I Own, So I Help Out: How Psychological Ownership Increases Prosocial Behavior

I Own, So I Help Out: How Psychological Ownership Increases Prosocial Behavior

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This article explores the consequences of psychological ownership going beyond the specific relationship with the possession to guide behavior in unrelated situations. Across seven studies, we find that psychological ownership leads to a boost in self-esteem, which encourages individuals to be more altruistic. In addition, we show that the effect of psychological ownership on prosocial behavior is not driven by self-efficacy, perceived power, reciprocity, feeling well-off, or affect. Examining materialism and mine-me sensitivity as individual differences moderating the effect of psychological ownership on prosocial behavior, we find that the effect does not hold for individuals low on materialism or mine-me sensitivity. Finally, we attenuate the effect of psychological ownership on prosocial tendencies by making the negative attributes of one's possessions relevant.

Keywords: psychological ownership, prosocial behavior, altruism, possessions, self-esteem, materialism, mine-me sensitivity

Ownership is an important facet of people's lives: daily, each of us interacts with various material and immaterial objects that we own. Psychological ownership, or "the state in which individuals feel as though the target of ownership or a piece of that target is 'theirs'" (Pierce, Kostova, and Dirks 2003, 86), is a cognitive-affective construct reflecting a person's awareness, thoughts, and beliefs about what she owns (Pierce et al. 2003). Psychological ownership bonds individuals to their possessions, helps them define and present themselves with their possessions, and makes them see possessions as a part of their identity (Belk 1988; Pierce et al. 2003; Weiss and Johar 2016). It also shapes people's judgments of themselves and their possessions and influences their behavior toward their possessions (Dommer and Swaminathan 2013; Kirk, Peck, and Swain 2018; Morewedge et al. 2009; Shu and Peck 2011; Weiss and Johar 2013, 2016). However, how does experiencing psychological ownership shape consumer behavior beyond their behaviors toward the owned entities? The current research aims to shed light on this question by examining the relationship between psychological ownership and prosocial behavior.

Religious and other writings often advise people against making possessions prominent in their lives. Buddhism, for example, asserts that rejecting the material world is the key to salvation (Belk 1983). Moreover, research has argued that "the individual orientation of material values conflicts with collective-oriented values" (Burroughs and Rindfleisch 2002, 348) and that an overemphasis on possessions and acquisition are "inherently incompatible with sharing and giving to others" (Richins and Dawson 1992, 308). Feelings of ownership can also increase territoriality

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through a sense of loss and negative affect (Baer and Brown 2012; Kirk et al. 2018). However, we propose that experiencing psychological ownership does not hinder prosocial behavior but rather increases altruism by increasing individuals' state self-esteem.

Possessions help individuals build, affirm, and communicate their identity and consequently gain self-esteem (Allport 1937; Richins 2002). Moreover, as a social construct that differentiates between an owner and nonowners, ownership gives exclusive rights to the owner over the owned entity. In general, possessions influence their owners' relational value and social position (Dittmar 1992). Self-esteem, according to sociometer theory, is an internal monitor of the degree to which one is valued as a relational partner (Leary and Baumeister 2000). Given the value of ownership in regulating social connections, experiencing psychological ownership should enhance individuals' self-esteem. Self-esteem theories predict that a boost to one's self-esteem increases prosocial behavior (Baumeister, 1998; Greenberg 2008; Leary 2005; Leary and Baumeister 2000). The desire for self-esteem is a core human motivation, and individuals often behave in ways to protect, maintain, and enhance their self-esteem (Allport, 1937; James 1890; Leary and Baumeister 2000). As such, enhanced self-esteem motivates people to maintain it, which can be done through prosocial behavior. Thus, we predict that people are more likely to engage in prosocial behavior when they experience psychological ownership and that enhanced self-esteem explains this relationship.

The boundaries of our proposed effect provide further support for our theorization. Although we expect the effect of ownership on prosocial behavior to apply for most individuals, we propose the effect to attenuate among individuals whose identity and social standing are less tied to their possessions. In particular, materialism (Richins and Dawson 1992) and mine-me sensitivity (Weiss and Johar 2013) highlight the connections between one's sense of self and one's material possessions. Ownership does not enhance self-esteem for those low on materialism and mine-me sensitivity because they are less likely to rely on their possessions to judge their success or to define themselves. Thus, we expect a moderation by materialism and mine-me sensitivity as individual differences. Furthermore, we do not expect all possessions to significantly boost individuals' self-esteem. In particular, people would not experience a boost in self-esteem when they consider and reflect on negative attributes of their possessions. As a result, the experience of psychological ownership, while making the negative attributes of a possession more relevant, attenuates the effect of ownership on self-esteem and prosocial behavior.

This article makes important contributions to both theory and practice. It contributes to an understanding of ownership by broadening its application beyond behaviors directed toward the target of ownership to accompanying psychological states and consequences. This research also builds a connection between two important bodies of consumer research, psychological ownership and prosocial behavior. From a practical perspective, our findings suggest that activating psychological ownership can help encourage contributions to prosocial causes. Indeed, organizations can enhance psychological ownership in different ways. For instance, consumers experience psychological ownership when they customize goods and/or services they acquire (Pierce and Peck 2018). Retailers can also increase feelings of ownership by encouraging consumers to touch products (Peck and Shu 2009). We propose that such occurrences, by potentially inducing a sense of psychological ownership in consumers, can benefit society as a whole. In sum, we contribute to the understanding of possessions, their symbolic meanings, and their potential role in helping people benefit others.

We first review the literature on psychological ownership and its connections with self-esteem and prosocial behavior. We then report seven studies testing our proposed effect of ownership on prosocial behavior and its underlying mechanism. We examine materialism, mine-me sensitivity, and negative attributes of possessions as three factors moderating the effect of ownership on prosocial behavior. We conclude by discussing theoretical and practical implications, as well as directions for future research.

THEORETICAL BACKGROUND

Psychological Ownership

Ownership has been examined in a wide range of disciplines, from anthropology, sociology, psychology, and child development to consumer behavior and management. Research on the state of psychological ownership (i.e., *mine-ness*) has focused primarily on its roots, how people experience it, and the owner's relationship to the owned entity to make predictions about their emotions, cognitions, and behaviors toward the entity (Peck and Shu 2018; Pierce et al. 2003; Pierce and Jussila 2011).

We adopt Pierce et al.'s (2003) definition of psychological ownership as possessive feelings toward material and immaterial objects manifesting in expressions such as *my*, *mine*, and *our*. This definition allows for potential targets of ownership to range from a car or a simple mug to an idea, an organization, a pet, or even a person (e.g., friends or family). The target may be small (e.g., a preferred seat in the living room or a favorite television program) or large (e.g., an entire house or a collections of paintings). We focus on psychological ownership as the result of consideration and deliberation on one's possession(s).

Psychological ownership has been shown to influence an individual's attitudes, values, and behaviors toward the target entity (Peck and Shu 2018). Research has identified many positive consequences of psychological ownership

directed at the target entity (Pierce et al. 2003; Pierce and Peck 2018). For instance, studies of the endowment effect (or "mere ownership effect," Beggan 1992) demonstrate that individuals' appraisals of an object's worth vary depending on ownership, such that people believe that an object is worth more if they think they own it (Beggan 1992; Dommer and Swaminathan 2013; Morewedge et al. 2009; Peck and Shu 2009). Shu and Peck (2011) find that feelings of ownership of an object lead to an emotional attachment to that object—specifically, a positive affective reaction. Weiss and Johar (2013) find that, after being randomly assigned ownership of a product, consumers judge product traits such as creativity as more consistent with their own traits if they own the product but see it as inconsistent with their own traits if they do not own it. Moreover, feelings of ownership toward an entity have been found to increase personal sacrifice and the assumption of risk on behalf of the entity, as well as greater responsibility for and stewardship of that target entity (Van Dyne and Pierce 2004). Owners prefer and like *their* objects, sometimes instantly, more than similar objects (Beggan 1992).

Though insightful, this body of research has largely overlooked the consequences of psychological ownership on cognitions and behaviors beyond those directed toward the owned entity, and scholars have called for further research in this domain (Peck and Luangrath 2018).

Psychological Ownership, Self-Esteem, and Prosocial Behavior

Psychological ownership provides people with an inner motive to define their self-identity using what they own (Mead 1934; Pierce and Peck 2018). Allport (1937) wrote that "the process of gaining an identity, and in so doing gaining self-esteem, progresses from infancy by extending self via a continuously expanding set of things regarded as one's own" (Belk 1988, 141). People's desire for material possessions is driven by "the benefits these goods provide—an increase in comfort or pleasure, the ability to accomplish new tasks, the esteem of others when they regard what we own" (Richins 2002, 85). Possessions play an important role in the development and communication of a personal identity; through that, they engender a positive influence on sense of esteem (Richins 2002). Empirical findings also provide support for the link between possessions and self-esteem (Ferraro, Escalas, and Bettman 2011; Jackson 1979). Jackson (1979) show that individuals' self-esteem is positively correlated with the ratio of the material goods they own over the goods they need.

Another compelling argument for the relationship between ownership and self-esteem comes from the social aspect of ownership. Individuals regulate their social relationships by using their possessions (Dittmar 1992). For example, children use their toys to adjust their position in a group's hierarchy based on who is or is not allowed to use their toys (Dittmar 1992). "Possessions are viewed as signs of relationships, but also as pawns in the game which serve to regulate, undermine, or cement connections with others," writes Dittmar (1992, 52). Moreover, people are concerned about and aware of the impact of the meanings of their possessions to their social position and use possessions as social-material locators (Dittmar 1992).

Self-esteem is heavily dependent on perceptions of how one is regarded and valued by others. Scholars have argued that self-esteem has been developed across time as an internal meter to monitor one's relational value (i.e., sociometer) in the same way that pain, hunger, and satiety monitor one's physical health and sustenance (Leary and Baumeister 2000). Given the link between possessions, social standing, and acceptability, we believe that psychological ownership has direct implications for individuals' self-esteem. Both the personal and social aspects of ownership suggest a positive link between psychological ownership and self-esteem.

Research has recognized and differentiated between trait and state self-esteem (Heatherton and Polivy 1991). Trait self-esteem refers to an average level of judgments about the self's value or worth, which is assessed with items such as "On the whole, I am satisfied with myself." State self-esteem refers to how one evaluates oneself in the moment, such as "Right now, I am satisfied with myself." One's immediate circumstances can fluctuate state self-esteem around its trait level and these fluctuations are strongly linked to cognition, motivation, and behavior (Crocker and Wolfe 2001). Given our interest in the effects of psychological ownership as a result of consideration and/or deliberation about one's possessions, we focus on the effects of psychological ownership on state self-esteem.

Having established a link between psychological ownership and enhanced self-esteem, we turn to the link between self-esteem and prosociality. Research has shown a positive correlation between self-esteem and prosocial behavior and a negative correlation with antisocial behavior (Aronson and Osherow 1980; Graf 1971; Liang et al. 2016). In addition, experimental research finds a link between enhanced self-esteem and moral behavior. For example, in one study, situationally enhancing participants' self-esteem via feedback on a personality test reduced their intentions for corrupt behavior (Liang et al. 2016).

Early theorists in psychology recognized that the desire for self-esteem is a core motivation that guides human behavior (Adler 1930; Allport 1937; James 1890). A large body of work shows that people often act to protect, maintain, and enhance their self-esteem (Baumeister 1998; Greenberg 2008; Leary 2005; Leary and Baumeister 2000). Self-esteem theories predict that a boost to one's self-esteem increases prosocial behavior. The central notion of these theories is that individuals' actions and attitudes are strongly affected by a tendency to maintain a positive state

with respect to evaluations of oneself. Jones (1973, 186) writes that "an individual has a need to enhance his self-evaluation and to increase, maintain, or confirm his feelings of personal satisfaction, worth, and effectiveness . . . Furthermore, the state of the need varies with the degree of personal satisfaction or frustration the individual experiences in a particular situation or period of time."

Consistent with self-esteem theories, we expect individuals experiencing a temporary boost in self-esteem, as compared to a neutral state, to be more motivated to maintain their current, positive self-esteem level. If so, we predict that people experiencing enhanced self-esteem will be more apt to engage in prosocial behavior. Prosocial behavior helps people maintain their boosted self-esteem because positive behavior toward others reinforces a positive sense of self, given that prosocial behavior is universally admired and valued (Klein et al. 2015).

In sum, we expect that a boost in one's self-esteem increases prosocial behavior. Given our proposed effect of psychological ownership on self-esteem, we hypothesize the following:

> **H1:** Activating a sense of psychological ownership increases individuals' likelihood of engaging in prosocial behavior in unrelated domains.
>
> **H2:** The positive relationship between ownership and prosocial behavior is mediated by increases in state self-esteem.

OVERVIEW OF STUDIES

Using various inductions of psychological ownership, we conducted seven experiments (with three additional experiments reported in a web appendix) to test our hypotheses. Using two different experimental manipulations of psychological ownership, studies 1A and 1B examine its effect on prosocial behavior in the context of volunteering time (study 1A) and charitable giving (study 1B). (In the web appendix, we report the results from study S1 in the web appendix that replicate these findings with a different manipulation of psychological ownership.) In study 2, we examine the effect of psychological ownership on self-esteem and other alternative mechanisms and confounds. (Study S2 in the web appendix, reported in the web appendix, also replicated these findings using a different manipulation of ownership.) Study 3 investigates the mediating role of self-esteem in the link between psychological ownership and prosocial behavior. In studies 4 and 5, we examine two individual differences, materialism and mine-me sensitivity, as moderators of the relationship between ownership and helping. Finally, in study 6, we test whether the effect of ownership is attenuated when negative attributes of one's possessions are made relevant. (Study S3 in the web appendix, reported in the web appendix, replicated these finding using a donation task.) Together, our studies show that psychological ownership can trigger changes in one's psychological state that go beyond the specific relationship with the possession to guide behavior in unrelated situations.

In all our studies, we report all conditions and measures collected. No participants who completed our studies have been excluded from any of the analyses unless otherwise noted. The sample size for each study was determined before data collection began. We estimated a minimum required sample size of 50 per condition based on an estimate of medium effect size ($f = 0.25$) for a study powered at 80% at an alpha level of $p = .05$. This number is also consistent with the recommendations of Simmons, Nelson, and Simonsohn (2013). To maximize power, we aimed for a minimum of 60 participants per experimental condition for laboratory studies and a minimum of 100 participants per condition for studies using online samples.

STUDY 1A: OWNERSHIP MAKES PEOPLE MORE LIKELY TO HELP OTHERS

In study 1A, we test whether psychological ownership results in greater prosocial behavior (hypothesis 1). We manipulate psychological ownership through touch. Research shows that merely touching an object increases felt ownership of the object (Peck and Shu 2009). Accordingly, we argue that individuals' felt ownership of the object and thus their subsequent behavior varies based on whether they touched the object or not.

Method

Participants. One hundred and thirty-five students (76 men, 59 women) at a US university participated in the study. They received $15 for their participation in a 1 hour session that included multiple studies, this one being the last study they completed. Their mean age was 22.9 years (SD = 4.3).

Design and Procedure. We conducted four sessions (between 32 and 36 participants in each session) and randomly assigned each session to the study conditions (touch or no touch). Upon arrival, participants sat in front of individual computers and completed an online survey.

Manipulation of Ownership. In the survey, all participants were told that they owned a mug and that it was theirs to keep and take home. They were asked to take a minute to evaluate the product closely and then respond to a few questions. In the no-touch condition, the mugs were placed on a table by the door where every participant could see them as they entered the laboratory. They also saw an image of their mug on their computer and were reminded that they would get to take one home later. In the touch condition, a mug was placed next to participants' computers on the table, and they were encouraged to take the

mug in their hands and touch it. We used a mug because mugs are commonly used in endowment studies to induce a sense of psychological ownership (Peck and Shu 2009). In addition, because mugs are familiar objects, touching provided minimal additional information about the object to participants.

In a pretest, we asked 103 students (43 men, 60 women; M_{age}= 23.5, SD= 4.7) who either touched or did not touch a mug to indicate, based on a 7-point scale (1 = strongly disagree, 7 = strongly agree), how much they agree with three statements: "I feel like this is my mug," "I feel a very high degree of personal ownership of the mug," and "I feel like I own this mug." Results confirmed that those who touched the mug reported a greater sense of psychological ownership ($M = 4.28$, SD = 1.40) as compared to those in the no-touch condition ($M = 3.29$, SD = 1.59; $t(101) = 3.31$, $p = .001$, $d = 0.66$).

After receiving the instructions for the ownership manipulation (touch versus no touch), all participants reported their current mood by completing the Positive ($\alpha = 0.94$) and Negative ($\alpha = 0.94$) Affectivity Schedule (Watson, Clark, and Tellegen 1988) on a 7-point scale (1 = not at all, 7 = extremely).

To measure willingness to help, at the end of the study, participants were presented with an opportunity to help the research team by completing a 5 minute survey voluntarily for no extra pay. If participants decided to help, they then answered a few filler questions for about 5 minutes and received a message thanking them for choosing to help. If they chose not to help, the survey was skipped.

Results

To examine whether psychological ownership influenced prosocial behavior, we counted the number of participants who chose to help. Participants who touched the mug were more likely to help the research team (52 of 65; 80%) than were those in the no-touch condition (44 of 70; 62.9%; $\chi^2(1, N = 135) = 4.82$, $p = .028$).

The ownership manipulation did not influence positive ($t(133) = 0.42$, $p = .68$) or negative affect ($t(133) = 0.44$, $p = 0.66$).

STUDY 1B: OWNERSHIP MAKES PEOPLE MORE GENEROUS TOWARD OTHERS

In study 1B, we manipulate ownership through the customization of a product. Research shows that self-investment in a product, achieved by customizing a product, increases felt ownership of a target entity (Kirk et al. 2018). In this study, all participants were asked to design a mug either for themselves or for a typical customer. Subsequently, participants had a chance to actually donate part of their payment to a charity. We expect those who customize the mug for themselves to donate more than those who design it for a typical customer.

Method

Participants. Two hundred and seventeen workers (127 men, 89 women, and 1 nonbinary/other) from the Amazon Mechanical Turk website participated in the study in exchange for $0.45. Their mean age was 36.8 years (SD = 11.2).

Design and Procedure. We randomly assigned participants to one of the two conditions (ownership or control). We told participants that we are working with a company that sells coffee mugs and that the company can engrave a message on their mug. Participants could customize a mug by writing a message for it, choosing the font of the message, and choosing a design to appear below the message.

Manipulation of Ownership. In the ownership condition, participants were told to imagine that they are customizing the mug for themselves. In the control condition, we told participants that the company is looking for a message that would make the mug more attractive to customers and increase the chance that people would purchase the mug. So, participants were asked to choose a message and a design that would make the mug attractive for a typical customer. After participants typed in the message, choose the font style, and chose the design, we showed them a picture of the customized mug. In both conditions, participants were asked to evaluate the mug across three dimensions (i.e., design of the mug, style of the mug handle, and size of the mug) and indicate how likely they would be to purchase the mug. Then, to reinforce the ownership of the mug, we asked participants in the ownership condition to imagine using their mug to drink coffee or tea and to write 3–4 sentences explaining how they feel. In the control condition, participants wrote about what they liked or disliked about the mug in 3–4 sentences. For the manipulation check, we asked for participants' level of agreement on the same three statements ($\alpha = 0.95$) used in study 1A.

Donation. After the mug-customization task, we thanked participants for their input and provided them with 25 cents as an extra token of appreciation. Then, we highlighted the difficulties that some people are facing dealing with the challenges of the COVID-19 pandemic. We told participants that they have an option to donate part or all of their extra 25 cents payment to a charity helping COVID-19 relief. We also told them that we will match the amount they decide to donate. We asked them how much of their extra 25 cents they want to donate and highlighted that they will receive the amount they do not donate as a bonus payment. Participants could choose their donation amount with intervals of 5 cents.

Results and Discussion

The results show that our manipulation of ownership was successful, given that participants in the ownership condition reported feeling a greater sense of psychological ownership ($M = 5.71$, SD = 1.52) as compared to those in the control condition ($M = 5.16$, SD = 1.54), $t(215) = 2.67$, $p = .008$, $d = 0.36$.

An examination of participants' donation behavior shows that a larger portion of participants in the ownership condition (67.3%) donated part or all of their extra payment to a COVID-19 relief charity compared to those in the control condition (55.8%), $\chi^2(1, N = 217) = 3.03$, $p = .082$. The results of both Kolmogorov–Smirnov and Shapiro–Wilk tests of normality indicate that the distribution of donation amounts in ownership and control conditions significantly deviate from a normal distribution ($p < .001$). Hence, we used a nonparametric test (i.e., Mann–Whitney U test) to examine the difference in donation amounts between the ownership and control conditions. Results show that those in the ownership condition donated more of their extra payment to a charity ($M = ¢9.96$, SD = 9.17, $M_{rank} = 117.05$) than did those in the control condition ($M = ¢7.50$, SD = 8.67, $M_{rank} = 100.25$; Mann–Whitney $U = 4{,}966$, $p = .041$, $\eta^2 = 0.019$). There was no significant difference between the ownership and control conditions on participants' evaluation of the mug ($p > .80$) and their likelihood of purchasing it ($p = .32$).

In sum, studies 1A and 1B provide support for hypothesis 1, showing that felt ownership led to prosocial behavior in the form of either helping others or making a donation to charities. As noted, study S1 in the web appendix also provides support for hypothesis 1, showing that psychological ownership over one's workspace makes people more generous toward others.

COMPETING EXPLANATIONS

We argued for the role of state self-esteem as the primary psychological mechanism that explains the link between ownership and prosocial behavior. However, we acknowledge that several other psychological processes are likely to play a role. We intentionally focused on state self-esteem because we believe it is the common thread across almost all ownership experiences, given the personal and the social aspects of ownership highlighted earlier. We briefly discuss five other psychological processes that may be at play and that have also been linked to prosocial behavior or ownership in past literature: general self-efficacy, power, feeling well-off, reciprocity, and affect.

Self-efficacy is the feeling of being capable and competent of acting to achieve a particular outcome (Bandura 1977). Psychological ownership can increase feelings of efficacy, since *to have* is a fundamental form of agency; being in control makes people believe they are capable and can influence outcomes, at least related to the target entity. Owning an object allows the owner to control the possession's destiny (e.g., by altering it, selling it, or giving it away), thus facilitating feelings of confidence, competence, and control. Despite debates on distinctions between the two constructs of general self-efficacy and global self-esteem, research has treated the constructs as distinct, with the former tapping more motivational general beliefs about one's efficacy and the latter capturing more general attitudes toward oneself (Chen, Gully, and Eden 2001). It is possible that a sense of efficaciousness leads people to feel that they are capable of helping others effectively.

Ownership can contribute to one's sense of power—both one's social power (i.e., power over other people) and one's personal power (i.e., freedom from other people). For example, people can exert control over other people when they own an important resource needed by others. Also, owning money and wealth gives people the potential to be free from the influence of others and to be personally independent (Anderson, John, and Keltner 2012). Thus, it is possible that reminding people of their possessions induces a sense of power. While power is often associated with being selfish (Rucker, Dubois, and Galinsky 2011), research has recognized conditions in which powerfulness leads to prosocial behavior (DeCelles et al. 2012). Hence, power could be a potential mechanism for the effect of ownership on prosocial behavior.

It is also likely that people feel they are fortunate, prosperous, and privileged when they elaborate on their possessions. This could subsequently induce guilt and push them toward acting prosocially, given that guilt is associated with increased prosocial behavior (Quiles and Bybee 1997). Thus, we empirically examine whether psychological ownership induces the feeling of being well-off.

Research has recognized the reciprocity norm as a powerful determinant of prosocial behavior (Snyder and Dwyer 2012). When people receive a favor, they feel obligated to repay it. In study 1A, we manipulated ownership by giving a mug to participants and asking them to touch it. Hence, it is likely that participants decided to reciprocate their receipt of the free mug by helping the research team with the extra survey. Although people in both the touch and no-touch conditions received the mug, it is likely that the extra sensations in the touch condition boosted the value of mug and thus the importance of returning the perceived favor. Therefore, participants helped the research team more in the touch condition. We examine whether psychological ownership enhances participants' sense of obligation to reciprocate.

Shu and Peck (2011) found that people react positively to objects they own. These positive feelings could lead individuals to experience positive affect more generally. However, research on the mere ownership effect has not found evidence of ownership impacting general affect. For example, in Beggan's study (1992), participants' self-

reported mood did not differ as a function of experimental condition (owner vs. nonowner). Similarly, Weiss and Johar (2013) reported no effects of ownership on positive affect. Given that we measured general affect rather than affective reactions or commitment to the target of ownership, we did not find (study 1A) and did not expect to find differences in affect resulting from psychological ownership. Nevertheless, because of the link between a person's positive mood and willingness to help others (Isen and Levin 1972), we decided to empirically examine the role of affect.

STUDY 2: POTENTIAL MEDIATORS

We ran a two-part study to examine the effect of psychological ownership on individuals' self-esteem, self-efficacy, power, feeling well-off, reciprocity, and affect. The first part of the study captured the base level of the variables without the manipulation of ownership. We did not include affect and reciprocity in the first part of the study because they are mostly reactive to situational factors. We posted the second part of the study 5 days after the first part and invited everyone who completed the first part to participate in the second part. We informed participants that the second part would be open only for 24 hours and asked them to complete the second part within the 24 hour period. We sent three reminder emails within that time period to increase the participation rate for the second part of the study. In the second part, we used a recall manipulation of psychological ownership in which participants recalled and wrote about a personal ownership experience. The goal of this study is to determine whether the manipulation of ownership changes any of the studied variables as compared to their base level in time 1.

Method

Participants. Three-hundred and ninety-eight MTurk workers (173 males, 223 females, 2 nonbinary/other) completed the first part of the study. Of these participants, 239 workers (100 males, 138 females, 1 nonbinary/other) completed the second part of the study. The mean age of participants who completed both parts of the study was 41.2 years (SD = 13.20).

Design and Procedure. In the first part of the study, participants responded to measures of self-esteem, self-efficacy, power, feeling well-off, and a few demographic questions. In the second part of the study, we first randomly assigned participants to one of the two conditions (ownership or control) and manipulated psychological ownership. Next, participants responded to the same scales used in the first part and reciprocity and positive and negative affect scales.

Manipulation of Ownership. In the ownership condition, the instructions read:

> Please think and write about a past situation or time in which you experienced a strong sense of ownership. Describe the situation and any thoughts and feelings you remember from the experience. Please write at least five sentences, providing as many details as possible so that a person reading your entry would understand the situation and how you felt.

In the control condition, the instructions instead read:

> Please think and write about how you spent your time yesterday. Please write at least five sentences, providing as many details as possible so that a person reading your entry would understand the situation and how you felt.

Thirteen participants (nine in the ownership condition and four in the control condition) did not follow the instructions, so their responses were removed from the analysis.

Measurement of Potential Mediators. Participants completed a 10-item (e.g., "I am satisfied with myself") state version of the self-esteem scale ($\alpha = 0.93$; Rosenberg 1979), an 8-item (e.g., "I am confident that I can perform effectively on many different tasks") scale of general self-efficacy ($\alpha = 0.96$; Chen et al. 2001), and an 8-item (e.g., "I think I have a great deal of power") scale measuring the generalized sense of power ($\alpha = 0.90$; Anderson and Galinsky 2006). For all these scales, they indicated how much they agreed with each statement on a 7-point scale (1 = strongly disagree, 7 = strongly agree).

We measured feeling well-off using two different scales. We edited the Hatfield Global Measure of equity (single item; Hatfield, Utne, and Traupmann 1979) to assess participants' perceived equity in their lives as compared to other people. Specifically, participants read: "Considering your life at this moment, what you put into it and what you get from it, how does your total life stack up?" They responded using a 7-point scale (1 = I am getting a much worse deal than most people, 7 = I am getting a much better deal than most people). We also used a second scale to measure feeling well-off. In this scale, we asked participants to indicate how much they experience being "fortunate," "well-off," "prosperous," and "privileged" ($\alpha = 0.88$) using a 7-point scale (1 = very little, 7 = a lot). Correlation between the two scales of feeling well-off is $r = 0.58$ ($p < .001$) at time 1 and $r = 0.65$ ($p < .001$) at time 2.

To capture participants' feelings of obligation to reciprocate (reciprocity), participants completed a 5-item scale ($\alpha = 0.83$) indicating how much they feel "obligated," "indebted," "appreciative," "thankful," and "grateful" at that moment. They responded using a 7-point scale (1 = feel very little, 7 = feel a lot).

TABLE 1

CORRELATION BETWEEN VARIABLES IN STUDY 2—TIME 1

	Self-efficacy	Power	Being well-off (Hatfield)	Being well-off
Self-esteem	0.70***	0.59***	0.42***	0.34***
Self-efficacy		0.56***	0.39***	0.41***
Power			0.45***	0.38***
Being well-off (Hatfield)				0.58***

***$p < .001$, $N = 398$.

We used the Positive ($\alpha = 0.94$) and Negative ($\alpha = 0.97$) Affectivity Schedule (Watson et al. 1988) on a 7-point scale (1 = not at all, 7 = extremely) to measure participants' affective response.

Results and Discussion

We compared participants who completed both parts of the study and those who completed only the first part to see if they significantly differ on the base level of the variables measured in time 1. The results showed that, except for self-esteem, participants who completed both parts of the study did not differ from those who only completed the first part on other measures ($p > .22$). Participants who completed both parts of the study had marginally higher self-esteem ($M = 5.41$, SD = 1.20) than those who only completed the first part ($M = 5.20$, SD = 1.23, $t(396) = 1.72$, $p = .086$). We do not expect the marginal difference in participants' base-level self-esteem to introduce a systematic bias in our results, given that participants were randomly assign to the ownership and control conditions in time 2.

For the variables, we collected participants' base level in time 1 (i.e., self-esteem, self-efficacy, power, and feeling well-off), and we controlled for their base level when we examined differences between the ownership and control conditions in time 2.

Potential Mediators. As expected, we found a significant effect of psychological ownership on self-esteem ($F(1, 223) = 4.21$, $p = .041$, partial-$\eta^2 = 0.02$). Participants in the ownership condition reported higher self-esteem ($M = 5.69$, SD = 1.15) as compared to those in the control condition ($M = 5.59$, SD = 1.10). Paired sample t-tests show that participants' self-esteem in the ownership condition increased from time 1 ($M = 5.47$, SD = 1.24) to time 2 ($M = 5.69$, SD = 1.15, $t(106) = 3.57$, $p = .001$, $d = 0.69$). However, the self-esteem of those in the control condition did not change between time 1 ($M = 5.53$, SD = 1.10) and time 2 ($M = 5.59$, SD = 1.10, $t(118) = 1.31$, $p = .19$). The effect of ownership on self-efficacy and power was not significant ($F(1, 223) < 1$).

The results show that participants' responses to the Hatfield Global Measure of equity were not different between the ownership and control conditions ($F(1, 223) < 1$). Also, we did not find a significant effect of psychological ownership on feeling well-off, as measured by the second scale ($F(1, 223) = 1.29$, $p = .26$).

The effect of ownership on feelings of obligation to reciprocate was not significant ($F(1, 224) < 1$). Moreover, psychological ownership did not change participants' positive ($F(1, 224) = 1.14$, $p = .29$) or negative affect ($F(1, 224) < 1$). We also specifically examined participants' feelings of guilt to determine if writing about ownership makes participants feel guilty (perhaps as a result of having many possessions). The results show that ownership does not have a significant effect on feelings of guilt ($F(1, 224) = 1.39$, $p = .24$).

Overall, the results of study 2 show that psychological ownership only changes individuals' self-esteem and does not have a significant effect on their self-efficacy, power, feeling well-off, reciprocity, or positive and negative affect, despite the fact that these concepts are highly correlated with each other. Tables 1 and 2 show the correlations between these measures in times 1 and 2. Study S2 in the web appendix provides support for the generalizability of our findings by using a different manipulation of ownership (i.e., imagery touch).

STUDY 3: THE MEDIATING ROLE OF SELF-ESTEEM

In study 2, we showed that psychological ownership boosts individuals' self-esteem. In this study, we test our second hypothesis and examine whether the increase in self-esteem explains the relationship between ownership and prosocial behavior.

Method

Participants. Two hundred and eighty-one MTurk workers (112 males, 169 females) participated in this study. Their mean age was 38.2 years (SD = 12.8).

Design and Procedure. We randomly assigned participants to one of two conditions (ownership or control). Participants were told that they would complete a number of unrelated tasks throughout the study. The procedure to manipulate ownership was identical to that used in study 2. We removed seven participants (four in the ownership condition and three in the control condition) from the analysis

TABLE 2

CORRELATION BETWEEN VARIABLES IN STUDY 2—TIME 2

	Self-efficacy	Power	Being well-off (Hatfield)	Being well-off	Reciprocity	Positive affect	Negative affect
Self-esteem	0.73***	0.62***	0.44***	0.48***	0.22**	0.53***	−0.68***
Self-efficacy		0.61***	0.40***	0.53***	0.32***	0.59***	−0.46***
Power			0.48***	0.46***	0.23***	0.42***	−0.43***
Being well-off (Hatfield)				0.65***	0.19**	0.38***	−0.32***
Being well-off					0.55***	0.68***	−0.24***
Reciprocity						0.57***	0.04 (NS)
Positive affect							−0.23**

**$p < .01$, ***$p < .001$, $N = 226$.

because they did not follow the instructions (they either did not complete the writing task or their writing was irrelevant to what they were asked to write about). We used the same self-esteem measure ($\alpha = 0.95$) as in study 2 to measure self-esteem.

Helping. Participants were asked to read a scenario and indicate the likelihood they would engage in the described behavior on a 7-point scale (1 = extremely unlikely, 7 = extremely likely). The likelihood to help in this scenario was our dependent measure. The story read:

> IMAGINE, you've waited in line for 10 minutes to buy a coffee and muffin. Just as your turn is about to come, the person in front of you at the checkout counter has forgotten their wallet and doesn't have $5 to pay the bill. How likely are you to give $5 to the person so they can pay for their purchase?

Results and Discussion

Participants' self-esteem in the ownership condition ($M = 5.61$, SD = 1.29) was higher than in the control condition ($M = 5.26$, SD = 1.33) $t(272) = 2.19$, $p = .029$, $d = 0.27$. Moreover, consistent with our hypothesis, we found a significant effect of ownership on willingness to help ($t(272) = 2.40$, $p = .017$, $d = 0.29$). Participants in the ownership condition were more likely to indicate they would help in the scenario ($M = 4.71$, SD = 2.04) as compared to those in the control condition ($M = 4.13$, SD = 1.94).

To test whether self-esteem mediated the effect of ownership on differences in likelihood to help, we used the bootstrapping approach (model 4) (Hayes 2018) with 10,000 iterations. We found that self-esteem has a significant indirect effect (indirect effect = 0.087; 95% bias-corrected confidence interval = CI [0.014, 0.219]). Thus, the results of study 3 provide support for the psychological mechanism responsible for the effect of psychological ownership on prosocial behavior (hypothesis 2). As expected by our theorizing, ownership increased helping through increased self-esteem.

STUDY 4: THE MODERATING ROLE OF MATERIALISM

People vary in how much they value material possessions, and materialism captures this individual difference (Belk 1985; Richins 2002). Richins and Dawson (1992) conceptualize materialism as encompassing three domains: "the use of possessions to judge the success of others and oneself, the centrality of possessions in a person's life, and the belief that possessions and their acquisition lead to happiness and life satisfaction" (Richins 2004, 201). Materialistic people are more likely to experience chronically low self-esteem and to believe that possessions will provide them with an improved sense of self-esteem (Richins 2002). Accordingly, we expect that activating a sense of psychological ownership will have a stronger impact on the self-esteem of materialistic people. We do not expect a significant change in the self-esteem of individuals low on materialism after psychological ownership experiences because they do not assess their success and happiness based on their possessions.

A review of the relationship between materialism and prosocial behavior clarifies how materialism moderates the effect of ownership on prosocial behavior. Scholars generally have viewed materialism negatively, given its undesirable effects on well-being. Materialism fosters social isolation because overemphasizing the value of possessions undermines social values (Pieters 2013). Accordingly, materialistic people have a lower tendency toward prosocial behaviors, as seen in lower likelihoods of making organ donations (Belk and Austin 1986), sharing a cash windfall with others (Belk 1985; Richins and Dawson 1992), and making charitable contributions (Richins and Dawson 1992). The lower prosocial tendency disturbs the formation of social relationships and results in loneliness, which, in turn, reinforces materialism as people try to cope with their

loneliness through material relationships (Pieters 2013). Combining the stronger impact of ownership on the self-esteem of materialistic people and the negative relationship between materialism and prosocial behavior, we expect psychological ownership to attenuate the effect of materialism on prosocial behavior. In other words, in the absence of psychological ownership, we expect a negative relationship between materialism and prosocial behavior (i.e., such that materialistic people are less helpful); however, in the presence of psychological ownership, we expect materialistic individuals to be just as likely to be altruistic as those low on materialism.

In this study, we examine the role of materialism on the relationship between psychological ownership and prosocial behavior. We predict the effect of ownership on prosocial behavior to be stronger for materialistic people. Also, psychological ownership should attenuate the negative impact of materialism on prosocial behavior.

Method

Participants. One hundred and eighty-four adults (96 men, 88 women) at a US university participated in the study. They received $20 for their participation in a 1 hour session that included multiple studies, this one being the last study they completed. Their mean age was 31.6 years (SD = 12.1).

Design and Procedure. The study used a 2 (ownership vs. control) by materialism (measured) design. Participants completed the 15-item measure of material values scale (Richins 2004), presented as a seemingly unrelated questionnaire. Participants indicated the extent to which they agreed with each statement on a 7-point scale (1 = strongly disagree, 7 = strongly agree). Sample items include: "Some of the most important achievements in life include acquiring material possessions" and "The things I own say a lot about how well I'm doing in life." We then averaged the items to form a material values score ($\alpha = 0.85$).

To minimize possible effect of the materialism scale on the manipulation of ownership, we isolated the material values scale from the manipulation study by asking participants to complete several other unrelated studies from other researchers for about 30 minutes.

Manipulation of Ownership. We used a procedure similar to that used in study 1A. Participants were randomly assigned to one of the two conditions. We placed a mug on every laboratory table. In the control condition, participants were asked to take a minute to evaluate the mug. In the ownership condition, participants were asked to imagine that the mug on the table was theirs. They were asked to think about their ownership of the product by considering where they would keep the mug and what they would do with it. They were specifically instructed to take the product in hand and touch it before evaluating it. Afterward, all participants were asked to evaluate the product on a few dimensions. As a manipulation check, we measured participants' felt ownership using the same three items ($\alpha = 0.94$) as in study 1A.

As in study 1A, we then measured willingness to help by offering participants an opportunity to complete a 5 minute survey voluntarily, for no extra pay, to help the research team. Those who decided to help answered a few filler questions and received a message thanking them for helping the research team; otherwise, the filler questionnaire was skipped.

Results and Discussion

Participants in the ownership condition reported feeling a greater sense of psychological ownership ($M = 3.17$, SD = 1.94) as compared to those in the control condition ($M = 2.35$, SD = 1.57), $t(180) = 3.20$, $p = .002$, $d = 0.48$. There is no significant main effect of materialism ($t(180) = 1.60$, $p = .11$) or interaction between ownership and materialism on the feelings of ownership ($F(1, 180) = 1.49$, $p = .22$). Thus, our manipulation was successful.

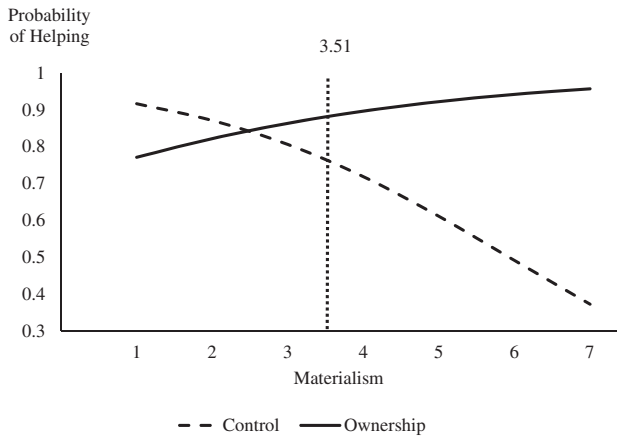
Participants in the ownership condition chose to help the research team more frequently (83 of 94; 88.3%) than those in the control condition (66 of 90; 73.3%; $\chi^2(1, N = 184) = 6.68$, $p = .010$, supporting hypothesis 1). Moreover, we replicated the negative relationship between materialism and prosocial behavior highlighted by past research, given that there was a negative correlation ($r = -0.183$, $p = .084$) between materialism and helping in the control condition.

We tested for the moderating role of materialism. We employed the bootstrapping approach (model 1) (Hayes 2018) with 10,000 iterations. This analysis revealed a significant interaction effect ($B = 0.80$, SE = 0.42, $p = 0.056$) of ownership condition and materialism on helping. Following Spiller et al.'s (2013) suggestion, we ran a floodlight analysis and used the Johnson-Neyman technique to identify the range of materialism scale for which the effect of ownership on helping behavior was significant. The analysis revealed a significant main effect of ownership on helping behavior for those who scored 3.51 ($B_{JN} = 0.83$, SE = 0.42, $p = .05$) or above on the materialism scale (i.e., 62.5% of participants) but not for those who scored below 3.51 on the materialism scale (37.5% of participants). Moreover, the correlation between materialism and helping was not significant ($r = 0.106$, $p = .309$) in the ownership condition. Figure 1 shows participants' probability of helping with completing an additional survey based on the conditions (i.e., ownership vs. control) and the materialism scale.

The results of study 4 confirm our expectations by showing that the effect of ownership on prosocial behavior is stronger for those high on materialism. Also, we show that psychological ownership attenuates the negative impact of

FIGURE 1

PROBABILITY OF HELPING AS A FUNCTION OF CONDITION (OWNERSHIP VERSUS CONTROL) AND MATERIALISM



materialism on prosocial behavior and makes materialistic people as likely to help others as those low on materialism.

STUDY 5: THE MODERATING ROLE OF "MINE-ME" SENSITIVITY

Central to our argument linking psychological ownership to self-esteem is the degree to which ownership strengthens the bond between possessions and self-knowledge. While the idea of possessions as the extended self was introduced many years ago (Belk 1988), Weiss and Johar (2013) have more recently conceptualized "mine-me" sensitivity as an individual difference that captures how much ownership of an object determines the extent to which individuals associate the object with the self. For individuals low in mine-me sensitivity, the association between objects and the self does not change much based on whether they own the objects or not. However, those with elevated mine-me sensitivity strongly associate their possessions, but not objects they do not own, with their identity (Weiss and Johar 2013, 2016). For example, when owning a masculine product, individuals are more likely to judge themselves as being masculine if they are high versus low on mine-me sensitivity (Weiss and Johar 2013).

As we argued and showed earlier, activating psychological ownership boosts self-esteem and increases prosocial behavior. While this effect holds for most people, we expect the degree to which ownership strengthens the bonds between possessions and the self (i.e., mine-me sensitivity) to moderate the effect of ownership on self-esteem and prosocial behavior. Specifically, we expect that high mine-me sensitivity enhances the effect of ownership on prosocial behavior. People with low mine-me sensitivity either consider or do not consider objects as part of the self, regardless of whether they own those objects. As such, association between objects and the self does not change much based on ownership of the objects. Hence, psychological ownership should not boost self-esteem and increase the helping behavior of those with low mine-me sensitivity.

Unlike materialism, the link between mine-me sensitivity and prosocial behavior has not been examined in the literature. However, we believe that, similar to materialism, it is reasonable to expect people with high mine-me sensitivity to be more self-oriented (i.e., less prosocial). In fact, Weiss and Johar (2013) show that people with high mine-me sensitivity are more likely to use an egocentric categorization when they think about objects they own. This suggests that people with high mine-me sensitivity are more likely to be self-oriented. Self-oriented individuals are less likely to engage in altruistic helping behavior as compared to other-oriented individuals (Snyder and Dwyer 2012). As such, in the absence of psychological ownership, we predict a negative relationship between mine-me sensitivity and prosocial behavior. In study 5, we examine the role of mine-me sensitivity as an individual difference on the relationship between psychological ownership and prosocial behavior.

Method

Participants. One hundred and ninety-four adults (94 men, 100 women) at a US university participated in the study. They received $20 for their participation in a 1 hour session that included multiple studies, this one being the last study they completed. Their mean age was 30.4 years (SD = 12.2).

Design and Procedure. The study used a 2 (ownership vs. control) by mine-me sensitivity (measured) design. Participants completed the four-item measure of mine-me sensitivity (Weiss and Johar 2013), presented as a seemingly unrelated questionnaire. Participants were asked to indicate the extent to which they view different objects as part of their personal self-identity. They were presented with four objects (in a random order) and rated each object as part of the *self* using a 7-point scale (1 = not at all part of myself to 7 = extremely part of myself). They owned two of the items: the shoes and shirt they were wearing; they did not own the other two items: the laboratory table and seat. A mine-me sensitivity scale is created by subtracting the average rating of the two unowned objects from the average rating of the two owned objects. The rest of procedures were identical to study 4. We used the same manipulation check ($\alpha = 0.94$) and provided participants with an opportunity to help.

Results and Discussion

Participants in the ownership condition reported feeling a greater sense of psychological ownership ($M = 2.94$, SD = 1.75) as compared to those in the control condition ($M = 2.21$, SD = 1.49; $t(192) = 3.16$, $p = .002$, $d = 0.46$). There is no significant interaction between ownership and mine-me sensitivity on the experience of psychological ownership ($F < 1$).

Participants in the ownership condition were more likely to help the research team (76 of 99; 76.8%) than participants in the control condition (61 of 95; 64.2%; $\chi^2(1, N = 194) = 3.68$, $p = .055$, supporting hypothesis 1).

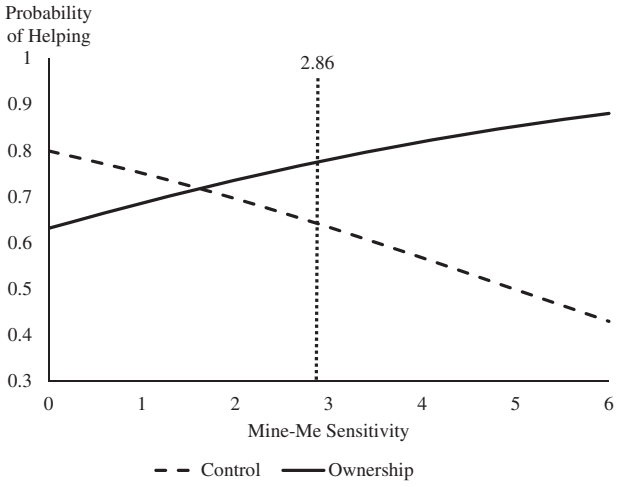
We tested for the moderating role of mine-me sensitivity using the bootstrapping approach (model 1) (Hayes 2018) with 10,000 iterations. This analysis revealed a significant interaction effect ($B = 0.52$, SE = 0.20, $p = 0.010$) of ownership and participants' mine-me sensitivity on helping. A floodlight analysis using the Johnson-Neyman technique revealed a significant effect of ownership on helping for those who scored 2.86 ($B_{JN} = 0.65$, SE = 0.33, $p = .05$) or above on mine-me sensitivity scale (i.e., 53.6% of participants) but not for those who scored below 2.86 on mine-me sensitivity scale (46.4% of participants). Figure 2 shows participants' probability of helping with completing an additional survey based on the conditions (i.e., ownership vs. control) and the mine-me sensitivity scale.

The results confirm our speculation that there is a negative correlation between mine-me sensitivity and helping in the control condition ($r = -.211$, $p = .040$). However, our results show that psychological ownership attenuates this negative correlation and flips the effect, such that there exists a weak positive relationship between mine-me sensitivity and helping behavior ($r = 0.167$, $p = .099$).

In sum, the results of study 5 confirm our expectations, showing that the effect of psychological ownership is stronger for participants with high mine-me sensitivity. We also find that psychological ownership attenuates the negative impact of mine-me sensitivity on prosocial behavior and makes those with high mine-me sensitivity as likely (or even more likely) to help others as those low on mine-me sensitivity.

FIGURE 2

PROBABILITY OF HELPING AS A FUNCTION OF CONDITION (OWNERSHIP VERSUS CONTROL) AND MINE-ME SENSITIVITY



STUDY 6: THE MODERATING ROLE OF POSSESSIONS' ATTRIBUTES

People value their possessions because of the benefits these possessions provide, in the form of comfort, convenience, pleasure, ability to accomplish tasks, saving time, social position, and building identity (Richins 2002). If people perceive that the cost of owning an object exceeds its benefits, they often have the option of ending ownership by selling, donating, or discarding the possession. Given that people value possessions for their added value (Richins 2002), we believe that these benefits play an important role in boosting self-esteem when one reflects on an owned object. Clearly, reducing the benefits of a possession weakens the link between psychological ownership and self-esteem. Accordingly, we expect that making the negative attributes of one's possession salient will attenuate the effect of ownership on self-esteem and subsequently on prosocial behavior. We designed study 6 to test this prediction.

Method

Participants. Four-hundred and six (200 males, 204 females, one nonbinary/other, and one missing data) MTurk workers participated in this study in exchange for $0.75. Their mean age was 36.4 years (SD = 11.9).

Design and Procedure. We randomly assigned participants to one of the four conditions in a 2 (ownership: owner vs. control) by 2 (product features: negative vs. positive) between-participant design.

Manipulation of Ownership. We manipulated both psychological ownership and product features by asking participants to read and reflect on the following scenario about acquiring a new mobile phone device: positive [negative].

> You depend a lot on your cellphone during a day. You use it frequently for many work-related or personal tasks such as making phone calls, checking the weather, the news highlights, and your emails, posting and reading posts on social media, watching videos, and searching the Internet.

Your old cellphone was outdated, so you bought a new cellphone two weeks ago. You were waiting to buy this new model for few months.

Your new phone is the newest generation of smartphones, among top mobile phones introduced this year. Over the past two weeks, your cellphone has been working great [acting weird], [not really] as you expected. There have not been any issues [have been many issues] with it.

It has plenty of storage space, a long-lasting battery, crystal-clear display, a great camera, and the ability to watch streaming video and video downloads on top of many other cool features.

[It has plenty of storage space but its battery does not last long, the display is blurry, the camera does not work properly, and during watching a video the picture freezes frequently.]

Overall, you are satisfied [not satisfied] with your cellphone. It is [is not] functioning properly.

To reinforce feelings of psychological ownership, we asked people in the owner condition to write 3–4 sentences about the scenario they read and how they felt. In the control condition, we provided the same scenarios but from a third-person perspective (i.e., "Alex depends a lot on his cellphone . . ."). To maintain the similarities between the owner and the control conditions, we asked people in the control condition to summarize the scenario they just read in 3–4 sentences.

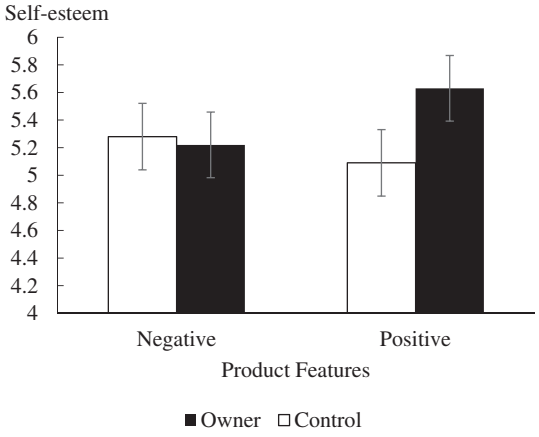
After manipulating ownership and product features, we measured self-esteem with the same 10-item self-esteem measure ($\alpha = 0.93$) used in study 2. Subsequently, we measured participants' prosocial tendencies using a scale developed by past research (Touré-Tillery and Light 2018). In this scale, participants read eight brief scenarios ($\alpha = 0.61$), each providing an opportunity for prosocial behavior (e.g., "While you are taking a walk downtown, a homeless person asks you for money. Would you give money to this homeless person?"). Next, participants were asked to indicate the likelihood of acting prosocially on a 5-point scale (1 = absolutely not, 5 = absolutely yes). Finally, as a manipulation check, participants were asked to report their felt ownership of the cellphone with the same three items ($\alpha = 0.98$) as in study 1A, except replacing the word *mug* with *cellphone*.

Results and Discussion

We successfully manipulated psychological ownership; participants in the owner condition reported feeling greater psychological ownership of the cellphone ($M = 5.79$, SD = 1.21) as compared to those in the control condition ($M = 3.63$, SD = 2.13; $F(1, 402) = 163.2$, $p < .001$, partial-$\eta^2 = 0.29$). Moreover, we found a main effect of product features on psychological ownership. Accordingly, participants in the positive product feature condition reported feeling greater psychological ownership of the cellphone ($M = 5.04$, SD = 2.01) as compared to those in the negative product feature condition ($M = 4.35$, SD = 2.03; $F(1, 402) = 17.2$, $p < .001$, partial-$\eta^2 = 0.04$). There is no significant interaction between ownership and product features on psychological ownership ($F < 1$).

FIGURE 3

PARTICIPANTS' SELF-ESTEEM AS A FUNCTION OF OWNERSHIP CONDITION AND PRODUCT FEATURES. ERROR BARS REPRESENT 95% CONFIDENCE INTERVALS OF THE MEAN

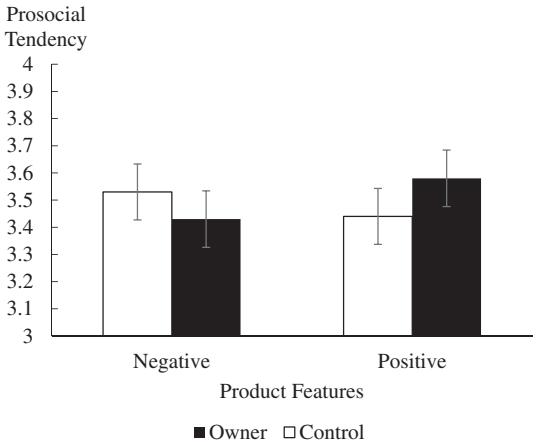


There were a significant main effect of ownership on self-esteem ($F(1, 402) = 3.81$, $p = .052$, partial-$\eta^2 = 0.009$) and a significant interaction effect between ownership and product features on participants' self-esteem ($F(1, 402) = 5.97$, $p = .015$, partial-$\eta^2 = 0.015$). The main effect of product features was not significant ($F < 1$). Pairwise comparisons between the owner and the control conditions show a significant effect of ownership on self-esteem in the positive product feature condition ($M_{owner} = 5.63$, $SD_{owner} = 1.13$, $M_{control} = 5.09$, $SD_{control} = 1.24$, $F(1, 402) = 9.62$, $p = .002$, partial-$\eta^2 = 0.023$). However, the effect of ownership on self-esteem is not significant in the negative product feature condition ($M_{owner} = 5.22$, $SD_{owner} = 1.24$, $M_{control} = 5.28$, $SD_{control} = 1.30$, $F(1, 402) < 1$). Figure 3 shows participants' self-esteem across the ownership and product feature conditions.

We averaged participants' responses to the brief prosocial scenarios and used this as a measure of their prosocial tendency. An analysis of variance shows a significant interaction between ownership and product features on prosocial tendency ($F(1, 402) = 4.95$, $p = .027$, partial-$\eta^2 = 0.012$). The main effect of ownership and the main effect of product features were not significant ($F < 1$). Pairwise comparisons between the owner and the control conditions show a marginal effect of ownership on prosocial tendency in the positive product feature condition ($M_{owner} = 3.58$, $SD_{owner} = 0.56$, $M_{control} = 3.44$, $SD_{control} = 0.58$,

FIGURE 4

PARTICIPANTS' PROSOCIAL TENDENCY AS A FUNCTION OF OWNERSHIP CONDITION AND PRODUCT FEATURES. ERROR BARS REPRESENT 95% CONFIDENCE INTERVALS OF THE MEAN



$F(1, 402) = 3.33$, $p = .069$, partial-$\eta^2 = 0.008$). However, the effect of ownership on prosocial tendency is not significant in the negative product feature condition ($M_{owner} = 3.43$, $SD_{owner} = 0.49$, $M_{control} = 3.53$, $SD_{control} = 0.50$, $F(1, 402) = 1.74$, $p = .19$). Figure 4 shows participants' prosocial tendency across ownership and product feature conditions.

Next, we ran a moderated mediation analysis using the bootstrapping approach (model 7) (Hayes 2018) with 10,000 iterations to examine whether self-esteem explains the interaction between ownership and product features on participants' prosocial tendency. The results show an indirect effect of ownership through self-esteem on prosocial tendency for the positive product feature condition (indirect effect = 0.027; 95% bias-corrected confidence interval = [0.002, 0.066]). However, self-esteem does not mediate the effect of ownership on prosocial tendency in the negative product feature condition (indirect effect = −0.003; 95% bias-corrected confidence interval = [−0.025, 0.015]). The analysis also confirms mediation, given that, after including self-esteem, the direct effect of ownership on prosocial tendency is not significant (direct effect = 0.007, $t(403) = 0.13$, $p = .90$). In sum, the results of this study confirm that ownership does not lead to prosocial behavior when the negative attributes of one's possessions are made relevant, and this effect is driven by the lack of a boost in one's self-esteem.

GENERAL DISCUSSION

Across seven studies, we found that psychological ownership led to a greater likelihood of engaging in prosocial behavior when people were presented with an opportunity to help. Moreover, a temporary boost to one's self-esteem mediated the relationship between ownership and prosocial behavior. We also examined materialism and mine-me sensitivity as individual differences moderating the effect of ownership on prosocial behavior, showing that our proposed effect did not hold for individuals low on materialism or low on mine-me sensitivity. We attenuated the effect of ownership on prosocial tendency by making the negative attributes of one's possessions relevant. We find support for our hypotheses using a variety of manipulations of psychological ownership: touching one's possession (studies 1A, 4, and 5), writing about ownership experiences (studies 2 and 3), customizing a product (study 1B), and imaginary ownership of a product (study 6). Furthermore, we used a range of behavioral outcomes, such as intention to act prosocially (studies 3 and 6), donation to a charity (study 1B), and helping others (studies 1A, 4, and 5). Finally, we collected data for our studies using different sample populations, from students in US universities to online panels of adults.

Presented with the results of this research, one may question whether people with more possessions or more valuable possessions (wealthier) are necessarily likely to engage in more prosocial behaviors. As highlighted in the theoretical background, we focus on psychological ownership as the result of consideration and deliberation on one's possession(s). Hence, it does not necessarily hold that having more possessions or more valuable possessions enhances one's deliberation on their possessions. Having more possessions could reflect one's materialistic disposition and/or higher need for material goods. Research has shown that self-esteem has an inverse relationship with the material goods one needs (Jackson 1979) and that materialistic people have a lower tendency toward prosocial behaviors (Belk 1985; Belk and Austin 1986; Richins and Dawson 1992). Considering the role of possessions in defining one's identity, more possessions are involved in shaping the identity of a person who owns more; thus, the link between a single possession and the self could be weaker for people with many rather than few possessions. As a result, thinking about a possession could have a weaker impact on self-esteem when people have many possessions. Past research has also shown that the monetary value of a possession does not affect the link between the possession and the self (Ferraro et al. 2011).

Theoretical Contributions and Practical Implications

Our results make several contributions to the existing literature on ownership. Most prior work has focused exclusively on the consequences of ownership for a target entity. Literature on consumer behavior and psychological research on the endowment effect show that people value an

object more if they feel they own it (Beggan 1992; Dommer and Swaminathan 2013; Peck and Shu 2009). Despite the insights this line of work has provided, there has been limited research on the effects of ownership on behaviors beyond those directed toward target possessions, and scholars have called for more research on the behavioral consequences of psychological ownership (Peck and Luangrath 2018). Extending previous work, we focused on how psychological ownership affects individuals' self-esteem and prosocial behavior. We proposed and found that the experience of psychological ownership made people more inclined to engage in prosocial behaviors toward beneficiaries other than the targets of ownership. Using multiple inductions of ownership and multiple measures of prosocial behavior, we provided support for the hypothesis that psychological ownership increases prosocial behavior. These findings provide the basis for a broader understanding of the role of ownership on cognition and behavior. Our research also identifies the mechanism by which ownership increases prosocial behavior. We demonstrate that feelings of ownership enhance people's self-esteem and result in greater helping behavior. Moreover, we shed light on the connections between ownership and self-esteem, emphasizing the role of possessions' benefits and their positive attributes in boosting self-esteem. In brief, our research contributes to an understanding of ownership by broadening its application to accompanying psychological states and consequences.

Research has put forward two contrasting perspectives on possessions. On the one hand, studies on materialism (Chang and Arkin 2002; Chaplin and John 2007; Richins and Dawson 1992) have found that lower levels of self-esteem are linked with higher levels of materialism, supporting the notion that "possessions are merely a crutch to shore up weak or sagging personalities" (Belk 1988, 159). On the other hand, when incorporated into the extended self, possessions can serve valuable functions for healthy personalities, such as providing meaning in life (Belk 1988). Regardless of whether possessions are adaptive or maladaptive to our well-being, they are a central facet of contemporary life; as such, understanding the wider consequences of psychological ownership, especially its positive consequences, is critical. We rely on a psychological perspective of ownership and focus on the affective and cognitive immediate effects of ownership. Despite the expected differences in baseline helping behavior based on individual differences in the strength of material values, we argue and find that ownership, by temporarily boosting one's self-esteem, encourages people—particularly those with strong materialistic orientations—to engage in prosocial behavior. Our research adds to the limited body of research on the potential positive effects of possessions.

We found that materialism (Richins and Dawson 1992) and mine-me sensitivity (Weiss and Johar 2013), two individual differences directly linked to the importance of possessions, moderate the effect of psychological ownership on helping. That is, the effect does not hold for individuals low on materialism or low on mine-me sensitivity, since these individuals do not rely on their possessions to perceive happiness, judge success, or define themselves. Empirical support for the moderating role of materialism provides further evidence for self-esteem as the underlying mechanism, since materialism negatively correlates with self-esteem.

Our work also contributes to a growing body of research addressing how, when, and why people engage in prosocial behavior (Penner et al. 2005). This type of behavior encompasses a broad range of actions intended to benefit others, such as helping and cooperating. While past studies have identified a number of dispositional and situational factors that drive prosocial behavior (Batson and Powell 2003), examination of the role of psychological ownership in this domain is, at best, at its very early stages (Dickert, Ashby, and Dickert 2018). Our work is one of the first projects to provide insights into how psychological ownership affects prosocial behavior, and it presents self-esteem as the mechanism connecting the two.

This work also has important practical implications. Past research has recognized a vicious cycle between materialism and loneliness in which materialism enhances loneliness and loneliness promotes materialistic values (Pieters 2013). Our findings suggest a mechanism for breaking this vicious cycle: activating a sense of psychological ownership. We show that psychological ownership pushes people to be more prosocial, which can reduce loneliness with the social bonds they build when they engage in prosocial behaviors. Breaking the vicious cycle between materialism and loneliness can be expected to improve consumers' well-being.

Businesses can also benefit from this work. Research has recognized three routes to psychological ownership: exercise of control, intimate knowing, and investment of the self (Pierce and Peck 2018). Practitioners can rely on these routes to enhance psychological ownership. For instance, retailers can enhance psychological ownership by encouraging consumers to touch products or letting them customize goods and/or services they acquire. The benefits of such experience can be employed in service-oriented businesses (e.g., amusement parks, sports arenas, movie theaters, airlines, education institutions) that rely on extensive interactions among consumers or between customers and employees. Our findings show that experiencing psychological ownership enhances prosocial tendencies in consumers, which can enhance the way they behave toward others. As a result, interactions among consumers or between customers and employees could improve, leading to a superior service experience and higher satisfaction. For example, in study 3, we show that enhanced feelings of ownership improve people's behavioral intentions toward another customer in a retail setting. In addition,

philanthropic institutions can increase people's contributions to their prosocial causes by enhancing a sense of psychological ownership—for instance, by framing their message to enhance psychological ownership.

It is important to note that psychological ownership can also increase the likelihood of territorial behaviors when people feel their ownership over a target is threatened (Kirk et al. 2018). Hence, practitioners should be cautious of consumers' perception of infringement to minimize their potential territorial backlash and maximize the positive impacts of ownership. We believe that consumers are less likely to perceive infringement in service domains because they are commonly aware and acknowledge the collective ownership over service experiences.

Limitations and Directions for Future Research

Any conclusions drawn from the results should account for the limitations of our studies and boundary conditions. First, our studies were limited to the cultural context of the United States; caveats about potential cultural differences should be considered, especially since, thus far, scholars have focused primarily on psychological ownership in Western cultures (Pierce and Jussila 2011). Although ownership and possessions are used widely in everyday conversation across societies, future research could investigate psychological ownership in other cultures.

Although we provided evidence for state self-esteem as the primary psychological mechanism underpinning our results and examined affective responses, general self-efficacy, power, feeling well-off, and reciprocity as possible mechanisms, further research should explore other potential mechanisms. Future research could also explore the context of ownership, which is likely to be an important factor in determining whether individuals exhibit prosocial behavior. Prior research has demonstrated that feelings of ownership toward an entity (e.g., one's projects or ideas) may increase possessive behavior, such as territoriality (Baer and Brown 2012). As such, we expect that owners who prioritize protecting their target entity would not help others if doing so would require them to relinquish some of their responsibilities or control over their possessions. Similarly, a highly valued resource may lead to strong feelings of entitlement or possessiveness, which in turn could decrease prosocial behavior.

To explain the effect of enhanced self-esteem on prosocial behavior, relying on self-esteem theories, we argued and showed that a boost in self-esteem motivates people to act to maintain the boosted self-esteem by engaging in prosocial behavior. However, there is a competing theory in literature with an opposite prediction. Specifically, self-regulation theories (Carver and Scheier 1981; Miller, Galanter, and Pribram 1960) suggest that goal progress (enhanced self-esteem and feeling satisfied with oneself in this case) will lessen self-regulatory concerns, thus bypassing the need for internal self-evaluation and self-examination, and lowering the likelihood of further positive actions. This is a compensatory process wherein increases in self-esteem lower subsequent helping behavior. We acknowledge this possibility and believe that there could be situations where a boost in self-esteem could lead to compensatory behaviors; however, in the context of psychological ownership increasing self-esteem, we consistently find a positive effect on subsequent helping behavior. Future studies should fully examine the direct link between levels of self-esteem and temporary changes to self-esteem on subsequent prosociality to identify boundary conditions.

Lastly, it would be worthwhile to explore the long-term effects of psychological ownership beyond the short-term effects we studied. In our studies, opportunities to help occurred just a few minutes after the experience of ownership. Thus, it is unclear whether a longer delay would weaken or even eliminate the effect of ownership on prosocial behavior. Future work is needed to examine the long-term effects of psychological ownership in much greater detail.

DATA COLLECTION INFORMATION

The second author supervised the collection of data for study 1A by research assistants and staff at Harvard Business School Research Lab in November 2014. The second author analyzed the data. The first author collected and analyzed the data for studies 1B, 2, and 3 using Amazon Mechanical Turk workers. Study 1B was conducted in May 2020, study 2 was conducted in March 2018, and study 3 was conducted in April 2018. The second and third authors supervised the collection of data for studies 4 and 5 by research assistants and staff at Harvard Business School Research Lab in October 2016. The first and second authors analyzed the data for these studies. The first and second authors collected the data for study 6 in April 2019 using Amazon Mechanical Turk workers. The first author analyzed these data.

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