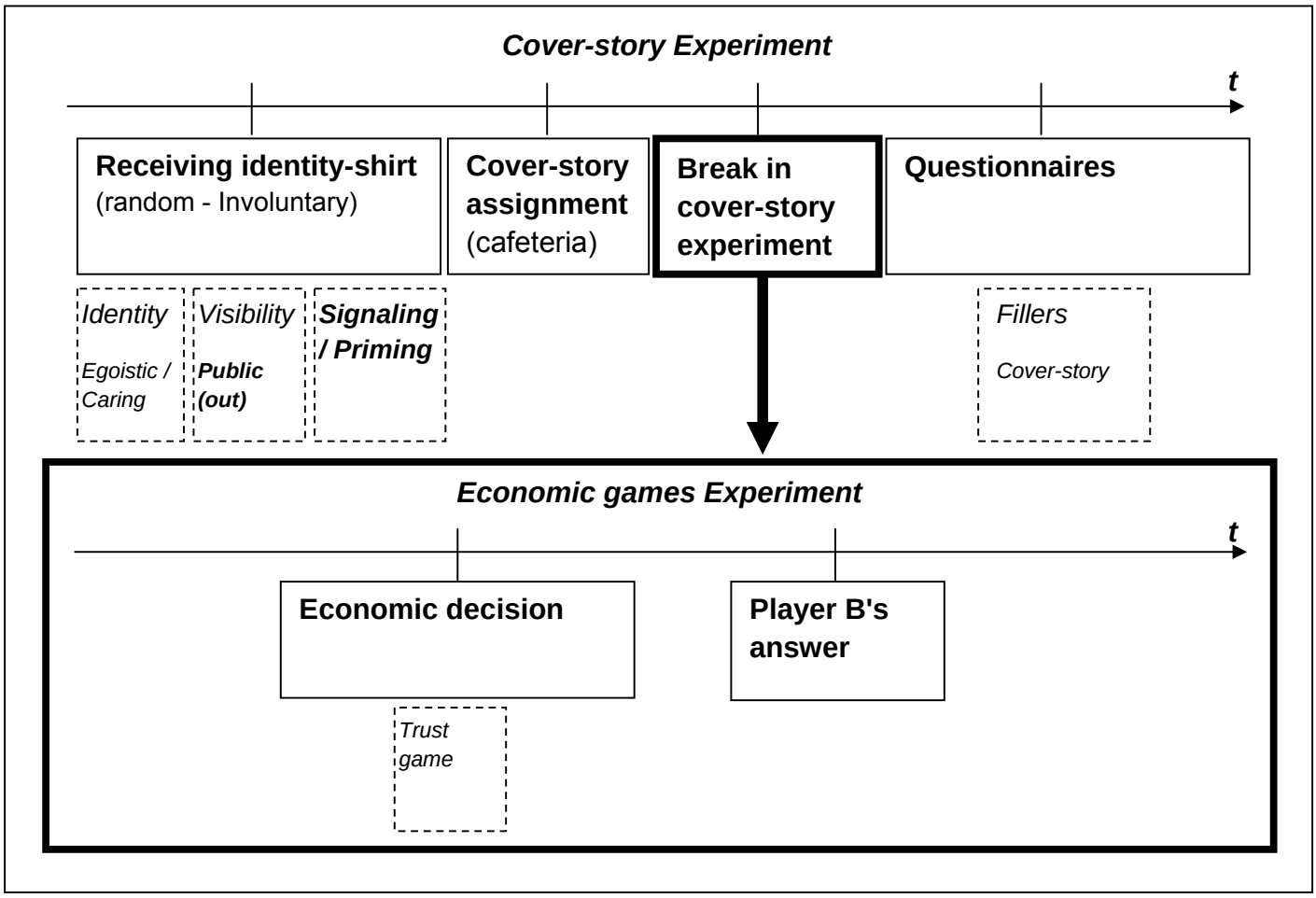
Comparing the effects of these two conditions enabled a direct examination of the signaling effect versus the priming effect.

Since previous studies demonstrated the signaling effect occurs only in the trust game, the economic game part of study D focuses on the trust game.

Diagram 5 presents the graphic timeline for each subject in study D.

DIAGRAM 5

STUDY D – GRAPHIC TIMELINE FOR EACH PARTICIPANT



Thus, Study D used a 2x2 between-subjects design (identity x priming/visibility). 105 subjects, all undergraduate students, participated in the study. 17 subjects were removed from the sample (either because experimenters revealed they were pre-informed about the cover story by previous participants, because they have discovered the manipulation by themselves and gave biased answers, or because they did not want to participate in the experimental economic games).

Results and Discussion

The effects of signaling on behavior versus the effects of priming

A two-way ANOVA on Player A's behavior (*sum of money sent to Player B out of 10NIS in each game*) was conducted. Independent variables were *Identity* (Egoistic / Caring) and the

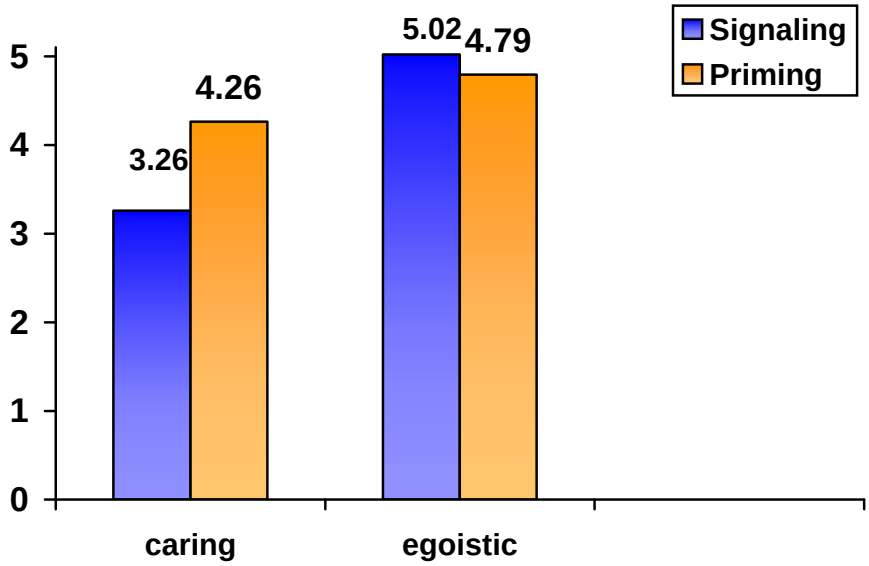
priming/signaling condition, all under *public signaling* (visible to others) condition. Next, results in the *Trust game* are presented and explained.

Participants gave Player B an average of 4.36NIS in this game. As in previous studies, a significant identity effect was found under the public signaling condition ($t = -2.193$; $p < 0.05$), as subjects wearing the "Caring" identity gave on average 3.26NIS to the other player, while subjects wearing the "Egoistic" identity gave considerably more: on average 5.02NIS (Figure 5). In other words, subjects were, as in our previous studies, *oppositely* affected by the identities they signaled *when their signaling was visible to others.* However, no significant identity effect was found under the priming condition (Figure 5).

FIGURE 5

TRUST GAME:

THE EFFECTS OF IDENTITY ON AVERAGE GIVING TO PLAYER B



Conclusions

Results of study D rule out Priming as a possible mechanism explaining the socially opposite effect.

In addition, and as will later be demonstrated, study H incorporates choice and thus will strengthen ruling out of the priming alternative explanation: If the effect can be explained by mere priming – choice should not change the effect. However, we find a change in the effect when allowing choice into the equation.

In addition, results of study D once again replicate the findings of studies B and C by demonstrating again the opposite effect identity-signaling has on behavior when signaling is socially visible.

3.4 Is it all about others?

As previously demonstrated, the opposite behavioral effect only occurs when signaling is visible to others. As previously suggested, this implies that the opposite social effect has something to do with the user's *perceptions of others*.

Gilovich et al. (2000) demonstrated that we tend to overestimate the extent to which our appearance and behavior are noticed by others. Thus, the next three studies ask whether the 'signaler', wearing the identity-shirt, not only perceives *herself* differently, but rather perceives *others*' *perceptions of her* differently as well; Furthermore, will one perceive *others' traits* differently due to her own signaling? The results of a recent study by Bargh et al. (2008) may imply an affirmative answer to these questions. Bargh et al. suggested that once active, goals will operate on other goal-relevant content in the environment. For example, it was demonstrated that the goal of evaluating a job applicant for either a waiter or crime reporter position shapes the impressions of incidental bystanders in the situation. Similarly, one might suggest that an active “egoistic“ goal might shape the subject's perception of others - with whom she interacts - as egoistics as well.

Studies E, F and G were specifically designed to address this hypothesis, in an attempt to understand the underlying mechanism behind the opposite behavioral effect.

Thus, while the previous studies measured only one aspect of subjects' perceptions as a dependent variable (the aspect of *self*-perception), Studies E, F and G incorporate dependent variables that focus on the individual's perceptions of *others*’ traits as well as others' perceptions of her.

We start by presenting some indications supporting this hypothesis based on our previous studies. We then present the three studies, E, F and G, designed to directly measure the user's perceptions of others.

Some indirect evidence

As previously noted, the fact that the opposite behavioral effect occurred only when signaling was visible to others, implies that the underlying mechanism has something to do with the user's perceptions of others.

Another indicator for this is the lack of a similar effect in the dictator game (versus the occurrence of one in the trust game). As previously explained, in the trust game, player A sends player B money while knowing player B ("returner") will later decide how much to send back. Thus, the trust game is, by it's nature, a social game that conveys player A's perception of others and expectation from them. In the dictator game, on the other hand, Player A, the dictator, divides a fixed sum of money between herself and the recipient (Player B), while Player B has no choice but to accept the allocation. Thus, the dictator game reflects 'clean' self-generosity, regardless of others.

Both studies B and C demonstrated that while signaling did have an effect in the social trust game, it did not yield any effect in the dictator game. This suggests that indeed, the effect has something to do with the user's perceptions of others.

Next, we describe studies E, F and G, designed to specifically measure user's perceptions of others, and present the results.

3.4.1 Study E (4) - User's General perceptions of others

Study E aims at directly examining user's perceptions of others, in the sense of general, non-specific, others.

Manipulation

The identity-signaling product

Study E uses the same identity-signaling t-shirts that were used in the previous studies (i.e., Egoistic and Caring), and focuses on the public signaling condition (words printed outside the shirt).

Thus, the current study had two conditions. 101 subjects, all undergraduate students, participated in the study. 15 subjects were removed from the sample (either because experimenters revealed they were pre-informed about the cover story by previous participants, because they have discovered the manipulation by themselves and gave biased answers, or because they did not want to participate in the experimental economic games).

Measurements

The dependent variables were designed to measure the subjects' perceptions of others. More specifically, subjects were asked to evaluate scenarios on a (-5)-(5) scale, measuring:

Subject's perception of *others' traits* – Subjects were presented with a scenario depicting an ambiguous behavior, and were asked to evaluate the behavior of another person described in

the scenario. The scenario was constructed so that the behavior could be interpreted in terms of one of the two signaled traits – egoistic (-5) or caring (5): "You are about to have some guests over within the hour, and you find out you ran out of milk for the coffee. You rush over to the local convenient store (and the only one in your neighborhood) only to find out the owner had just closed the store. You ask him to open for a minute so that you can buy some milk for your guests. He says he can not re-open since he is on his way to his little daughter's premiere at school, and she would be very disappointed if he does not make it on time. To what extent do you think the owner's behavior is selfish (-5) or considerate (5)?"

Subject's perception of *how others perceive her* – Subjects were presented with a scenario depicting an ambiguous behavior in which they have supposedly taken part and behaved in a certain way, and were asked to evaluate how others would judge their own behavior in this scenario. The scenario was constructed so that the behavior could be interpreted in terms of one of the two signaled traits – egoistic (-5) or caring (5): "Your neighbor takes an exam tomorrow in an important course that you have already passed with great success. He can not understand a certain subject and is worried that if he doesn't get help – he would fail. He asks you to help him study for the exam. You reply that you cannot make the time since you promised you girlfriend you will cook a romantic dinner for your one year anniversary. To what extent do you think your neighbor will perceive you behavior as selfish (-5) or considerate (5)?"

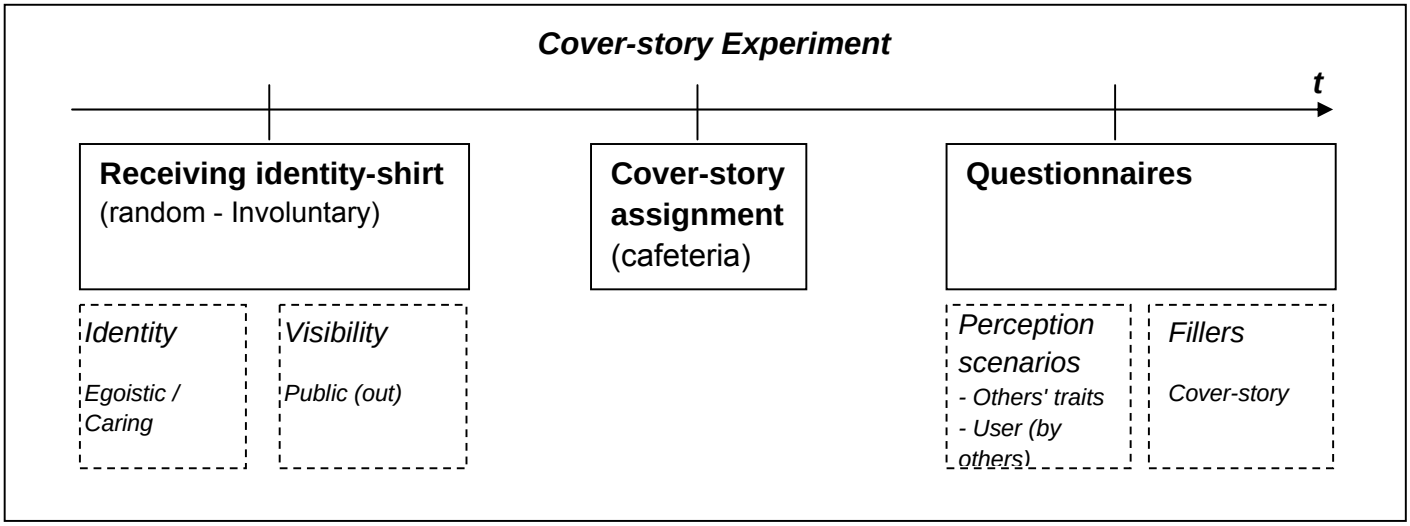
Procedure

Study E used the cover story procedure and manipulation as in studies B and C (apart from introducing the perception scenarios), and did not include the economic games experiment.

Diagram 6 presents the graphic timeline for each subject in study E.

DIAGRAM 6

STUDY E – GRAPHIC TIMELINE FOR EACH PARTICIPANT



Results and Discussion

The effects of signaling on user's perception of others' traits

A one-way ANOVA on subject's perception of others' traits (*egoistic/caring*) was conducted. Independent variable was *signaled Identity (Egoistic / Caring*) under *public signaling* (visible to others) condition only.

No significant effect of the signaled identity on user's perception of other's traits was found.

The effects of signaling on user's perception of how others perceive him

A one-way ANOVA on subject's perception of how others perceive him (*egoistic/caring*) was conducted. Independent variable was *signaled Identity (Egoistic / Caring*) under *public signaling* (visible to others) condition only.

Participants thought others generally perceived them as egoistic (mean = -2.17). A significant identity effect was found between the “Egoistic“ and “Caring“ identities ($t = -2.19$; $p < 0.05$), as subjects wearing the “Egoistic“ identity thought other perceived them as more egoistic (mean = -2.55) than did subjects wearing a "Caring" t-shirt (and thought they were perceived as less egoistic, mean = -1.82). In other words, subjects' perceptions of *how others perceive them* were *directly* affected by the identities they signaled when their signaling was *visible to others*.

Conclusions

Results of study E demonstrate that when signaling is visible to others, subject's perception of others, and more specifically – how she thinks others perceive her, is directly affected by the identity she signals. This finding suggests that the mechanism that lies at the basis of the opposite social behavioral effect is indeed driven by user's perception of how others perceive her.

3.4.2 Study F – The mechanism behind the effect: User's perception of the other player, and it's mediating effect on behavior

Study F was designed to examine subject's perception of another, specific, person she interacts with while wearing the identity-shirt - and more specifically, how she thinks the other player in the economic game (player B) perceives her - and to directly link this perception to subject's behavior.

Manipulation

The identity-signaling product

Study F uses the same identity-signaling t-shirts that were used in the previous studies (i.e., Egoistic and Caring), and focuses on the public signaling condition (words printed outside the shirt).

Thus, the current study has two conditions. 125 subjects, all undergraduate students, participated in the study. 18 subjects were removed from the sample (either because experimenters revealed they were pre-informed about the cover story by previous participants, because they have discovered the manipulation by themselves and gave biased answers, or because they did not want to participate in the experimental economic games).

Measurements

The dependent variables were designed to measure the subjects' behavior, as well as their perceptions and expectations of the anonymous player B in the trust game. More specifically, we have measured:

Subjects' *behavior*. As in previous studies, we measured subject's behavior, in the sense of her decisions in the experimental economic game, i.e., how much money the subject decided to *send* to the other player in the trust game.

In addition, subjects were asked to evaluate player B's expectations and expected behavior on a (-5)-(5) scale, measuring:

Subject's perception of *Player B's traits* – after declaring their decision in the trust game, subjects were asked to evaluate player B's *expected behavior*: "To what extent do you think the other player's behavior would be selfish (-5) or considerate (5)?"

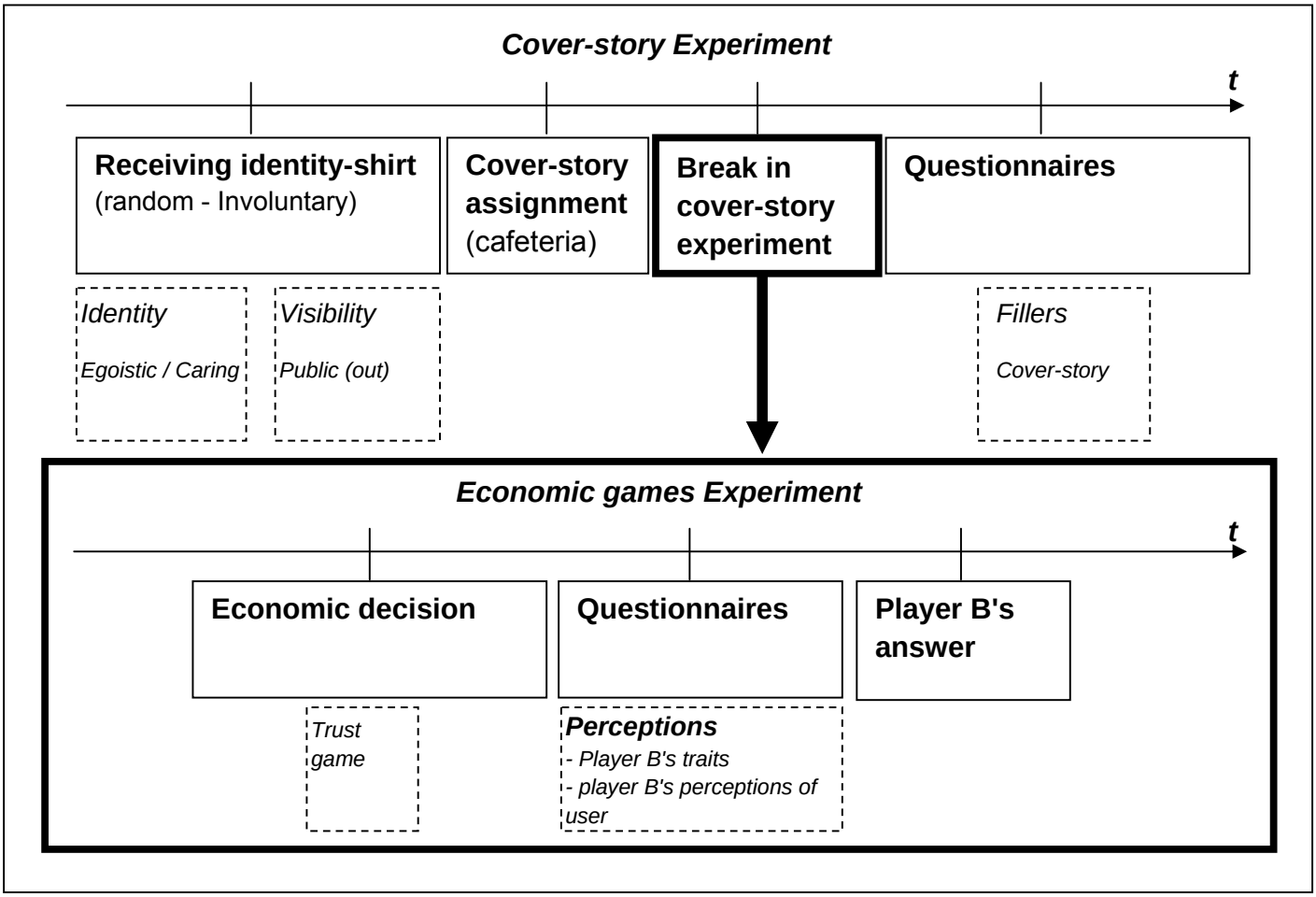
Subject's perception of *how player B perceives her* – after declaring their decision in the trust game, and evaluating the expected behavior of player B, subjects were asked to evaluate *player B's expectations* of them: "Now go back to your decision in the game. You have decided to send the other player a sum of _____ NIS. To what extent do you think the other player expected you to send him less (-5) or more (5) than what you have sent?"

Procedure

Study F used the same procedure and manipulation as in studies B, C and E (apart from introducing the above perception questions in the economic game part of the experiment). Diagram 7 presents the graphic timeline for each subject in study F.

DIAGRAM 7

STUDY F – GRAPHIC TIMELINE FOR EACH PARTICIPANT



Results and Discussion

The effects of signaling on behavior

A one-way ANOVA on Player A's behavior (*sum of money sent to Player B out of ₪10 in each game*) was conducted. Independent variable was *Identity* (Egoistic / Caring), under *public signaling* (visible to others) condition. Next, results in the *trust game* are presented and discussed.

Participants gave Player B an average of 5.93 NIS in this game. As in previous studies, a significant identity effect was found under the public signaling condition ($F(1,105) = 4.034$; $p < 0.05$), as subjects wearing the "caring" identity gave on average 5.43NIS to the other player, while subjects wearing the "egoistic" identity gave considerably more: on average 6.47NIS. In other words, subjects were, again, *oppositely* affected by the identities they signaled *when their signaling was visible to others.*

The effects of signaling on user's perception of other player's traits

A one-way ANOVA on subject's perception of others' traits (*egoistic/caring* - operationalized as subject's expectation from the other player) was conducted. Independent variable was the *signaled Identity (Egoistic / Caring*) under *public* signaling (visible to others) condition.

No significant effect of the signaled identity on subject's perceptions of the other player was found.

The effects of signaling on user's perception of how the other player perceives him

A one-way ANOVA on subject's perception of how others perceive her (*egoistic/caring*) (operationalized as her perception of how others expected her to behave) was conducted. Independent variable was *signaled Identity (Egoistic / Caring*) under *public signaling* (visible to others) condition.

Participants thought others generally perceived them as slightly egoistic (mean = -0.98). A significant identity effect was between the "Egoistic" and "Caring" identities was found ($F(1,105)=3.942$, $p=0.05$), as subjects wearing the "egoistic" identity thought that the other player perceived them as more egoistic (i.e.: expected they would give considerably less; mean = -1.35) than did subjects wearing a "caring" t-shirt (and thought they were expected to give only slightly less, mean = -0.64). In other words,

subjects' perceptions of *what the other player expected of them* were *directly* affected by the identities they signaled when their signaling was *visible to others*.

Mediation – User's perception as mediating the identity effect on behavior

A series of 3 regressions was conducted in order to test for a mediation effect (Barron and Kinney, 1986):

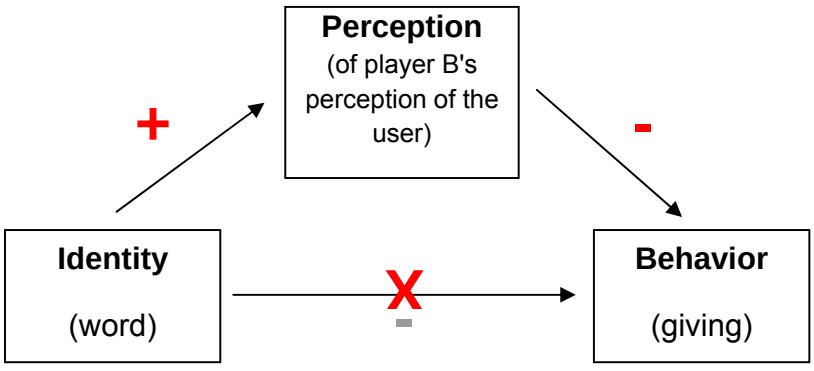
The effect of the Independent variable (*signaled identity*) on the mediator (*user's perception of how the other player perceives her*): a *direct*, significant effect was found (B=0.355; t=1.985, sig=0.05).

The effect of the Independent variable (*signaled identity*) on the dependent variable (*user's behavior*): an *opposite*, significant effect was found (B= -0.521; t= -2.008, sig=0.047).

However, when examining the combined effect of both the independent variable (*signaled identity*) *and* the mediator (*user's perception of how the other player perceives her*) on the dependant variable (behavior) – a strong mediator (*perception*) opposite effect appears (B= -0.661; t= -5.224, sig=0.000) while the independent variable (*identity*) effect on behavior disappears (B= -0.286; t= -1.2
sig=0.229). In other words, it is the way the user thinks *the other player perceives her* that is affected by signaling and affects her behavior (Figure 9).

FIGURE 9

MEDIATION EFFCT



Conclusions

Results of study F replicate and strengthen the results of the previous studies. In addition, results of study F provide evidence regarding the mechanism that lies at the basis of the opposite social behavioral effect, and suggest that this effect is indeed driven by user's perception of how others perceive her: results demonstrate that when signaling is visible to others, subject's perception of others (how she thinks others perceive her), is directly affected by the identity she signals (e.g., a subject wearing an "egoistic" t-shirt thinks others perceive her as egoistic), and this perception, in turn, oppositely effects her behavior (e.g., if a subject thinks others perceive her as egoistic – she behaves in a more generous manner than would a subject thinking others perceive her as caring).

3.4.3 Study G – Defining and measuring "other's perceptions" as specific monetary expectations (from the user)

Study G was designed to more specifically examine subject's perception of the other player - and more specifically, how much exactly she thinks the other player in the economic game (player B) expects her to send him - and to directly link this perception to subject's behavior.

Manipulation

The identity-signaling product

Study G uses the same identity-signaling t-shirts that were used in the previous studies (i.e., Egoistic and Caring), and focuses on the public signaling condition (words printed outside the shirt).

Thus, the current study had two conditions. 121 subjects, all undergraduate students, participated in the study. 23 subjects were removed from the sample (either because experimenters revealed they were pre-informed about the cover story by previous participants, because they have discovered the manipulation by themselves and gave biased answers, or because they did not want to participate in the experimental economic games).

Measurements

The dependent variables were designed to measure the subjects' behavior, as well as their perceptions and expectations of the anonymous player B in the trust game. More specifically, we have measured:

Subjects' *behavior*. As in previous studies, we measured subject's behavior in the sense of his decisions in the experimental economic game, i.e., how much money the subject decided to *send* to the other player in the trust game.

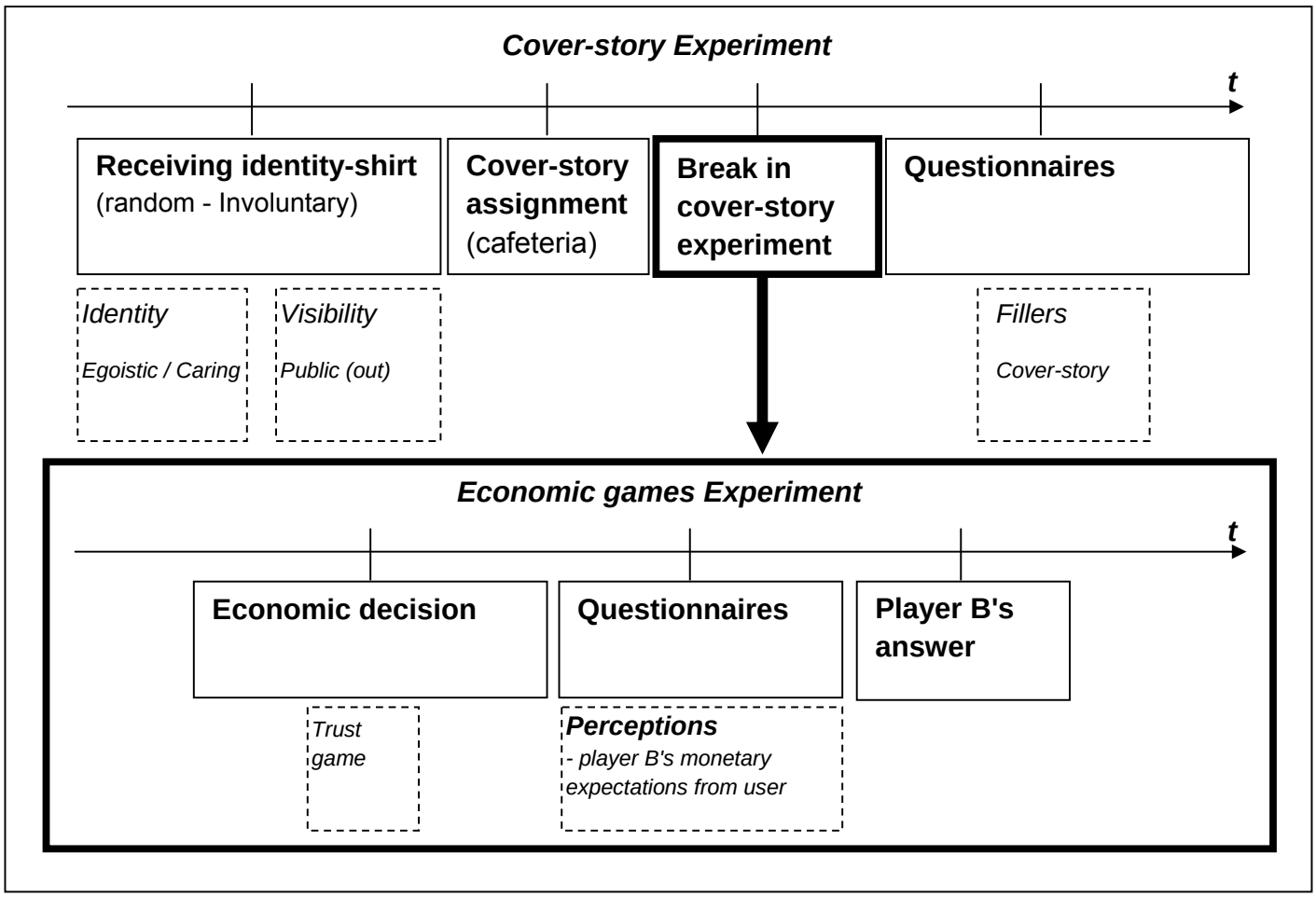
Subject's perception of *how player B perceive her* – after declaring their decision in the trust game, and evaluating the expected behavior of player B, subjects were asked to evaluate *player B's numerical expectations* of them: "To your estimation, What sum did the receiver expected you to send him?. You have decided to send the other player a sum of _____ NIS. The sum you think the other player expected you to send him:_____ NIS. "

Procedure

Study G uses the same procedure and manipulation as in studies B, C, E and F (apart from introducing the above perception question in the economic game part of the experiment). Diagram 8 presents the graphic timeline for each subject in study G.

DIAGRAM 8

STUDY G – GRAPHIC TIMELINE FOR EACH PARTICIPANT



Results and Discussion

The effects of signaling on behavior

A one-way ANOVA on Player A's behavior (*sum of money sent to Player B out of ₪10 in each game*) was conducted. Independent variable was *Identity* (Egoistic / Caring), under *public signaling* (visible to others) condition. Next, results in the *trust game* are presented and discussed.

Participants gave Player B an average of 6.31NIS in this game. As in previous studies, a significant identity effect was found under the public signaling condition ($F(1,96) = 4.221$; $p < 0.05$), as subjects wearing the "Caring" identity gave on average 5.82NIS to the other player, while subjects wearing the "Egoistic" identity gave considerably more: on average 6.81NIS. In other words, subjects were, again, *oppositely* affected by the identities they signaled *when their signaling was visible to others.*

The effects of signaling on user's perception of how the other player perceives him

A one-way ANOVA on subject's perception of how others perceive him (*egoistic/caring*) (operationalized as his perception of *how much* others expected him to send) was conducted. Independent variable was *signaled Identity (Egoistic / Caring*) under *public signaling* (visible to others) condition.

Participants thought others generally expected them to give 5.28NIS. A significant identity effect was found between the "Egoistic" and "Caring" identities was found ($F(1,96)=4.315$, $p<0.05$), as subjects wearing the "Egoistic" identity thought that the other player perceived them as more egoistic (i.e.: expected them to give less; mean= 4.71) than did subjects wearing a "Caring" t-shirt (and thought they were expected to give more, mean = 5.82). In other words, subjects' perceptions of *what the other player expected of them* were *directly* affected by the identities they signaled when their signaling was *visible to others*.

Mediation – User's perception as mediating the identity effect on behavior

A series of 3 regressions was conducted in order to test for a mediation effect (Barron and Kinney, 1986):

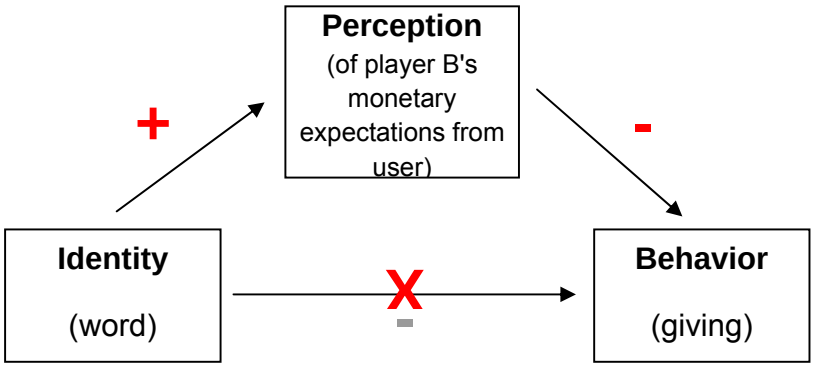
The effect of the Independent variable (*signaled identity*) on the mediator (*user's perception of the way the other player perceives her or expects from her*): a *direct*, significant effect was found (B=0.556; t=2.077, sig=0.04).

The effect of the Independent variable (*signaled identity*) on the dependent variable (*user's behavior*): an *opposite*, significant effect was found (B= -0.496; t= -2.054, sig=0.043).

However, when examining the combined effect of both the independent variable (*signaled identity*) *and* the mediator (*user's perception of how the other player perceives her or expects from her*) on the dependant variable (behavior) – a significant mediator (*perception*) opposite effect appears (B= -0.192; t= -2.121, sig=0.037) while the independent variable (*identity*) effect on behavior disappears (B= -0.390; t= -1.606; sig=0.112). In other words, it is the way the user thinks *the other player perceives* her, or more specifically – *how he expects her to behave* - that is affected by signaling and affects her behavior (Figure 12).

FIGURE 12

MEDIATION EFFCT



Conclusions

Results of study G replicate and strengthen the results of study F. Furthermore, they provide insight into the mechanism which lies as the basis of the opposite behavioral effect identity-signaling has when it is socially visible; Results of study G identify the specific aspect of the other player's perceptions of the user (as perceived by the user herself) which is affected by the signaled identity and affects user's behavior. Results indicate that when signaling is visible to others, it is subject's perception of the other player's behavioral/monetary expectations of her (e.g., the sum of money she thinks the other player expects her to send him in the economic game) that is directly affected by the identity she signals. Thus, a subject wearing a socially visible "egoistic" t-shirt would think that the other player expects her to send him less (than would a subject wearing a "caring" t-shirt). This perception, in turn, oppositely affects her behavior, such that she behaves generously, sending a larger sum of money (than would a subject thinking she is expected to send a larger sum).

4. Summary

The aim of the current research was to explore whether, and how, a brand can produce a change in the user's own behavior and perceptions, and to explore the underlying mechanism of these effects. It aimed at demonstrating that the consumer's behavior and perceptions depend (in the sense of causality) on the “personality” of the brand(s) s/he consumes and it's social visibility. More specifically, within the identity-signaling framework, the current research distinguished between two types of signaling through brand usage: Private signaling, wherein signaling is visible to the user only, and Public signaling, wherein signaling is visible to others as well.

A series of eight studies was designed and conducted in order to explore these research questions. Study A tested if, and to what extent, subjects’ self-perception changed as a result of using an identity brand and of the social context in which it is used. Study A also presented and validated a new experimental methodology for demonstrating identity-signaling effects; Study B further tested if, and to what extent, subjects’ actual behavior, as well as perceptions, changed as a result of using an identity brand and of it's social visibility. Study B also re-validated the experimental procedure, and provided indications for a preliminary explanation to the behavioral effect – user's perceptions of others. Studies C and D, as well as a theoretical explanation, eliminated alternative explanations. Study E explored and tested various aspects of the preliminary explanation, and study F focused on a specific aspect and validated it. Study G further identified the specific mechanism through which the behavioral effect took place.

Findings reveal that signaling (either socially visible or not), directly effects user's self-perception in the direction of signaling (Study A). For example, a user that signals "egoistic" also perceives herself as such.

When signaling is private (not socially visible), behavior is also directly effected by signaling (Study B) - a user that signals "egoistic" also behaves in a selfish manner in an economic game and sends another, anonymous, player less money (than does a user that signals "caring").

However, when signaling is visible to others as well, the user thinks others, too, perceive her in the direction of signaling (Study E). For example, a user that signals "egoistic" thinks others perceive her as egoistic and expect her to behave as one. More specifically, she thinks the other player in the economic game expects her to send him a lower sum of money (even though her signaling is not visible to him; Studies F and G). The importance of other's perception than becomes prominent (rather than self-perception), so that she behaves oppositely (Studies B, F ,G) – and sends him a larger sum of money (larger than she would have sent had she been signaling "caring" rather than "egoistic"), in order to rectify his perception of her.

The current research advances precious research in several ways. First, while previous research has focused on the reasons people use identity brands (e.g., Berger and Heath 2008; Ariely and Levav 2000) and on the effects that these brands' usage has on others (e.g., Berger and Heath 2008; Berger and Rand 2008; Fennis and Pruyn 2007), the current research explored the ability of an identity brand to produce a change in the user's own behavior and perceptions. Second, previous literature focused on the intended target of signaling, and used the term *social signaling* only when targeted at others, as opposed to self-signaling, which is targeted only at the self. In reality, however, the results of the two overlap. Thus, the current research uses a differing terminology that distinguishes between two types of signaling based on the latters' *visibility* to the self and others: *Private signaling*, i.e., signaling revealed to the self (the user) only, and *Public signaling*, i.e., signaling visible to others as well as to the user (in contrast to *social signaling*, which is targeted at others *only* and ignores the influence on the self). Third, while in many life situations signaling is involuntary or even unaware, the existing literature does not explore such cases; rather, it focuses on cases wherein the signaled identity is voluntarily chosen by the user (as demonstrated earlier). The current research specifically addressed and examined the effects of involuntary signaling. Lastly, the current research drew a further distinction within involuntary signaling, between the effects of undesirable signaling and desirable (positive) signaling, which has been the focus of previous research and the literature described above.

This study has several limitations: first, the current research used printed t-shirts as the identity-signaling tool, examined two specific moral identities in a specific context (economic games) and setting (lab experiments), and did not examine the effects of real-life brands. However, a real-life brand conveys a range of various identity-signaling messages that may vary depending on the user's subjective interpretation of the brand and context. Since the goal of the current research was to demonstrate and explore a new, basic, effect, using real-life brands would have not allowed the direct and clean manipulations and measurements that were necessary for

accomplishing this goal. Second, other conditions under which the identity-effect takes place should be further explored, as should it's implications for various consumption situations.

These findings of the research provide implications for researchers, policy-makers, consumers, and marketers with an additional new understanding of the effects that brand usage has on the user's own behavior and perceptions, of a brand's ability to influence them, and of users' ability to influence themselves through using the appropriate brand: The current research provides researchers with insights and new additional explanations to why, and when, consumers use identity brands and to the symbolic utilities embedded therein; Social policy makers are provided with a potential tool for influencing public service employees, school students, and society as a whole; Consumers are encouraged to facilitate the usage of signaling in various contexts to influence themselves and others; Finally, findings have practical implications for marketers and practitioners, indicating the kind of marketing messages that are most effective for each type of product, consumption occasion, or motivation, and providing marketers with a new tool for influencing consumers' behavior and perceptions.

References

Aaker, Jennifer (1997) “Dimensions of Brand Personality,“ *Journal of Marketing Research*, 34 (3), 347-356.

— (1999) “The Malleable Self: the Role of Self-expression in Persuasion,“ *Journal of Marketing Research*, 36 (1), 45-57.

Abrams, Dominic (1994) “Social Self-Regulation“, *Personality and Social Psychology Bulletin*, 20 (5), 473-483.

Aquino, Karl and Americus Reed (2002) “The Self-importance of Moral Identity“, *Journal of Personality and Social Psychology*, 83 (6), 1423-1440.

Ariely, Dan and Jonathan Levav (2000) “Sequential Choice in Group Settings: Taking the Road Less Traveled and Less Enjoyed“, *Journal of Consumer Research*, 27 (3), 279-290.

Bargh, John A.; Michelle Green; and Gráinne Fitzsimmons (2008) “The Selfish Goal: Unintended Consequences of Intended Goal Pursuits“, *Social Cognition*, 26 (5), 534-554.

Bandura, Albert (1977) *Social Learning Theory*. Englewood Cliffs, NJ: Prentice-Hall.

Barron, Reuben M. and David A. Kinney (1986) "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations", *Journal of Personality and Social Psychology*, 51 (6), 1173-1182.

Batra, Rajeev; Venkatram Ramaswamy; Dana L. Alden; Jan-Benedict E.M. Steenkamp; and S. Ramachander (2000) “Effects of Brand Local and Nonlocal Origin on Consumer Attitudes in Developing Countries“, *Journal of Consumer Psychology*, 9(2), 83-95.

Baumeister, Roy F. (1998) “The Self“ in D. T. Gilbert, S. T. Fiske, and G. Lindzey (eds.), *The Handbook of Social Psychology*, pp. 680–740. New York: McGraw-Hill.

Belk, Russell W. (1988) “Possessions and the Extended Self“, *Journal of Consumer Research*, 15 (2), 139-168.

Bem, Daryl. J. (1972) “Self-Perception Theory“ in L. Berkowitz (ed.), *Advances in Experimental Social Psychology* (6). New York: Academic Press.

Benabou, Roland and Jean Tirole (2000) “Willpower and Personal Rules“, *Princeton mimeo*, June.

— (2006) “A Cognitive Theory of Identity“. Working paper.

Berger, Jonah and Chip Heath (2007) “Where Consumers Diverge from Others: Identity Signaling and Product Domains“, *Journal of Consumer Research*, 34 (2), 121-134.

— (2008) “Who Drives Divergence? Identity Signaling, Outgroup Dissimilarity, and the Abandonment of Cultural Tastes“, *Journal of Personality and Social Psychology*, 95 (3), 593–607.

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

Berger, Jonah and Lindsay Rand (2008) “Shifting Signals to Help Health: Using Identity Signaling to Reduce Risky Health Behaviors“, *Journal of Consumer Research*, 35, 509-518.

Bodner, Ronit and Drazen Prelec (2001) “Self-signaling and Diagnostic Utility in Everyday Decision-making“ in I. Brocas and J. Carillo (eds.), *Collected Essays in Psychology and Economics*. Oxford, UK: Oxford University Press, 2002.

Brehm, J. W. (1966). *A theory of psychological reactance*. New York: Academic Press.

Brehm, J. (1972), *Responses to Loss of Freedom: A Theory of Psychological Reactance*, General Learning Press, Morristown, NJ.

Brunsman, David L. and Kerry Ann Rockquemore (1998) “Effects of Student Uniforms on Attendance, Behavior Problems, Substance Use, and Academic Achievement“, *Journal of Educational Research*, 92(1), 53-63.

Camerer, C.F. and Fehr E. (2002) “Measuring Social Norms and Preferences Using Experimental Games: A Guide for Social Scientists“ in J. Henrich, J. P. Henrich, R. Boyd, S. Bowles, C. Camerer, E. Fehr, and H. Gintis (eds.), *Foundations of Human*

Sociality: Experimental and Ethnographic Evidence from 15 Small-scale Societies. Oxford, UK: Oxford University Press.

Caruso, Peter (1996) “Individuality vs. Conformity: The Issue Behind School Uniforms“, *NASSP Bulletin*, 80 (581), 83-88.

Clee, M. and Wicklund, R. (1980) “Consumer behavior and psychological reactance”, *Journal of Consumer Research*, Vol. 6 No. 4, pp. 389-405.

Dunning, David, Chip Heath, and Jerry M. Suls (2004) “Flawed Self-assessment“, *Psychological Science in the Public Interest, American Psychological Society*, vol. 5 (3), 69-106.

Escalas, Jennifer and James R. Bettman (2003) “You Are What They Eat: The Influence of Reference Groups on Consumer Connections to Brands“, *Journal of Consumer Psychology*, 13(3), 339-348.

— (2005) “Self-Construal, Reference Groups, and Brand Meaning“, *Journal of Consumer Research*, 32 (3), 378-389.

Festinger, L. (1957) *"A theory of cognitive dissonance*", Stanford, CA: Stanford University Press.

Fennis, Bob M. and Ad Th. H. Pruyn (2007) "You are what you wear: Brand personality influences on consumer impression formation", *Journal of Business Research*, 60, 634-639.

Fitzsimons, Gavan J. (2000) "Consumer response to stockouts", *Journal of consumer research*, 27(2) 249-266.

Fitzsimons, Gavan J. and Donald R. Lehmann (2004) "reactance to recommendation: when unsolicited advice yield contrary responses, *Marketing Science*, 23 (1), 82-94.

Fitzsimmons, Gra'inne M.; Tanya L. Chartrand; and Gavan J. Fitzsimmons (2008) “Automatic Effects of Brand Exposure on Motivated Behavior: How Apple Makes You ‘Think Different’“, *Journal of Consumer Research*, 35, 21-35.

Gilovich, Thomas; Victoria Husted Medvec; and Kenneth Savitsky (2000) “The Spotlight Effect in Social Judgment: An Egocentric Bias in Estimates of the Salience of One's Own Actions and Appearance“, *Journal of Personality and Social Psychology*, 78 (2), 211-222.

Holloman, Lillian 0. (1995) “Violence and Other Antisocial Behaviors in Public Schools: Can Dress Codes Help Solve the Problem?“, *Journal of Family and Consumer Sciences*, 87, 33-38.

Hong, S. M. (1992) "Hong’s Psychological Reactance Scale: A further factor analytic validation", *Psychological Reports*, 70, 512–514.

Hong, S. M., & Faedda, S. (1996) "Refinement of the Hong Psychological Reactance Scale", *Educational and Psychological Measurement*, 56, 173–182.

John, Oliver P. and Sanjay Srivastava (1999) “The Big Five Trait Taxonomy: History, Measurement, and Theoretical Perspectives“ in L. A. Pervin and O. P. John (eds.), *Handbook of Personality: Theory and Research* (2nd Edition). New York: Guilford.

King, Keith (1998) “Should School Uniforms be Mandated in Elementary School?“, *Journal of School Health*, 68(1), 32-37.

Levy, Sidney J. (1959) “Symbols for Sale“, *Harvard Business Review*, 37 (July-August), 117-24.

Lopez, Rebecca A. (2003) “The Long Beach Unified School District School Uniform Initiative: A Prevention-intervention Strategy for Urban Schools“, *Journal of Negro Education*, 72 (4), 396-406.

Maimaran, Michal and S. Christian Wheeler (2008) "Circles, Squares, and Choice: The effect of Shape Arrays on Uniqueness and Variety Seeking", *Journal of Marketing Research*, 6, 731-740.

McCracken, Grant (1989) “Who Is the Celebrity Endorser? Cultural Foundations of the Endorsement Process“, *Journal of Consumer Research*, 16 (3), 310-321.

Munitz, Albert M. and Thomas C. O'Guinn (2001) “Brand Community“, *Journal of Consumer Research*, 27 (4), 102-110.

Murnigham, J. Keith; John M. Oesch; and Madan Pillutla (2001) “Player Types and Self-impression Management in Dictatorship Games: Two Experiments“, *Games and Economic Behavior*, 37, 388-414.

Paliokas, Kathleen; Mary Futrell; and Ray Rist (1996) “Trying Uniforms on For Size“, *American School Board Journal*, 183(5), 32-35.

Peterson, Christopher Martin and E. P. Seligman (2004). *Character Strengths and Virtues: A Handbook and Classification*. New York: Oxford University Press / Washington, DC: American Psychological Association.

Prelec, Drazen and Ronit Bodner (2003) “Self-signaling and Self-control“ in G. Loewenstein, D. Read, and R.F. Baumeister (eds.) *Time and Decision*, New York: Russell Sage Press.

Quattrone, George A. and Amos Tversky (1984) “Causal Versus Diagnostic Contingencies: On Self-deception and the Voter's Illusion“, *Journal of Personality and Social Psychology*, 46 (2), 237-248.

Schwartz, Shalom H. (1994) “Are There Universal Aspects in the Structure and Contents of Human Values?“, *Journal of Social Issues*, 50 (4), 19-45.

— (1992) “Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries“ in M. P. Zanna (ed.), *Advances in Experimental Social Psychology*, Vol. 25, 1-65. New York. Academic Press.

— (1996) “Value Priorities and Behavior: Applying a Theory of Integrated Value Systems“ in C. Seligman, J. M. Olson, and M. P. Zanna (eds.), *The Psychology of Values: The Ontario Symposium*, Vol. 8, 1-24. Hillsdale, NJ: Erlbaum.

— and Anat Bardi (2001) “Value Hierarchies Across Cultures: Taking a Similarities Perspective“, *Journal of Cross-Cultural Psychology*, 32 (3), 268-290.

Shafir, Eldar and Amos Tversky (1992) “Thinking Through Uncertainty: Nonconsequential Reasoning and Choice“, *Cognitive Psychology*, 24 (4), 449-474.

Snyder, C.R. (1992) “Product Scarcity by Need for Uniqueness Interaction: A Consumer Catch-22 Carousel“, *Basic and Applied Social Psychology*, 13 (1), 9-24.

Thomas, A., Donnell, A. J., & Buboltz, W. C. Jr., (2001) "The Hong psychological reactance scale: a confirmatory factor analysis", *Measurement and Evaluation in* Counseling and Development, 34, 2–13.

Tian, T. Kelly; William O. Bearden; and Gary L. Hunter (2001) “Consumers' Need for Uniqueness: Scale Development and Validation“, Journal of Consumer Research, 28 (1), 50-67.

Zhang, Shi and Gavan J. Fitzsimons (1999), "Choice process satisfaction: The influence of attribute alignability and option limitation". *Organ. Behavior Human Decision Processes*, 77(3), 192-214.