

GOAL ACTIVATION AND CONTAGION

Goal Activation Drives Contagion Beliefs and Performance

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Abstract

Contagion beliefs refer to the perception that another individual's traits can be transferred to the self through direct physical contact with that individual or via a contagious object. Whereas previous contagion research examined contagion effects as a function of the contagion source, we propose that recipient factors may also drive contagion effects. In this view, the same contagion source can produce either positive or negative contagion effects depending upon consumer recipients' goals. We demonstrate that activation of a goal is a key factor driving contagion effects, leading to a more positive evaluation of a contagion object (Study 1) and enhanced performance in a task related to one's goal (Study 2), but only when the object was physically touched by a goal-congruent contagion source (Study 3). We find that contagion effects are amplified when consumers are further from their goals (Study 4) and that these effects are attenuated when consumers are in an entity (vs. incremental) implicit theory mindset (Study 5). The implications of these findings for contagion and goal theories are discussed.

Keywords: contagion, goal pursuit, motivated reasoning, performance, implicit theory

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Could writing with a pen used by a famous author like Hemingway improve the quality of one's writing? Could signing a business contract with the pen of a business titan like Elon Musk or Mark Cuban lead to better managerial performance? The current research investigates how goal activation spreads the belief that abilities can be transferred through "contagious" products to affect one's goal-related performance. For example, consider the following scenario: an individual who sets a goal of getting into better shape decides to work toward a healthier self by purchasing a used bicycle for exercising. The individual searches and finds two bicycles that are comparable in features, wear and tear, and price, noticing only that one seller is in great shape and the other seller is overweight. Can the seller's personal traits (e.g., perceived athleticism) influence evaluations of the two bicycles? Although the two bicycles' objective attributes are almost identical, we propose that when the seller is seen as more (vs. less) athletic, buyers will pay more for the bicycle and show improved athletic performance, but that this occurs only when the buyer's goal of improving health is activated. We theorize that this effect is due to the belief that the athletic seller's traits have transferred to the bicycle through physical contact between the seller and the product; that is, via contagion. In contrast to past research that focused on contagion phenomena emerging as a function of negative or positive traits of a contagion *source*, the current research examines how activation of a goal drives contagion beliefs among *recipients* (i.e., users of a contagious product) while holding source characteristics constant.

Contagion

According to previous research, contagion is a specific type of magical thinking whereby individuals believe that personal traits (e.g., affect) can be transferred from another person to the self via direct contact with a person or with an object previously touched by that person (Kramer & Block, 2011; Rozin & Nemeroff, 2002). Early research on contagion

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focused on negative contagion (Argo, Dahl, & Morales, 2006; Morales & Fitzsimons, 2007; Nemeroff & Rozin, 1994). For example, an individual might devalue an article of clothing previously worn by someone who is thought to possess negative traits, due to the belief that the negative traits of the previous owner (i.e., contagion source) were transferred to the clothes (i.e., contagion object) and can be further transferred to the self (i.e., contagion recipient) (Argo et al., 2006; Nemeroff & Rozin, 1994).

More recent research on positive contagion has identified specific cases that stem from various aspirational sources, such as celebrities (Hingston, McManus, & Noseworthy, 2017; Newman, Diesendruck, & Bloom, 2011) and professional athletes (Lee, Linkenauger, Bakdash, Joy-Gaba, & Profitt, 2011), or desirable traits, such as physical attractiveness (Argo, Dahl, & Morales, 2008) or a high level of creativity (Kramer & Block, 2014).

Another stream of research has shown that contagion can influence consumer performance under certain conditions (Amar, Ariely, Carmon, & Yang, 2018; Kramer & Block, 2014; Lee et al., 2011). For example, individuals' golf putting abilities increased when they were told they were using a professional golfer's putter (Lee et al., 2011). In the same vein, individuals' performance in a word association task increased when they were told that the notebook they were using for the task had been previously used by someone who possesses a high level of creativity (Kramer & Block, 2014). However, this effect was found only among the individuals with an experiential processing style. In contrast to these positive effects on performance, recent research has also shown that an insincere object (e.g., a counterfeit product) could serve as a source to elicit moral disgust and dampen task performance when the insincere object was used (Amar et al., 2018). Amar et al. (2018) also found that the contagion effect was more pronounced among individuals with highly stringent moral standards. Thus, some type of performance contagion appears to emerge only in specific

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populations (Amar et al., 2018; Kramer & Block, 2014).

In the current research, we propose a new factor driving the emergence of contagion effects. The aforementioned contagion studies have presumed that positive or negative contagion effects emerge based mainly on the positive or negative traits of *contagion sources* (i.e., the original users). Relatively less is known about how recipient-related factors may impact contagion. According to previous contagion research, a positive (negative) contagion source triggers positive (negative) contagion due to desirable (undesirable) traits of that source. In this model, the contagion source plays a key role in the emergence of contagion. In contrast, we propose an alternative perspective that highlights the role of the contagion *recipient*. According to this new “recipient-based” paradigm of contagion, the same source can be perceived as either positive or negative, depending upon the source’s congruency with the goals pursued by a contagion recipient.

Goal Pursuit and Magical Thinking

A goal is defined as a “desired end state” and when a goal is activated, individuals are driven to reduce the discrepancy between their current state and desired outcomes relating to the goal (Bullard & Manchanda, 2017; Kruglanski et al., 2002; Packard & Wooten, 2013; Sobol & Darke, 2014). One way to reduce this discrepancy is to engage in cognitively biased self-serving processes. Specifically, research has shown that individuals who want to achieve a desirable outcome (vs. not) are more likely to engage in a variety of biased cognitive processes in order to assure themselves that the desired outcome is achievable (Jain & Maheswaran, 2000; Kunda, 1990; Kunda & Sanitioso, 1989). For example, individuals who had academic success goals and were told that academic success was associated with either extraverted or introverted personality traits actually viewed themselves as possessing a high level of whichever traits they believed were associated with academic success (Kunda &

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Sanitioso, 1989). As another example, consumers who had an active goal to maintain a positive attitude toward a brand engaged in more elaborate counter-argumentation to a goal-inconsistent message compared to those who did not have the same goal (Jain & Maheswaran, 2000). According to Kunda (1990), such an “illusion of objectivity” and lack of rationality results from the motivation to support the desired goal-related outcome.

In the current research, we propose that contagion emerges as one form of magical thinking during goal pursuit. We find support for this argument from the literature on magical thinking. Previous research on magical thinking has shown that magical thinking is enhanced when individuals are focused on a desirable outcome (Converse, Risen, & Carter, 2012; Damisch, Stoberock, & Mussweiler, 2010; Hamerman & Johar, 2013; Keinan, 2002; for a review, see Kramer & Block, 2011). For example, individuals wishing for a job offer from a company were shown to donate more, believing that such behavior enhances the chance of achieving the desired outcome (Converse et al., 2012). Similarly, consumers watching their favorite team’s game chose to drink a particular brand, believing that such behavior would lead to their favorite team winning (Hamerman & Johar, 2013). Notably, these irrational beliefs can be best understood through a magical thinking theoretical lens, which explains cognitively biased and self-serving thoughts as a means to maintain a positive prospect of one’s goal-related desirable outcomes.

Although these findings indicate the possibility that activation of a goal could serve as an antecedent to greater magical thinking, the role of goal activation in producing magical thinking has received limited attention in the literature. What is unique about contagion (i.e., transmission of traits among individuals via physical contact) among other types of magical thinking is that it can make consumers believe that they can obtain positive goal-related traits from another individual and maintain a more goal-congruent self-image. Therefore, we

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suggest that pursuit of a goal and subsequent magical thinking can induce greater contagion beliefs. One consequence of contagion during goal pursuit could be its impact on the evaluation of goal-related products. According to prior research, an object that is helpful to the attainment of a goal receives a more favorable evaluation, but only by goal pursuers (Brendl, Markman, & Messner 2003; Ferguson & Bargh, 2004; Pocheptsova, Petersen, & Etkin, 2015). In contrast, an object deleterious to one's goal was shown to be devalued by the goal pursuer (Brendl et al., 2003; Ferguson & Bargh, 2004). Therefore, we propose that for a consumer pursuing a goal, a contagion object that was used by a person possessing desirable traits associated with that goal will be evaluated more positively. This effect occurs because of the belief that the traits can be transferred to the self via the object and help to one's goal achievement. Formally, we propose:

H1: When a goal is activated, an object previously used by a contagion source who is perceived as goal-congruent by the contagion recipient will receive a more favorable evaluation compared to an object used by a contagion source who is perceived as neutral or goal-incongruent. When a goal is not activated, different contagion sources will not influence evaluation.

Believing that desirable traits from a contagion source transfer to the recipient through contagion (Rozin & Nemeroff, 2002) can also make the recipient perceive that their goal is more attainable, because possessing those traits is perceived to be helpful in facilitating goal achievement. Previous research has shown that a boost in the expectancy of goal attainment increases actual commitment toward the goal (Kivetz, Urminsky, & Zheng, 2006; Kruglanski et al., 2002). For example, individuals with a goal to obtain a free cup of coffee after a certain number of visits were shown to be more committed toward the goal as they moved closer to the reward, due to the heightened expectancy of the reward (Kivetz et al., 2006). Because

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actually using a contagion object can make a recipient believe that the desirable traits of the contagion source can be transferred to the self, and thereby increase the chance of accomplishing a goal, we hypothesize that using a contagion object will increase commitment toward achieving one's goal, which in turn leads to enhanced performance in a task associated with the goal. Thus, we posit:

H2: When a goal is activated (vs. not), using an object previously used by a goal-congruent contagion source will a) increase commitment to the goal, which in turn leads to b) enhanced performance in a task that promotes the goal.

The Moderating Role of Goal Discrepancy

According to theories of goal pursuit, the action associated with a greater motivation to achieve one's goal is the desire to reduce the discrepancy between the actual and desired state relating to the goal (Higgins, 1987; Kruglanski et al., 2002). For example, Packard and Wooten (2013) showed that individuals who perceived high (vs. low) discrepancies between their actual and desired level of expertise in certain consumer product domains displayed a stronger motivation to signal that expertise to others (e.g., by leaving an online product review) as a means to reduce the perceived discrepancies. As another instance, Mishra, Mishra, and Shiv (2011) showed that individuals with a goal to lose weight showed a stronger motivation to interpret a health-related message in a self-serving manner and actually lost more weight, when the discrepancy between their current and desired weight was high (i.e., high discrepancy) than low (i.e., low discrepancy).

In sum, existing research suggests that perceiving a high (vs. low) goal discrepancy between one's actual and desired goal-related state leads to a stronger motivation to close the gap. However, no research has examined the linkage between the magnitude of goal discrepancy and contagion beliefs. Therefore, we propose that the contagion emerging during

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goal pursuit will be stronger among those who have a higher goal discrepancy compared to those with lower goal discrepancy.

H3: When a goal is activated, evaluation of a goal-congruent contagion source's object will be more favorable among the individuals with a high (vs. low) level of goal discrepancy.

Implicit Self Theory and Contagion

We propose another novel moderator of contagion pertaining to contagion recipients rather than the literature's extant focus on contagion sources. In particular, we suggest that contagion effects can be moderated by the mindset contagion recipients hold with respect to the malleability of human traits. According to the implicit theory of self (Dweck, 2000), belief regarding the malleability of human traits could vary depending on individual and contextual factors. The incremental mindset refers to the belief that personal traits are malleable and can improve over time. In contrast, the entity mindset refers to the belief that personal traits are fixed and cannot improve over time.

We hypothesize that contagion effects are more likely to appear in the presence of an incremental mindset, because both the contagion belief and incremental mindset are based on the common lay theory that human traits are malleable and can be altered. For example, studies have shown that an object previously used by a positive person (e.g., Gandhi's robe) receives a favorable evaluation because people believe that their current traits can be altered when they are physically contacted by such an object (Rozin & Nemeroff, 2002). This belief regarding the malleability of human traits is also the foundation of the incremental mindset (Dweck, 2000). In contrast, an entity mindset is based on the perspective that human traits cannot change and are, therefore, incompatible with contagion beliefs. Because of this incompatibility, we hypothesize that contagion effects will be attenuated when an entity

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mindset is activated.

H4: When a goal is activated, favorable evaluation of a goal-congruent contagion source's object will be attenuated when an entity (vs. incremental) mindset is activated.

Overview of Studies

Five studies tested our hypotheses across various domains. Study 1 was designed to test our key hypothesis that the same contagion source could positively or negatively affect product evaluation depending on whether or not the contagion source is perceived by a contagion recipient as neutral, goal-congruent, or goal-incongruent. In Study 2, we examined whether this effect extends from product evaluation to actual performance. In Study 3, we investigated whether a contagion object is evaluated favorably only when it was owned and touched by a contagion source (vs. owned, but not touched). Study 4 was designed to test goal discrepancy as a moderator of the contagion effect. Finally, in Study 5, we examined whether implicit theory moderates contagion effects and find that contagion effects are attenuated when an entity (vs. incremental) mindset is induced.

Study 1: Effect of Positive and Negative Contagion on Product Evaluation

In Study 1, we hold the contagion source constant and manipulated only the contagion recipients' goals. We predicted that the evaluation of a contagion source's object will be more favorable when the source possesses helpful traits related to the goal (i.e., goal-congruent condition) compared to when not (i.e., goal-incongruent condition). We also predicted that the product evaluation in the control condition (i.e., no goal activation) will be lower than the goal-congruent condition but higher than the goal-incongruent condition.

Method

Participants and design. One hundred and twenty Amazon MTurk participants

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(female = 49%, $M_{\text{age}} = 37.67$, $SD_{\text{age}} = 13.36$) completed this study for monetary compensation. All participants were randomly assigned to one of the three conditions in a 3 (contagion source: goal-congruent, goal-incongruent, control) between-subjects design.

Procedure. As a cover story, participants were told that they would participate in a study consisting of two unrelated parts. First, we activated goals. In the goal-congruent (goal-incongruent) condition, participants were instructed to write down their hopes, aspirations, and dreams as they related to their athletic (marriage) success. We adapted this manipulation from a widely used goal activation method (Liberman, Idson, Camacho, & Higgins, 1999). In the control condition, participants were asked to describe their activities during a normal day.

In an ostensibly unrelated study, participants were asked to evaluate an autographed glove used by professional golfer Tiger Woods in a tournament (see appendix A in the Methodological Details Appendix (MDA)). We chose Tiger Woods based on a pretest in which 80 Amazon MTurk participants' perceptions were measured regarding the extent to which Tiger Woods is perceived as successful in his athletic career (1 = not at all, 7 = very much) and in his marriage (1 = not at all, 7 = very much). A t-test showed that Tiger Woods is perceived as significantly more successful in his athletic career ($M = 6.36$, $SD = 0.87$) than in his marriage ($M = 1.82$, $SD = 1.07$; $t(79) = 16.07$, $p < .001$).

For the dependent measure, we captured willingness to pay (WTP), as it has been shown to be a reliable measure of attitude and valuation in prior contagion research (Argo et al., 2008; Morales & Fitzsimons, 2007). Specifically, in an open-ended question, we asked participants how much they would be willing to bid for the glove if the item were for sale in an auction.

Results

In order to control for the effect of outliers, WTP ($M = \$163.81$, $SD = \$533.29$) was

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log-transformed. A one-way (goal: goal-congruent, goal-incongruent, control) ANOVA revealed a significant effect of goal on log-transformed WTP ($F(2, 117) = 10.61, p < .001, \eta_p^2 = .15$). In order to further examine these results, we conducted pairwise comparisons. The pairwise comparison revealed that WTP was higher in the goal-congruent condition ($M = 3.91, SD = 2.12$) than in the control condition ($M = 2.56, SD = 2.36; F(2, 117) = 7.30, p = .007, \eta_p^2 = .09$). We also found that WTP in the control condition was marginally higher than WTP in the marriage goal condition ($M = 1.64, SD = 2.17; F(2, 117) = 3.28, p = .074, \eta_p^2 = .04$, see Fig. 1).

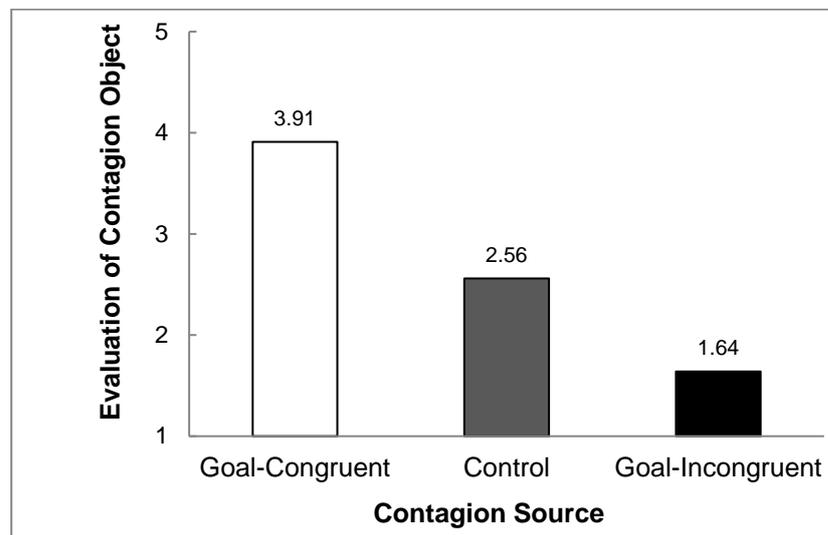


Fig. 1. Log-transformed WTP for the glove as a function of activated goals (Study 1)

Discussion

In support of H1, the results of Study 1 show that the same source could be perceived as a positive or negative contagion source depending on the activated goal. In particular, WTP for the object previously used by a contagion source was highest when source trait was perceived as goal-congruent. Interestingly, we also found that WTP for the same object used by the same source became lower when the source's trait was perceived as goal-incongruent. Our theoretical framework focuses on positive contagion, but this finding, while only

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marginal, may be worth further investigation. We return to this in our general discussion.

Study 1 provides initial evidence that the key factor driving contagion is not necessarily the contagion source, but how that source is perceived to align with the contagion recipient's activated goals.

This recipient-driven contagion paradigm has important implications for the contagion literature. Our findings indicate that whether an individual (e.g., a celebrity like Tiger Woods) is perceived as a positive contagion source could vary depending on consumers' goals. Furthermore, even for the same consumer, whether a source is perceived as positive or negative could change over time as the consumer's activated goals evolve. Building off of previous contagion research that focused on the contagion sources' traits, the current research demonstrates that contagion may be a result of the interaction between the contagion source and the contagion recipient's perception of the source.

Study 1 focused on examining the effect of contagion on product evaluation. In Study 2, we extended our inquiry to consider consumer performances on goal-related tasks. We expect that when relevant goals are activated, a product previously used by a goal-congruent contagion source will not only make consumers more committed toward their goals, but also lead to better performance on goal-related tasks.

Study 2: Effect of Positive Contagion on Goal Commitment and Task Performance

Study 2 was designed to examine whether positive contagion extends to improve actual consumer performance (H2). In particular, we examined whether using an object that was previously touched by a goal-congruent contagion source would motivate consumers to exert more effort in a task that contributes to achieving one's goal, which in turn would lead to enhanced task performance. For this purpose, in Study 2, we departed from the product evaluation paradigm utilized in Study 1 and focused on examining goal commitment and

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actual performance and also consider a different contagion source. The purpose of this variation was to further generalize the contagion effect across various goal domains and sources.

Method

Participants and design. One hundred and nine undergraduate business students (female = 43%, $M_{\text{age}} = 20.99$, $SD_{\text{age}} = 2.30$) participated in Study 2 in return for partial course credit. Upon arrival at the lab, the participants signed the consent form and were assigned to individual cubicles. The participants were randomly assigned to one of the conditions in a 2 (goal: activated, control) x 2 (contagion source: goal-congruent, goal-incongruent) between-subjects design.

Procedure. Participants were told as a cover story that they will participate in a study from their Business School Career Service Center and also were told that the study consists of two unrelated parts. Participants in the goal activation condition were told that the Undergraduate Career Service Center was interested in examining students' thoughts about the job market and their career goals in order to provide better support for other students. Participants were then asked to list the industry and career they want to pursue after graduation. Similar to Study 1, we activated a goal using a writing method. In particular, participants wrote why they thought it was important for them to be successful in their career, a widely used method to activate goals (Galinsky, Gruenfeld, & Magee, 2003). Participants in the control condition were asked to think about their activities during a normal day and describe them just as in Study 1.

In the ostensibly unrelated second part, participants were told that the Business School Career Service Center was in need of well-written student self-advertisement essay samples for their new student career guidebook. Participants were told to write a one-page

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self-advertisement describing their career-related strengths. In order to make this essay task more realistic, and also to link it to the achievement of their goals, participants were told to imagine that their essay would be reviewed by a company that they would like to work for after graduation and that a well-written essay would significantly increase their chances of receiving a job offer from that company (see appendix B in the MDA).

After receiving instructions for the writing task, participants received a pen from the experimenter to use in their writing. In the goal-congruent contagion source condition, participants were given the brief biography of a “successful businessman and investor,” Mark Cuban (see appendix C in the MDA) and received a pen purportedly used by him. Mark Cuban was selected based on pretesting which showed that he possessed a high favorability rating in career domains and high awareness ratings within the sample population.

Participants were told that Mark Cuban had used the pen to sign a major contract and then donated it to the Business School Career Service Center. Participants were also told that the pen was temporarily checked out from the Business School Career Service Center so that they can have an opportunity to use Mark Cuban’s pen. In the goal-incongruent source condition, the participants received the same pen but without being given any information about its provenance. We used a pen that was pretested to be perceived as a luxurious pen and it was handed to the participants within a piece of silk in order to prevent potential contagion from being transmitted from the experimenter to the pen (see appendix D in the MDA).

The time that the participants spent on the writing task was recorded as a measure of their commitment toward the goal (Baumeister, Bratslavsky, Muraven, & Tice, 1998). In addition, three independent graduate student coders who were blind to the research hypotheses rated the quality of each writing on a 5-point scale (1 = not good at all, 5 = very good), which served as the measure of writing task performance. Finally, participants

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answered demographic questions and were debriefed.

Results

A 2 (goal: activated, control) x 2 (contagion source: goal-congruent, goal-incongruent) ANOVA on the goal commitment variable (i.e., time spent on the writing task) revealed that the main effect of goal on goal commitment was marginally significant ($F(1, 105) = 3.00, p = .09, \eta_p^2 = .03$), while the main effect of the contagion source on goal commitment was not significant ($F(1, 105) = 2.53, p = .12, \eta_p^2 = .02$). The marginal main effect of goal on goal commitment was qualified by a significant two-way interaction between goal and contagion source ($F(1, 105) = 4.08, p = .04, \eta_p^2 = .04$, see Fig. 2). In order to further examine the nature of this interaction, we conducted pairwise comparisons. When a goal was activated, participants who used a pen supposedly used by a goal-congruent contagion source demonstrated greater goal commitment on the writing task ($M = 278.64$ seconds) than those participants who used a goal-incongruent source's pen ($M = 222.65$ seconds; $F(1, 105) = 5.95, p = .02, \eta_p^2 = .09$). In the control condition, the goal-congruent source's pen ($M = 220.43$ seconds) and goal-incongruent source's pen ($M = 227.10$ seconds) did not produce significant differences in goal commitment ($F(1, 105) = 0.10, p = .75, \eta_p^2 = .002$).

Next, the three coders' evaluations of the essays were averaged ($\alpha = .75$) in order to create an index of writing task performance. A 2 (goal: activated, control) x 2 (contagion source: goal-congruent, goal-incongruent) ANOVA revealed a marginally significant main effect of goal on performance ($F(1, 105) = 3.39, p = .07, \eta_p^2 = .03$) and a marginally significant main effect of contagion source on performance ($F(1, 105) = 3.29, p = .07, \eta_p^2 = .03$). Again, these main effects were qualified by a significant two-way interaction between

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goal and the contagion source ($F(1, 105) = 4.18, p = .04, \eta_p^2 = .04$). In order to further examine the nature of this interaction, we conducted pairwise comparisons. When a goal was activated, those who used a pen previously used by a goal-congruent contagion source performed better ($M = 3.13, SD = 0.83$) in the writing task than those who used a goal-incongruent source's pen ($M = 2.47, SD = 0.82; F(1, 105) = 6.79, p = .01, \eta_p^2 = .14$, see Fig. 3). In the control condition, however, task performance in the goal-congruent source condition ($M = 2.47, SD = 0.85$) and the goal-incongruent source condition was not significantly different ($M = 2.51, SD = 0.99; F(1, 105) = 0.03, p = .87, \eta_p^2 < .001$).

Finally, we conducted a mediation analysis in order to determine whether the level of goal commitment (i.e., time spent on the writing task) mediated the key interaction's impact on task performance. We used the biased corrected bootstrapping procedure with 10,000 bootstrap re-samples using the PROCESS Macro model 4 (Hayes, 2013). When goal commitment was included as a mediator, the bias corrected 95% confidence interval for the indirect effect of goal commitment on the relation between goal x contagion source and task performance did not include zero (95% CI = [0.04, 0.66]). Also, the factor of goal x contagion source did not predict performance in the presence of the mediator ($p = .24$), indicating full mediation.

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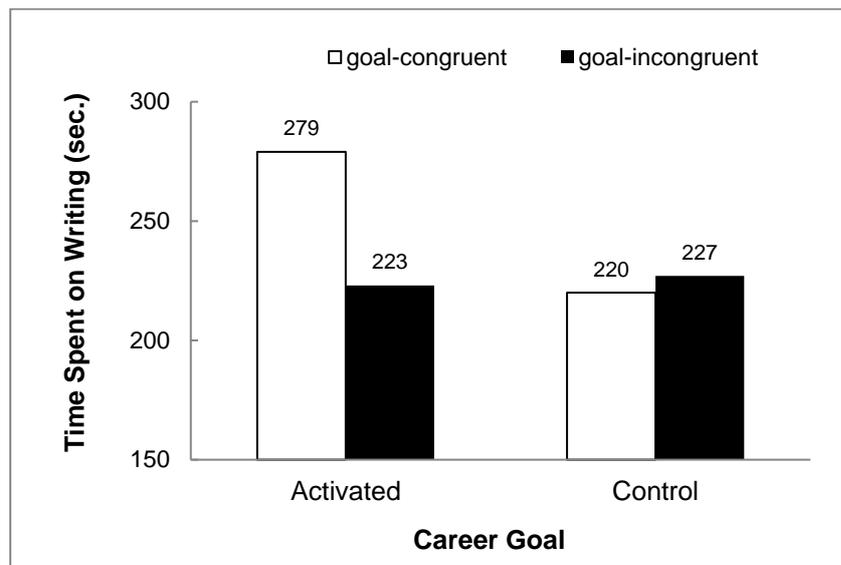


Fig. 2. Goal Commitment as a function of goal activation and contagion source (Study 2)

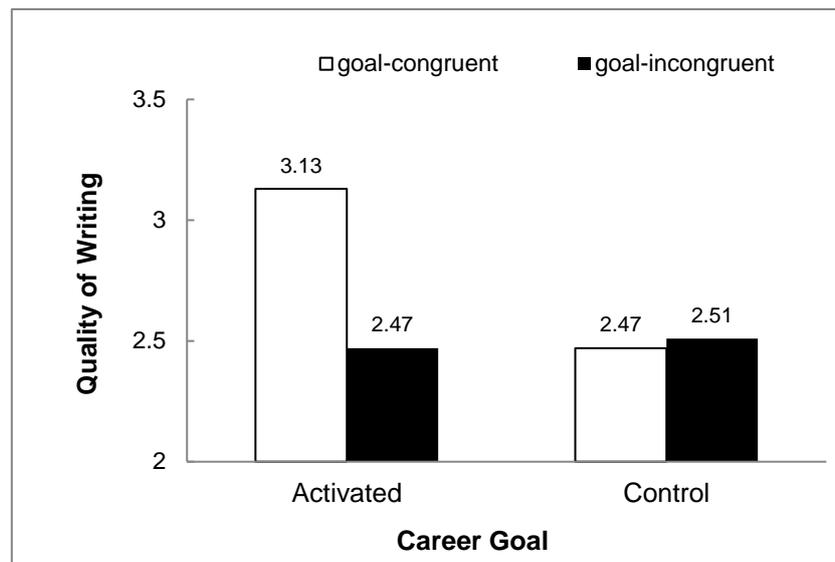


Fig. 3. Task Performance as a function of goal activation and contagion source (Study 2)

Discussion

In support of H2, Study 2 showed that contagion can improve actual consumer performances via heightened goal commitment. Importantly, we found this effect only when a goal was activated. Whereas different goals were activated in Study 1, we either activated or

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did not activate a goal in Study 2. The two studies consistently demonstrated that a contagion effect emerges only when the contagion source is perceived by a contagion recipient to be beneficial to the recipient's goal. These findings provide the first evidence of a link between goal activation, enhanced goal commitment, and improved performance via contagion.

As a caveat, this result should not be misinterpreted to mean that contagion effects cannot be observed without forcefully activating a goal. Such an interpretation would create a misleading conflict between our findings and previous studies in the contagion literature, which demonstrated contagion effects without goal activation. Instead, our paradigm suggests that some types of contagion could emerge based on our basic instincts and goals, such as concern for safety (Nemeroff & Rozin, 1994), hygiene (Argo et al., 2006; Morales & Fitzsimons, 2007), or sexual desire (Argo et al., 2008). For example, the finding that male consumers favorably evaluate a T-shirt worn by an attractive female (Argo et al., 2008) could be understood in terms of male's inherent mating instinct (i.e., an evolutionary goal perspective). Therefore, the current research provides an integrative paradigm to the contagion literature, showing that contagion occurs during the process of goal pursuit and some contagion can occur without a forceful activation of a goal when it already exists in the consumer's mind. In Study 3, we further examined the role of physical contact in contagion in order to exclude an alternative explanation based on semantic association.

Study 3: The Role of Physical Touch in Contagion

In Study 3, we varied the extent of the physical contact between the contagion source and an object. Manipulation of physical contact allows us to exclude an alternative explanation based on mental association. The models of mental association posit that presenting a neutral stimulus with another positive stimulus results in a more favorable evaluation of the neutral stimulus due to a perceived linkage between the two (De Houwer,

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Thomas, & Baeyens, 2001). For example, presenting a brand with a positive celebrity can make people perceive the brand as more positive as well, because it is mentally associated with the celebrity (McCracken, 1989).

A critical difference between association and contagion is that association can be established by simply presenting an object with a liked or disliked person, regardless of the physical contact between the two. Previous research has isolated the role of contagion by demonstrating that contagion effects emerge only when physical contact between the object and the person exists (Kramer & Block, 2014; Newman et al., 2011). In order to exclude an alternative explanation based on mental association, in Study 3 we compared an identical object that a contagion source owned and used (i.e., contagion) with an object that the contagion source owned but never used (i.e., association), adopting the approach used by previous contagion researchers (Kramer & Block, 2014; Newman et al., 2011). Doing so allows us to disentangle contagion from the association-based explanation. We predict that when an object is owned, but not used, the evaluation will be less favorable than when the object is both owned and used. This difference is due to the contagion effect (Rozin & Nemeroff, 2002).

Method

Participants and design. One hundred and thirty-three undergraduate business students (38% female, $M_{\text{age}} = 20.82$, $SD_{\text{age}} = 3.68$) were recruited for participation in Study 3 in return for partial course credit. Upon arrival at the lab, the participants signed the consent form and were assigned to individual cubicles. The participants were randomly assigned to one of the conditions in a 2 (goal: activated, control) x 2 (product usage: owned and used, owned but not used) between-subjects design.

Procedure. Participants were told that they were going to participate in two unrelated

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studies. The procedure of goal activation was similar to previous studies. In the goal activation condition, participants were told (as a cover story) that the Business School Career Service Center was interested in examining students' thoughts about the job market and their career goals in order to provide better support for other students. Just as in Study 1, participants were asked to think about their hopes, aspirations, and dreams as they related to their careers and to write about why they were important (Lieberman et al., 1999). Participants in the control condition were asked to think about their activities during a normal day and describe them just as in previous studies.

In the purportedly unrelated product evaluation study, we manipulated contagion source and contagion object based on the same method used in Study 2. Just as in Study 2, we used Mark Cuban as the contagion source. First, participants were given the brief biography of "successful businessman and investor," Mark Cuban (see appendix C in the MDA). Just as in Study 2, participants were then told that they will have an opportunity to briefly examine the pen Mark Cuban donated to the Business School Career Service Center. Prior research has shown that actual physical contact between the contagion source and an object is an essential element in producing contagion effects (Newman et al., 2011, Rozin & Nemeroff, 2002).

Closely following the method used in Newman et al. (2011), we told the participants in the "owned and used" condition that Mark Cuban had not only owned the pen, but had used it frequently. Participants in the "owned but not used" condition were told that the pen had been owned by Mark Cuban but he had not used it. Prior research (Newman et al., 2011) has shown that this method can effectively exclude alternative explanations by association. Participants were then given a chance to physically examine the pen for about 10-20 seconds. We used the same pen used in Study 2 which was pretested to be perceived as luxurious and

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it was handed to the participants within a piece of silk in order to prevent potential contagion from being transmitted from the experimenter to the pen (see appendix D in the MDA).

For the dependent measure, we asked participants in an open-ended question, how much they would be willing to bid for the pen if it were for sale in an auction. Just as in Study 1, WTP was log-transformed. Finally, participants answered demographic questions and were debriefed.

Results

Two participants who indicated extremely high WTP for the pen (e.g., “5 billion dollars”) and two participants who failed to recall the name of the owner of the pen (i.e., Mark Cuban) correctly were excluded, leaving one hundred twenty-nine participants for the analysis. Next, we conducted a 2 (goal: activated, control) x 2 (product usage: owned and used, owned but not used) ANOVA on the log-transformed WTP measure. We observed a significant main effect of the product usage ($F(1, 125) = 5.22, p = .02, \eta_p^2 = .04$). The main effect of product usage was qualified by a significant two-way interaction between goal and product usage ($F(1, 125) = 4.21, p = .04, \eta_p^2 = .03$). In order to further examine the nature of this interaction, we conducted pairwise comparisons. When a goal was activated, WTP was higher for a pen that was owned and used ($M = 3.91, SD = 1.88$) than for a pen that was owned but not used ($M = 2.62, SD = 1.45; F(1, 125) = 12.34, p = .001, \eta_p^2 = .13$, see Fig. 4). In the control condition, WTP for the pen that was owned and used ($M = 2.97, SD = 1.75$) and owned but not used ($M = 2.90, SD = 1.37$) were not significantly different ($F(1, 125) = 0.02, p = .88, \eta_p^2 < .001$).

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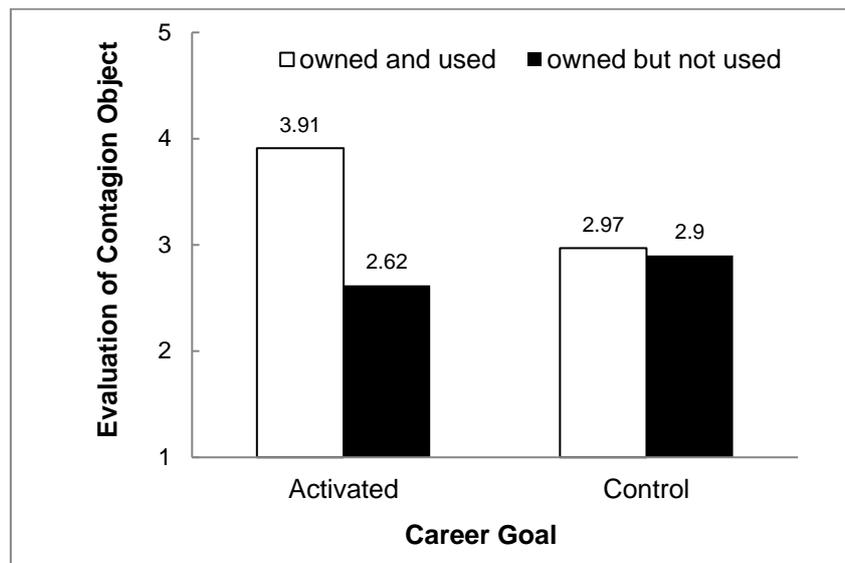


Fig. 4. Log-transformed WTP for the pen as a function of goal activation and product usage (Study 3)

Discussion

The results of Study 3 are consistent with previous studies, showing that contagion effects emerge only when a goal is activated and when the contagion source is goal-congruent. Another important objective of Study 3 was to exclude an alternative explanation based on mental association. Our finding that an object was evaluated more favorably by goal pursuers when it was physically contacted by a goal-congruent contagion source indicates that our results are not due to mental association, because mental association influences product evaluation regardless of whether it has been contacted by the source or not (De Houwer et al., 2001). Rather, our results indicate that favorable product evaluation is the result of contagion beliefs whereby goal pursuers evaluate a goal-congruent source's object favorably, hoping, or inferring that the source's positive goal-related traits will transfer to the self via contagion. In Study 4, we examined the theorized role of goal-discrepancy on contagion effects.

Study 4: The Role of Goal Discrepancy in Contagion

Study 4 was designed to examine the role that goal discrepancy plays in inducing

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contagion effects (H3). Prior research has shown that activation of a goal leads to greater effort to minimize the discrepancy between the actual and desired state of the goal (Higgins, 1987) and also that these efforts are amplified when the discrepancy is large, as compared to small (Packard & Wooten, 2013; Sobol & Darke, 2014; Ward & Dahl, 2014). Therefore, we manipulated goal discrepancy in Study 4 and examined whether contagion emerges more strongly when the discrepancy is high than when the discrepancy is low. Based on the aforementioned findings, we expected that the evaluation of a positive contagion object would be more favorable among those who perceive high (vs. low) goal discrepancy.

Method

Participants and design. One hundred seventy-seven individuals (female = 37%, $M_{\text{age}} = 33.88$, $SD_{\text{age}} = 10.66$) from Amazon MTurk participated in Study 4 for monetary compensation. The participants were randomly assigned to one of the conditions in a 2 (goal discrepancy: high, low) x 2 (contagion source: goal-congruent, goal-incongruent) between-subjects design.

Procedure. A cover story explained that they were to participate in two unrelated studies. Participants were told that they would take a short health survey in the first part and then evaluate a product being sold on a second-hand market in the unrelated second part. In the first part, we activated a goal in the domain of health using the same method used in previous studies. In particular, participants were instructed to write about their wishes and hopes about their own health and the strategies that they believed might enhance their health (Lockwood, Jordan, & Kunda, 2002). Next, participants were told about a health test developed by the Michigan Department of Community Health (available at <http://www.michigan.gov/mdhhs>, see appendix E in the MDA) and were told to answer a questionnaire designed to examine individuals' exercise and diet habits. They were also told

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that the score of the health test could range from 0 to 20, whereby a higher number indicates healthier exercise and diet habits.

Participants in the high discrepancy condition were told that their health score was 5 out of 20, whereas the participants in the low discrepancy condition were told that their health score was 18 out of 20. Along with the test score, they were provided with online feedback explaining what the test score meant for them (see appendix F in the MDA). This material is also available on the Michigan Department of Community Health website.

The ostensibly unrelated second part was introduced as a study that examined how individuals evaluate products being sold in a second-hand product market. A fictitious seller was introduced as another survey participant from another building and participants were told that the seller also took the health test that they took in the first part. Participants in the positive (negative) contagion source condition were told that the seller received 19 out of 20 (2 out of 20) from the health test. Next, participants visited an eBay ad webpage for a FitBit device and were told that the product was being sold by the seller described (see appendix G in the MDA). Just as in previous studies, the dependent measure was WTP for the FitBit. The price offered by the seller in the eBay ad was \$45 and the participants were asked to make a counter offer ranging anywhere between \$0 and \$45.

Participants then answered demographic questions, among which was embedded an item that measured their perceived goal discrepancy. This measure was adapted from prior research (Aron, Aron, & Smollan, 1992) and revised to capture the perceived goal discrepancy. The purpose of this item was to ensure that the manipulation of goal discrepancy was successful. We predicted that the goal discrepancy would be larger in the high discrepancy condition than in the low discrepancy condition (see appendix H in the MDA).

Results

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We first conducted a 2 (goal discrepancy: high, low) x 2 (contagion source: goal-congruent, goal-incongruent) ANOVA on the measure of perceived goal discrepancy in order to ensure that our manipulation of discrepancy was successful. As predicted, we found only a significant main effect of the goal discrepancy manipulation on perceived goal discrepancy ($F(1, 173) = 8.60, p = .004, \eta_p^2 = .05$), which indicates that manipulating goal discrepancy by varying the health test score feedback was successful. Then, just as in previous studies, we log-transformed WTP and conducted a 2 (goal discrepancy: high, low) x 2 (contagion source: goal-congruent, goal-incongruent) ANOVA on log-transformed WTP. Neither of the main effects of the discrepancy or contagion source was significant (both F s < 1). As predicted, we found a significant two-way interaction between the goal discrepancy and the contagion source ($F(1, 173) = 6.87, p = .01, \eta_p^2 = .04$, see Fig. 5). In order to further examine the nature of this interaction, we conducted pairwise comparisons. When the discrepancy was high, the product previously used by a goal-congruent source received a higher WTP ($M = 3.14, SD = 0.61$) than the same product used by a goal-incongruent source ($M = 2.67, SD = 1.20; F(1, 173) = 4.31, p = .04, \eta_p^2 = .06$). When the discrepancy was low, however, WTP between the goal-congruent ($M = 2.59, SD = 1.34$) and goal-incongruent source conditions was not significantly different ($M = 2.94, SD = 0.87; F(1, 173) = 2.65, p = .11, \eta_p^2 = .03$). Additionally, the product used by a goal-congruent contagion source received a higher WTP when the discrepancy was high ($M = 3.14, SD = 0.61$) than when the discrepancy was low ($M = 2.59, SD = 1.34; F(1, 173) = 6.05, p = .02, \eta_p^2 = .07$). However, WTP for the product used by a goal-incongruent contagion source did not differ depending on the level of the discrepancy ($F(1, 173) = 1.53, p = .22, \eta_p^2 = .02$).

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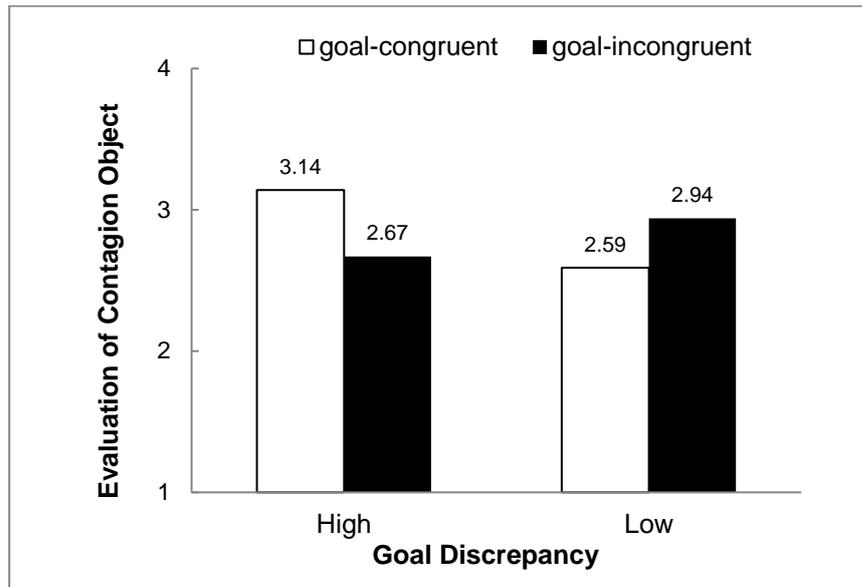


Fig. 5. Log-transformed WTP for the Fitbit as a function of goal discrepancy and contagion source (Study 4)

Discussion

The results of Study 4 show that the contagion effect is stronger among individuals who perceive a high (vs. low) goal discrepancy. This result supports H3 and provides further evidence of the key nexus between goal activation and contagion effects. Additionally, evaluation of contagion objects in the two goal-incongruent conditions were not different depending on whether the goal-discrepancy was high or low. This result is difficult to compare against the results of Study 1 showing reduced evaluations for goal-incongruent objects due to the manipulation of goal discrepancy. Also, in Study 1, the comparison point for the goal-incongruent condition was a control condition, in which no goal was activated. In contrast, all participants in Study 4 were in a goal activated condition. Yet another possibility is that the low goal discrepancy condition whereby consumers learned they were very close to an ideal health goal served to reduce the importance of the goal, thereby eliminating any contagion effects. Therefore, it is difficult to directly compare the goal-incongruent condition results across Study 1 and 4.

In Study 5, we examined another hypothesized effect, namely, the moderation of

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contagion by implicit theory (H4).

Study 5: Implicit Theory as a Moderator of Contagion

The studies so far have consistently shown that positive contagion emerges when a goal is activated in consumers' minds and when the contagion source is perceived to be goal-congruent. In Study 5, we introduce a theoretically important moderator of this contagion effect. In particular, we examine whether contagion effects are moderated by one's implicit theory of self. Prior research in implicit theory (Dweck, 2000) has shown that individuals prompted with an incremental (vs. entity) theory believe that personal traits (e.g., abilities, personalities) are more malleable and changeable. Therefore, we propose that inducing an entity (vs. incremental) mindset would attenuate contagion effects, because the central tenet of entity theory, that human traits cannot change, is incompatible with contagion belief, which posits that human traits can change via contagion (Rozin & Nemeroff, 2002).

Method

Participants and design. One hundred and sixty participants (female = 58%, $M_{\text{age}} = 37.99$, $SD_{\text{age}} = 13.47$) from Amazon participated in Study 5 for monetary compensation. All participants were subjected to a goal activation prime in Study 5. Participants were randomly assigned to one of the conditions in a 2 (implicit theory: entity, incremental) x 2 (contagion source: goal-congruent, goal-incongruent) between-subjects design.

Procedure. A cover story explained that participants were to complete a study consisting of three unrelated parts. In the first part, all participants were told that they were going to participate in a linguistic aptitude study. In particular, we activated a health goal using the same method used in Study 4.

In the ostensibly unrelated second part, we manipulated participants' implicit theory. Adopting our methods from previous research on implicit theory, we randomly assigned

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participants to read arguments supporting either entity or incremental theory (Chiu, Hong, & Dweck, 1997). In particular, participants were randomly assigned to read a short essay that reported academic findings demonstrating that personal traits are either changeable (i.e., incremental theory) or unchangeable (i.e., entity theory). Then, we instructed the participants to generate arguments consistent with the essay they read in order to further ensure that their induced mindset was consistent with either incremental or entity theory (Killeya & Johnson, 1998).

Next, participants were randomly assigned to either a goal-congruent or goal-incongruent contagion source condition. Participants in the goal-congruent (goal-incongruent) source condition were asked to provide the name of a friend who they would consider to be very healthy (somewhat unhealthy). Then, participants were asked to imagine that the friend they listed was selling a used “Stair Stepper, a piece of cardiovascular equipment designed to train the muscles used to walk or climb stairs.” Just as in previous studies, our dependent measure was WTP for the item. In particular, participants indicated how much they would be willing to pay for the stepper previously used by one of their friends. Also, in order to examine whether our manipulation of implicit theory was successful, participants answered the eight-item implicit theory scale measuring individuals’ belief in the malleability of personal traits (Levy, Stroessner, & Dweck, 1998). The scale had four items designed to measure incremental theory (e.g., “People can substantially change the kind of person they are”; 1 = strongly disagree, 7 = strongly agree) and four items designed to measure entity theory (e.g., “Everyone is a certain type of person, and there is not much that can be done to really change that”; 1 = strongly disagree, 7 = strongly agree). The four items measuring entity belief were summed ($\alpha = .94$) and the four items measuring incremental belief were summed ($\alpha = .91$). Then, we created the index of relative incremental belief by

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subtracting the sum of the four entity belief items from the sum of the four incremental belief items. Finally, participants answered demographic questions and were debriefed.

Results

First we conducted a 2 (implicit theory: entity, incremental) x 2 (contagion source: goal-congruent, goal-incongruent) ANOVA on the index of incremental theory and found only a significant main effect of implicit theory manipulation on the index of incremental theory ($F(1, 156) = 8.70, p = .004, \eta_p^2 = .05$). As predicted, participants within the incremental theory condition showed stronger belief that personal traits can change ($M = 5.44, SD = 12.00$) than those within the entity theory condition ($M = -0.30, SD = 12.48; F(1, 156) = 8.70, p = .004, \eta_p^2 = .05$). This result indicated that the manipulation of two different implicit theories were successful.

Then, we conducted a 2 (implicit theory: entity, incremental) x 2 (contagion source: goal-congruent, goal-incongruent) ANOVA on the log-transformed WTP. We found only a significant interaction between the implicit theory and the contagion source ($F(1, 156) = 11.18, p = .001, \eta_p^2 = .07$). In order to further examine the nature of this interaction, we conducted pairwise comparisons. In the incremental theory condition, WTP was higher in the goal-congruent contagion source condition ($M = 4.07, SD = 1.17$) than in the goal-incongruent contagion source condition ($M = 2.98, SD = 1.15; F(1, 156) = 11.55, p = .001, \eta_p^2 = .18$). In the entity theory condition, WTP was not significantly different in the goal-congruent source condition ($M = 3.11, SD = 1.87$) and the goal-incongruent contagion source condition ($M = 3.55, SD = 1.52; F(1, 156) = 1.84, p = .18, \eta_p^2 = .02$). Also, the goal-congruent contagion source's product received higher WTP in the incremental theory condition ($M = 4.07, SD = 1.17$) than in the entity theory condition ($M = 3.11, SD = 1.87; F(1, 156) = 8.58, p = .004, \eta_p^2 = .09$). Also, goal-incongruent contagion source's product received marginally

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lower WTP in the incremental theory condition ($M = 2.98$, $SD = 1.15$) than in the entity theory condition ($M = 3.55$, $SD = 1.52$; $F(1, 156) = 3.22$, $p = .075$, $\eta_p^2 = .05$, see Fig. 6).

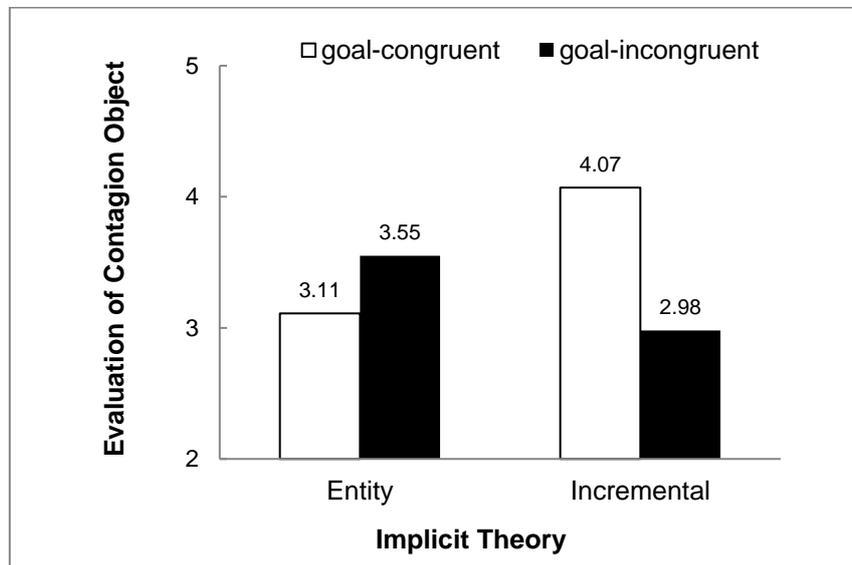


Fig. 6. Log-transformed WTP for the exercise equipment as a function of implicit theory and contagion source (Study 5)

Discussion

In support of H4, we found that the contagion effect is attenuated when an entity (vs. incremental) mindset is induced. This finding supports our claim that contagion belief interacts with implicit theory in the context of goal pursuit because the foundation of contagion is that human traits can change whereas entity theory is grounded on the opposite belief regarding human traits. Conversely, we expected those with an incremental mindset would be more sensitive to contagion in the context of goal pursuit. This finding demonstrates an important nexus between contagion and implicit theory.

General Discussion

Across five studies, we demonstrated that the activation of a goal leads to contagion-based product evaluation and performance enhancement effects. We theorized and showed that the contagion-based process triggered during goal pursuit not only led to a more favorable evaluation of contagion products (Study 1), but also enhanced consumers'

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commitment toward a goal, which in turn, led to enhanced performance in a real task that contributed to achieving one's goal (Study 2). Consistent with existing research on contagion, we found that these effects emerge only when the object was physically touched by a goal-congruent contagion source (Study 3). These results show a novel mechanism for the emergence of contagion effects. In addition, the contagion effect is more pronounced for those individuals who experience a high (vs. low) degree of goal discrepancy (Study 4) and is attenuated among those holding an entity (vs. incremental) mindset. These findings contribute to research on contagion, goal pursuit, and magical thinking.

Theoretical Contributions

Our new recipient-driven contagion paradigm has important implications for future research in contagion. Prior research has presumed that properties inherent to the contagion source were mostly responsible for contagion effects, regardless of the contagion recipient's goal states. The current research shows that goal congruency is a key antecedent of contagion in the eyes of the contagion recipient in the context of goal pursuit. The current research shows that the same contagion source (e.g., Tiger Woods) could be perceived as positive or negative depending on the type of goal that is active in consumers' minds, leading to differences in product evaluation.

Also, consumers' perceived discrepancy between an actual and desired state during goal pursuit has been shown to facilitate a variety of behaviors to close the gap (Mishra et al., 2011; Packard & Wooten, 2013; Sobol & Darke, 2014; Ward & Dahl, 2014). The current research shows that contagion belief is stronger among individuals who perceive high (vs. low) discrepancy in the process of goal pursuit. To our knowledge, the relationship between goal discrepancy and contagion had not been previously examined. Therefore, our findings contribute to the literature of goal pursuit and contagion by offering a novel linkage between

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the two. Prior research on goal pursuit showed that perceptions of making progress toward one's goal can influence subsequent commitment toward the goal (Huang, Zhang, & Broniarczyk, 2012). Future research can examine whether individuals perceive using or purchasing a contagion object as a part of goal progress and its influence on subsequent goal commitment.

Prior contagion research has suggested that different factors may moderate contagion effects (Argo et al., 2008, Kramer & Block, 2014; Newman et al., 2011). Based on our recipient-driven contagion paradigm and empirical findings, it is possible that the contagion effects documented in previous research could have been influenced by consumers' unconscious or chronic goals. For example, a study by Argo et al. (2008) showed that male shoppers were willing to pay a higher price for a shirt previously worn by an attractive female shopper due to the belief that the residue of the contagion source remains in the shirt. This result is consistent with our goal-based account and may be in fact driven by the evolutionary goals of the contagion recipient, whereby a male shopper's chronic mating goal has caused him to evaluate a female's shirt more favorably (Abbey, 1982). In the same vein, past studies have shown that positive contagion from celebrities or public figures emerges when the contagion recipients "admire" them (Nemeroff & Rozin, 1994; Newman et al., 2011). Because an admirable person could represent a role model who is aspirational, these findings could also be explained by our goal-based contagion paradigm.

Additionally, previous studies have shown that mere exposure to a brand that is associated with creativity (e.g., Apple's brand logo) unconsciously activates a goal to be creative (Fitzsimons et al., 2008). Therefore, exposing individuals to task related stimuli (e.g., a golf club) or instructing them to actually engage in a task (e.g., golf putting) could have unconsciously activated a goal to perform well on the task, which led to a goal-based

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contagion effect. Thus, the current research offers an integrative paradigm that not only reconciles seemingly different factors shown to moderate contagion, but also deepens the understanding of contagion phenomena via goal activation and pursuit.

Contagion beliefs represent one type of magical thinking (Kramer & Block, 2011). An overarching finding in the literature on magical thinking is that individuals rely on magical thinking when they are eager to achieve certain outcomes (Converse et al., 2012; Damisch et al., 2010; Keinan, 2002). For example, individuals with various wishes and hopes (e.g., finding a job) were shown to engage in various superstitious behaviors, such as knocking on wood (Keinan, 2002), keeping fingers crossed (Damisch et al., 2010), or making donations, believing that a good deed would bring them luck (Converse et al., 2012). The current research showed that activating various goals leads to greater engagement in magical thinking via contagion. This finding contributes to the literature on goal pursuit and magical thinking by identifying the nexus between goal activation and magical thinking. Future research can examine whether goal activation leads to other types of magical thinking not based on contagion.

Additionally, numerous studies have shown that relying on magical thinking can boost optimism or self-efficacy (Converse et al., 2012; Damisch et al., 2010; Keinan, 2002). However, only a few studies have shown that magical thinking actually enhances performance (Damisch et al., 2010; Kramer & Block, 2014). The current research contributes to the literature on magical thinking by demonstrating that contagion makes individuals more committed toward the goal, leading to better goal-related performance.

Prior research into individual performance enhancement has shown that exposure to certain brands can enhance performance in various domains via placebo effects (Brasel & Gips, 2011; Garvey, Germann, & Bolton, 2015; Irmak, Block, & Fitzsimons, 2005; Park &

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John, 2014). For example, consumption of performance brands (e.g., Nike, Gatorade) was shown to influence levels of self-esteem or self-efficacy and improve consumer performance (Garvey et al., 2016, Park & John, 2014). The current research contributes to the growing body of consumer performance literature by documenting contagion as another mechanism boosting consumer performance. Although both brand placebo and contagion effects are peculiar and irrational beliefs (Kramer & Block, 2011), a notable difference between the two is that the contagion effect is based on the belief that certain traits of a contagion source can transfer to the self via physical contact, whereas brand placebo effects are based on a mental association between a brand (e.g., Red Bull) and certain semantic concepts (e.g., energy).

Future Directions

Research has shown that individuals from Eastern (vs. Western) culture have stronger interdependent self-construal and prioritize conforming to the group norm over adhering to individual values. Future research can examine whether this cultural difference could influence the contagion effects documented in this current research. For example, contagion research has shown that American consumers devalue an object touched by other anonymous consumers due to the elicited disgust from the anonymity of others (Argo et al., 2006). In more interdependent cultures, however, other individuals tend to be perceived as a part of a bigger social network and more similar to the self. Therefore, future research can examine whether negative or positive contagion effects documented in our studies conducted with a sample of the Western population are moderated in studies for which the sample population is derived from different cultures.

Prior research suggests that negative contagion is more pervasive than positive contagion (Nemeroff & Rozin, 1994). The current research demonstrated that the activation of a goal can lead to either positive or negative contagion effects. Future research could

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examine how priming other goals (e.g., avoidance) may also influence contagion, product evaluation, and performance across various domains.

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Data Collection and Analysis Information

The data for Studies 1, 4, and 5 were collected on Amazon Mechanical Turk under the supervision of TaeWoo Kim in April 2018 (Study 1), April 2016 (Study 4), and March 2018 (Study 5). The data for Studies 2 and 3 were collected in Bloomington, IN, by a research assistant under the supervision of TaeWoo Kim in April 2014 (Study 2) and October 2015 (Study 3). Data were analyzed by all authors.

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Methodological Details Appendix (MDA)

Appendix A

Product Evaluation Stimuli* (Study 1)



Tiger Woods Game Used Glove

* This image was adopted from thegolfauction.com

Appendix B**Self-Advertisement Writing Task (Study 2)**

Imagine that you are applying for a job in a company that you really want to work for after graduation. Advertise yourself. What are your strengths? How can you contribute to the company? Write about yourself as if your writing will be reviewed by the company and it is important for you to write well in order to receive a job offer.

Appendix C

Biography of Goal-Congruent Contagion Source (Studies 2 & 3)

Mark Cuban (born July 31, 1958), is an American businessman, investor, film producer, author, television personality and philanthropist. He is the owner of the NBA's Dallas Mavericks, Landmark Theatres, and Magnolia Pictures, and is the chairman of the HDTV cable network AXS TV. He is also a “shark” investor on the television series *Shark Tank*. In 2011, Cuban wrote an e-book, *How to Win at the Sport of Business*, in which he chronicled his life experiences in business and sports.

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Appendix D

Preparation and Distribution of the Pen (Studies 2 & 3)



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Appendix E**Health Test Questionnaire (Study 4)**

1. I accumulate 30 or more minutes of moderate physical activity at least 5 days a week (e.g., walking, yard work, golf w/o a power cart . . .) or engage in vigorous exercise for 20 minutes at least 3 times a week (e.g., jogging, swimming, aerobics . . .).
2. I do things like taking stairs instead of elevators and don't worry about getting the closest available parking spot.
3. I do exercises that enhance my muscle tone and flexibility at least 2 - 3 times per week.
4. I enjoy a variety of recreational activities with friends and family.
5. I eat a combined 5 servings of fruits and vegetables every day.
6. I eat a variety of grains, breads, pastas and cereal.
7. I limit the amount of fat, saturated fat and cholesterol I eat (including fat in meats, eggs, butter, cream, shortenings, and organ meats such as liver).
8. I limit the amount of salt I eat by cooking with only small amounts, not adding salt at the table, and avoiding salty snacks.
9. I avoid eating too much sugar (especially frequent snacks of sticky candy or soft drinks).

* Answer could be either “Never” (earning 0 point), “Sometimes” (earning 1 point), or “Always” (earning 4 points for item 1 and 2 points for items 2 through 9). Scores can range from 0 to 20, questionnaire available at <http://www.michigan.gov/mdhhs/>

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Appendix F**Goal-Discrepancy Manipulation and Feedback (Study 4)**High-discrepancy condition

Thank you. Your health score is 5 out of 20.

Low-discrepancy condition

Thank you. Your health score is 18 out of 20.

Here is what your score means to you.

Scores of 16 to 20

Excellent! Your answers show that you are aware of the importance of this area to your health. More importantly, you are putting your knowledge to work for you by practicing good health habits. As long as you continue to do so, this area should not pose a serious health risk. It is likely that you are setting an example for your family and friends to follow. Since you received a very high score on this part of the test, you may want to consider other areas where your scores indicate that there is room for improvement.

Scores of 12 to 15

Your health practices in this area are good, but there is room for improvement. Look again at the items you answered with a "Sometimes" or "Almost Never." What changes can you make to improve your score? Even a small change can often help you achieve better health.

Scores of 6 to 11

Your health risks are showing! Would you like more information about the risks you are facing and about why it is important for you to change these behaviors? Perhaps you need help in deciding how to successfully make the changes you desire. In either case, help is available.

Scores of 0 to 5

Obviously, you were concerned enough about your health to take the test, but your answers show that you may be taking serious and unnecessary risks with your health. Perhaps you are not aware of the risks and what to do about them. You can easily get the information and help you need to improve this situation, if you wish. The next step is up to you.

Appendix G

Evaluation Instruction and Product Image that was Available on eBay at the Time of Experiment (Study 4)



FitBit Flex - Large

Item condition: **Used**
Time left: 26d 09h 51m, 11:08PM

Price: **US \$45.00** [Buy It Now](#)
[Add to cart](#)

Best Offer: [Make Offer](#)
[Add to watch list](#)
[Add to collection](#)

Located in United States | Best offer available | Free local pickup

Shipping: **\$8.00** Economy Shipping | [See details](#)
Item location: Cheswick, Pennsylvania, United States
Ships to: United States and many other countries | [See details](#)

Delivery: Estimated between **Thu, Apr. 28** and **Fri, May. 6** 📍

Payments: [PayPal](#) [VISA](#) [MasterCard](#) [Discover](#) [eBay](#)
Credit Cards processed by PayPal

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Get more time to pay. [Apply Now](#) | [See Terms](#)
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Appendix H

Goal-Discrepancy Manipulation Check (Study 4)

Please read carefully. Each pair of circles below depicts the distance between your actual health (left circles) and your ideal health (right circles). A larger distance between the two circles indicates that your actual health is further away from what you would consider as an ideal state of health. For example, there is almost no distance between the two circles in pair 1, meaning that you are currently as healthy as you would ideally wish to be. In contrast to this, pair 7 has the largest distance, meaning that your current health is not close to your ideal state of health at all. Which of the seven pairs best represents the distance between your actual and ideal health?

