Toward a goal-based paradigm of contagion

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Abstract

Purpose – This study aims to extend the previous research on contagion and proposes an integrative paradigm in which consumer goals and contagion recipient factors are identified as the key variables leading to the emergence of the contagion phenomenon. When a consumer has an active goal, a product touched by goal-congruent sources leads to positive product evaluation and enhances consumer performance when the product is used.

Design/methodology/approach – This research conducted five experimental studies in online and offline retail settings to examine the effect of contagion on evaluations of contagion objects and performance in goal-related tasks.

Findings – Across five studies, the authors demonstrated that the activation of a goal leads to contagion-based product evaluation and performance enhancement effects. The authors theorized and showed that the contagion-based process triggered during goal pursuit led to a more favorable evaluation of contagion products (Studies 1, 2 and 3). The authors also showed that enhanced consumers' commitment toward a goal, which in turn led to enhanced performance in a real task that contributed to achieving one's goal (Study 4). These effects emerged only when the object was physically touched by a goal-congruent contagion source and were more pronounced for the consumers who experience a high (vs low) degree of goal discrepancy (Study 5).

Research limitations/implications – The current research examined the contagion phenomenon in a few predetermined goal domains (e.g. health improvement goals, career success goals, marriage success goals). Although the authors found consistent effects across different types of goals, future research can examine a more comprehensive set of consumer goals and improve the limitation of the current research to generalize the goal-based contagion phenomenon to various consumer goals.

Practical implications – This study suggests that it is important for retailers, in particular sellers and buyers in the secondhand markets, to understand consumer goals and prepare an appropriate contagion environment for favorable evaluation of their offerings. One possible implication is that sellers may be best served as priming certain goals. The findings also indicate that secondhand sellers may be well served to emphasize seller characteristics in certain instances and de-emphasize them in others to maximize sales.

Originality/value – This research proposes a new variable, namely, goal activation, and presents an integrative contagion paradigm that not only helps explain previous research findings but also offers a new perspective on the contagion phenomenon.

Keywords Performance, Contagion, Goal pursuit, Secondhand retail market

Paper type Research paper

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Due to the increasing availability of used goods in online channels and changing consumer trends toward frugality and environmentally friendly consumption (Guiot and Roux, 2010), the secondhand market's growth has outperformed overall retail market growth in recent years. Some industries are particularly primed for growth. For example, the fashion resale market (e.g. used clothes) has grown 21 times faster than the overall retail market during the past three years. Its market value is estimated to grow up to US$64bn by 2028 (Reints, 2019). Another noteworthy phenomenon is that more information about sellers on the secondhand market is becoming available to potential buyers. For example, Facebook Marketplace has 800 million monthly users and contributes significantly to Facebook's profit (Al-Heeti, 2018). Those who search for products on Facebook Marketplace can easily access sellers' personal information (e.g. profile, pictures, lifestyle). Additionally, the emergence of platforms like eBay and Etsy connects buyers and sellers more than traditional retail marketplaces. Another retail development is the emergence of a robust rental market in many new categories, such as clothing, music, automobiles and homes. Consumers today make many more purchases knowing that their purchase was previously owned and used by another consumer, thereby introducing the probability that consumer decisions are influenced by contagion beliefs stemming from previous ownership.

In the current research, we focus on previously unexamined factors influencing product evaluation in these types of secondhand markets: buyers' goals for the products they purchase and the potential interaction of these goals with contagion beliefs related to the seller. Whereas previous research examines the general motivations driving secondhand shopping, such as a desire for cost savings or nostalgic pleasure (Guiot and Roux, 2010), how goals influence product evaluation in secondhand markets has not been thoroughly examined. 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 on Facebook Marketplace. The individual searches and finds two comparable bicycles in features, wear and tear and price, noticing only that one seller is in great shape while the other seller is less athletic in appearance. 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 buyers will pay more for the bicycle owned by the seemingly more (vs less) athletic sellers and show improved athletic performance, but that this effect occurs only when the buyer's goal of improving health is activated. Thus, we propose that potential buyers' goal states are critical in driving contagion effects in secondary retail markets, above and beyond the seller characteristics examined in previous contagion research.

According to the contagion theory, 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 via contagion (Rozin and Nemeroff, 2002). Previous contagion research has shown that consumers favor a product that had been in contact with a person or object with positive traits (e.g. a sweater worn by a beloved philanthropist such as Mother Teresa or a t-shirt worn by an attractive model). Similarly, consumers may be more averse to a product that had been in contact with a person or object that has negative traits (a sweater worn by Hitler, any product previously owned by a criminal or immoral person) (Argo *et al.*, 2006; Morales and Fitzsimons, 2007; Nemeroff and Rozin, 1994). Past research has focused solely on contagion phenomena emerging as a function of negative or positive traits of a contagion *source* (i.e. the seller). By contrast, the current research examines how activation of a *recipient's* (i.e. potential buyer's) goal influences contagion beliefs in a retail setting. We propose that contagion is a two-sided interactive phenomenon that results from both contagion source and recipient factors rather than just the outcome of contagion source.

We hypothesize and show that contagion is influenced by contagion recipients' goal states (i.e. goal activation and goal progress); specifically, the emergence of contagion depends on the type of goal in the contagion recipient's mind (e.g. a buyer with a weight loss goal) and whether the contagion source's traits are congruent with the goal (e.g. a seller being an athletic person).

The current research distinctively contributes to the secondhand market, goal pursuit and contagion literatures. First, previous research on the secondhand market has identified a few common factors increasing secondhand market purchases, such as cost-saving or recreational aspects, or factors decreasing secondhand market purchases such as uncertainty about product qualities (Fernando *et al.*, 2018; Ferraro *et al.*, 2016). However, it has not been examined how goals pursued by individual consumers (e.g. career goals, social goals, financial goals, learning goals, self-improvement goals etc.; Bagozzi and Dholakia, 1999) influence secondhand market evaluations. Thus, the current research contributes to the literature on the secondhand market by identifying goals as an essential factor affecting evaluative processes. The current research also contributes to the literature on contagion by suggesting a goal-congruency contagion paradigm that can explain seemingly idiosyncratic contagion cases examined in the literature through the consumer goal-pursuit theoretical lens. Finally, our research contributes to the literature on goal theory (Kruglanski *et al.*, 2002) by showing that the process of goal pursuit can coincide with magical thinking associated with contagion belief. Thus, the current research provides a framework that can be useful to examine how rational aspects of goal pursuit (e.g. planning, efficiency-seeking) could occur simultaneously and interact with irrational or peculiar beliefs, such as contagion. Table 1 summarizes previous contagion and secondhand product market research and highlights how the current research contributes to the literature.

Theoretical background

Contagion

According to previous research, physical contagion is a specific type of magical thinking whereby individuals believe that personal traits (e.g. attractiveness) can be transferred from another person (i.e. contagion source) to the self (i.e. contagion recipient); this process occurs via direct contact with the contagion source or with an object previously touched by the source (Kramer and Block, 2011; Rozin and Nemeroff, 2002). Previous research on contagion has shown that the contagion source could be favorable, leading to positive contagion (Argo *et al.*, 2008; Newman *et al.*, 2011), or unfavorable, leading to negative contagion (Argo *et al.*, 2006; Morales and Fitzsimons, 2007; Nemeroff and Rozin, 1994). Also, research has shown that the type of contagion source could be an individual (Argo *et al.*, 2006; Argo *et al.*, 2008; Hingston *et al.*, 2017; Kramer and Block, 2014; Lee *et al.*, 2011) or objects (Morales and Fitzsimons, 2007). Contagion leads to various downstream consequences such as contagion object evaluation (Morales and Fitzsimons, 2007; Nemeroff and Rozin, 1994; Argo *et al.*, 2008) or contagion recipient performances (Amar *et al.*, 2018; Kramer and Block, 2014; Lee *et al.*, 2011).

Past contagion studies have presumed that contagion effects emerge based mainly on contagion sources' positive or negative traits (i.e. the original users). The current research examines how and when contagion is also driven by recipient-related factors such as the contagion recipient's active goals. While some research acknowledges the importance of the recipient, positing that the traits of contagion sources may remain "dormant" until they are made salient to the recipient by certain cues (Morales *et al.*, 2018), to our knowledge, no research has explicitly tested the role of recipient goals in contagion contexts. For example, Argo *et al.* (2008) found that male, but not female, consumers favorably evaluated a t-shirt

Table 1.
Literature review

Paper	Key findings	Research area	Buyer goals assessment
CONTAGION PAPERS			
Nemeroff and Rozin (1994), Rozin *et al.* (1986)	As an initial conceptual development of contagion theories, *the law of contagion* and *the law of similarity* were proposed	Contagion theory, conceptual paper	No
Argo *et al.* (2006)	Consumers respond negatively to the products previously touched by other shoppers due to negative contagion (i.e. contamination) and feelings of disgust	Negative contagion, product evaluation (empirical)	No
Argo *et al.* (2008)	A product (e.g. t-shirt) previously touched by an attractive female shopper was evaluated favorably by male shoppers (but not by female shoppers) due to a positive contagion stemming from the evolutionary mating goal	Positive contagion, product evaluation (empirical)	Implicitly assessed (mating goal was not activated but assumed to be present)
Morales and Fitzsimons (2007)	Products touched with other products eliciting disgust (e.g. lard) are devalued to the contagion mechanism	Negative contagion, product evaluation (empirical)	Implicitly assessed (hygiene goal was not activated but assumed to be present)
Lee *et al.* (2011)	Using a golf putter previously used by a professional golfer makes a putting task perceived easier and improves performances in the putting tasks due to the positive contagion effect	Positive contagion, performances in athletic tasks (empirical)	Implicitly assessed (we assume that participants had a goal to perform well in the putting task)
Newman and Bloom (2011)	Compared to the original artwork, duplicated artwork was devalued due to contagion mechanism (i.e. physical touch between the creator and the artwork is absent). This effect was unique to artworks (vs artifacts) because making artwork is perceived to be a unique creative act	Positive contagion, product evaluation (empirical)	No
Newman *et al.* (2011)	An object previously touched by a celebrity increases consumers' willingness to purchase it, and this effect was moderated by individual differences in sensitivity to contagion and the extent to which the object is touched by the celebrity	Positive contagion, product evaluation (empirical)	No

(*continued*)

Table 1.

Paper	Key findings	Research area	Buyer goals assessment
Savani *et al.* (2011)	The law of contagion is examined in an emotional contagion context. People hold a lay belief that emotions leave traces in the physical environment (i.e. emotional residue), which can later be sensed by others and influence their emotions	Contagion, emotional contagion (empirical)	No
Kramer and Block (2014)	In creativity tasks, using an object previously touched by a highly creative individual increases confidence (i.e. ability contagion) and improves actual performance among individuals. This effect was more salient for the individuals high (vs low) in experiential processing	Positive contagion, performances in creativity tasks (empirical)	No
Newman and Dhar (2014)	Products manufactured in the company's original manufacturing location (e.g. Hermes product manufactured in Paris, France vs not) are viewed as containing the essence, increasing authenticity and product evaluation	Positive contagion, product evaluation (empirical)	No
Morales *et al.* (2018)	Past contagion research has posited physical contact as a prerequisite for contagion. The paper proposes a more flexible contagion framework in which physical contact may not lead to contagion and contagion could occur without physical contact via other proximity links (e.g. spatial, temporal)	Contagion theory, conceptual paper	A similar construct (i.e. "cue") is mentioned [1]
Nemeroff and Rozin (2018)	The authors review the early theorization of contagion (Nemeroff and Rozin, 1994), review the contagion works conducted more recently and discuss the current issues related to the conceptualization of contagion. A theoretical amendment is proposed to improve the original law of contagion	Contagion theory, conceptual paper	No
Huang *et al.* (2017)	The paper reviews recent contagion research and focuses on examining the psychological process of contagion and the role of physical contact in the contagion phenomenon	Contagion theory, review paper	No

(*continued*)

Table 1.

Paper	Key findings	Research area	Buyer goals assessment
SECONDHAND MARKET PAPERS			
Gabbott (1991)	Compared to websites that sell new goods, in the secondhand durable goods market, using product cues – intrinsic (e.g. age/mileage, previous history) or extrinsic (e.g. price, brand reputation) – as a risk-reducing strategy is less effective	Secondhand market, conceptual paper	No
Zhao and Jagpal (2006)	This paper uses a game theory model to examine secondhand markets' effect on the firm's dynamic pricing and new product introduction strategies. Secondhand markets will have a differential impact on pricing across industries depending on the magnitude of the innovation (major, moderate or minor) and whether demand externalities are present	Secondhand market, analytical paper	No
Guiot and Roux (2010)	A scale of secondhand shopping motivations related to products and distribution channels was proposed, and consumer's motivation in secondhand shopping was identified to include three dimensions: critical, economic and recreational	Secondhand market, measurement scale development paper	Common motivations associated with secondhand shopping were identified [2]
Brough and Isaac (2012)	Sellers with strong (vs weak) attachment to the selling product are more sensitive to buyer usage intent and are more willing to provide discounts to the buyer whose usage intentions are deemed appropriate for the product's usage intention	Secondhand market, product (to sell) evaluation (empirical)	No
Ferraro *et al.* (2016)	The motivation for secondhand market shopping was examined. Fashionability was identified as the key driver, along with recreational motivations	Secondhand market, shopping behavior and motivation (empirical)	Common motivations associated with secondhand shopping were identified
Fernando *et al.* (2018)	Perceived acquisition value in the online secondhand (vs new product) market was lower due to increased uncertainty, and this effect was stronger for frugal (vs not) shoppers. Also, a new (vs secondhand) online market	Negative contagion, secondhand market Product evaluation (empirical)	Yes (frugality is a trait, but it is closely related to economic goals)

(*continued*)

Paper	Key findings	Research area	Buyer goals assessment
	was preferred for experiential and sensory products due to the concern of contamination		
Kamleitner *et al.* (2019)	Making a product's past identity salient (e.g. a backpack turned airbag) boosts demand across a variety of repurposed products because such storytelling induces narrative thoughts to consumers and makes the repurposed products felt to be special	Secondhand market (focusing on repurposed products), Product evaluation (empirical)	No
Padmavathy *et al.* (2019)	A scale of online secondhand shopping motivations was proposed. Economic (e.g. bargaining power), convenience (e.g. usefulness), and ideological motivation (e.g. need to be unique, nostalgia) are identified as key drivers	Secondhand market, measurement scale development paper	Common motivations associated with secondhand shopping were identified
This paper	The current research extends previous research on contagion. It proposes an integrative paradigm in which consumer goals and contagion recipient factors are identified as the key variables leading to the emergence of the contagion phenomenon. When a consumer has an active goal, a product touched by goal-congruent sources leads to positive product evaluation and enhances consumer performance when the product is used. The underlying mechanism and moderating variables are discussed	Contagion, secondhand market, product evaluation, task performance, goal pursuit (empirical test of a conceptual paradigm)	Yes

Table 1.

worn by a physically attractive female, indicating that male consumers' sexual motivations drove the effect.

In the same vein, negative contagion effects demonstrated in previous studies (Argo *et al.*, 2006; Morales and Fitzsimons, 2007) could be interpreted based on our goal-based contagion paradigm. For example, Argo *et al.* (2006) showed that feelings of disgust drove lower evaluation of t-shirts that have been (vs not been) in contact with unknown other consumers. Similarly, Morales and Fitzsimons (2007) showed that consumers devalue products that were in contact with other products deemed disgusting (e.g. lard). In these studies, consumers' chronic goals regarding hygiene or self-protection could have driven the contagion phenomenon. However, this theory has not been explicitly tested.

Thus, it is possible that the key factors driving contagion are not only the contagion source but also the contagion recipient's goals and motivations. In the current research, we propose a "recipient goal-based" paradigm of contagion, whereby the same source can be perceived as positive or negative, depending upon the source's congruency with the contagion recipient's active goals. Consistent with this nascent perspective of contagion (Morales *et al.*, 2018; Nemeroff and Rozin, 2018), we suggest that a contagion recipient's active goal state will make the recipient focus on goal-related traits of the contagion source and influence the evaluation of the product previously used by the source.

Goal pursuit and magical thinking

A goal is defined as a "desired end state." Individuals with goals attempt to reduce the discrepancy between their current state and desired outcomes relating to the goal (Bullard and Manchanda, 2017; Kruglanski *et al.*, 2002; Packard and Wooten, 2013; Sobol and 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 to assure themselves that the desired outcome is achievable (Jain and Maheswaran, 2000; Kunda, 1990; Kunda and Sanitioso, 1989). For example, individuals who had academic success goals and were told that academic success was associated with either extroverted or introverted personality traits actually viewed themselves as possessing a high level of whichever trait they believed was associated with academic success (Kunda and 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 than those who did not have the same goal (Jain and 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.

We propose that contagion emerges as one form of magical thinking during conscious and nonconscious goal pursuit and is driven by this self-serving bias and tendency to interpret information in a way that benefits the self. We find support for this argument from the literature on magical thinking. Previous research has shown that magical thinking is enhanced when individuals are focused on a desirable outcome (Converse *et al.*, 2012; Damisch *et al.*, 2010; Hamerman and Johar, 2013; Keinan, 2002; for a review, see Kramer and Block, 2011). For example, individuals wishing for a job offer from a company were shown to donate more to a non-profit organization, believing that such behavior enhances their 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 and Johar, 2013). Notably, each of these irrational actions is driven by cognitively biased and self-serving thoughts as a means to maintain a positive prospect of one's goal-related desirable outcomes. Therefore,

we suggest that pursuit of a goal and subsequent magical thinking can induce greater contagion beliefs, particularly when these beliefs benefit the self, and that these beliefs will impact consumers' evaluations of contagion objects and willingness to pay (WTP) for these objects. In the next section, we develop our hypothesis delineating the impact of contagion on product evaluation, consumer performances and the factors moderating the contagion effect.

Hypothesis development

According to prior research, an object that helps attain a goal receives a more favorable evaluation, but only by those actively pursuing the relevant goal (Brendl *et al.*, 2003; Ferguson and Bargh, 2004). By contrast, an object deleterious to one's goal is devalued by the goal pursuer (Brendl *et al.*, 2003; Ferguson and Bargh, 2004). In these studies, the evaluated products varied in the extent to which they objectively served the achievement of the goal (e.g. evaluating shampoo vs a food item for a person having an eating goal). In our case, 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. Importantly, we propose that this effect occurs not because it affects the objective usefulness of the item for goal achievement but because of the belief that traits can be transferred to the self via the object, enhancing the perception that the goal is attainable. We term this relationship between contagion source and the recipient *goal-congruency*. Formally, we propose:

H1a. When a goal is activated (vs not), an object previously used by a contagion source perceived as goal-congruent by the contagion recipient will receive a more favorable evaluation than an object used by a contagion source who is perceived as either neutral or goal-incongruent.

H1b. The goal-congruency contagion effect hypothesized in *H1a* will be mediated by the perception that the contagion object would enhance goal attainability.

Believing that desirable traits from a contagion source transfer to the recipient through contagion (Rozin and Nemeroff, 2002) can also make a recipient perceive their goal as more attainable. Previous research has shown that a boost in the expectancy of goal attainment increases actual commitment toward the goal (Lockwood and Kunda, 1997; Kivetz *et al.*, 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). Actual use of a contagion object (i.e. physical contact) 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. Thus, 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 increase commitment to the goal, which in turn leads to enhanced performance in a goal-relevant task.

According to the goal pursuit theory, a motivation to achieve one's goal is driven by 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. In another instance, Mishra *et al.* (2011) showed that individuals with a goal to lose weight displayed a stronger motivation to interpret a health-related message in a self-serving manner. Also, individuals 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) discrepancy between one's actual and desired goal-related state leads to a stronger commitment 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 beliefs emerging during goal pursuit will be stronger among those with a higher goal discrepancy than 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 consumers with a high (vs low) level of goal discrepancy.

Table 2 summarizes each study's design, operationalization of goal-congruency (i.e. manipulation of goals and contagion sources), the hypothesis tested in each study and other information about the studies.

Study 1: effect of positive and negative contagion on product evaluation

In Study 1, we held the contagion source constant and manipulated only the contagion recipient's goals to test the goal-congruency effect on the favorable product evaluation (*H1a*).

Method

In total, 120 Amazon MTurk participants (female = 49%, *M*age = 37.67, *SD*age = 13.36) completed this study for monetary compensation. All participants were randomly assigned to one of the three conditions in a one-way (contagion source: goal-congruent, goal-incongruent, control) between-subjects design.

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 (Liberman *et al.*, 1999). Participants in the control condition were asked to describe their activities on a normal day. In an ostensibly unrelated second part, participants were asked to evaluate an autographed glove used by professional golfer Tiger Woods in a tournament. Tiger Woods was chosen as the contagion source based on contagion source selection criteria used in Newman *et al.* (2011) and also based on our pretest confirming that he is successful as an athlete but unsuccessful in his marriage (see Appendix 1 for more information about the stimuli). For the dependent measure, we measured WTP that participants were willing to bid for the product, a reliable measure of contagion extent (Argo *et al.*, 2008; Morales and Fitzsimons, 2007). Participants answered demographic questions and were debriefed.

Results

To control for the effect of outliers, WTP (M = \$163.81, SD = \$533.29) was log-transformed. A one-way (goal: goal-congruent, goal-incongruent, control) ANOVA revealed a significant effect of goal on log-transformed WTP ($F(2, 117) = 10.61$, $p < 0.001$, $\eta_p^2 = 0.15$). To further

Table 2. Summary of studies

	Sample	Contagion source	Contagion object	Contagion recipients' (i.e., participants') goals	Manipulation	DV	Process mechanism	Hypotheses test
Study 1	Amazon's MTurk (N = 120)	Tiger Woods	A game-used golf glove	An athletic vs marriage success goal	Goal congruency was manipulated by activating different goals while holding the contagion source constant	WTP	–	*H1a*
Study 2	Amazon's MTurk (N = 200)	A physically attractive (vs average) female	A worn t-shirt	A chronic mating goal vs a utilitarian goal	Goal congruency was manipulated by activating a conflicting goal and by presenting different contagion sources	WTP	–	*H1a*
Study 3	Amazon's MTurk (N = 200)	Steve Jobs	A pen	A career goal	Goal congruency was manipulated by activating a goal (vs not). Product usage	WTP	Goal attainment perception	*H1a, H1b*

(*continued*)

Table 2.

	Sample	Contagion source	Contagion object	Contagion recipients' (i.e., participants') goals	Manipulation	DV	Process mechanism	Hypotheses test
Study 4	Undergraduate students (N = 109)	Mark Cuban	A pen	A career goal	is also manipulated Goal congruency was manipulated by activating a goal (vs not) by presenting different contagion sources	WTP	Goal commitment	*H2*
Study 5	Amazon's MTurk (N = 177)	Self-selected familiar individuals who are healthy vs unhealthy	A fitness tracker (Fitbit)	A health improvement goal for everyone; goal discrepancy	Goal discrepancy was manipulated, and goal congruency was manipulated by presenting different contagion sources	WTP	–	*H3*

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 ($M = 2.56$, $SD = 2.36$; $F(2, 117) = 7.30$, $p = 0.007$, $\eta_p^2 = 0.09$). We also found that WTP in the control condition was not significantly different from the WTP in the goal-incongruent condition ($M = 1.64$, $SD = 2.17$; $F(2, 117) = 3.28$, $p = 0.074$, $\eta_p^2 = 0.04$; Figure 1). Thus, *H1a* is supported. To further demonstrate the importance of recipient goals in contagion, we next link our research with established work in contagion (Argo *et al.*, 2008) by replicating their findings and identifying goal salience as a boundary condition.

Study 2: attenuation of contagion by conflicting goals

In Study 2, we extended the t-shirt study from Argo *et al.* (2008), which showed a more favorable evaluation of a t-shirt worn by a physically attractive person of the opposite sex. While attempting to replicate Argo *et al.*'s (2008) positive contagion, we introduced the goal-congruency (vs incongruency) factor to test our *H1a* further. In the goal-incongruent condition, we primed a utilitarian goal unrelated to the focal mating goal, expecting the priming of a utilitarian goal would attenuate the chronic mating goal's effect on favorable product evaluation.

Method

In Study 2, we collected data from 200 MTurk workers (female = 56%, *M*age = 35.75, *SD*age = 10.99). Participants were randomly assigned to one of four conditions in a 2 (goal: utilitarian, control) × 2 (contagion source attractiveness: high, control) between-subjects design. We predicted a three-way interaction between the goal, contagion source and gender as a measured variable. Participants in the utilitarian goal condition rated the importance of six unrelated products' utilitarian attributes (e.g. "When you consider buying a pair of sunglasses, how important is it that the sunglasses have UV protection?," 1 = not at all, 7 = very much) (Lee and Shavitt, 2006). We did not prime any goal in the control condition to match Argo *et al.*'s (2008) study procedure. In the ostensibly unrelated second part, participants indicated their WTP for a t-shirt previously worn by an attractive or an average female, as in Argo *et al.*'s (2008) (see Appendix 2 for more information about the manipulation and the stimuli for the contagion object and the contagion source). As in Study 1, log-transformed WTP was used for a dependent variable. Participants answered demographic questions and were debriefed.

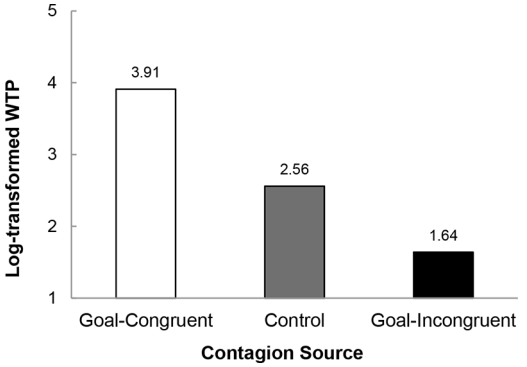

Figure 1.
Product evaluation as a function of activated goals

Results

As predicted, a 2 (goal: utilitarian, control) × 2 (contagion source attractiveness: high, control) × 2 (gender: male, female) ANOVA on the log-transformed WTP revealed a significant three-way interaction ($F(1, 192) = 7.01$, $p = 0.02$, $\eta_p^2 = 0.04$). Additionally, the main effect of source attractiveness on WTP was significant ($F(1, 192) = 3.94$, $p = 0.05$, $\eta_p^2 = 0.02$), and the interaction between source attractiveness and gender was significant ($F(1, 192) = 4.12$, $p = 0.04$, $\eta_p^2 = 0.02$). To understand the nature of the three-way interaction, we submitted the WTP to a 2 (goal: utilitarian, control) × 2 (contagion source attractiveness: high, control) ANOVA for each gender. Consistent with our hypothesis, we found a significant main effect of source and the interaction between the source and the goal, and only for the male (vs female) participants, which led to the three-way interaction. (see Appendix 2 for more information on the three-way ANOVA showing that contagion emerges differentially for the male and female participants). The results of Study 2 render further support of *H1a*. Importantly, contagion effects were observed when a goal was activated (Study 1) and chronically accessible (Study 2). In Study 3, we further examined the role of goal attainability perception and physical contact in contagion and ruled out alternative explanations.

Study 3: the role of goal attainability perception and physical touch in contagion

The main objective of Study 3 was to test *H1b*, hypothesizing that a goal-congruent contagion source's object is evaluated more favorably because it is perceived to enhance the likelihood of goal achievement. We also tested other alternative mechanisms such as the expectation of higher resale value, social signaling and making a good gift to someone else.

Additionally, in Study 3, we compared an object that a contagion source owned and used (i.e. contagion) with an identical object that the contagion source owned but never used (i.e. association), adopting the approach used by previous contagion researchers (Kramer and Block, 2014; Newman *et al.*, 2011). This procedure enabled us to rule out a mental association effect, which can occur without physical contact, as an alternative explanation (De Houwer *et al.*, 2001; McCracken, 1989).

Method

In total, 200 MTurk workers (40% female, *M*age = 41.46, *SD*age = 11.68) were recruited for participation in Study 3 in return for monetary compensation. The participants were randomly assigned to one of the conditions in a 2 (goal: activated, control) × 2 (product usage: owned and used, owned but not used) between-subjects design. As in Study 1, career goal was activated by asking the participants to think about and describe their hopes, aspirations and dreams as they related to their careers. Participants in the control condition were asked to think about and describe their activities during a normal day.

In the purportedly unrelated second part, we presented Steve Jobs as the contagion source and his pen as the contagion object. Closely following the method used in Newman *et al.* (2011), we told participants in the "owned and used" condition that Steve Jobs had not only owned the pen but had used it frequently. Participants in the "owned but not used" condition were told that Steve Jobs had owned the pen, but he had never used it. As in the previous studies, participants indicated their WTP for the pen. To test *H1b*, three items measured the extent to which the contagion object is perceived to help goal achievement (e.g. "To what extent do you think owning the pen could help you achieve your career and business success goal?"; the three items were averaged to create the index of goal attainability perception; $\alpha = 0.90$). We also measured three alternative process explanation

variables related to resale value, social status signaling, and buying a gift for someone else (see Appendix 3 for the stimuli and the list of goal attainability perception items and tested alternative explanation variables). Participants answered demographic questions and were debriefed.

Results

We conducted a 2 (goal: activated, control) × 2 (product usage: owned and used, owned but not used) ANOVA on the log-transformed WTP measure. We observed a significant main effect of product usage ($F(1, 196) = 13.39$, $p < 0.001$, $\eta_p^2 = 0.06$) and a significant main effect of goal ($F(1, 196) = 9.34$, $p = 0.003$, $\eta_p^2 = 0.05$). The main effects of goal and product usage were qualified by a significant two-way interaction between goal and product usage ($F(1, 196) = 7.92$, $p = 0.005$, $\eta_p^2 = 0.04$; Figure 2). 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 ($M = 6.10$, $SD = 2.45$) than for a pen that was owned but not used ($M = 4.01$, $SD = 2.05$; $F(1, 196) = 20.97$, $p < 0.001$, $\eta_p^2 = 0.18$). In the control condition, WTP for the pen that was owned and used ($M = 4.21$, $SD = 2.28$) and owned but not used ($M = 3.94$, $SD = 2.30$) was not significantly different ($F(1, 196) = 0.36$, $p = 0.55$, $\eta_p^2 = 0.004$).

Next, the index of goal attainability perception was submitted to a 2 (goal: activated, control) × 2 (product usage: owned and used, owned but not used) ANOVA. We observed a significant main effect of product usage ($F(1, 196) = 5.84$, $p = 0.02$, $\eta_p^2 = 0.03$) and no significant main effect of goal ($F(1, 196) = 0.70$, $p = 0.40$, $\eta_p^2 = 0.004$). The main effect of product usage was qualified by a significant two-way interaction between goal and product usage ($F(1, 196) = 5.05$, $p = 0.026$, $\eta_p^2 = 0.03$; Figure 3). The pairwise comparisons conducted for goal attainment perception revealed a pattern that was similar to WTP. When a goal was activated, goal attainability perception was higher for a pen that was owned and used ($M = 4.65$, $SD = 1.60$) than for a pen that was owned but not used ($M = 3.45$, $SD = 1.69$; $F(1, 196) = 13.02$, $p < 0.001$, $\eta_p^2 = 0.12$). In the control condition, goal attainability perceptions in the owned and used condition ($M = 3.86$, $SD = 1.92$) and owned but not used condition ($M = 3.81$, $SD = 1.98$) were not significantly different ($F(1, 196) = 0.01$, $p = 0.91$, $\eta_p^2 < 0.01$).

Finally, we conducted a mediation analysis to test whether goal attainability perception mediated the independent variables' impact on contagion object evaluation. We used the bias-corrected bootstrapping procedure with 10,000 bootstrap re-samples using the

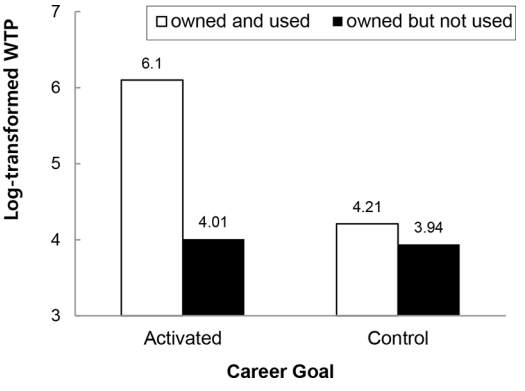

Figure 2.
Product evaluation as a function of goal activation and product usage

PROCESS Macro Model 4 (Hayes, 2013). When goal attainability perception was included as a mediator, the bias-corrected 95% confidence interval for the indirect effect of goal attainability perception on the relationship between goal × product usage and WTP did not include zero (95% CI = [0.01, 0.56]), supporting *H1b*. However, none of the alternative variables explained the independent variables' impact on contagion object evaluation (see Appendix 3 for more information about the analysis of and alternative variables). The results of Study 3 support *H1a* and *H1b*, finding that the favorable evaluation of the contagion object is due to the perception that the object can be helpful to achieving one's goal. This study also demonstrates that positive contagion extends beyond WTP and actually enhances consumer performance in goal-related tasks (*H2*). A performance effect indicates an important consequence of contagion in a retail context.

Study 4: effect of positive contagion on goal commitment and task performance

Study 4 was designed to examine whether positive contagion extends to improve actual consumer performance (*H2*). For this purpose, we departed from the product evaluation paradigm used in previous studies and focused on examining goal commitment and actual performance in an experiment in which participants used an object previously used by a goal-congruent contagion source.

Method

In total, 109 undergraduate business students (female = 43%, *M*age = 20.99, *SD*age = 2.30) participated in Study 4 in return for partial course credit. The participants were randomly assigned to one of the conditions in a 2 (goal: activated, control) × 2 (contagion source: goal-congruent, control) between-subjects design.

Participants in the goal activation condition were asked to list the industry and career they wanted to pursue after graduation and wrote why they thought it was important for them to be successful in their career, a widely used method to activate goals (Galinsky *et al.*, 2003). As in the previous studies, participants in the control condition were asked to think about their activities during a normal day and to describe them. Then, participants were told to write a one-page self-advertisement describing their career-related strengths that might be reviewed by a company that they would like to work for after graduation.

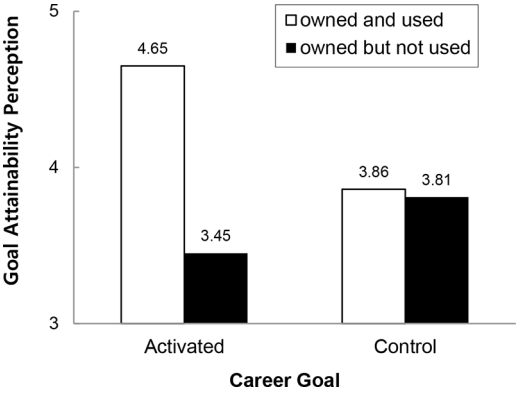

Figure 3.
Goal attainability perception as a function of goal activation and product usage

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, and received a pen purportedly used by him. Participants were told that Mark Cuban had used the pen to sign a major contract. Participants received the same pen in the control source condition without any information about its provenance. We used the same pen from Study 3, which was pretested to be perceived as a luxurious pen (see Appendix 4 for more information about the stimuli).

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

Results

A 2 (goal: activated, control) × 2 (contagion source: goal-congruent, control) ANOVA on the goal commitment variable (i.e. time spent on the writing task) revealed that the main effect of goal on goal commitment ($F(1, 105) = 3.00$, $p = 0.09$, $\eta_p^2 = 0.03$) and the main effect of contagion source on goal commitment ($F(1, 105) = 2.53$, $p = 0.12$, $\eta_p^2 = 0.02$) were not significant. However, we found a significant two-way interaction between goal and contagion source ($F(1, 105) = 4.08$, $p = 0.04$, $\eta_p^2 = 0.04$, see Figure 4). To further examine the nature of this interaction, we conducted pairwise comparisons. When a goal was activated, participants who used a pen they believed to be used by a goal-congruent contagion source (i.e. Mark Cuban) demonstrated greater goal commitment on the writing task ($M = 278.64$ s) than those participants who used a control source's pen ($M = 222.65$ s; $F(1, 105) = 5.95$, $p = 0.02$, $\eta_p^2 = 0.09$). When goal was not activated, participants in the goal-congruent source condition ($M = 220.43$ s) and control source conditions ($M = 227.10$ s) did not produce significant differences in goal commitment ($F(1, 105) = 0.10$, $p = 0.75$, $\eta_p^2 = 0.002$).

Next, the three coders' evaluations of the essays were averaged ($\alpha = 0.75$) to create an index of writing task performance. A 2 (goal: activated, control) × 2 (contagion source: goal-congruent, control) ANOVA revealed that the main effect of goal on performance ($F(1, 105) = 3.39$, $p = 0.07$, $\eta_p^2 = 0.03$) and the main effect of contagion source on performance ($F(1, 105) = 3.29$, $p = 0.07$, $\eta_p^2 = 0.03$) were not significant. Again, we found a significant two-way interaction between goal and the contagion source ($F(1, 105) = 4.18$,

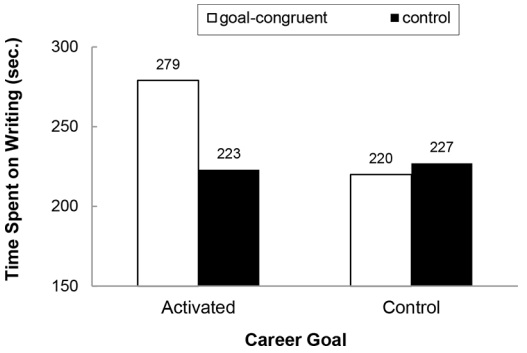

Figure 4.
Goal commitment as a function of goal activation and contagion source

p = 0.04, η_p^2 = 0.04). 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 control source's pen (M = 2.47, SD = 0.82; F(1, 105) = 6.79, p = 0.01, η_p^2 = 0.14; Figure 5). When goal was not activated, however, task performance in the goal-congruent source condition (M = 2.47, SD = 0.85) and the control source condition was not significantly different (M = 2.51, SD = 0.99; F(1, 105) = 0.03, p = 0.87, $\eta_p^2 < 0.001$).

Finally, we conducted a mediation analysis to determine whether the level of goal commitment (i.e. time spent on the writing task) mediated the independent variables' impact on task performance. We used the bias-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 × contagion source and task performance did not include zero (95% CI = [0.04, 0.66]). Also, the factor of goal × contagion source did not predict performance in the presence of the mediator (p = 0.24), indicating full mediation. In support of *H2*, Study 4 showed that contagion can improve actual consumer performance via heightened goal commitment.

Study 5: the role of goal discrepancy in contagion

In Study 5, we manipulated goal discrepancy to examine whether contagion emerges more strongly when the discrepancy is high than when the discrepancy is low (*H3*). Based on the proposed relationship between discrepancy and goal achievement efforts (Higgins, 1987; Packard and Wooten, 2013; Sobol and Darke, 2014; Ward and Dahl, 2014), we expected that the evaluation of a positive contagion object would be more favorable among those who perceive high (vs low) goal discrepancy.

Method

In total, 177 individuals (female = 37%, *M*age = 33.88, *SD*age = 10.66) from Amazon MTurk participated in Study 5 for monetary compensation. The participants were randomly assigned to one of the conditions in a 2 (goal discrepancy: high, low) × 2 (contagion source: goal-congruent, goal-incongruent) between-subjects design.

In the first part of the experiment, we activated a goal in the health domain for all participants by instructing them to write about their wishes and hopes about their health

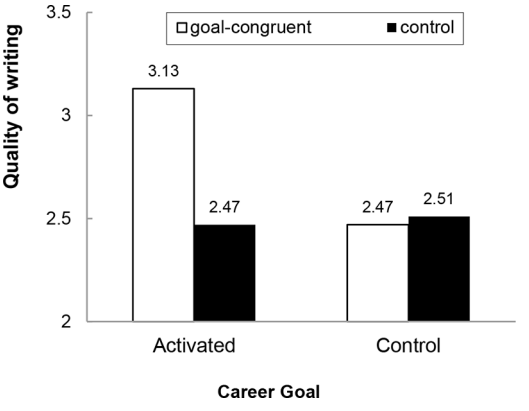

Figure 5.
Task performance as a function of goal activation and contagion source

and the strategies that they believed might enhance their health (Lockwood *et al.*, 2002). Next, participants answered a questionnaire designed to examine individuals' 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 their health score was 18 out of 20.

In the ostensibly unrelated second part, participants evaluated a FitBit previously used by another person who scored 19 out of 20 (i.e. goal-congruent condition) or 2 out of 20 (i.e. goal-incongruent condition) from the same health test that the participants completed. Just as in previous studies, the dependent measure was the WTP for the product. Participants then answered demographic questions and the goal discrepancy for the purpose of manipulation check (Aron *et al.*, 1992; see Appendix 5 for more information about the stimuli and manipulation check). Participants answered demographic questions and were debriefed.

Results

We first conducted a 2 (goal discrepancy: high, low) × 2 (contagion source: goal-congruent, goal-incongruent) ANOVA on the measure of perceived goal discrepancy 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 ($F(1, 173) = 8.60$, $p = 0.004$, $\eta_p^2 = 0.05$), which indicates that manipulating goal discrepancy by varying the health test score feedback was successful. Then, just as in previous studies, we conducted a 2 (goal discrepancy: high, low) × 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 Fs < 1). As predicted, we found a significant two-way interaction between the goal discrepancy and the contagion source ($F(1, 173) = 6.87$, $p = 0.01$, $\eta_p^2 = 0.04$; Figure 6). 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 reported a higher WTP ($M = 3.14$, $SD = 0.61$) than the same product used by a goal-incongruent source ($M = 2.67$, $SD = 1.20$; $F(1, 173) = 4.31$, $p = 0.04$, $\eta_p^2 = 0.06$). 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 ($M = 2.94$, $SD = 0.87$; $F(1, 173) = 2.65$, $p = 0.11$, $\eta_p^2 = 0.03$). 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 ($M = 2.59$, $SD = 1.34$; $F(1, 173) = 6.05$,

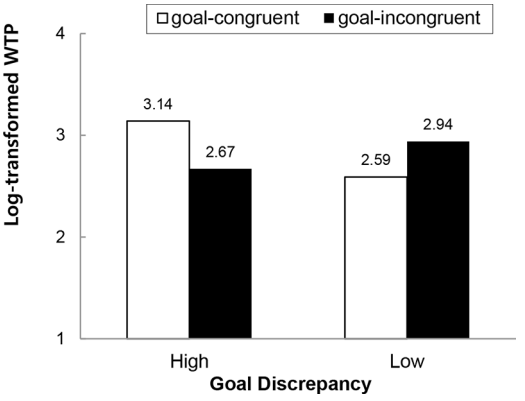

Figure 6.
Product evaluation as a function of goal discrepancy and contagion source

$p = 0.02$, $\eta_p^2 = 0.07$). However, WTP for the product used by a goal-incongruent contagion source did not differ depending on the level of the discrepancy ($F(1, 173) = 1.53$, $p = 0.22$, $\eta_p^2 = 0.02$).

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 led to a more favorable evaluation of contagion products (Studies 1, 2 and 3). These results support *H1a* and *H1b*. We also showed that enhanced consumers' commitment toward a goal, which in turn led to enhanced performance in a real task that contributed to achieving one's goal (Study 4), in support of *H2*. In support of *H3*, we found that these effects emerged only when the object was physically touched by a goal-congruent contagion source and that these effects are more pronounced for those consumers who experience a high (vs low) degree of goal discrepancy (Study 5).

Our new recipient-driven contagion paradigm has important theoretical implications for research in contagion. Prior research has mostly presumed that properties inherent to the contagion source were 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 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 active in consumers' minds, leading to differences in product evaluation. Additionally, our recipient-driven contagion paradigm is consistent with the new perspective on contagion, positing that "contagion beliefs are by default dormant, and cues that are internal or external are needed to activate contagion beliefs" (Morales *et al.*, 2018, p. 556).

Prior contagion research has suggested that different factors may moderate contagion effects (Argo *et al.*, 2008; Kramer and 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, in fact, be 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 recipient "admires" them (Nemeroff and Rozin, 1994; Newman *et al.*, 2011). Because an admirable person could activate an ideal self, a specific type of goals pertaining to the self, our goal-based contagion paradigm could also explain these findings.

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 and Wooten, 2013; Sobol and Darke, 2014; Ward and Dahl, 2014). The current research shows that contagion belief is stronger among individuals who perceive high (vs low) goal discrepancy. To our best knowledge, our research is the first to examine the relationship between goal state and contagion. Prior research on goal pursuit showed that perceptions of making progress toward one's goal could influence subsequent commitment toward the goal (Huang *et al.*, 2012). These findings contribute to contagion and goal pursuit literature by bridging them.

Our findings also have implications for managers in the rapidly growing secondhand and resale product markets. By definition, secondhand and resale markets are replete with contagion objects because items in this market are mostly owned and physically used by someone in the past. Our findings point to strategies for sellers of secondhand goods to frame their sales messages in terms that are likely to be goal congruent to potential buyers. Previous research in the goal literature has shown that consumer goals could be inferred by the type of products purchased (Huang and Zhang, 2013; Shah and Kruglanski, 2002). Thus, sellers in secondhand markets may want to infer goals based on product categories and perhaps use messaging and product description information to create goal-congruent contagion effects. In fact, online customer interfaces could be designed to prime specific consumer goals associated with purchases. In terms of sales training, retail salespeople could be trained to elicit specific goal states in interactions with customers. Our recipient-based goal perspective may also be useful in explaining or forecasting differences in resale price or time taken to be resold as a function of characteristics of the seller. These findings suggest that modeling seller characteristics may enhance the accuracy of forecasting models for secondhand goods.

Our findings also suggest the importance of previous ownership in secondary markets. Retailers may benefit from showcasing critical details of previous ownership or previous product usage in specific contexts to amplify the benefits of contagion. Online user interfaces could be designed to feature seller's personal information or previous product uses. Perhaps a profile of attributes score of previous owners could be developed further to enrich the effect of contagion on secondhand buyers. Of course, the contagion effects we observed were related to products that were not personal or private usage products, which could be a key boundary condition for retail contagion effects.

Previous studies have shown that mere exposure to a brand associated with creativity (e.g. Apple's brand logo) unconsciously activates a goal to be creative (Fitzsimons *et al.*, 2008). Future research may examine how brands may also activate goals in a secondhand market and interact with seller information to influence WTP and product sales. For example, if an individual wanted to sell a used Apple product, our findings would suggest this attempt may be made more successful by highlighting the creative experience and expertise of the seller more than some other positive information.

Future research can also examine the role of physical contact and identify the conditions under which contagion effects may emerge without direct physical contact. Whereas early conceptualization has emphasized physical contact as a necessary condition for contagion (Nemeroff and Rozin, 1994), more recent theorization posits that contagion may occur without physical contact if a link is created between the contagion source and the contagion object or contagion recipient (Huang *et al.*, 2017; Morales *et al.*, 2018). According to this perspective, the link is conceptualized as a cue that indicates the intimacy between the contagion object and the contagion recipient, and the link can be created by non-physical cues such as spatial proximity or temporal proximity (Kim and Kim, 2011; Mishra, 2009; Smith *et al.*, 2015). For example, a Nike golf glove that Tiger Woods always uses in his game could create a link between the object and the source, and it could be strong enough in some cases such that a new glove of the same brand may trigger contagion belief, leading to a favorable evaluation. Future research can examine when such non-physical contagions occur and whether it could explain celebrity endorsement effect or other similar marketing endorsements via contagion as a theoretical framework.

Future research can also examine the impact of the type of products. The current research used a few different products as contagion objects: a golf glove (Study 1), a t-shirt (Study 2), a pen (Studies 3 and 4) and a fitness tracker (Study 5). We chose a product that

was considered appropriate for the given goal context (e.g. a Tiger Wood's golf club as a contagion object for a contagion recipient with athletic goals). Future research can examine whether products relatively less relevant to the context (e.g. Tiger Wood's pen instead of a golf club) could lead to a similar contagion effect. Also, the extent to which the contagion objects served as a means toward the goals varied in our experiment. For example, a fitness tracker used in the health improvement goal context could be physically used to improve one's health, whereas a t-shirt is less likely to be used directly to achieve one's mating goals. Thus, future research can examine whether different products used by the contagion source affect product evaluation and performances differently depending on the object's capacity to serve as a means toward the goals. Finally, research has shown that individuals from eastern (vs western) cultures 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 more extensive social network and are perceived to be 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.

Notes

1. The authors of this paper posit that contagion is dormant until activating "cues" are provided and direct attention to contagion or contamination. For example, being explicitly told that a tshirt was worn by another person (vs not) could serve as a social cue and make people concerned about contamination (i.e. negative contagion). However, the same product may not trigger contagion-related thoughts without such a cue. A similar attention redirection could occur by activating goals related to hygiene. Thus, contagion cues and goal activation could both increase sensitivity to contagion. The current research offers an integrative contagion framework where goal activation serves as the on/off switch of contagion and show that such onset of contagion is explained by processing of the contagion source or object's goal-congruency.
2. The few general motivations associated with secondhand market shopping were identified in Guiot and Roux (2010) and Ferraro *et al.* (2016). An important distinction between these general motivations and the goals conceptualized in the current research is that goals could be different depending on individuals and every single purchase decisions within an individual. By contrast, the motivations explain common incentives that lead consumers – as a group – into the secondhand product market. Thus, our goal-congruent contagion paradigm allows the researchers to examine how different sets of individual goals effect used products evaluations through contagion mechanism.

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Appendix 1. Contagion object and debriefing statement for Study 1

Contagion source pretest (Study 1)

We chose Tiger Woods based on a pretest in which 80 Amazon MTurk participants' perceptions were measured regarding the extent to which he was 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 was 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; $t(79) = 16.07$, $p < 0.001$).

Contagion object presentation (Study 1)

Tiger Woods Game Used Glove

Notes. The stimuli image was adopted from thegolfauction.com. We chose Tiger Woods based on a pretest in which 80 Amazon MTurk participants' perceptions were measured regarding the extent to which he was 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 was 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; $t(79) = 16.07$, $p < 0.001$).

Debriefing statement (Study 1)

Thanks for your time today. You have completed the survey now. We would like to explain the objective of our studies. In the first part, some – but not all – participants were instructed to engage in a writing task in which they list their thoughts related to goals. This procedure was known to activate certain goals in the writer's mind. Second, participants were exposed to certain types of

products and users who supposedly owned or used the product in the past. The objective of the study was to examine whether the evaluation of the product or performance using the product differs depending on whether the goal type and the previous user type match or not, a psychological phenomenon called "contagion." In general, contagion phenomenon refers to the belief that other individual's essence or property such as the ability of personality traits, can be transferred to the self through physical contact. In our study, products served as an intermediate object through which this contagion occurs. If you are interested in this concept and want to learn more, please contact the experimenters. The reason why we could not reveal the full design or the true objective of our study was because of the "demand effect," a phenomenon also referred to as "nice bias" whereby participants knowing the objective of the study tend to answer the questions in accordance with the objective of the study. Thus, just like in many other social experiments, we use a cover story that introduces the objective of the study differently at the beginning to prevent the demand effect. Please note that every aspect of the current study has been reviewed and approved by the Internal Review Board. We appreciate your time today.

Notes. The same debriefing statement was provided to the participants of all other studies.

Appendix 2. Manipulation, stimuli and analysis results for Study 2

List of items used to prime utilitarian goal (Study 2)

When you consider buying a pair of sunglasses, how important is it that the sunglasses have UV protection?

When you consider buying a car, how important is it that the car's fuel efficiency is high (i.e. high MPG)?

When you consider buying a watch, how important is it that the watch is durable and precise?

When you consider buying a thermostat, how important is it that the thermostat is accurate?

When you consider buying a winter jacket, how important is it that the jacket keeps you warm?

When you consider buying a laptop, how important is it that the laptop's battery lasts for a long time and that the laptop has enough data storage space?

(The scale for all items were: 1 = not at all important, 7 = very important.)

T-shirt stimuli with attractive (upper panel) and average (lower panel) female (Study 2)

Following the procedure of Argo *et al.* (2008), at the beginning of the study, we measured participants' t-shirt size so that the t-shirt presented matched with the participants' actual t-shirt size. For example, if a participant reported "medium" as their t-shirt size, we presented a medium size t-shirt in the ad. The choice of size ranged from "Extra Small" to "XX-Large." A pretest confirmed that the attractive female was rated significantly more attractive than the average female. The stimuli between the two conditions were identical except for the image of the female shown to the participants.

Three-way ANOVA with gender (Study 2)

For the male participants, we found a significant main effect of source ($F(1, 85) = 7.94$, $p = 0.006$, $\eta_p^2 = 0.09$), which was qualified by the predicted interaction between the goal and source ($F(1, 85) = 7.05$, $p = 0.009$, $\eta_p^2 = 0.08$). Pairwise comparison analysis revealed participants were willing to pay more for the high attractive source's t-shirt ($M = 3.25$, $SD = 0.39$) than the control attractive source's t-shirt ($M = 2.33$, $SD = 1.00$) when a natural mating goal was active ($F(1, 85) = 14.70$, $p < 0.001$). However, the WTP for the t-shirt was not significantly different between the high attractive ($M = 2.73$, $SD = 0.67$) and control source conditions ($M = 2.70$, $SD = 0.84$) when a utilitarian goal was activated ($F(1,$

85) = 0.01, p = 0.91; Figure B1). Additionally, participants were willing to pay more for the high attractive source's t-shirt when no goal was activated (M = 3.25, SD = 0.39) than when a utilitarian goal (M = 2.73, SD = 0.67) was activated $F(1, 85) = 14.70$, $p < 0.001$). For the female participants, none of the main effects or the interactions were significant (all ps > 0.27; Figure B2).

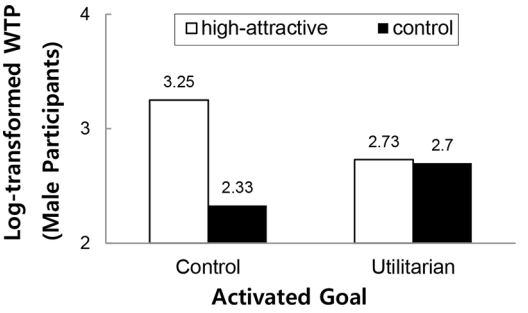


Figure A1.
T-shirt evaluation as a function of goals and source (male participants)

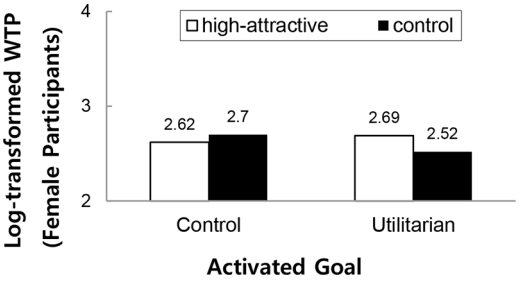


Figure A2.
T-shirt evaluation as a function of goals and source (female participants)

Appendix 3. Stimuli and process variables for Study 3

Contagion object presentation

Contagion source pretest (Study 3)

We presented Steve Jobs as the contagion source and his pen as the contagion object based on Newman *et al.* (2011), suggesting that an admirable individual can serve as an effective positive contagion source. Our pretest confirms that Steve Jobs is perceived to be highly successful in his career and regarded as an admirable businessman among the sample population. The contagion object, a pen, was confirmed to be perceived as luxurious in our pretest.

List of process variables

To what extent do you think owning the pen could help you achieve your career and business success goal? To what extent do you think owning the pen could help you perform well for your career and business success goal? To what extent do you think owning the pen could make your career and business success goal to be felt as more achievable? (All items were measured using a scale: 1 = not at all, 7 = very much, internal liability for the three items were α = 0.90 and they were averaged to create the index of goal attainability perception.)

List of alternative variables

If the bidding for the pen were a real situation for you, to what extent would you be motivated to participate in the auction because the pen might be resold at a higher value? (measurement of resale value); If the bidding for the pen were a real situation for you, to what extent would you be motivated to participate in the auction because you could show off the pen to others or because it could make a good conversation piece? (measurement of social value); If the bidding for the pen were a real situation for you, to what extent would you be motivated to participate in the auction because the pen might make a good gift for someone else? (measurement of gifting motivation) (all items were measured using a scale: 1 = not at all, 7 = very much).

Alternative variables analysis

We conducted a 2 (goal: activated, control) × 2 (product usage: owned and used, owned but not used) ANOVA on the three alternative variables: resale value, social value and gifting motivation. Regarding resale value, we observed a significant main effect of product usage (used (vs unused) objects were favored; $F(1, 196) = 10.62$, $p = 0.001$, $\eta_p^2 = 0.05$), no significant main effect of goal ($F(1, 196) < 0.01$, $p = 0.95$, $\eta_p^2 < 0.01$) and no significant two-way interaction between goal and product usage ($F(1, 196) = 0.59$, $p = 0.45$, $\eta_p^2 < 0.01$). Regarding social value, we observed a significant main effect of product usage (used (vs unused) objects received greater social value; $F(1, 196) = 19.54$, $p < 0.001$, $\eta_p^2 = 0.09$), no significant main effect of goal ($F(1, 196) = 0.52$, $p = 0.47$, $\eta_p^2 < 0.01$) and no significant two-way interaction between goal and product usage ($F(1, 196) = 1.01$, $p = 0.30$, $\eta_p^2 < 0.01$). Regarding gifting motivation, we observed no significant main effect of product usage ($F(1, 196) = 1.14$, $p = 0.29$, $\eta_p^2 < 0.01$), no significant main effect of goal ($F(1, 196) < 0.01$, $p = 0.96$, $\eta_p^2 < 0.01$), and no significant two-way interaction between goal and product usage ($F(1, 196) = 2.43$, $p = 0.12$, $\eta_p^2 = 0.01$). The results show that a pen that was owned and used (vs. owned and not used) by the contagion source is perceived as having a greater resale value, such as resold at a greater market value. The results also show that a pen that was owned and used (vs owned and not used) by the contagion source is associated with greater social value, such as signaling one's social status or serving as a good conversation piece in a social setting. However, none of these variables showed the key interaction between the product usage and goal activation observed in WTP, or replicated the process mechanism observed in the mediation analysis with the independent variables, goal attainment perception and the WTP. Thus, these alternative explanations are variables are successfully excluded.

Appendix 4. Stimuli and procedure for Study 4

Contagion source description

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.

Contagion object presentation

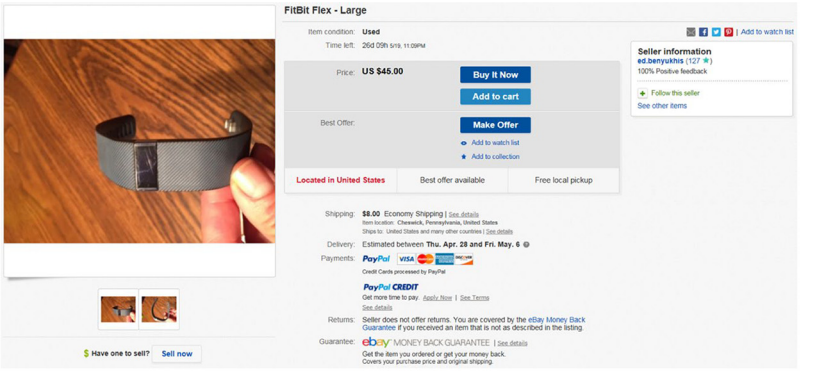
Notes. The pen was handed to the participants within a piece of silk to prevent potential contagion from being transmitted from the experimenter to the pen, and the experimenter handed over the pen to the participants one at a time to further ensure that participants did not see the same pen used by other. Also, each participant's experiment cubicle was separated by a cubicle wall.

Appendix 5. Stimuli and measures for Study 5

Goal-discrepancy manipulation (Study 5)

Following Lockwood *et al.* (2002), we activated a goal in the health domain by instructing them to write about their wishes on their health and the strategy that can enhance their hopes. Next, participants were told about a health test developed by the Michigan Department of Community Health (available at www.michigan.gov/mdhhs) and were asked to answer a questionnaire designed to examine individuals' exercise and diet habits. The participants were told that the health score ranged from 0 to 20, with higher scores indicating healthier habits. Participants were assigned to one of the goal discrepancy conditions (low = 18 out of 20 scores; high = 5 out of 20 scores) and received the health score and the online feedback that explained the meaning of the test score, which was available on the Michigan Department of Community Health website (www.michigan.gov/mdhhs).

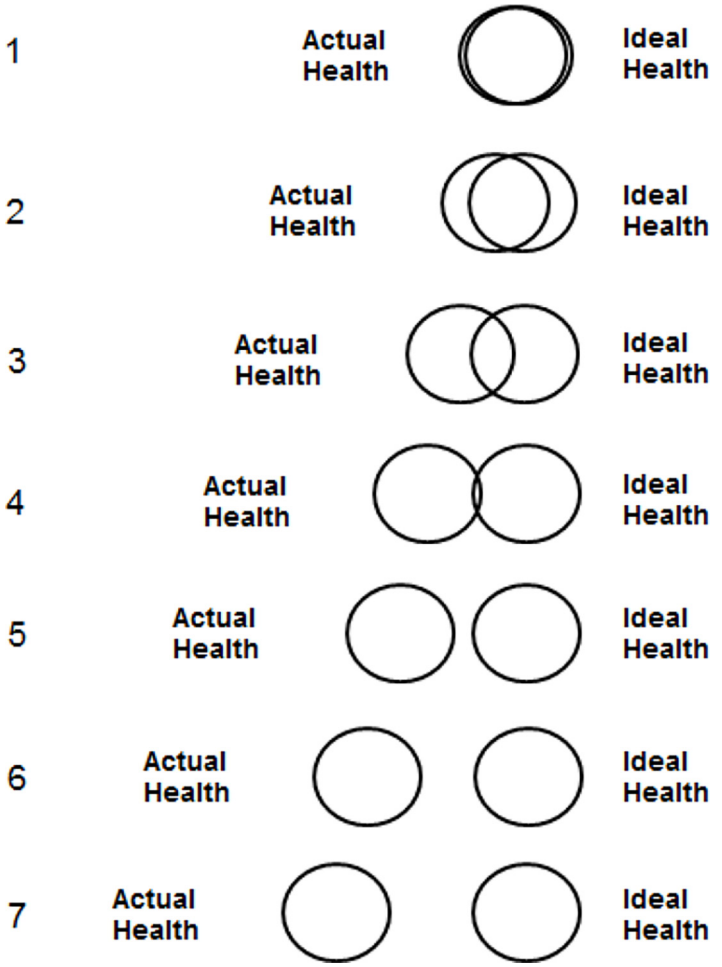
Evaluation instruction and product image adopted from eBay



Notes: The price offered by the seller in the eBay ad was $45, and the participants were asked to make a counteroffer ranging anywhere between $0 and $45.

Goal-discrepancy measure (Study 5)

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?



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