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Compensatory knowledge signaling in consumer word-of-mouth ☆

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Abstract

This paper extends prior research on consumer knowledge beliefs and word-of-mouth transmission. Findings from four studies suggest that people compensate for unfavorable discrepancies between their actual and ideal consumer knowledge with heightened efforts to signal knowledgeability through the content and volume of their word-of-mouth transmissions. This compensatory knowledge signaling effect is moderated by the self-concept relevance (psychological closeness) of the word-of-mouth target and lay beliefs in the self-enhancement benefits of transmitting product knowledge. Content analysis of participants' product communications further supports our knowledge signaling account. The relationship between actual:ideal knowledge discrepancies and heightened word-of-mouth intentions is mediated by the specific negative emotion associated with actual:ideal self-discrepancies. Overall, the findings suggest that the relationship between consumer knowledge and word-of-mouth transmission depends not only on what you *think* you know, but also on what you *wish* you knew.
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Introduction

People who believe they are knowledgeable about products tend to share product information more with others. This tenet is central to research on word-of-mouth motivation (Engel, Kegerreis, & Blackwell, 1969; Jacoby & Hoyer, 1981; Katz & Lazarsfeld, 1955; Keller & Berry, 2003) and consistent with Gricean maxims of quantity and quality—those who believe they possess a greater volume of useful information make an appropriately weighted 'conversational contribution' by sharing their knowledge more (Grice, 1991). The word-of-mouth literature attributes the positive relationship between knowledge beliefs and

information sharing to desires for self-concept maintenance. People who think of themselves as particularly knowledgeable consumers (e.g., market mavens, opinion leaders) wish to maintain these positive self-concepts, and tend to share their opinions in order to do so (Dichter, 1966; Feick & Price, 1987).

These findings imply that a perceived shortcoming in consumer knowledge may diminish one's motivation to transmit word-of-mouth information. Those who believe they are insufficiently knowledgeable about products might perceive their product opinions to be of limited use to others, and thus be less motivated to share them. They also may be reluctant to share their insufficiently informed opinions for fear of presenting themselves unfavorably to others (Schlenker, 1975). While recognizing this possibility, we argue that a perceived deficiency in consumer knowledge *relative to one's ideals* may sometimes heighten rather than suppress the desire to voice product opinions to others. Why might this occur?

Although people desire to be self-consistent, they are also motivated to think favorably about themselves and present themselves favorably to others (*simple* self-enhancement;

Baumeister, 1982; Schrauger, 1975). Moreover, they sometimes are motivated to produce information to symbolically compensate for perceived deficiencies in the self (*compensatory self-enhancement*; Baumeister, 1982; Bosson, Brown, Zeigler-Hill, & Swann, 2003). The self-enhancement motive is described as a fundamental driver of self-presentation strategies (Baumeister, 1982; Schlenker, 1980; Swann, Pelham, & Krull, 1989). Building on this literature, we predict that a perceived deficiency in consumer knowledge relative to one's ideals may lead to a compensatory self-enhancement response: an effort to signal a higher level of consumer knowledge. We refer to this behavior as *compensatory knowledge signaling*. Because the social risk of presenting oneself as knowledgeable is manageable (e.g., people actively choose self-presentation tactics that minimize the risk of being discredited; Schlenker, 1980), knowledge signaling offers a ready means to symbolically compensate for the perceived shortcoming, especially in comparison to a more effortful and less accessible alternative: a "real" attempted reduction of the knowledge deficiency through the pursuit of more domain experience or education (Wicklund & Gollwitzer, 1981; Wicklund & Rise, 2008).

The fact that consumer researchers have not previously identified the possibility that perceived deficiencies in consumer knowledge may motivate compensatory knowledge signaling may be due in part to how the literature has defined consumer knowledge. The literature describes subjective consumer knowledge as what or how much a person thinks she actually knows about products, whether at the level of a specific product category (e.g., Park & Lessig, 1981; Park, Mothersbaugh, & Feick, 1994) or at a more general level (e.g., Feick & Price, 1987; Keller & Berry, 2003). While this definition captures consumer perceptions of the present state of their knowledge, it tells us little about the extent to which this state may be perceived as either satisfactory or deficient in the consumer's mind. Applying the theoretical lens of self-concepts to the consumer knowledge domain, we predict that consumer knowledge beliefs may be linked not only to their perceptions of their "actual" selves in this domain, but also to the "ideal selves" they wish for or aspire to be (Markus & Nurius, 1986; Markus & Wurf, 1987). A perceived discrepancy between these two self states (actual:ideal) has been linked with dejection (Higgins, 1987), which leads to a desire to compensate for this negative state through self-enhancing cognitions or behaviors (Baumeister, 1982; Leary, 1996).

Consider a consumer who feels poorly endowed with knowledge about fiction books. Prior research on consumer knowledge and word-of-mouth motivation predicts a simple effect — she is less likely to share her opinions about novels with others. However, if her consumer knowledge beliefs are examined as a self-concept domain, a more nuanced relationship between knowledge beliefs and knowledge transmission emerges. If the novice book consumer is satisfied with her low level of knowledge (actual ≥ ideal), then she may indeed have little motivation to voice her opinions about books. Alternatively, she may be dissatisfied with her level of knowledge (actual < ideal), thereby motivating a compensatory response. We propose that by transmitting product information, she can signal a higher level of knowledgeability to herself and others.

A similar dynamic should hold for someone who views himself as a consumer who is generally knowledgeable across a range of product categories. While he may believe he is more broadly knowledgeable than others, the likely heightened self-concept relevance of his expertise may make him keenly aware of even small gaps in his knowledge (Kruger & Dunning, 1999). Consequently, even this more expert consumer could perceive an unfavorable discrepancy in his knowledge and feel the need to compensate by transmitting product information as a self-enhancing signal of knowledgeability.

In this paper, we extend research on consumer knowledge by treating it as a self-concept domain and proposing a novel effect on one of its important downstream consequences — word-of-mouth transmission. Specifically, we argue that sometimes the link between consumer knowledge and word-of-mouth transmission depends not only on what consumers *think* they know, but also on what they *wish* they knew. When an unfavorable discrepancy in one's consumer knowledge is perceived, the consumer may be motivated to symbolically compensate by sending positive (self-enhancing) signals of knowledgeability. Contrary to the consumer knowledge, word-of-mouth and market mavenism literatures, we therefore predict that perceived deficiencies in consumer knowledge sometimes lead to an increase rather than a decrease in word-of-mouth transmissions. We next provide conceptual background to further develop and support our compensatory knowledge signaling account.

Conceptual development

Consumer knowledge and word-of-mouth transmission

This manuscript focuses on subjective consumer knowledge— people's perception of what they know about consumption-related topics—as opposed to objective knowledge, an accounting of accurate product-related information stored in memory (Park & Lessig, 1981; Park et al., 1994). The scope of subjective consumer knowledge[1] content as previously investigated in this literature includes comprehension of brand or product names, product attributes or features, quality, price, distribution, and advertising information. Researchers have investigated the impact of consumer knowledge on a broad range of behaviors including search, information processing, and choice (e.g., Alba & Hutchinson, 2000; Bettman & Park, 1980). Consumers who believe they are knowledgeable in a consumption domain (e.g., nutrition) are more likely to locate themselves close to stimuli that are consistent with their perceived knowledge level (e.g., health food section), affecting their search strategies and choice (Moorman, Diehl, Brinberg, & Kidwell, 2004). People's self-assessments of their knowledge or skill in a consumption domain may influence their choices such that they tend to choose products that "match" their perceived competence in that domain (Burson, 2007).

Research on consumer knowledge and word-of-mouth motivation similarly reports a self-consistent or "matching" relationship

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[1] Hereafter, we use the term consumer knowledge to refer to its subjective form, specifying objective consumer knowledge in the single case in which it is included as a covariate in this research (Study 2).

between knowledge and information sharing. Dichter's (1966) foundational investigation of word-of-mouth motivation revealed that people who believed they possess higher levels of knowledge strive to maintain this belief by demonstrating their superiority, connoisseurship, and expertise through word-of-mouth communications. Related research reports that opinion leaders and innovators both believe they possess more category-specific (Katz & Lazarsfeld, 1955) or generalized (Engel et al., 1969; Gnambs & Batinic, 2011) consumer knowledge than others. These studies positively link this belief to the motivation to transmit product information via word-of-mouth. Research on mavenism (e.g., Feick & Price, 1987) similarly asserts that consumers' beliefs that they are marketplace influencers stem from their beliefs about the relative quality and/or volume of generalized consumer knowledge they possess. More recent survey and experimental investigations also find that how much consumers talk about products is driven by how much they think they know about them (Gruen, Osmonbekov, & Czaplewski, 2006; Hennig-Thurau & Walsh, 2003; Wojnicki & Godes, 2012).

We emphasize three points from this brief discussion. First, as previously identified by Park and Lessig (1981, p. 223), research on consumer knowledge treats it as a static, present-state attribute set in the moment of the behavior under investigation. Second, the previously documented relationship between consumer knowledge and word-of-mouth transmission is a simple positive one, with higher levels of knowledge leading to increased efforts to share word-of-mouth. Third, while research on search and choice as consequences of consumer knowledge tends to examine knowledge at the product category level, research on word-of-mouth transmission frequently examines the effects of knowledge at a more general level—over the range of categories contributing to one's store of knowledge.

Consumer knowledge as a self-concept

A self-concept has been defined as one's ideas or theories about the self (Baumeister, 1998). Early examinations of the self-concept involved stable representations that were unitary or "global" in nature (Markus & Wurf, 1987). This framing of the self-concept includes assessments of one's own generalized competence, morality, or likeability, and result in a global level of regard toward the self. Markus and her contemporaries reinvigorated research on the self by proposing a self-concept that is more dynamic in nature. Under this conception, the self-concept is described in the plural given its representation as a multi-faceted set of theories or schemas about the self across a multitude of domains, and in a multitude of contexts. A person's distributed network of self-concepts may include social roles and identities, emotional tendencies, or abilities and traits that vary in centrality and stability (McConnell, 2011). While central self-concepts are presumed to affect information processing and behavior most strongly, peripheral self-concepts also play a role when salient (Markus & Wurf, 1987).

Self-concepts further have temporal dimensions, describing not only who one is today, but also one's past and possible future selves (Markus & Nurius, 1986). Possible selves include, but are not limited to, the selves we hope to become (ideal self;

Markus & Nurius, 1986). Ideal self-concepts are particularly central in behavior regulation in that they represent the set of attributes we aspire to, hope for, or wish for ourselves. They act as goalposts for behavior, and provide an evaluative reference point for present selves (Baumeister, 1998; Carver & Scheier, 1990; Higgins, 1987).

Knowledge, competence or intelligence is a central self-concept domain (Bandura, 1986; Leary et al., 1994), and is an important contributor to global evaluations of the self (Marsh, 1986; Tafarodi & Swann, 1995). By definition, consumer knowledge entails self-beliefs regarding one's knowledge in the domain of consumption (Carlson, Vincent, Hardesty, & Bearden, 2009, p. 864; Park & Lessig, 1981). Therefore, it is surprising that consumer knowledge has received little attention as a multi-faceted self-concept domain. In the present research, we address this gap by examining the impact of discrepancies between the perceived current state of one's consumer knowledge (hereafter, *actual* knowledge) and their ideal consumer knowledge (*ideal* knowledge) on word-of-mouth intentions and behavior.

Affective and behavioral responses to discrepant self-concepts

Self-regulatory models of motivation posit that the perceived distance between an actual self-concept and an associated goal state has both emotional and motivational significance. If the goal state is desirable, then congruence between the present and goal states has positive emotional consequences whereas incongruence has negative emotional consequences. For example, perceived discrepancies between actual and ideal selves we examine in the present research are associated specifically with dejection (Higgins, 1987; Higgins, Bond, Klein, & Strauman, 1986; Strauman & Higgins, 1987). The aversive nature of discrepancies between present and goal states induces behaviors more consistent with the goal in an effort to reduce the psychological distance to the goal (Carver & Scheier, 1990; Custers & Aarts, 2007; Higgins, 1987).

Prior applications of self-discrepancy theory in consumer research have examined how discrepant self-beliefs that surface in other contexts impact preference and choice in consumption. For example, the magnitude of discrepancies between consumers' global actual and ideal self-concepts has been linked to impulse purchase behavior among people who acquire material goods to compensate for their perceived inadequacies (Dittmar, Beattie, & Friese, 1996). In an examination of self-concepts and body image, Sobol and Darke (2012) found that people compensate for actual: ideal self-discrepancies by making less indulgent consumption choices. Individuals with high explicit self-esteem but low implicit self-esteem (a "self-esteem discrepancy") were shown to prefer self-enhancing (vs. non-enhancing) luxury products, ostensibly to compensate for the negative identity and feelings associated with this discrepancy (Park & Roedder John, 2011).

Self-enhancement by presenting desired images of the self is a common response to self-discrepancies (Baumeister, 1982; Gibson & Oberlander, 2008; Leary, 1996; Swann et al., 1989). Such efforts are said to help self-discrepant individuals influence themselves—and self-relevant others—to believe that their actual abilities are closer to their ideals. Baumeister (1982)

describes the desire to be seen as one's ideal self as a fundamental motive of self-presentation, while Leary (1996, p. 60) asserts that actual:ideal self-discrepancies are one of the three core drivers of self-presentation. Although self-improvement efforts (e.g., acquiring more consumer knowledge) represent one way to compensate for unfavorable self-discrepancies, self-presentational efforts (e.g., sharing word-of-mouth to signal knowledgeability) represent a more accessible and less effortful means to a similar end (Baumeister, 1982; Schlenker, 1980; Wicklund & Gollwitzer, 1981; Wicklund & Rise, 2008).

Several investigations in consumer contexts support the proposition that individuals compensate symbolically for deficient self-views. Across a variety of self-concept domains (e.g., careers, hobbies), those who lacked positive symbols of desired identities were especially motivated to acquire material indicators of these identities (Braun & Wicklund, 1989). For example, people who believe they are low in power favor consumer goods that symbolize power (Rucker & Galinsky, 2008). Research examining goal motivation and the use of symbolic "props" in self-presentation found that people manipulated to feel an actual:ideal self-discrepancy in fashion or career domains had stronger preferences for clothing that supported their ideal identity, and reduced motivations to actually pursue their identity goal (Samper, 2011). In related research, people who feel uncertain about their own generalized intelligence compensate by choosing products that support more positive views of their intelligence (Gao, Wheeler, & Shiv, 2008). While Gao et al.'s "shaken" self-view confidence account posits a different mechanism for this result—a lack of confidence in one's actual performance level on an attribute rather than a perceived gap between their actual abilities and an ideal—they similarly report a compensatory consumption response. In sum, consumers often respond to perceived shortcomings in the self by obtaining products that help them signal progress toward the goal state, even when they have not achieved real progress toward the goal.

Signals of desired traits or identities are not limited to material possessions. For instance, the finding that academics with weaker publication records are more likely than their more productive counterparts to include titles or degrees on email signatures suggests that people highlight their credentials to compensate for a lack of other accomplishments (Harmon-Jones, Schmeichel, & Harmon-Jones, 2009). People also have used surgery to reduce the perceived distance between their actual and ideal selves (Schouten, 1991). Wicklund and Gollwitzer (1981) found that people who feel "incomplete" in important self-concept domains (e.g., hobby, profession) are motivated to write longer instructional essays, and share these essays with more people to symbolically "complete" their self-concepts. Moreover, this type of signaling has been shown to be effective. Hilton, Gollwitzer, and Wicklund (1981) found that when influencers attempted to influence a greater number of people, observers believed they were more competent. Thus, self-enhancing signals can include not only consumption objects, but also verbal or non-verbal signals of a particular characteristic. In the present research, we examine word-of-mouth transmission as a verbal form of signaling a desired characteristic (i.e., knowledgeability).

Several researchers have viewed word-of-mouth transmission as a signaling mechanism. Chung and Darke (2006) found that consumers are more likely to transmit word-of-mouth for symbolic than for utilitarian products. In a field study examining how product characteristics impact the volume and longevity of word-of-mouth transmission, Berger and Schwartz (2011) report that people talk more about interesting (vs. less interesting) products, ostensibly because it makes them seem more interesting. Cheema and Kaikati (2010) found that individuals with a high need-for-uniqueness are less willing to transmit product information for products they consume publicly, a finding they attribute to the identity threat of others becoming more like them. Self-report surveys have shown a link between self-presentational concerns and positivity in word-of-mouth behavior (Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004; Sundaram, Mitra, & Webster, 1998). A recent study presented experimental evidence of a positivity bias in word-of-mouth among consumers who can attribute consumption outcomes to their own competence (Wojnicki & Godes, 2012). De Angelis, Bonezzi, Peluso, Rucker, and Constabile (2012) theorize and empirically demonstrate that some mixed findings on word-of-mouth valence may be explained by self-enhancement motives. They show that after experiencing negative self-views unrelated to consumption, people tend to share more positive product experiences of their own, yet negative product experiences of others. Their findings support our proposition that word-of-mouth transmission may represent a behavioral response to self-concept concerns, bolstering our prediction that people who perceive that their consumer knowledge falls short of ideals may, paradoxically, sometimes be motivated to compensate by sharing their own product knowledge more with others.

The compensatory knowledge signaling hypothesis

Three propositions follow from our review of relevant literature. First, behavioral consequences may stem not only from consumers' perception of their actual knowledge, but also from their ideal knowledge. Second, a perceived discrepancy between actual and ideal knowledge should have a specific negative emotional consequence (dejection). Third, as a positive (self-enhancing) signal of consumer knowledge, the social transmission of product information provides a means by which consumers can symbolically compensate for perceived knowledge deficiencies. Therefore, we hypothesize that dejection will mediate the relationship between the size of an actual:ideal knowledge discrepancy and intentions to transmit product information as a signal of knowledgeability (see Fig. 1).

We present four studies to test our compensatory knowledge signaling hypothesis. In Study 1, we seek evidence of the effect and its self-presentational basis by examining how a measured knowledge discrepancy impacts consumers' motivations to share their product knowledge with audiences that differ in self-concept relevance. Study 2 examines the core effect using a manipulated rather than measured knowledge discrepancy, and tests for moderation of the effect by lay beliefs in the self-enhancement benefits of transmitting word-of-mouth information. Study 3 explores the effect in a different product category and with
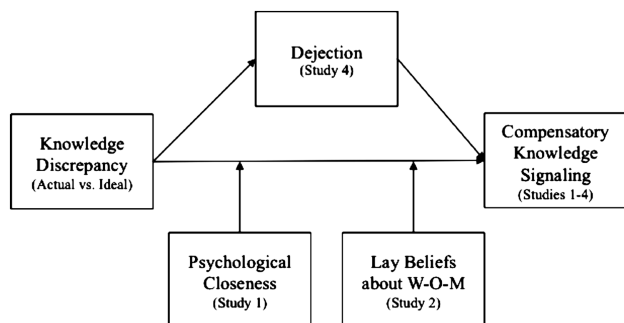
Fig. 1. Compensatory knowledge signaling conceptual model.

different dependent variables. Specifically, Study 3 investigates whether knowledge discrepancies affect word-of-mouth content in a manner consistent with our compensatory knowledge signaling account. In Study 4, we consider additional process evidence by examining the extent to which the effect is mediated by the specific affective consequence (dejection) identified in prior examinations of actual:ideal self-discrepancies. This study also provides an additional test of robustness of the basic effect by examining discrepancies in consumer knowledge at a more general as opposed to a category-specific level. Overall, the four studies are provided to assess the robustness of the hypothesized effect, examine the process by which it occurs, and evaluate our compensatory knowledge signaling account against several alternative explanations.

Study 1

This study was conducted as an initial test of our compensatory knowledge signaling hypothesis. We measured a knowledge discrepancy in music products, and manipulated psychological closeness between the word-of-mouth source and target to examine the extent to which compensatory knowledge signaling depends on the self-concept relevance of the information exchange to the information source.

Psychological closeness refers to the extent to which two people are seen as a unit of relation (Heider, 1958). Friends, family and co-workers are viewed as psychologically close because they share affective bonds and generally sustain significant and prolonged social relationships. When the psychological distance between two people is great, relations between them are likely to have little effect on the self-concepts of either (Tesser & Campbell, 1982). In contrast, the relevance and persistence of social relations with psychologically close individuals make them a primary target of self-enhancement behaviors such as identity signaling (Baumeister, 1982). Increasing the personal relevance and proximity of others has been shown to increase the extent to which people seek self-enhancing feedback from them (Tesser & Campbell, 1982; Tesser & Paulhus, 1983). For example, people were found to be more likely to misrepresent price information to a coworker than to a stranger to compensate for the self-concept threat of being perceived as an overpaying consumer (Argo, White, & Dahl, 2006, Study 3).

Some studies have found the opposite effect, that people are less (rather than more) self-enhancing when managing impressions

with friends as opposed to strangers (Leary et al., 1994; Tice, Butler, Muraven, & Stillwell, 1995). However, those studies involve face-to-face interactions with strangers that were not wholly anonymous, resulting in situations for which first impressions may have some importance. By contrast, we consider a computer-mediated word-of-mouth setting for which the stranger who receives product opinions from participants remains completely anonymous. Therefore, making a good first impression should be less important. Thus, if the effect of a consumer knowledge discrepancy is motivated by self-enhancement needs, the effect should be attenuated when the audience is anonymous, and therefore holds less self-concept relevance to the word-of-mouth source.

To recap, we predict an interaction of a knowledge discrepancy and psychological closeness such that a perceived shortcoming in consumer knowledge relative to one's ideals increases one's motivation to share product information with psychologically close, but not distant others.

Method

One hundred and thirty-nine undergraduates at a U.S. university participated in the study for partial course credit. For this study, we measured a knowledge discrepancy in music products and manipulated psychological closeness of word-of-mouth targets (close versus distant) between subjects.

Participants were told they would be testing features of a website for an online retailer of music products. Under a cover story of collecting general category usage and attitudes, we captured participant's actual and ideal knowledge (of the music category) in a manner consistent with prior research (e.g., Dittmar et al., 1996; Pham & Avnet, 2004; Sela & Shiv, 2009). The actual knowledge measure asked participants to indicate the extent to which they agreed that, "I am knowledgeable about music generally," while the ideal knowledge measure asked for their agreement with the statement, "I wish I was more knowledgeable about music generally." Both items were measured on seven point scales (1 = Not at all, 7 = Very much). Following the self-discrepancy paradigm (Higgins, 1987), the knowledge discrepancy score is represented by the algebraic difference of these two items (Ideal–Actual = Discrepancy). In the present study, we also asked participants to indicate, "How confident are you about the level of knowledge you possess regarding music?" and, "How certain are you about the level of knowledge you possess regarding music?" (1 = Not at all confident/certain, 7 = Very much confident/certain) to assess the link between a knowledge discrepancy and self-view confidence (Gao et al., 2008).

Participants then learned that they would be randomly assigned to test a feature of the retailer's website. All participants were told, "You'll provide a star rating and be able to actually share your knowledge about music products (artists, albums or songs) of your choosing as part of this research." For our dependent measures, we asked participants to indicate the number of products they wished to review and the number of people with whom they wished to share their reviews. Similar dependent measures have been used in prior research examining attempted influence as a symbolic means of conveying greater

competence in a self-relevant domain (e.g. a hobby or profession; Wicklund & Gollwitzer, 1981).

We manipulated psychological closeness by telling participants that their product reviews would be shared with either (a) their personal friends, family, or co-workers using email addresses the participants were to provide later in the study (close condition) or, (b) anonymously with study participants from other universities (distant condition). To enhance believability, we provided text fields in which participants in the psychologically close condition could write the first names of the people with whom they would later provide email addresses to share their review(s). Participants assigned to the psychologically distant condition indicated the number of anonymous participants from other universities with whom their product opinions would automatically be shared.

These measures are similar to the "Share" feature appearing on the product pages of online retailers (e.g., Amazon and Zappos). The online setting supports a stronger and more naturalistic manipulation of anonymity between the word-of-mouth source and recipient than does a scenario-based face-to-face setting. Finally, participants completed a check for comprehension of psychological closeness condition and were dismissed. Product reviews and email addresses (close condition) were not collected.

Results and discussion

Knowledge discrepancy

Participants' ideal ($M = 4.63$) and actual knowledge measures ($M = 3.92$) were differenced to generate knowledge discrepancy scores ($M = .71$). As should be the case with the use of difference scores (Johns, 1981), the two underlying components (actual and ideal knowledge) were significantly correlated ($r = .65, p < .001$).

Psychological closeness

All participants in the psychologically close condition correctly indicated that the study had invited them to share their product opinions with, "people I know personally such as friends, family and coworkers," while all participants assigned to the distant condition agreed that they had been invited to share their opinions with, "people I don't know at other universities."

Main results

We performed OLS regressions to test for our predicted interaction of knowledge discrepancy (as a continuous measure) and psychological closeness on intentions to transmit word-of-mouth information.

Examination of the number of product reviews shared revealed no main effects for knowledge discrepancy ($\beta = .18$, $t(136) = 1.30$, $p = .20$) and psychological closeness (effects coded; $\beta = -.28$, $t(136) = -1.41$, $p = .16$). As predicted, we observed a significant interaction of the two terms ($\beta = .43$, $t(136) = 3.11$, $p < .01$). Slopes analysis reveals a significant, positive slope of knowledge discrepancy given psychologically close word-of-mouth targets ($\beta = .61$, $t(136) = 3.05$, $p < .01$) and a non-significant negative slope of discrepancy given distant targets ($\beta = -.25$, $t(136) = -1.32$, $p = .19$; see Fig. 2A).

A similar pattern of effects is revealed for the number of people with whom the reviews were to be shared. Non-significant

main effects for knowledge discrepancy ($\beta = .03$, $t(136) = .14$, $p = .89$) and psychological closeness ($\beta = -.05$, $t(136) = -.16$, $p = .87$) were accompanied by a significant interaction of the two ($\beta = .63$, $t(136) = 2.87$, $p < .01$). Slopes analysis reveals a significant, positive slope of knowledge discrepancy given a close target ($\beta = .66$, $t(136) = 2.06$, $p < .05$), and a negative slope for discrepancy given distant targets ($\beta = -.60$, $t(136) = 1.99$, $p < .05$; see Fig. 2B).

In sum, for psychologically close targets, a knowledge discrepancy increased the motivation to transmit word-of-mouth information. In contrast, for psychologically distant targets who should hold little self-concept relevance, there was a null or negative effect of a knowledge discrepancy on intentions to share consumer knowledge.

Knowledge confidence

We considered the possibility that our results could be attributed to confidence effects. Self-view confidence is defined as the certainty one has in thoughts related to the self (DeMarree, Petty, & Brinol, 2007), and can be "shaken" (Gao et al., 2008) by situational factors that destabilize believes about one's actual characteristics. Shaken confidence in a salient or self-relevant domain has been shown to produce compensatory responses such as proselytizing (Gal & Rucker, 2010) and exhibiting preferences to acquire self-bolstering symbolic objects (Gao et al., 2008).

The mean of two items ($r = .83$, $p < .001$) used to measure self-view confidence had a non-significant, negative relationship with the knowledge discrepancy measure ($r = -.05$, $p = .68$). Thus, we did not find a statistical link between a knowledge discrepancy and knowledge confidence. We also added knowledge confidence to our main regression analysis as a covariate to assess whether it affected our dependent measures. For the number of products reviewed, the knowledge confidence covariate was positive and significant ($\beta = .30$, $t(134) = 2.31$, $p < .05$), indicating that those who were confident in their level of consumer knowledge intended to review more products. The focal knowledge discrepancy by psychological closeness interaction remained significant after including the confidence covariate in the model ($\beta = .41$, $t(134) = 3.00$, $p < .01$). As for the second dependent measure, the knowledge confidence covariate was not linked to the number of people with whom the product reviews were to be shared ($\beta = .10$, $t(134) = .50$, $p = .62$), and its inclusion in the model did not negate the significance of the key knowledge discrepancy by psychological closeness interaction ($\beta = .62$, $t(134) = 2.82$, $p < .01$). Overall, these results suggest that while knowledge self-confidence may have a simple positive relationship with word-of-mouth transmission, any such effect operates independently of knowledge discrepancies.

Goal aspiration

It is plausible that the level of participants' ideal knowledge, alone, is responsible for the compensatory communication effect. Indeed, the goal aspiration literature is grounded in self-regulatory theories of motivation (Austin & Vancouver, 1996). Whereas some studies manipulate compensatory behavior by reducing actual self-concepts (e.g., low power; Rucker & Galinsky, 2008)
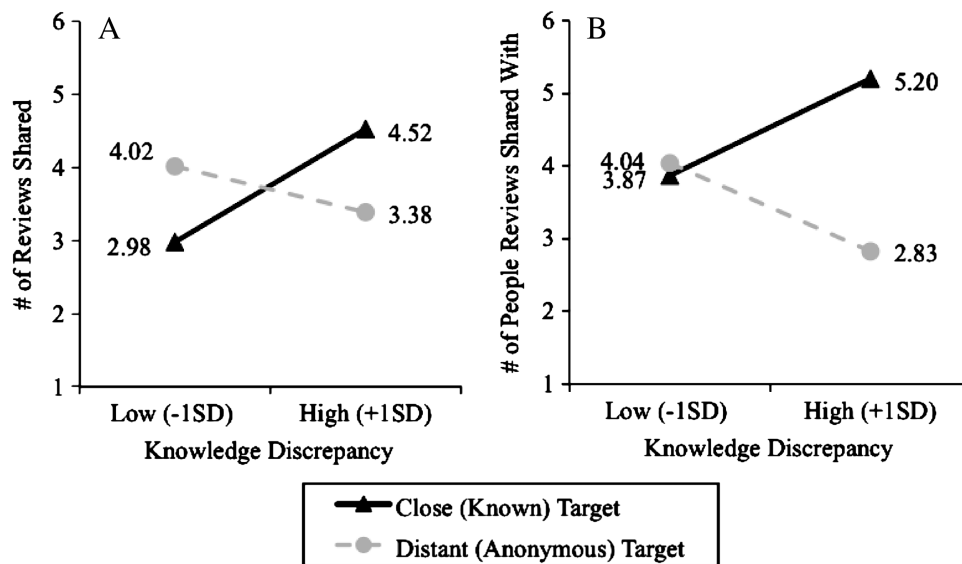
Fig. 2. Study 1: Moderation by psychological closeness.

and others elevate ideal selves (Pham & Avnet, 2004), the literature supports the notion that the cognitive contrast between the two selves should be most predictive of compensatory behavior (Carver & Scheier, 1990; Custers & Aarts, 2007; Higgins, 1987).

Research on the use of difference scores proposes that a significant increment in variance explained should be observed for a difference score model (as a simultaneous two-factor regression model) over independent regression models for each of the two underlying components alone (Edwards, 1994). Accordingly, we assess the incremental contribution of the knowledge discrepancy construct by comparing the model for knowledge discrepancy to models containing continuous measures of actual and ideal knowledge as independent predictors of word-of-mouth intentions in the psychologically close condition.

Regarding the number of music reviews to be shared, we observed a significant improvement in variance explained from the ideal knowledge model (r-squared = .36) to the knowledge discrepancy model (r-squared = .47; $F(2, 68) = 10.26, p < .01$). The same is true for the discrepancy model versus the actual knowledge model (r-squared = .23; increment in r-squared from actual to discrepancy ($F(2, 68) = 22.50, p < .01$).

We observed similar improvements when the discrepancy model was used to predict the number of people with whom reviews were to be shared, with a significant increment in variance explained from the ideal knowledge model (r-squared = .16) to the knowledge discrepancy model (r-squared = .25; $F(2, 68) = 6.15, p < .05$). The same was true for the discrepancy model versus the actual knowledge model (r-squared = .18; increment in r-squared from actual to discrepancy ($F(2, 68) = 4.81, p < .05$). Therefore, the knowledge discrepancy measure offered better explanatory power for word-of-mouth intentions than either the actual knowledge or ideal knowledge measures alone.

Discussion

This study provides preliminary support for our compensatory knowledge signaling hypothesis, and reveals a boundary condition for the effect. As predicted, for psychologically close communication targets, a knowledge discrepancy led to greater intentions to transmit information to others. By contrast, for psychologically distant (anonymous) targets, a knowledge discrepancy had a null (number of products) or negative (number of people) effect on knowledge transmission, suggesting that in the absence of a self-relevant audience for signaling purposes, knowledge discrepant individuals follow the normative expectation of pursuing a smaller "conversational contribution" (Grice, 1991). This pattern of results is consistent with our compensatory knowledge signaling account. We also found that the effect of knowledge discrepancies persisted even after accounting for any effects of shaken self-confidence. Lastly, the discrepancy between the two knowledge measures offered greater explanatory power than did either the actual or ideal knowledge measures alone.

Study 1 is limited by its use of single item measures for each knowledge construct. We also did not counterbalance the order in which the two measures were collected. We avoid both of these limitations in subsequent studies.

Study 2

In Study 2, we seek to replicate findings from Study 1 and offer additional support for our compensatory knowledge signaling account. Prior research has proposed that people share product knowledge in part for self-enhancement motives. Market mavens are said to share information partly because it makes them feel good about themselves (Walsh, Gwinner, & Swanson, 2004). Dichter's (1966, p. 150) articulation of the self-involvement motive described interview participants who said that knowing others might follow their product recommendations makes them "feel good" or confirms to others their status as pioneers. Similarly, a survey on word-of-mouth at consumer opinion websites revealed a self-enhancement factor related to participants who agreed that they demonstrate their cleverness by posting product opinions online (Hennig-Thurau et al., 2004). Research outside the word-of-mouth domain also has found that

participants believe that attempting to teach others about a hobby or profession helps them advance toward a more positive self-view (Wicklund & Gollwitzer, 1981, study 4). Thus, we predict that the positive relationship between a knowledge discrepancy and word-of-mouth intentions will be amplified (attenuated) among those who believe (do not believe) that transmitting product information sends a positive (self-enhancing) signal.

Wicklund and Gollwitzer (1981) identified attempted influence as one means by which those who possess low standing in a self-relevant domain can "self-symbolize." Tests of this symbolic self-completion theory have primarily focused on self-symbolizing by individuals with low levels of objective experience or knowledge. In contrast, we propose that self-symbolizing can occur even at high levels of objective knowledge, as long as individuals perceive an unfavorable gap between their actual and ideal knowledge. Indeed, experts who are particularly well-equipped to "know what they don't know" are as likely as novices to perceive their own intellectual shortcomings (Kruger & Dunning, 1999). Recent research examining the desire to obtain more consumer knowledge found that both novices and experts seek out experiences to enhance their own knowledge about products and services (Clarkson, Janiszewski, & Cinelli, 2013). For Study 2, we control for objective knowledge using a measure captured independently of the participant's perceived actual and ideal knowledge in order to demonstrate that the effect is not limited to individuals with low levels of objective domain ability as implied by Wicklund and Gollwitzer's (1981) symbolic self-completion theory.

Method

Study 2 manipulates a knowledge discrepancy (high vs. low) in the domain of music products and measures the belief that sharing word-of-mouth is self-enhancing. Sixty-four undergraduates (28 female) from a Canadian university participated in the study for partial course credit.

As in Study 1, participants were told they would be testing features of an online music retailer. However, in this study only, participants were first assigned to test the fictional website's music trivia game, entailing seven factual, multiple-choice questions about popular music selected for general familiarity among undergraduates. Multiple-choice tests of factual information have been previously applied as objective measures of consumer knowledge (Park et al., 1994). After completing the trivia game, participants estimated how many questions they answered correctly, providing a measure of knowledge confidence (Alba & Hutchinson, 2000).

We next manipulated high and low knowledge discrepancies using an established method of priming the accessibility of ideal (vs. actual) self-concepts (cf. Higgins & King, 1981; Higgins et al., 1986, study 2). Participants in the low knowledge discrepancy condition completed three essay tasks describing: (1) how "savvy" they actually are as consumers of music, (2) up to 10 attributes they believe they possess as music consumers, and (3) any change over the years in how knowledgeable they actually are about music. In the high discrepancy condition, participants

described ideal levels for the same three tasks (e.g., how "savvy" they *ideally would be* as consumers of music). Full detail of the priming tasks is provided in Appendix A of the online supplement. As a manipulation check, we then measured participant's actual and ideal music knowledge (order counterbalanced) using three items. The three actual (ideal) music knowledge measures assessed the extent to which participants agreed that: "I am (wish I was more) knowledgeable about music generally," "I am a savvy (would like to be a savvier) music consumer," and "I am (would ideally be more) well informed about music products and services" (1 = not at all, 7 = very much; actual vs. ideal knowledge item set order was counterbalanced).

Participants then tested the website's product reviews feature, for which they were told, "You'll provide a star rating and be able to share your knowledge about music products (artists, albums or songs) of your choosing." We asked participants to indicate how many products they wished to review (min = 0, max = 7) and invited them to list the first names of people with whom they planned to share their product opinions by email (min = 0, max = 7). Finally, to measure lay beliefs regarding the self-enhancing benefits of transmitting word-of-mouth information, participants indicated the extent to which they thought that sharing their product opinions, "Helps me feel like a more knowledgeable person," "Boosts my self-esteem," and "Leaves me feeling good about myself" (1 = "not at all", 7 = "very much").

Results and discussion

Knowledge discrepancy

The mean of the three actual (α = .84) and ideal (α = .81) knowledge items were differenced to form the knowledge discrepancy score (r_D = .79; Johns, 1981). The two underlying components were again significantly correlated (r = .40, p < .01). Participants in the high discrepancy condition reported higher knowledge discrepancies (M = 1.21) than did those in the low discrepancy condition (M = .02; F(1, 61) = 7.50, p < .01). In terms of the underlying components, participants' ideal knowledge scores were higher in the high (M = 5.14) than in the low discrepancy condition (M = 4.08; F(1, 61) = 10.55, p < .01). Actual knowledge scores did not differ by discrepancy condition ($M_{high\ discrepancy}$ = 3.94, $M_{low\ discrepancy}$ = 4.06; F < 1). The order in which the actual versus ideal knowledge measures were collected did not affect the manipulation (F < 1). The types of consumer knowledge attributes and abilities elicited in the knowledge discrepancy priming tasks are summarized in Appendix B of the online supplement.

Regarding our measure of objective knowledge, participants correctly answered an average of 2.59 trivia questions (SD = 1.32), as compared to their average estimate of 2.75 (SD = 1.20). The mean of the quotient of these two items across participants (actual/estimated correct − 1 = .10) suggests a slight level of overconfidence similar to the typically observed range (Alba & Hutchinson, 2000, p. 130). The correlation of the objective knowledge measure with our actual knowledge measure also indicates a positive relationship (r = .39, p < .01) at a level similar

to that reported in Carlson et al.'s (2009) consumer knowledge meta-analysis.

Main results

We used regressions to assess how knowledge discrepancy condition, the belief that sharing product knowledge is self-enhancing (average of three items as a mean-centered continuous variable, $\alpha = .85$), and the interaction of the two terms affected each dependent measure. First, we examined the number of product reviews shared, which revealed a marginally significant main effect of knowledge discrepancy condition ($\beta = .37$, $t(61) = 1.80$, $p < .10$), a significant effect of self-enhancing beliefs ($\beta = .55$, $t(61) = 3.54$, $p < .01$), and a significant discrepancy by self-enhancing beliefs interaction ($\beta = .33$, $t(61) = 2.11$, $p < .05$; Fig. 3A).

To decompose the interaction, we examined the slopes of knowledge discrepancy condition at one standard deviation above and below the mean of self-enhancing beliefs. For high self-enhancing beliefs (+1SD), we observed a significant and positive slope of knowledge discrepancy ($\beta = .81$, $t(61) = 2.77$, $p < .01$). In contrast, we observed a non-significant negative slope for low self-enhancing beliefs ($\beta = -.07$, $t(61) < 1$; see Fig. 3A). That is, a knowledge discrepancy motivated people who strongly believed that sharing product reviews is self-enhancing to transmit more reviews ($M_{high\ discrepancy} = 5.21$ vs. $M_{low\ discrepancy} = 3.59$). However, knowledge discrepancies among those with low beliefs that sharing word-of-mouth is self-enhancing did not affect knowledge transmission intentions ($M_{high\ discrepancy} = 2.83$ vs. $M_{low\ discrepancy} = 2.98$).

We found similar effects for the number of people with whom the reviews were to be shared. Main effects for knowledge discrepancy ($\beta = .81$, $t(61) = 4.01$, $p < .001$) and self-enhancing beliefs ($\beta = .72$, $t(61) = 4.74$, $p < .001$) were qualified by a marginal interaction of the two ($\beta = .27$, $t(61) = 1.75$, $p < .10$). For high self-enhancing beliefs (+1SD), there was a significant positive slope of knowledge discrepancy ($\beta = 1.17$, $t(61) = 4.06$, $p < .001$) such that participants in the high

knowledge discrepancy condition intended to share their opinions with more people ($M = 5.86$) than those in the low discrepancy condition ($M = 3.52$). The slope of knowledge discrepancy condition was positive but non-significant given low ($-1SD$) self-enhancing beliefs ($M_{high\ discrepancy} = 3.18$ vs. $M_{low\ discrepancy} = 2.30$; $\beta = .44$, $t(61) = 1.54$, NS; Fig. 3B).

Conditioning on objective knowledge

We used ANCOVA to assess how knowledge discrepancy, objective knowledge (the trivia score as a continuous covariate), and their interaction affected our two dependent measures. After adding the covariate, we sustained a marginal effect of a knowledge discrepancy on the number of product reviews to be shared ($F(1, 60) = 3.01$, $p < .10$), and a significant effect of a knowledge discrepancy on the number of people with whom these reviews would be shared ($F(1, 60) = 8.30$, $p < .01$). We did not find a significant effect of objective knowledge on either dependent measure ($Fs < 1$), nor did we find a significant interaction between knowledge discrepancy and objective knowledge for either the number of reviews to be shared ($F < 1$) or the number of people with whom these reviews would be shared ($F(1, 60) = 2.26$, $p = .14$). In short, our effect occurred independently of objective knowledge.

Knowledge confidence

While we did not find evidence that self-view confidence was linked to compensatory knowledge signaling in Study 1, it is plausible that the manipulation (as opposed to measurement) of a perceived shortcoming in consumer knowledge negatively impacted participant's confidence in this knowledge. While self-view confidence pertains more to certainty (i.e., low variance) than to level (i.e., high mean) of one's beliefs about the self, we might find lower estimates of one's actual knowledge from those who were manipulated to perceive high knowledge discrepancies than from those who were not. This possibility is not supported—there was no difference in means of the three actual knowledge measures for
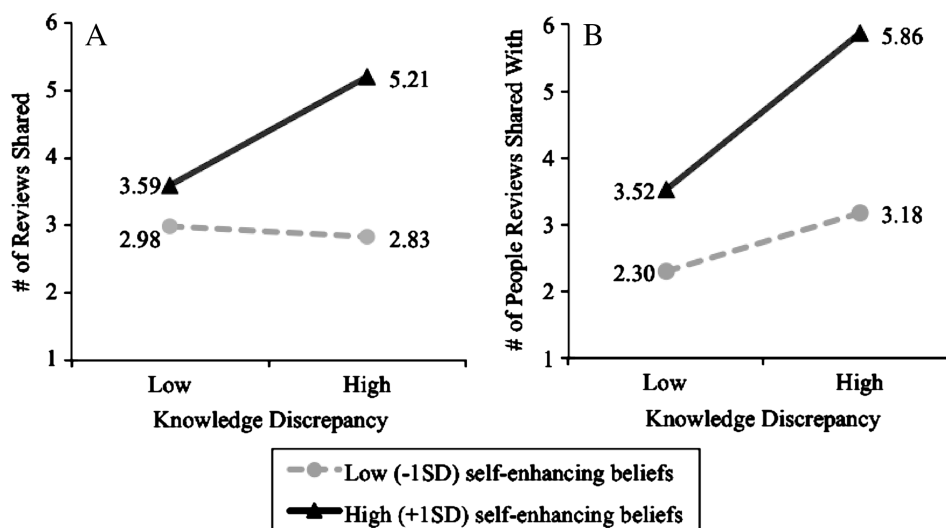

Fig. 3. Study 2: Moderation by lay beliefs in self-enhancing benefit of word-of-mouth.

those in the high ($M = 3.94$) versus low ($M = 4.06$) knowledge discrepancy conditions ($F < 1$).

Goal aspiration

We again report the results of Edwards' (1994) increment in variance explained test for difference scores. For the number of reviews to be shared, we found a significant improvement in variance explained from the ideal knowledge (r-squared = .14) to the knowledge discrepancy model (r-squared = .23; $F(2, 61) = 7.13$, $p < .01$). The same is true for the discrepancy model versus actual knowledge (r-squared = .18; increment in r-squared from actual to discrepancy ($F(2, 61) = 3.96$, $p < .05$).

For the number of people with whom reviews were to be shared, we also found a significant increment in r-squared from the ideal knowledge model (r-squared = .23) to the knowledge discrepancy model (r-squared = .40; $F(2, 61) = 17.28$, $p < .001$). The same was true for the discrepancy model versus actual knowledge (r-squared = .25; increment in r-squared from actual to discrepancy ($F(2, 61) = 15.25$, $p < .001$). This replicates the findings of Study 1 regarding the relative strength of the knowledge discrepancy measure as a predictor of word-of-mouth intentions compared to actual or ideal knowledge alone.

Discussion

This study provides further support for our hypothesized effect. Participants with manipulated knowledge discrepancies intended to write marginally more product reviews and transmit them to significantly more people. Consistent with our compensatory knowledge signaling account, the effect was moderated by beliefs in the self-enhancing benefits of sharing word-of-mouth information. For those with high (low) self-enhancing beliefs, there was a significant positive (null) effect of a knowledge discrepancy on intentions to write and share product reviews. The effect was not limited to those who were low in objective consumer knowledge.

Study 3

If the effects of a knowledge discrepancy on knowledge sharing intentions reflects a desire to send self-enhancing signals of one's consumer knowledge, then we should find evidence of greater identity signaling (i.e. self-presentational) effort in the word-of-mouth transmissions of individuals with high (vs. low) knowledge discrepancies. In Study 3, we analyze the content of participant-written reviews using measures that are consistent with attempts at positive (self-enhancing) signaling. Specifically, we predict that the content of word-of-mouth transmissions shared by participants with high (vs. low) knowledge discrepancies will reflect greater effort to write the review, include more self-centered content, utilize more complex language, and be more positive about the reviewed product.

Regarding effort, the asynchronous nature of technology-mediated communication allows a person to increase the amount of time they spend constructing a self-presentational message with less social awkwardness than in face-to-face interactions (Ellison, Heino, & Gibbs, 2006; Hesse, Werner, & Altman, 1988). Examinations of self-presentation in online contexts find that the number of words written and time spent writing on discussion boards increase under heightened self-presentational motives (Walther, 2007).

As for self-centered content, it is axiomatic that self-presentation requires highlighting aspects of the self. Talking about the self is a primary means of constructing favorable impressions (Schlenker, 1980). In the linguistic psychology paradigm, textual content indicative of self-presentation motives has been measured by the extent of first-person singular (I, me, my) and personal pronoun use (you, we, us), which are positively linked to high self-involvement (Davis & Brock, 1975) and a desire to draw attention to the self (Rude, Gornter, & Pennebaker, 2004).

As for language complexity, people who are motivated to send positive signals of their knowledgeability are likely to do so by using more complex sentences (Walther, 2007), and there may be good reason for doing so — greater lexical complexity and diversity in speech coincide with more positive perceptions of the communication source (Bradac, Courtwright, & Bowers, 1980).

Regarding positivity, experts have been found to transmit positive word-of-mouth as a means of signaling their expertise, thereby bolstering their identities as knowledgeable consumers (Wojnicki & Godes, 2012). Berger and Milkman (2012) find that positive word-of-mouth information is more "viral" in online contexts, possibly because it reflects positively on the sender. Similarly, Hennig-Thurau et al. (2004) report correlational evidence relating self-enhancement to word-of-mouth positivity. In addition, a study on language use by anorexics in online homepages and message boards linked positivity (as identified through positive emotion words in linguistic psychology research) to efforts to present favorable (self-enhancing) images of the self (Lyons, Mehl, & Pennebaker, 2006). While self-presenters tend to present themselves more positively, Amabile (1983) found that people perceive negative evaluators of intellectual products as more intelligent (albeit less likeable) than positive evaluators. However, Amabile's study did not consider whether people who wish to be perceived by others as intelligent actually pursue negativity as a signaling strategy. Recent research by De Angelis et al. (2012) may help elucidate evaluative valence and positive self-presentations in word-of-mouth. They found a positivity bias when consumers share their personal product experiences via word-of-mouth. However, they also found one condition under which consumers self-enhance through negativity. Specifically, people sometimes gossip about the consumption-related misfortunes of others, thereby enhancing their private and/or public self-concepts through downward social comparisons. The present study attempts to minimize the potential for the latter effect to occur by having participants share their own product experiences.

Method

One hundred and ten undergraduate students (60 females) from a U.S. university completed the study for partial course credit and were randomly assigned to either high or low knowledge discrepancy conditions. The procedure was similar to Studies 1 and 2, but used movies as the focal product category. Participants were again told they would be testing a feature of a retail website. Under a cover story of collecting category usage

and attitudes, we manipulated movie knowledge discrepancies using the same procedure as in Study 2. The objective knowledge measure from Study 2 (trivia game) was not used in the present or subsequent study. Participants next "tested" the website's product reviews feature by sharing their opinion about the last movie they saw in theaters. Participants were told that other research participants would be answering questions about their reviews, and that they would share their reviews with people they knew personally via email as part of the research (enabling a replication of the second dependent variable from Studies 1 and 2). Participants chose a movie from a drop-down list of all movies released in North America over the prior three months (November 2011–January 2012). If the last movie they saw did not appear on this list, participants entered a movie name in a text box. Participants provided a textual movie review and rating (1 to 5 stars). Email addresses were never collected and participant reviews were never shared with others.

To explore the possibility that compensatory knowledge signaling is driven by a desire to *actually* increase one's consumer knowledge by obtaining feedback from others (i.e. self-improvement), we asked participants to indicate the extent to which they wished to see the feedback that other research participants would provide about their reviews (1 = not at all interested in seeing feedback; 7 = very much interested in seeing feedback), and whether or not they wanted feedback from the people to whom they might email their reviews (yes, no).[2] Finally, we administered Zaichkowsky's (1994) 10-item involvement scale to assess the possibility that the priming tasks manipulated category involvement.

Word-of-mouth content measures

Measurement items for the content analysis were obtained from four sources. Many of the items were generated using LIWC, an application commonly used in linguistic psychology (Pennebaker, Booth, & Francis, 2007; www.liwc.net). The majority of LIWC items assess the prevalence of words that have been empirically validated for their fit with specific psychological constructs. For example, the "positive emotion" item assesses the proportion of words in a corpus of text (e.g., a product review) that match a dictionary of 408 words such as "best," "good" and "love." Confer Tausczik and Pennebaker (2010) for a review of the psychometric properties of LIWC items as revealed in their use in over 100 peer-reviewed publications.

Time spent writing (provided by the survey software) and the number of words written (LIWC) are our two measures of the effort expended to generate the movie review. To capture self-involvement, we used LIWC's self-references (first-person singular pronouns; e.g., I, me, my) and personal pronoun (e.g., you, we, us) items. For a third item, we asked two independent judges to code whether each participant talked about themselves in addition to talking about the particular movies they reviewed. Initial coder agreement was 89%, with disagreements resolved by discussion.

For language complexity, we used the raw number of words per sentence statistic from LIWC and a statistic that combines

the number of words per sentence and number of syllables per word as an indicator of sentence complexity (Flesch-Kincaid readability test, 2012). We also report a set of three LIWC items recommended in Tausczik and Pennebaker (2010) as indicators of lexical complexity (prepositions, cognitive mechanisms, and words greater than six letters).

Our first measure of review positivity used the positive emotion item in LIWC (Lyons et al., 2006). Two independent judges also coded thought valence (Brinol, Petty, Valle, Rucker, & Becerra, 2007), a method applied similarly in recent research examining self-enhancement in word-of-mouth (De Angelis et al., 2012). Specifically, judges were instructed to count the positive, neutral and negative thoughts in each review. Subtracting the number of negative thoughts from positive thoughts and dividing this by total thoughts produces a positivity index ranging from zero to one. Initial agreement on thought valence was 72%, with a high inter-judge correlation for the positivity index ($r = .86$, $p < .001$). Disagreement was resolved by discussion. The third item capturing review positivity was the participant's product rating (from 1 to 5 stars).

Results and discussion

Knowledge discrepancy

The manipulation check items for actual ($\alpha = .89$) and ideal ($\alpha = .94$) knowledge were averaged and differenced to produce the knowledge discrepancy score ($r_D = .89$). As in prior studies, the components underlying the discrepancy score were correlated ($r = .26$, $p < .01$). Measurement order (counterbalanced) did not affect the actual knowledge ($F(1, 107) = 1.47$, $p = .23$), ideal knowledge or discrepancy scores (Fs < 1). Participants in the high discrepancy condition had higher knowledge discrepancies ($M = .65$) than those in the low discrepancy condition ($M = −.44$; $F(1, 107) = 9.80$, $p < .01$). Participants' ideal knowledge was marginally higher for those in the high ($M = 4.50$) than in the low discrepancy condition ($M = 3.94$; $F(1, 107) = 3.27$, $p < .10$). There was no difference in actual knowledge by condition ($M_{\text{high discrepancy}} = 3.91$ vs. $M_{\text{low discrepancy}} = 4.23$; $F(1, 107) = 1.60$, $p = .21$). The prime did not affect movie category involvement ($\alpha = .90$; $F(1, 108) = 1.94$, $p = .17$).

Motivation to transmit word-of-mouth

Consistent with our previous studies, participants in the high discrepancy condition intended to share their product reviews with more people ($M = 5.58$) than did their counterparts in the low discrepancy condition ($M = 4.87$; $F(1, 108) = 3.65$, $p = .06$), although the effect was marginal. An analysis of the incremental explanatory power of the discrepancy model over the model that includes only aspiration levels reveals a significant improvement for the discrepancy model (r-squared = .33) over the ideal model (r-squared = .23; increment in r-squared $F(1, 107) = 15.97$, $p < .001$) and actual model (r-squared = .10, increment in r-squared $F(1, 107) = 36.73$, $p < .001$), again supporting our use of knowledge discrepancies as predictors and our interpretation of the effect as compensatory rather than driven by aspiration level alone.

Word-of-mouth content

We conducted multivariate analysis of variance (MANOVA) to assess whether a knowledge discrepancy had a significant effect on each set of measures for the four linguistic content dependent variables. We found a significant multivariate effect for all four dependent measures: review writing effort (Wilks' $\lambda = .94$, $F(2, 107) = 3.21$, $p < .05$), review positivity (Wilks' $\lambda = .89$, $F(3, 103) = 4.38$, $p < .01$) language complexity, (Wilks' $\lambda = .89$, $F(5, 103) = 2.62$, $p < .05$), and self-involvement (Wilks' $\lambda = .95$, $F(3, 106) = 2.73$, $p < .05$). Results for the individual items underlying the four dependent measures are presented in Table 1. The pattern of results is consistent with our knowledge signaling explanation for all four multivariate dependent variables, and for 11 of the 13 individual measurement items (4 of 11 item-level effects were marginal).

Feedback-seeking

Participants' desires to obtain feedback from other participants to possibly improve their consumer knowledge did not differ by knowledge discrepancy condition ($M_{\text{high discrepancy}} = 2.87$ vs. $M_{\text{low discrepancy}} = 3.38$, ($F(1, 108) = 1.83$, $p = .18$), nor did the proportion seeking feedback from friends with whom they intended to share their reviews (High discrepancy = 25.9%, Low discrepancy = 38.5%; ($\chi^2(1) = 1.91$, $p = .17$). This result suggests that the effect we observe is not likely driven by consumer efforts to *actually* improve their consumer knowledge by obtaining feedback about their opinions from people they know.

Discussion

Study 3 corroborates our compensatory knowledge signaling account with evidence from content-based measures drawn from linguistic psychology. Our analysis of the content of movie reviews written by participants reveals that those who perceived their movie knowledge to fall short of ideals expended greater effort to write their reviews, exhibited higher levels of positivity, focused more on themselves, and demonstrated higher degrees of lexical complexity than did their counterparts in the low discrepancy condition. These four variables have previously been associated with self-presentation in general or displays of knowledge in particular. Finally, consistent with Samper's (2011) results, the findings from Study 3 provide some evidence that compensatory knowledge signaling is not accompanied by a desire to actually become more knowledgeable. Knowledge discrepant participants were not more interested in receiving feedback than were their counterparts without knowledge discrepancies.

Study 4

In Study 4, we seek evidence of the process by which knowledge discrepancies lead to compensatory knowledge signaling. Higgins and colleagues find that the belief that one's attributes fall short of personal ideals is associated with specific feelings of disappointment and dissatisfaction, which they describe as dejection (Higgins, 1987; Higgins et al., 1986). This specific negative emotion is said to act as the impetus for behaviors pursued to reduce perceived discrepancies between actual and ideal self-concepts. Thus, we expect to find that items capturing dejection mediate the effect of perceived knowledge discrepancies on intentions to transmit product knowledge.

We further use this study to test a knowledge discrepancy manipulation more consistent with the literature that has previously examined the relationship between consumer knowledge beliefs and word-of-mouth transmission. Although consumer knowledge researchers often focus on knowledge at the product category level (as we operationalized in Studies 1–3), the word-of-mouth literature also examines consumer knowledge beliefs at a more general level. For example, the well-known market maven scale (Feick & Price, 1987) explicitly links generalized consumer knowledge with the motivation to transmit word-of-mouth. Engel et al. (1969) examine the proposition that people who are generally among the first to adopt new products ('Innovators') like to think of themselves as more knowledgeable consumers, and share more word-of-mouth information to assert this status. Opinion leader's knowledge sharing has been linked to both domain-specific and generalized knowledge beliefs (Gnambs & Batinic, 2011; Katz & Lazarsfeld, 1955). Applied to the present research, consumers could feel that their general consumer knowledge falls short of ideals, and use a temporally salient product category to compensate for their knowledge discrepancy. By following this thinking in Study 4, we help bridge the consumer knowledge and word-of-mouth literatures, and also further enhance the robustness of our effect by using a broader, and potentially weaker, knowledge discrepancy manipulation.

Method

Fifty-two undergraduate students (33 females) from a U.S. university completed the study for partial course credit and

Table 1
Study 3: Compensatory knowledge signaling in word-of-mouth content.

Content measure	Measure source	Knowledge discrepancy		Test statistic [a]
		Low	High	
Effort				
Time writing (s)	Survey tool	155.23	207.74	2.54 *
Number of words	LIWC (wc)	60.51	79.78	2.06 *
Self-involvement				
Self-references	LIWC (i)	3.04	4.51	2.32 *
Personal pronouns	LIWC (ppron)	4.71	5.96	1.82 [+]
Talk about selves	Judges	27.3%	43.6%	3.22 [+]
Language complexity				
Grade level readability	Flesch–Kincaid	7.83	8.65	1.69 [+]
Words per sentence	LIWC (wps)	15.64	18.27	2.30 *
Prepositions	LIWC (prep)	9.91	12.24	2.78 **
Cognitive mechanisms	LIWC (cogmech)	14.59	16.59	1.70 [+]
Words > 6 letters	LIWC (sixltr)	19.84	18.42	−0.98
Positivity				
Positive emotion	LIWC (posemo)	5.60	7.30	2.18 *
Thought valence	Judges	0.25	0.49	2.37 *
Product rating	Survey	3.45	3.78	1.56

[a] All t-statistics except "Talk about selves", which is Chi-square.
** $p < .01$.
* $p < .05$.
[+] $p < .10$.

were randomly assigned to one of two manipulated knowledge discrepancy conditions (high, low).

In the present study we manipulated a generalized rather than a category-specific discrepancy in consumer knowledge using the same priming method as in Studies 2–3. This is achieved by simply removing the category name from each task (see Appendix A of the online supplement). After the priming tasks, participants responded to scale items from the MAACL (Zuckerman & Lubin, 1965) used to assess levels of dejection in prior research on actual:ideal self-discrepancies (items: "disappointed," "discouraged," "gloomy;" reverse items: "happy," "satisfied," "proud"). We also captured scale items pertaining to agitation, a different negative emotion that has been empirically linked to actual:ought self-discrepancies (items: "anxious," "restless," "fearful"; reverse items: "calm," "confident," "rested"). Both scales were measured on a six-point scale anchored by "0. Not at all" and "5. Very much". Considering agitation allows us to assess the possibility that we might also be priming societal expectations regarding one's consumer knowledge (an actual:ought self-discrepancy; Higgins, 1987), or alternatively, that the anxiety and agitation related to a lack of self-view confidence is linked to our results.

Participants next completed a website feature testing study similar to the one used in prior studies, except they were able to select one of three product categories: books, music or movies. This reduces potential concerns that we may have induced compensatory knowledge signaling by constraining the behavioral response options to a single category. For dependent measures, we asked participants to indicate how many products they wished to review and to list the first names of people with whom they would like to share their reviews by email.

Results and discussion

Knowledge discrepancy

The three manipulation check items for the actual ($\alpha = .87$) and ideal ($\alpha = .85$) consumer knowledge beliefs were averaged and differenced to produce the knowledge discrepancy score ($r_D = .89$). The priming procedure was successful. Participants in the high discrepancy condition had significantly higher discrepancy scores ($M = .94$) than did their low discrepancy counterparts ($M = -.22$; $F(1, 50) = 5.18$, $p < .05$). Participants' ideal knowledge was higher in the high ($M = 5.52$) than in the low discrepancy condition ($M = 4.45$; $F(1, 50) = 7.09$, $p = .01$). We again found no significant difference in means of the actual knowledge measures in the high ($M = 4.58$) versus low ($M = 4.81$) discrepancy conditions ($F < 1$).

Product category

Of the study's 52 participants, 30 (58%) chose movies, 14 (27%) music, and 8 (15%) selected books. Analysis of variance revealed no main effects for product category selected on the knowledge discrepancy manipulation or the two dependent variables ($Fs < 1$). We collapsed the categories in analysis.

Negative affect

ANOVA was used to examine the effect of a knowledge discrepancy on the mean of the six dejection scale items ($\alpha = .84$).

Principal component analysis supported a single factor solution, with all but one item loading above .70 ("proud" item = .47). We excluded the proud scale item from the mean of the dejection scale items ($\alpha = .87$) in analysis. Similarly, for the six agitation items ($\alpha = .69$), scale reliability was improved to $\alpha = .78$ by removing one item that loaded below .70 in PCA ("rested" item = .05). The results of the analysis that follows were the same with or without these two scale items. Separate regression analysis for each of the "proud" and "rested" items as continuous predictors of our dependent measures did not reveal significant relationships between these variables ($ts < 1.30$, $ps > .20$). Confirmatory factor analysis using structural equation modeling supports dejection and agitation as two separate factors ($\Delta \chi^2(2)$ vs. a single factor model $= 38.52$, $p < .0001$).

We observed a main effect of knowledge discrepancy on the mean of the five dejection items ($F(1, 50) = 7.48$, $p < .01$). Dejection was higher in the high ($M = 2.66$) than in the low discrepancy condition ($M = 1.98$). There were no effects for product category selected or the knowledge discrepancy by product category interaction on dejection ($Fs < 1$). There was no statistical relationship between our knowledge discrepancy measure (an actual:ideal self-discrepancy) and the mean of the five agitation items previously associated with an actual:ought self-discrepancy ($F(1, 50) = 1.52$, $p > .20$).

Main results

Consistent with our previous studies, participants in the high discrepancy condition intended to share more product reviews ($M = 5.29$) than did those in the low discrepancy condition ($M = 3.83$; $F(1, 50) = 4.47$, $p < .05$). Those in the high knowledge discrepancy condition also intended to share their reviews with more people ($M = 6.39$) than did their counterparts in the low discrepancy condition ($M = 4.88$; $F(1, 50) = 5.08$, $p < .05$).

As in our previous studies, we assessed the incremental contribution of the knowledge discrepancy model over each of the actual and ideal knowledge models alone as predictors of word-of-mouth intentions. The discrepancy model (r-squared = .14) was a stronger predictor than actual knowledge (r-squared = .05) for the number of reviews to be shared (increment in r-squared $F(1, 50) = 5.44$, $p < .05$). The discrepancy model (r-squared = .19) also outperformed the actual knowledge model (r-squared = .12) in terms of the number of people with whom the reviews were to be shared (increment in r-squared $F(1, 50) = 4.37$, $p < .05$). A comparison of the knowledge discrepancy and ideal knowledge models revealed an improvement for the discrepancy model (r-squared = .19) over the ideal knowledge model (r-squared = .12; $F(1, 50) = 4.75$, $p < .05$) as a predictor of the number of people with whom participants wanted to share their reviews. However, the discrepancy model (r-squared = .14) was no better than the ideal knowledge model (r-squared = .14; increment in r-squared ($F < 1$)) as a predictor of the number of reviews to be shared by participants. Therefore, while this study replicates our findings that the knowledge discrepancy approach has greater explanatory power than the actual knowledge construct, it offers mixed evidence regarding the benefit of the discrepancy approach over ideal knowledge alone.

Dejection mediation

We subjected the manipulated knowledge discrepancy independent variable, the mean of the dejection items (mediator), and each of our dependent variables to bootstrap tests of simple mediation (Preacher & Hayes, 2004). Dejection mediated the effect of a knowledge discrepancy on both the number of product reviews (95% CI: .11, .75 at 5000 resamples) and the number of people with whom these reviews were to be shared (95% CI: .08, .71). The significant direct path (c path) from knowledge discrepancy to both dependent measures falls to non-significance after accounting for the dejection mediator (c′ path), supporting indirect-only mediation (Zhao, Lynch, & Chen, 2010; see Table 2 for path coefficients). For completeness, we also tested simultaneous parallel mediation by both dejection and agitation (PROCESS macro; Hayes, 2013). Bootstrap analysis again supports mediation by dejection for both the number of product reviews (95% CI: .02, .56) and number of people with whom the reviews were to be shared (95% CI: .03, .62), but fails to support mediation by agitation for either dependent measure (reviews 95% CI: -.04, .58; people 95% CI: -.02, .33).

Discussion

Study 4 demonstrates the robustness of the compensatory knowledge signaling effect by replicating it using a generalized, as opposed to a category-specific, manipulation of a knowledge discrepancy. As predicted, the specific emotion linked by prior research to actual:ideal (but not actual:ought) self-discrepancies mediated the effect of a knowledge discrepancy on intentions to transmit word-of-mouth information.

General discussion

Our research sheds new light on the effects of consumer knowledge beliefs on word-of-mouth communication with four studies that demonstrate that sometimes it is not just what you *think* you know, but also what you *wish* you knew that drives word-of-mouth intentions and behaviors. Specifically, by examining consumer knowledge as a self-concept domain, we find that where an opportunity to signal one's knowledgeability to self-concept relevant others is available, people who perceive a shortcoming in their knowledge are more motivated to share their knowledge, and try harder to display their knowledge through the content of their word-of-mouth communications. Moreover, we observe compensatory knowledge signaling in response to both measured (Study 1) and manipulated (Studies 2–4) knowledge deficiencies in both category-specific (Studies 1–3) and generalized (Study 4) consumer knowledge as they affect both word-of-mouth intentions (Studies 1, 2 and 4) and behaviors (Study 3). Consistent with self-discrepancy theory (Higgins, 1987), dejection mediates the relationship between a knowledge discrepancy and compensatory knowledge signaling (Study 4).

In this research, we proposed a knowledge signaling account of word-of-mouth communications from knowledge discrepant consumers. This account is supported by findings that target anonymity and lay beliefs regarding the self-enhancing benefits of word-of-mouth transmission moderate the effects of knowledge discrepancies on word-of-mouth intentions (Studies 1–2) and that word-of-mouth output from knowledge discrepant consumers contains multiple indicators of self-presentational concerns, especially concerns about perceived knowledgeability (Study 3). These findings provide evidence that word-of-mouth transmissions from knowledge discrepant consumers may be motivated less by their beliefs that they actually have something to share than by their feelings that they have something to prove.

While the present research and the literature it builds upon are relatively less concerned about the likelihood that self-concept discrepant individuals also seek out opportunities to *actually* enhance their domain abilities, Study 3 provides evidence that a modest opportunity to learn by gaining feedback about their product opinions from others did not suppress the self-presentational response. The need to compensate for a knowledge discrepancy was addressed by merely attempting to *show* their consumer knowledge to others. As previously mentioned, several researchers have theorized that given the greater effort and time required to actually become their ideal selves, people who wish to compensate for deficient self-views are likely to signal their readiness or potential for becoming their ideal selves using more immediate and accessible signaling opportunities (Baumeister, 1982; Schlenker, 1980; Wicklund & Gollwitzer, 1981; Wicklund & Rise, 2008). This does not necessarily imply that those who have signaled their ideal selves will not subsequently pursue efforts to make "real" progress toward the self-state goals (Wicklund & Rise, 2008). We are aware of only one empirical study examining both signaling and self-improvement responses to self-concept threats. This research found that those who were manipulated to feel an actual:ideal self-discrepancy had stronger preferences for symbolic goods signaling the salient identity and reduced motivations to actually pursue salient identity goals (Samper, 2011). However, future research may examine whether this result can be reversed. For example, in our context it seems possible that the accessibility and ease of self-improvement could be manipulated such that it is easier to *actually* gain consumer knowledge (e.g., by browsing expert reviews on Consumer Reports) yet riskier to *signal* enhanced knowledgeability (e.g. by creating the expectancy of an expert social evaluation; Sedikides, Herbst, Hardin, & Dardis, 2002), thereby attenuating the compensatory knowledge signaling response we observe.

Our findings also suggest that knowledge discrepancies may be better predictors of word-of-mouth intentions than actual or ideal consumer knowledge alone. As for ideal knowledge, while most theories of goal pursuit emphasize the perceived discrepancy between an actual and desired state and the psychological discomfort it engenders (Carver & Scheier, 1990; Custers & Aarts, 2007; Higgins, 1987; Kruglanski et al., 2002), positive affect related to an ideal state has also been linked to goal pursuit

Table 2
Study 4: Mediation of compensatory knowledge signaling by dejection

Word-of-mouth intentions (DV)	Bootstrap 95% CI	Path coefficients			
		a	b	c	c′
# of reviews	[.11, .75]	.34 **	1.04 **	.73 *	.37
# of people	[.08, .71]	.34 **	.98 **	.76 *	.42

** *p* < .01.
 * *p* < .05.

(Custers & Aarts, 2005). These may be different sides of the same coin: the negative affect associated with insufficient progress toward one's ideals reflects the realization that one has not attained the affectively positive goal state. Our findings overall (in 5 of 6 cases) suggest that a knowledge discrepancy may offer greater explanatory power than ideal knowledge alone. Further, a simpler ideals-based aspiration account would predict that positive affect motivates the behavior (Custers & Aarts, 2005), in which case the sign of the mediator reported in Study 4 should be reversed. In sum, while the consideration of one's ideal consumer knowledge is a central contribution of our investigation, our findings favor the addition of a discrepancy-based account for the link between consumer knowledge and word-of-mouth transmission.

As with much recent research on word-of-mouth (e.g., Berger & Milkman, 2012; Berger & Schwartz, 2011; Karmaker & Tormala, 2010), this investigation was set in a technology-mediated context. In addition to offering a diversity of settings that may each subtly impact self-presentation behaviors (e.g., email, texting, share buttons, social networks, forums, discussion boards, profiled-user reviews, anonymous reviews), online (vs. offline) modes of transmission may moderate signaling behavior. For example, Walther (2007) suggests that the ability to carefully craft an online message facilitates self-presentation, while the in-the-moment pressure of a live, oral interaction attenuates it. Future research may examine how variables endemic to interaction mode (e.g., non-verbal signaling, contemporaneity) moderate compensatory knowledge signaling.

We also propose that the analysis of consumer knowledge as a dynamic self-concept domain (i.e., incorporating ideal knowledge) represents a promising avenue for future research regarding not only word-of-mouth communication, but also other important consumer knowledge consequences such as search, preference, and choice. While prior research reports that consumers search for and choose products that "match" their actual consumer knowledge (Burson, 2007; Moorman et al., 2004), our findings suggest that this may not always be the case. It seems plausible, for example, that consumers with a knowledge discrepancy in a given category (e.g., photography) may compensate for this perceived shortcoming by pursuing products that signal consumer knowledge levels closer to their ideals (e.g., a technically-complex SLR camera).

Our findings also hold some implications for consumers and firms. Nearly half a century ago, consumers reported that over 80% of their decisions were influenced by word-of-mouth (Dichter, 1966). Today, the influence of word-of-mouth appears to be growing as technology-mediated contexts facilitate a further increase in consumer knowledge exchanges (Forrester Research Inc., 2010). Consumers are motivated to seek product information from these sources in part because they believe it will improve their own category knowledge and/or purchase decisions (Burton & Khammash, 2010; Hennig-Thurau & Walsh, 2003). Trust in word-of-mouth sources of product information is also particularly high due to the perception that consumer sources are less motivated by self-interest than firm agents (Bickart & Schindler, 2001; Friestad & Wright, 1994). Our research suggests that consumer trust in word-of-mouth should be tempered by the possibility that a self-interested motive—compensating for a perceived shortcoming in one's consumer knowledge—may be motivating the source.

From a managerial perspective, the findings suggest that priming consumer knowledge ideals may motivate them to share more product information, and with more people; a result that should have positive effects on purchase volume (Chen & Xie, 2008; Godes & Mayzlin, 2004). The findings from the present research may also help firms identify customers most likely to help "spread the word" about their products. Where the market maven scale and other measures of consumer knowledge are used by managers to identify consumers who are likely to talk about their products, incorporating measures that also capture ideal consumer knowledge may improve marketers' ability to identify people who are highly motivated to transmit word-of-mouth information.

Crucial to both the consumer and managerial implication suggested above is whether the heightened volume of word-of-mouth information generated by those who believe they are deficient in consumer knowledge (relative to their ideals) would be offset by a drop in the quality of product information transmitted. While we observed no impact of the participant's store of objective knowledge on compensatory knowledge signaling (Study 2), the content of the actual word-of-mouth generated by knowledge-discrepant participants in Study 3 clearly reflected more self-centered than altruistic persuasion goals. For example, people who perceived gaps in their consumer knowledge were likely to be more positive about products, and spent disproportionate effort talking about the self as opposed to the product. Future research could examine whether the greater volume of information shared by knowledge discrepant consumers corresponds with a perceived decline in information quality or social inferences of source "self-centeredness."

In conclusion, conventional wisdom on the relationship between word-of-mouth and consumer knowledge is that the people who talk more about products do so because they think they know more about them. Our findings suggest we also should consider whether a perceived shortcoming in knowledge is motivating the word-of-mouth source. By identifying the motivational power of knowledge discrepancies, this research contributes a more nuanced understanding of how consumer knowledge beliefs motivate word-of-mouth transmission. We hope this research stimulates new inquiries leveraging our more dynamic conception of consumer knowledge beliefs, shedding new light on the link between these beliefs and consumer attitudes and behaviors.

Online supplement (Appendices A and B)

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.jcps.2013.05.002.

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