

Research Article

The impact of identity breadth on consumer preference for advanced products

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Abstract

Prior research documents that individuals may categorize themselves along a hierarchy of social identities and that their subsequent behavior is guided by whichever identity is salient at the moment. The current research investigates how activating one's social identity at different breadth levels influences consumers' subjective knowledge and the consequences for product choice. We propose and document that consumers will perceive that they have greater knowledge and thus prefer more advanced product options when their broad identity rather than narrow identity is salient (experiment 1). We also rule out simple categorization mindset and construal level as the alternative explanations of the identity breadth effect (experiments 2A and 2B). Moreover, our findings suggest that the effect of identity breadth on subjective knowledge will lessen for consumers with high self-esteem (experiment 3) and will reverse when the product domain is highly relevant to the narrow identity (experiment 4). Both theoretical contributions and marketing implications are discussed.

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Introduction

Prior studies have stressed the role of subjective knowledge, i.e., what consumers think they know, in decision-making. For instance, Moorman (2001) finds that subjective knowledge will exert a critical impact on choice confidence. Hadar, Sood, and Fox (2013) show that consumers are more risk-seeking when

their self-rated subjective knowledge is high. Other research suggests that consumers' subjective knowledge is an important determinant of product information search (Brucks, 1985; Moorman, Diehl, Brinberg, & Kidwell, 2004; Raju, Lonial, & Mangold, 1995; Rao & Sieben, 1992) and product information processing (Alba & Hutchinson, 1987; Johnson & Russo, 1984).

Moreover, the existing research suggests that this metacognitive feeling of knowing is not fixed and can be shaped by contextual factors (Alba & Hutchinson, 1987; Alba & Hutchinson, 2000; Park, Mothersbaugh, & Feick, 1994). It is critical to understand what will affect this metacognitive feeling of knowing. Drawing from social identity theory (Tajfel & Turner, 1986) and identity-based motivation (Oyserman, 2009), the present research concentrates on how social identity influences subjective knowledge and affects subsequent choice making. For instance, the comparative ignorance hypothesis suggests that comparison with more knowledgeable individuals will lead people to perceive themselves as having inferior knowledge and thus avoid an

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uncertain prospect (Fox & Tversky, 1995). However, an important question unanswered in previous studies is whether a person's salient social identity per se will affect subjective knowledge and consequently influence consumer preferences. To address this research void, the current research aims to investigate whether activating one's social identity at different breadth levels would exert an impact on subjective knowledge. Specifically, we propose that making salient an individual's social identity at a broad versus narrow level can influence his or her subjective knowledge or perceived expertise, which in turn favors preferences for more advanced products. According to self-categorization theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), social identities are context-dependent and can be categorized at multiple levels of abstraction. By extending the self-categorization theory, we propose that an individual's specific social identity can be activated at different breadths, from a broad level to a narrow level. As an illustration, Alice teaches microbiology at a university. A broad identity defines Alice in a superordinate group that is an overarching, inclusive social category (e.g., a professor). In contrast, a narrow identity defines Alice in a subgroup that is highly specific and exclusive (e.g., a microbiology professor of science at a specific university).

Building on the notion that the salient identity can make its corresponding category of knowledge more accessible for retrieval and usage (Cheng, Sanchez-Burks, & Lee, 2008; Devine & Monteith, 1999), we propose that a broad identity, compared with a narrow identity, can increase the accessibility of a broader category of knowledge. On the contrary, a narrow identity corresponding to a limited and specific knowledge category would create the perception that a person knows little in domains beyond this narrow category.

Accordingly, we expect that individuals with a broad identity will feel more knowledgeable in general and that this heightened feeling of knowing will readily apply to the product domain of their consumer decisions. Because subjective knowledge or expertise in a product domain predicts product choice (Brucks, 1985; Burson, 2007; Raju et al., 1995; Rao & Sieben, 1992), we further propose that consumers will exhibit preference for more advanced products when they access a broad identity rather than a narrow identity. In addition, we will examine two boundary conditions for the proposed identity breadth effect: consumer self-esteem and product domain relevance.

In the remaining sections, we will review the literature about social identity and consumer knowledge. Then we will present the empirical findings from four experiments that use both student and non-student samples. In the final section of the paper, we will discuss the theoretical contributions, managerial implications of our findings, and the limitations and future research directions.

Theoretical background and hypothesis development

Social identity and knowledge perception

According to Devine and Monteith (1999), individuals' knowledge perception is bundled with social identities, so that activating one specific social identity will make the

corresponding category of knowledge salient. Meanwhile, certain categories of consumer knowledge may not be accessible when the relevant social identity is not activated at a given time (Shih, Pittinsky, & Ambady, 1999). Prior research indicates that the self consists of a set of context-specific social identities that can be organized into a hierarchy representing various levels of abstraction (Harter, 1985; Schell, Klein, & Babey, 1996). Similarly, Brewer (1991) used a series of concentric circles to represent definitions of the self at different levels of inclusiveness. Moving outward from the center circle, each consecutive circle indicates a higher level of social identity (Brewer, 1991). Turner et al.'s (1987) self-categorization theory further posits that the self can be categorized at three levels of abstraction and inclusiveness: 1) the superordinate level corresponds to human beings, as differentiated from non-humans, 2) the intermediate level of categorization focuses on similarities and differences in social groups, and 3) the subordinate level represents the personal self or personal identity, the unique "I." Accordingly, identities corresponding to the intermediate level of self-categorization relate to different types of social groups, and the self is cognitively grouped as identical and interchangeable to other people within the same social group (Turner & Oakes, 1986; Turner et al., 1987).

Hence, the current research focuses on the intermediate level of self-categorization and proposes that social identities within this intermediate level can be further differentiated along a spectrum of breadth. An individual may own multiple social identities, and each social identity can be contextually activated at either a broader level or a narrower level. Specifically, a broad identity defines a member in a more inclusive group that combines heterogeneous features and focuses on the similarities among multiple subgroups. In contrast, a narrow identity defines a member in a subgroup that is relatively more exclusive, constrains individuals to a specific domain, and directs attention to the differences among subgroups. To illustrate, a "microbiology professor of science at a state university" is a relatively narrow identity compared with the identity of "professor," which is a broader identity referring to the same person as a scholar.

According to identity-based motivation, individuals are motivated to make sense of the world in an identity-consistent manner (Oyserman, 2009) and to view the world through a knowledge structure that avoids identity-inconsistent information (Berger & Heath, 2007; Coleman & Williams, 2015). Previous studies suggest that individuals' knowledge structure includes attributes, behaviors, and information that are characteristic of specific social categories and can be activated by corresponding social identities (Cheng et al., 2008; Devine & Monteith, 1999; Kleine, Kleine, & Kernan, 1993). A salient identity would direct the allocation of attention such that identity-consistent information would receive greater attention (Coleman & Williams, 2015). In addition, different knowledge categories will be made accessible for use depending on which social identity is activated in the specific context (Fiske, 1998; Higgins, 1996).

Consequently, accessing a broad identity that is more inclusive than a narrow identity and combines heterogeneity from subgroups can highlight a broader category of identity-relevant

knowledge, and thus make people feel they are more knowledgeable in general. For example, when Peter views his identity as a professor (a broad identity), he may activate a wide range of knowledge domains that a scholar in a university can be good at and consider himself as possessing adequate knowledge in multiple categories such as science, mathematics, arts, literature, and business as well as teaching skills. In contrast, when the identity as a microbiology professor of science at a university (a narrow identity) is made salient for Peter, only the knowledge category of microbiology is highlighted, and he may see himself as having very little knowledge beyond this specific category. Prior research by Cheng et al. (2008) provides supporting evidence for our proposition. Their studies show that individuals with high identity integration (i.e., perceptions that multiple and conflicting social identities are compatible) can increase the accessibility of multiple identity-relevant knowledge domains and thus perform better on creative tasks for which knowledge associated with various identities is relevant.

Consumer knowledge and its impact on product choice

If a broad identity can enhance perceived knowledge in general, can it also increase perceptions of consumer knowledge? Prior literature differentiates two kinds of consumer knowledge (Brucks, 1985; Park & Lessig, 1981). One is subjective knowledge (or self-assessed knowledge), which refers to people's perceptions of what or how much they know about a product class. Another is objective knowledge, which reflects accurate information about the product class stored in long-term memory. Objective knowledge is relatively stable and context-independent whereas subjective knowledge can shift easily with situational factors. The feeling-of-knowing theory (Schacter, 1983) suggests that what people think they know (subjective knowledge) does not necessarily correspond with what they actually know (objective knowledge). Brucks (1985) documents that the correlation between subjective knowledge and objective knowledge varies substantially in different situations.

As predicted, a broad identity can increase an individual's perception of knowledge in general. We expect that this enhanced perception of knowing can readily apply to the consumer domain (i.e., consumer subjective knowledge). In this case, a broad identity, as compared with a narrow identity, can make consumers feel they are more knowledgeable or have more expertise about products. However, because objective knowledge is the accurate information that is stored in memory and is not sensitive to contextual influence, the proposed broad identity effect is not expected to change objective knowledge.

Subjective knowledge has been identified as an important antecedent of consumer decision-making (Hadar et al., 2013; Moorman, 2001; Moorman et al., 2004). According to the consumer-product skill matching strategy proposed by Burson (2007), in addition to consumer needs and desires, product choices may also depend on the amount of skill that is required to use the product. For instance, software, technological devices, and sports-related goods are all typical examples of skill-based products. Burson (2007) demonstrates that consumers rely heavily on their perceptions of relative ability or knowledge as a guide for

product choice. Specifically, she finds that consumers who perceive their ability is above average are more likely to choose advanced golf equipment, whereas those who perceive their ability is below average tend to choose amateur golf equipment for beginners. Furthermore, considerable research has found that consumers who feel more knowledgeable can process product-related information more efficiently (Johnson & Russo, 1984; Punj & Staelin, 1983), use fewer cognitive resources to understand product-related information (Alba & Hutchinson, 1987), and be more confident in their ability to make a good choice (Brucks, 1985; Carlson, Vincent, Hardesty, & Bearden, 2009; Park & Lessig, 1981). All this evidence suggests that a feeling of abundant subjective knowledge will enhance one's preference for more advanced products.

In sum, we predict that when activating a broad identity relative to a narrow identity, consumers will perceive having more knowledge about products and consequently prefer more advanced products. As explained earlier, a broad identity can enhance subjective knowledge but not objective knowledge. Specifically, we put forth the following hypotheses:

H1. Consumers will prefer more advanced products when they are primed with a broad identity rather than with a narrow identity.

H2. Subjective knowledge will mediate the effect of identity breadth on consumer preference for advanced products.

Attenuation of the identity breadth effect

We further propose that the impact of identity breadth on consumer preference for advanced products will be attenuated for people with high self-esteem. According to Alba and Hutchinson (2000), knowledge miscalibration correlates with measurable traits such as self-esteem. For example, Spencer and Steele (1994) show that low-self-esteem participants anticipated a lower exam score than the score they actually received, which is a manifestation of miscalibration, whereas high-self-esteem participants did not do so. In another study by Shepperd, Ouellette, and Fernandez (1996), participants with low self-esteem reduced their performance estimates significantly as the focal exam came temporally nearer, whereas participants with high self-esteem exhibited no change in their estimates across time. Building on the sociometer theory (Leary & Downs, 1995; Leary, Tambor, Terdal, & Downs, 1995), self-esteem system serves as a sociometer that is involved in the maintenance of interpersonal relations. Individuals' feelings of self-esteem are an internal index of perceived exclusionary status, and people with low self-esteem are more likely to perceive others' reactions as indicative of rejection. If people do not feel socially integrated, they will exhibit higher interpersonal sensitivity and more concern with fitting in among other people (Snodgrass, 1985). That's why compared with people with high self-esteem, those with lower self-esteem are more sensitive to socially relevant cues (Brockner, 1983), report increased social pain during social exclusion (Keiichi et al., 2010), and are more sensitive to social comparison

information (Campbell, 1990; Gibbons & Buunk, 1999). In contrast, people with higher self-esteem are more certain of their own attributes and capabilities (Campbell, 1990; Gibbons & Buunk, 1999) and are less sensitive to the influence of socially relevant cues (Brockner, 1983).

Based on these prior findings, we anticipate that people's subjective knowledge will be more sensitive to the variation of identity breadth when they perceive lower self-esteem rather than higher self-esteem. Given that the identity breadth effect on consumer preference is driven by consumers' subjective knowledge, we predict that the effect of identity breadth on consumer preference for advanced products will likely occur for people with low self-esteem, and will be alleviated for people with high self-esteem. We hypothesize as follows:

H3. Consumers with low self-esteem will prefer more advanced products when they are primed with a broad identity than when they are primed with a narrow identity. In contrast, consumers with high self-esteem will not differ in their preference for the advanced products whether they are primed with a broad or narrow identity.

H4. Subjective knowledge will mediate the interaction effect of identity breadth and self-esteem on consumer preference for advanced products.

In addition, we expect that the relevance of the product domain to the narrow identity will moderate the effect of identity breadth on consumer preference for advanced products, and the identity breadth effect will be reversed when choosing products from a category relevant to the narrow identity. As discussed previously, compared with a narrow identity, a broad identity will make a broader category of knowledge accessible for use and thus make people feel more knowledgeable in general and prefer more advanced products. However, when the product domain is coincidentally relevant to the salient narrow identity, consumers who are primed with a narrow identity rather than a broad identity will perceive themselves as experts and prefer more advanced products within this narrow identity-relevant domain. To illustrate, making salient the identity of a professor, compared with the identity of a statistics professor in a specific university, will make this consumer more likely to choose an advanced version of video editing software (i.e., a product irrelevant to the narrow identity), but less likely to choose an advanced version of statistical software (i.e., a product relevant to the narrow identity). In summary, we predict a reversal of the effect of identity breadth on consumers' preference for advanced products when consumers choose products in a category relevant to narrow identity. We put forth the following hypotheses:

H5. Consumers primed with a broad identity, compared with consumers primed with a narrow identity, will prefer more advanced products in narrow-identity-irrelevant domains and prefer less advanced products in narrow-identity-relevant domains.

H6. Subjective knowledge will mediate the interaction effect of identity breadth and product domain relevance on consumer preference for advanced products.

Overview of the experiments

Four experiments were conducted to investigate our hypotheses by using both student and non-student samples. Experiment 1 (student sample) manipulated identity breadth based on the participants' actual academic background and examined how identity breadth influenced subsequent choices. We also included a control condition in experiment 1 to investigate whether the proposed effect is driven by broad identity or narrow identity. Moreover, experiment 1 tested the underlying mechanism in mediation analysis. Experiments 2A and 2B (student sample) tested and ruled out the alternative explanations for the proposed identity breadth effect. In addition, experiments 3 (student sample) and 4 (non-student sample) documented two moderation effects, which also provided tests for the underlying process through moderation (Ward & Dahl, 2014). Previous research describes self-esteem as similar to a barometer that can be altered temporally (Heatherton & Polivy, 1991). So in experiment 3, we manipulated self-esteem subliminally and examined whether the identity breadth effect would lessen for people primed with high self-esteem. Experiment 4 tested the influence of identity breadth on consumer preference for advanced products in narrow-identity-relevant versus narrow-identity-irrelevant product domains.

Experiment 1: main effect of identity breadth

The purpose of this experiment was threefold. First of all, we aimed to test the basic effect of identity breadth on consumer preference for advanced products. Secondly, we examined the underlying mechanism of identity breadth effect by measuring subjective knowledge and testing its mediating role. We predicted that a broad identity (vs. a narrow identity) would enhance subjective knowledge, thus leading to greater preference for advanced products. Finally, we investigated whether broad identity or narrow identity drove the effect. We employed a one factor with three levels (identity breadth: broad, narrow, control) between-subjects design. One hundred and eighty-five undergraduate students (27.6% male) in Hong Kong participated in this study for monetary compensation.

Methods and procedure

Upon arrival at the lab, the participants completed several unrelated tasks. In the first task, we manipulated identity breadth based on the participants' academic background in a "college life survey." As the cover story, we told participants that this survey sought to discover more information about college students' life styles. The key question used to manipulate identity breadth was embedded in a series of filler questions about college life. In the *broad identity condition*, we asked "Which university do you study in?" as the key question. In the *narrow identity condition*, we asked "Which specific department/major do you study in?" as the key question. To strengthen the manipulation, participants were then instructed to come up with six keywords that would best illustrate their identity as a member of that university (broad identity condition) or that major (narrow identity condition). Furthermore, the participants rated the importance of the identity

on a scale ranging from 1 (not important at all) to 7 (extremely important) and rated the meaningfulness of the identity on a scale ranging from 1 (not meaningful at all) to 7 (extremely meaningful). In the *control condition*, the participants completed an identity-unrelated task (i.e., recall a recent shopping experience) to keep the task time consistent with the broad and narrow identity condition. As a manipulation check item, we asked the participants to indicate the perceived size of their social group on a scale ranging from 1 (very small) to 7 (very large).

After finishing the “college life survey,” participants completed a self-perception survey in which we measured their subjective knowledge about digital cameras using three items adapted from Cowley and Mitchell (2003). Specifically, the participants rated themselves on three items: product knowledge from 1 (not knowledgeable at all) to 9 (very knowledgeable); product familiarity from 1 (not very familiar) to 9 (very familiar), and digital camera usage frequency from 1 (not at all frequently) to 9 (very frequently).

Following the measurement of subjective knowledge, participants were invited to customize a digital camera on an online website (see Appendix A). We presented participants with 25 different features that they could select (eight of them were basic features such as 12 million pixels, auto-focusing, and face recognition, and seventeen of them were sophisticated features such as anti-shake DSP, red-eye reduction, and BSI CMOS). Participants checked off each feature they wanted to include in the camera they were buying. To isolate the effect of usability constraints from the effect of financial constraints, we informed participants that their budget for this purchase would allow them to select as many features as they wanted. After selecting the features, participants indicated the amount of money (in Hong Kong dollars) they were willing to pay for this camera. The number of sophisticated features selected served as a proxy for the participants’ preference for advanced products.

Then we measured objective knowledge with two different types of measures (Brucks, 1985; Cowley & Mitchell, 2003): the number of actual camera brands recalled and seven multiple-choice questions about digital cameras (sample question: Which ISO number might be more appropriate for taking photos at night? A. ISO 200, B. ISO 400, C. ISO 800, D. don’t know). The questions were developed based on information from *Consumer Reports* as well as discussions with professional photographers. This experiment concluded with demographic questions. Finally, participants were debriefed, paid, and thanked.

Results and discussion

Manipulation check

Results of a one-way ANOVA indicated a significant effect of identity breadth manipulation ($F(2182) = 5.32, p < .01$). Specifically, the participants primed with a broad identity scored higher on the perceived size of social group ($M = 4.95, SD = 1.03$) than those primed with a narrow identity ($M = 4.25, SD = 1.27; p < .01$) and those in the control condition ($M = 4.44, SD = 1.30; p < .05$). The participants who were primed with a narrow identity and those in the control condition did not differ on the score of perceived size of social group

($p > .30$). What’s more, one-way ANOVAs showed that the participants in the broad identity and narrow identity conditions had similar scores on the perceived importance ($M_{\text{broad}} = 4.97, SD = 1.50$ vs. $M_{\text{narrow}} = 4.95, SD = 1.25; p > .80$) and perceived meaningfulness of the identity ($M_{\text{broad}} = 5.17, SD = 1.46$ vs. $M_{\text{narrow}} = 5.19, SD = 1.20; p > .80$).

Number of basic vs. sophisticated features selected

On average, the participants included 5.97 basic features and 10.11 sophisticated features in the customized digital camera. We performed a one-way ANOVA on the number of basic features selected, and the results suggested that participants chose similar numbers of basic features across the three experimental conditions ($M_{\text{broad}} = 6.03, SD = 1.41$ vs. $M_{\text{narrow}} = 5.73, SD = 1.65$ vs. $M_{\text{control}} = 6.14, SD = 1.48; F(2182) = 1.20, p > .30$). However, as predicted, results of a one-way ANOVA on the number of sophisticated features indicated a significant effect of identity breadth ($F(2182) = 3.49, p < .05$). In support of our hypothesis 1, participants in the broad identity condition ($M = 10.98, SD = 3.70$) included more sophisticated features for the digital camera than participants in the narrow identity condition ($M = 9.42, SD = 3.12; p = .01$) and slightly more than the participants in the control condition ($M = 9.94, SD = 3.03; p = .08$). However, the difference in the number of sophisticated features selected between the narrow identity condition and the control condition did not reach the significant level ($p > .30$). These results suggested that the participants in the control condition in this study might have identity activation similar to those in the narrow identity condition. The participants in the two conditions were similar in perceived size of social group and preference for advanced features of the product.

Process measure: subjective knowledge as mediator

We averaged the three items of subjective knowledge to form an index ($\alpha = .88$). The results of a one-way ANOVA on this index indicated an effect of identity breadth ($F(2182) = 4.28, p < .05$). Consistent with our prediction, participants in the broad identity condition ($M = 5.11, SD = 1.73$) scored higher on subjective knowledge than those in the narrow identity condition ($M = 4.24, SD = 1.63; p < .01$) and those in the control condition ($M = 4.49, SD = 1.63; p < .05$). However, there was no significant difference between the narrow identity condition and control condition on the score of subjective knowledge ($p > .40$).

To validate the mediation role of subjective knowledge, we tested the significance of the indirect effect of identity breadth on number of sophisticated features selected through subjective knowledge by using the PROCESS SPSS macro (Model 4; Hayes, 2012). As suggested by Hayes (2012), if zero falls outside the 95% confidence interval (CI), the indirect effect is significant, thus providing a successful mediation. As predicted in hypothesis 2, the results revealed that the indirect effect of identity breadth on the number of sophisticated features selected was significant (95% CI = .24 to 1.55; see Fig. 1), which supported the mediating role of subjective knowledge.

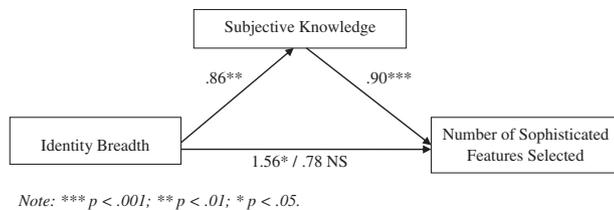


Fig. 1. Mediation analysis: subjective knowledge as a mediator (experiment 1).

Objective knowledge

One-way ANOVAs showed that participants across different identity manipulation conditions did not differ in the number of questions accurately answered in the multiple-choice questions that assessed their objective knowledge about digital cameras ($M_{\text{broad}} = 2.57$, $SD = 1.53$ vs. $M_{\text{narrow}} = 2.29$, $SD = 1.79$ vs. $M_{\text{control}} = 2.50$, $SD = 1.65$; $F(2182) = 1.20$, $p > .30$), and they recalled a similar number of digital camera brands ($M_{\text{broad}} = 4.10$, $SD = 1.66$ vs. $M_{\text{narrow}} = 3.92$, $SD = 2.20$ vs. $M_{\text{control}} = 3.82$, $SD = 1.66$; $F(2182) < 1.0$). These results confirmed that the manipulation of identity breadth influenced only individuals' subjective knowledge rather than their objective knowledge in a specific product domain.

Experiment 2A: ruling out categorization mindset as an alternative explanation

The findings of experiment 1 provide initial evidence of the proposed identity breadth effect. However, one might question whether the effect is driven by a simple broad versus narrow mindset without bringing in a social identity lens. Prior research by [Ülkümen, Chakravarti, and Morwitz \(2010\)](#) suggests that individuals can adopt a broad or a narrow categorization mindset and that this difference in mindset can influence individuals' information processing style. Experiment 2A is to empirically test the categorization mindset as an alternative explanation of our findings documented in experiment 1. Although both identity breadth and categorization mindset share the similarity in categorization breadth, they differ conceptually in a significant way. In particular, the current research focuses on the breadth of a person's social identity and investigates the impact of identity breadth on consumer preference for advanced products through a shift in consumers' assessment of their own subject knowledge. In contrast, the broad versus narrow categorization mindset differentiation is not tied to the "self" concept and is not expected to influence one's subjective knowledge and consumer choice of advanced products in the same way as the broad versus narrow identity. [Ülkümen et al. \(2010\)](#) find that consumers exposed to narrow categories (e.g., twenty-four cheese alternatives that are grouped into eight categories), compared with those exposed to broad categories (e.g., twenty-four cheese alternatives that are grouped into two categories), would activate a narrow mindset that emphasizes that objects differ from one another in many ways. Consequently, a narrow categorization mindset would make consumers rely on more dimensions in subsequent decision-making (e.g., using both salient and nonsalient information),

whereas the relatively broader mindset would make consumers rely on relatively fewer dimensions to make decisions (e.g., using easily available and salient information) (see [Eckrich & McCall, 2009](#) for similar findings). These findings suggest that a broad versus narrow categorization mindset would affect consumer choice as a function of different information processing styles. However, there is no clear prediction on how a broad versus narrow categorization mindset might affect consumers' subjective knowledge and their preference for advanced products. To summarize, we think that our identity breadth concept and the broad versus narrow categorization mindset concept differ both in conceptualization and the underlying process in influencing consumers' preference for advanced products. Experiment 2A provides an empirical test for their difference.

Methods and procedure

Experiment 2A employed a 4 (broad identity, narrow identity, broad categorization mindset, narrow categorization mindset) between-subjects design. One hundred and fifteen undergraduate students (24.3% male) in Hong Kong participated in the study for monetary compensation. Following the same procedure used in experiment 1, we manipulated identity breadth based on the participants' actual academic background. Also, we manipulated the broad versus narrow categorization mindset with the "shopping task" adapted from [Ülkümen et al. \(2010\)](#). Specifically, participants were instructed to shop for a friend's party and make choices in three different categories (wine, cheese, and beer). In each category, we displayed sets of identical products organized into two groups in the broad condition or into twelve groups in the narrow condition. Next, the participants examined six cameras described on two dimensions: 1) price (ranging from 999HKD to 5999HKD) and 2) intended skill level (ranging from "amateur" to "professional"). The array of product feature descriptions paralleled that used by [Burson \(2007\)](#). The participants were instructed to select one camera that they would purchase for their own use. In the final section, participants rated their self-perception of subjective knowledge about cameras on the same three items used in experiment 1 ([Cowley & Mitchell, 2003](#)).

Results and discussion

As predicted in our hypothesis 1, the results showed that participants in the broad identity condition selected more advanced products ($M = 3.76$, $SD = 1.33$) than those in the narrow identity condition ($M = 3.07$, $SD = 1.25$, $F(1, 55) = 4.06$, $p < .05$). Moreover, subjective knowledge mediated this effect (95% CI = .06 to .79), in support of hypothesis 2. However, the choice of advanced products did not differ between broad ($M = 2.90$, $SD = 1.24$) and narrow categorization mindset conditions ($M = 2.93$, $SD = 1.10$; $F(1, 56) < 1.0$, $p > .90$). Importantly, the manipulation of broad versus narrow categorization mindset did not affect participants' subject knowledge either ($p > .20$). These results support that our results were unlikely driven by a broad versus narrow categorization mindset.

Experiment 2B: ruling out construal level as an alternative explanation

Experiment 2B aims to test another alternative explanation related to construal levels using a 4 (broad identity, narrow identity, high construal level, low construal level) between-subjects design. According to Alter, Oppenheimer, and Zemla (2010), a high-level construal might activate a broader mindset and make individuals focus on the target's superordinate or general features. Conversely, a low-level construal might activate a narrower mindset and allocate more attention to the target's narrow or specific features (Alter et al., 2010). In this experiment we test whether a construal level manipulation would result in the same effect on subjective knowledge and consumer preference. We predict that a broad versus narrow mindset triggered by different construal levels will influence how consumers mentally represent and process the product features, but will not influence preference for advanced product through shifting their perception of subjective knowledge.

Methods and procedure

Ninety-two undergraduate students in Hong Kong (21.7% male) participated in this experiment for monetary compensation, and they were randomly assigned to one of four experimental conditions. We manipulated identity breadth based on the participants' actual academic background, and manipulated construal level by using the "how" versus "why" paradigm adapted from previous literature (Alter et al., 2010; Freitas, Gollwitzer, & Trope, 2004). Specifically, participants assigned to the high construal level condition were presented with a diagram of vertically aligned boxes and were instructed to successively indicate "why" they would engage in "improving and maintaining health" as well as the higher-level activities comprising it. In contrast, participants in the low construal level condition were directed to successively indicate "how" they would engage in "improving and maintaining health" as well as the lower-level activities comprising it. Then participants made a choice between two digital camera models. Camera A was a less advanced model and was less feasible to purchase (i.e., available in the market two months later) while camera B was a more advanced model and was more feasible to purchase (i.e., currently available in the market).

Results and discussion

The results replicated our previous findings that compared with a narrow identity (45.45%) a broad identity made participants choose the more advanced camera B (72.73%; $\chi^2(1) = 3.39, p = .062$). The breadth of identity was not responsive to the manipulation of feasibility. However, participants tended to choose camera B in both high construal (62.50%) and low construal conditions (58.33%; $p > .50$). These results suggest that consumers with high construal level focused more on the desirability and preferred the advanced features of camera B, and consumers with low construal level focused more on feasibility and preferred the more feasible

aspect of camera B. Hence, our findings show that a broad versus narrow identity breadth differs from the construal level in the process of influencing consumer choice.

Experiment 3: self-esteem as a moderator

Experiment 3 examines whether the impact of identity breadth on consumer preference for advanced products would be mitigated for people with high self-esteem. In addition, we aimed to validate the mediation role of subjective knowledge in this experiment, and we used choice of advanced products as the dependent variable. Hence, we employed a 2 (identity breadth: broad vs. narrow) \times 2 (self-esteem: high vs. low) between-subjects design. One hundred and sixteen undergraduate students (19.0% male) from China participated in this experiment for monetary compensation. They were randomly assigned to one of the four conditions.

Methods and procedure

Participants completed several unrelated tasks. In the first task, we manipulated self-esteem subliminally through a fast response task (Riketta & Dauenheimer, 2003). Instructions on the screen informed the participants of the following: 1) During this task an asterisk would always appear on the middle of the screen, and the participants should focus their gaze on the asterisk throughout the task; 2) A series of flashes would briefly appear at randomly selected places around the asterisk, and the participants' task was to indicate as fast as possible whether the flash appeared on the right or left side of the asterisk. In this fast response task, each flash was presented for 60 milliseconds and then masked for another 60 milliseconds by a meaningless string (e.g., XXXXXXXX). Participants were instructed to press the letter key E if the flash appeared on the left side of the asterisk and I if the flash appeared on the right side of the asterisk. Importantly, the instruction emphasized that participants would be able to react most quickly if they kept their eyes focused on the asterisk all the time because the location of the flashes could not be predicted. Finally, the instructions told participants to place their index fingers on the letter keys E and I to improve their performance. In the *high self-esteem condition*, the flash occurred with sentences like "I'm good," "I'm great," and "I'm valuable." In the *low self-esteem condition*, the flash coincided with sentences like "I'm bad," "I'm lousy," and "I'm worthless." Each sentence was shown 25 times, and the order of presentation of the sentences was randomized for each participant. As a manipulation check, the participants indicated their subjective self-esteem on a shortened version of the State Self-Esteem Scale (Heatherton & Polivy, 1991), which was composed of six items (sample item: "I feel that others respect and admire me"). Each item was anchored on a scale of 1 (strongly disagree) to 5 (strongly agree). We coded the answers so that higher values indicated higher self-esteem. In addition, the participants also rated their current feeling on a scale ranging from 1 (very bad) to 9 (very good).

Next, the participants proceeded to an ostensibly irrelevant task, in which we manipulated identity breadth based on the participants' actual academic background as indicated in a "college life survey," similar to the one used in experiment 1. As the cover story, we told participants that this survey sought to learn more information about college students' life styles. The key question used to manipulate identity breadth was embedded in a series of filler questions. In the *broad identity condition* we asked "Which university do you study in?" as the key question. In the *narrow identity condition*, we asked "Which specific department/major do you study in?" as the key question. To strengthen the manipulation, participants were then instructed to write down one example that would best illustrate their identity as a member of that university (broad identity condition) or as a member of that major (narrow identity condition). The majority of the responses were about commitment to the focal group, and no one mentioned comparison with other group members. The participants rated the perceived size of the activated social group on a scale ranging from 1 (very small) to 7 (very large).

Then the participants completed a consumer survey about cameras, similar to the one used in experiment 2A. That is, the participants were asked to select one camera for their own use from six cameras ranging from less advanced to more advanced. In the final section, participants rated their self-perception of subjective knowledge about cameras on the same three items used in experiment 1 (Cowley & Mitchell, 2003): product knowledge, product familiarity, and camera usage frequency. The experiment ended with demographic questions. Finally, participants were debriefed, paid, and thanked.

Results and discussion

Manipulation check

A 2 (identity breadth: broad vs. narrow identity) \times 2 (self-esteem: high vs. low) ANOVA only revealed a main effect of identity breadth, indicating that the participants primed with a broad identity rated their group as bigger ($M = 5.98$, $SD = 1.13$) than the participants primed with a narrow identity ($M = 3.90$, $SD = 1.69$; $F(1, 112) = 54.03$, $p < .001$).

We averaged the participants' indicated agreement with the six items about subjective self-esteem to create a manipulation check index ($\alpha = .76$). To validate the effectiveness of the subliminal priming of self-esteem, we performed an identity breadth by self-esteem ANOVA on this index. The results only indicated a main effect of self-esteem manipulation ($F(1, 112) = 14.21$, $p < .001$) such that participants primed with high self-esteem words reported better self-perception ($M = 3.59$, $SD = .58$) than the participants primed with low self-esteem words ($M = 3.12$, $SD = .75$; $F(1, 112) = 14.21$, $p < .001$). Neither the effect of manipulated identity breadth ($F(1, 112) < 1.0$, $p > .60$) nor the interaction effect was significant ($F(1, 112) = 2.12$, $p > .10$). In addition, the manipulation of self-esteem did not influence participants' mood ($M_{\text{high self-esteem}} = 5.71$, $SD = 1.61$ vs. $M_{\text{low self-esteem}} = 5.47$, $SD = 1.68$; $F(1, 112) < 1.0$).

Choice of camera

We first performed a 2 (identity breadth: broad vs. narrow identity) \times 2 (self-esteem: high vs. low) ANOVA on participants' choice of camera. The results yielded a significant interaction effect ($F(1, 112) = 4.50$, $p < .05$) and a significant main effect of identity breadth ($F(1, 112) = 5.80$, $p < .05$). As predicted, pairwise comparisons showed that among the participants primed with low self-esteem, those who accessed a broad identity were more likely to choose the more advanced camera ($M = 3.56$, $SD = 1.44$) than those who accessed a narrow identity ($M = 2.42$, $SD = 1.14$; $F(1, 112) = 10.66$, $p < .01$, see Fig. 2). In contrast, among the participants primed with high self-esteem subliminally, there were no differences in the choice of camera between broad and narrow identity conditions ($M_{\text{broad}} = 3.45$, $SD = 1.37$ vs. $M_{\text{narrow}} = 3.38$, $SD = 1.28$; $F(1, 112) < 1.0$), supporting hypothesis 3. We also found that for the participants primed with a narrow identity, those in the high self-esteem condition selected more advanced cameras than those in the low self-esteem condition ($F(1, 112) = 7.49$, $p < .01$). However, for the participants primed with a broad identity, no significant difference was found between those in the high self-esteem condition and those in the low self-esteem condition ($F(1, 112) < 1.0$).

Process measure: subjective knowledge as the mediator

The three items used to measure subjective knowledge were averaged to form an index ($\alpha = .90$). We performed a 2 \times 2 ANOVA on the score of subjective knowledge. The results indicated a significant main effect of identity breadth ($F(1, 112) = 9.30$, $p < .01$), a significant main effect of self-esteem ($F(1, 112) = 12.94$, $p < .001$), and a significant interaction effect ($F(1, 112) = 5.34$, $p < .05$). Consistent with our hypothesis, in the low self-esteem condition, those who accessed a broad identity scored significantly higher ($M = 4.06$, $SD = 1.47$) than those who accessed a narrow identity ($M = 2.58$, $SD = 1.33$; $F(1, 112) = 14.93$, $p < .001$) on subjective knowledge. Conversely, for participants in the high self-esteem condition, we found no significant difference between broad ($M = 4.41$, $SD = 1.76$) and narrow identity conditions ($M = 4.21$, $SD = 1.26$; $F(1, 112) < 1.0$). Pairwise comparisons further

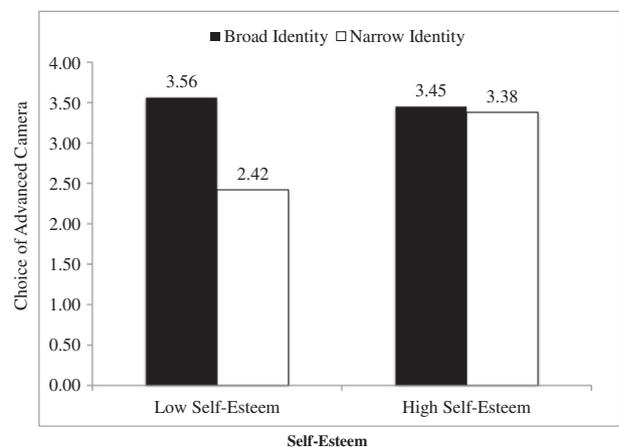


Fig. 2. Choice of camera (experiment 3).

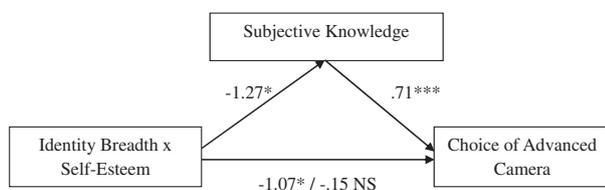
confirmed that for participants accessing a narrow identity, those in the high self-esteem condition reported higher scores on the index of subjective knowledge than those in the low self-esteem condition ($F(1112) = 17.72, p < .001$). In contrast, among the participants accessing a broad identity, the difference in subjective knowledge between the high self-esteem condition and low self-esteem condition became non-significant ($F(1112) < 1.0$).

We next performed a mediation analysis using the PROCESS SPSS macro (Model 8; Hayes, 2012) and followed a bootstrapping procedure that generated a sample size of 5000 to examine the mediation role of subjective knowledge. A 95% bootstrap confidence interval for the indirect effect of interaction between identity breadth and self-esteem through subjective knowledge did not include zero (95% CI = -1.73 to $-.05$; see Fig. 3). Importantly, the bootstrapping analysis showed that the conditional indirect effect of identity breadth on choice of camera was significantly mediated by subjective knowledge among the participants primed with low self-esteem, with a 95% confidence interval excluding zero (CI = $.45$ to 1.60), but not among the participants primed with high self-esteem, with a 95% confidence interval including zero (CI = $-.45$ to $.74$). Taken together, the moderation of self-esteem was mediated by subjective knowledge, supporting our hypothesis 4.

According to the results of previous experiments, we documented that generally consumers have a certain level of sensitivity to social cues and react accordingly in a product choice task upon the activation of a broader versus a narrower identity breadth. This is particularly true when they are saliently primed with low self-esteem. However, when they are saliently primed with high self-esteem, this priming reduces their reliance on social information and thus diminishes the effect of identity breadth activation on their subjective knowledge perception. Because participants with high self-esteem are relatively confident about their knowledge and capability, these participants tended to prefer advanced products in both the broad and narrow identity condition in experiment 3. Therefore, both experiment 1 and experiment 3 provided consistent evidence to support our hypotheses. In experiment 4, we aim to investigate whether the proposed identity breadth effect on consumer preference for advanced products would reverse when choosing products from a narrow-identity-relevant domain.

Experiment 4: moderating role of product domain relevance

Experiment 4 examines whether product domain relevance would moderate the effect of identity breadth on consumers' choice of advanced products. We had expected that the effect of



Note: *** $p < .001$; ** $p < .01$; * $p < .05$.

Fig. 3. Mediation analysis: subjective knowledge as a mediator (experiment 3).

identity breadth on consumer choice of advanced products would occur when the product domain is irrelevant to the activated narrow identity and that this effect would reverse in a narrow-identity-relevant product domain where subjective knowledge would be higher in the narrow identity condition. We tested the moderation effect and validated the mediation role of subjective knowledge using a task of software selection. Moreover, this experiment used a non-student sample to test the robustness of the findings.

Methods and procedure

Experiment 4 employed a 2 (identity breadth: broad vs. narrow) \times 2 (product domain relevance: narrow-identity-relevant vs. narrow-identity-irrelevant) between-subjects design. One hundred and eight high school English teachers (15.7% male, mean age = 36.22) participated in this experiment, and each of them received a small gift for compensation. The entire study had three ostensibly unrelated parts.

In the first part, we manipulated identity breadth through a job satisfaction survey. In the *broad identity condition*, participants categorized their job in one of four ways: 1) company employee, 2) teacher, 3) civil servant, and 4) other. All the participants in the broad identity condition chose “teacher,” which defined their identity in broad terms. In the *narrow identity condition*, participants were instructed to write a description of their specific job in the form of “I work as a high school English teacher at xxx school in xxx city.” Then the participants answered a few filler questions about their current job and indicated their satisfaction with the job on a scale ranging from 1 (not satisfied at all) to 9 (extremely satisfied). As the manipulation check, we measured the perceived size of the activated identity group on a scale of 1 (very small) to 9 (very large).

After finishing the job satisfaction survey, the participants were invited to complete a product evaluation task. Specifically, participants received information about six models of video software, ranging from option A (quite suitable for amateurs) to option F (quite suitable for experts) (see Appendix B). In the *narrow-identity-relevant product domain condition*, we indicated that the video software was for English language training and that the six models varied along two features: proficiency level of the English ability test questions and the number of English conversation exercises. We selected these two features based on discussions with experts on the English language. In the *narrow-identity-irrelevant product domain condition*, we indicated that the video software was for editing videos and the six models varied along two features: the professional level of the editing tutorial and the number of editing exercises. Similarly, we selected the two features based on discussion with experts on video editing. Participants were then instructed to choose the model they preferred most based on the given information.

A separate pretest ($N = 23$) validated the selection of features. Both the proficiency level of English ability test questions ($M = 5.35, SD = 1.23; t(22) = 5.26, p < .001$) and the number of English conversation scenarios were believed to significantly predict how advanced the English video software

was ($M = 5.04$, $SD = 1.58$; $t(22) = 3.17$, $p < .01$). Hence, the software with the higher proficiency level of English test questions and more English conversation scenarios was regarded as more advanced. Similarly, both the professional level of the editing tutorial ($M = 4.78$, $SD = 1.51$; $t(22) = 2.49$, $p < .05$) and the number of editing scenarios were believed to significantly predict how advanced the video editing software was ($M = 4.96$, $SD = 1.33$; $t(22) = 3.45$, $p < .01$). Consequently, the software with the more professional level of editing tutorial and more editing scenarios was regarded as more advanced.

In the final section of the questionnaire, the participants reported their subjective knowledge about the video software on the same items used in previous experiments (product knowledge, product familiarity, and frequency of video software usage). The study ended with demographic questions. Finally, participants were debriefed and thanked with a small gift.

Results and discussion

Manipulation check

A 2 (identity breadth: broad vs. narrow) \times 2 (product domain relevance: narrow-identity-relevant vs. narrow-identity-irrelevant) ANOVA on the perceived size of the primed group yielded a main effect of only identity breadth. Specifically, the participants in a broad identity condition perceived their group as bigger ($M = 5.10$, $SD = 1.54$) than the ones in a narrow identity condition ($M = 3.55$, $SD = 1.61$; $F(1104) = 25.82$, $p < .001$).

Choice of software

We performed a 2 (identity breadth: broad vs. narrow) \times 2 (product domain relevance: narrow-identity-relevant vs. narrow-identity-irrelevant) ANOVA on the choice of video software. The results indicated a main effect of product domain relevance ($F(1104) = 15.05$, $p < .001$) and a significant interaction effect ($F(1104) = 12.23$, $p < .01$). As predicted in hypothesis 5, pairwise comparison showed that when the product domain was irrelevant to the salient narrow identity, participants primed with a broad identity preferred the more advanced model of software ($M = 3.41$, $SD = 1.47$) than the ones primed with a narrow identity ($M = 2.73$, $SD = 1.10$; $F(1104) = 4.12$, $p < .05$, see Fig. 4). Conversely, when the product domain was relevant to the salient narrow identity, participants who accessed a broad identity exhibited less preference for the more advanced model of software ($M = 3.50$, $SD = 1.35$) than those who accessed a narrow identity ($M = 4.48$, $SD = .96$; $F(1104) = 8.51$, $p < .01$). In addition, the choice of advanced software did not differ between narrow-identity-relevant and narrow-identity-irrelevant product domain conditions among the participants primed with a broad identity ($F(1104) < 1.0$). However, participants preferred the more advanced model of software in the narrow-identity-relevant rather than narrow-identity-irrelevant product domain when they were primed with a narrow identity ($F(1104) = 29.30$, $p < .001$).

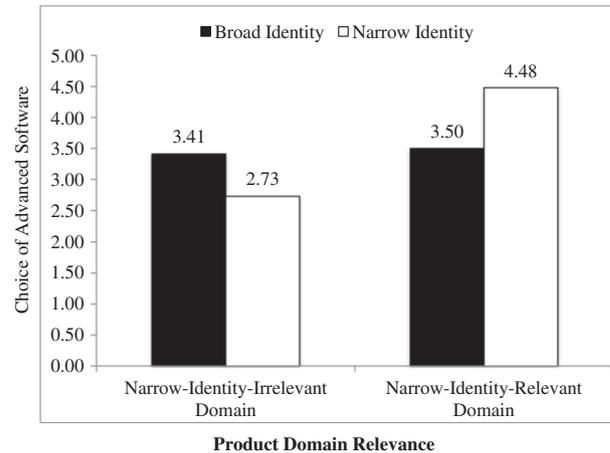
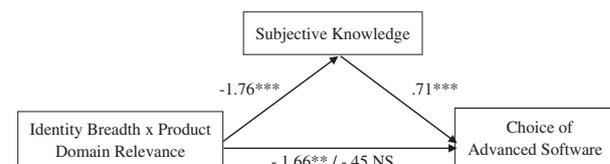


Fig. 4. Choice of software (experiment 4).

Process measure: subjective knowledge as the mediator

We took an average of the three items used to measure subjective knowledge about video software to form an index ($\alpha = .94$). Results of a 2 (identity breadth: broad vs. narrow) \times 2 (product domain relevance: narrow-identity-relevant vs. narrow-identity-irrelevant) ANOVA on the score of subjective knowledge indicated a main effect of product domain relevance ($F(1, 104) = 10.74$, $p < .01$) and a significant interaction effect ($F(1, 104) = 13.64$, $p < .001$). Validating our hypothesis, those who accessed a broad identity reported higher subjective knowledge scores ($M = 3.74$, $SD = 1.50$) than those who accessed a narrow identity ($M = 2.91$, $SD = 1.13$; $F(1104) = 6.09$, $p < .05$) in the narrow-identity-irrelevant product domain. In contrast, the scores of subjective knowledge in the narrow-identity-relevant product domain were lower for participants who accessed a broad identity ($M = 3.64$, $SD = 1.31$) than for those who accessed a narrow identity ($M = 4.57$, $SD = .96$; $F(1104) = 7.60$, $p < .01$).

To examine the mediation role of subjective knowledge, we performed a mediation analysis using the PROCESS SPSS macro (Model 8; Hayes, 2012) and followed a bootstrapping procedure that generated a sample size of 5000. A 95% bootstrap confidence interval for the indirect effect of interaction between identity breadth and product domain relevance through subjective knowledge did not include zero (95% CI = -2.03 to $-.55$; see Fig. 5). Moreover, the bootstrapping analysis implied that the conditional indirect effect of identity breadth on choice of advanced camera was significantly mediated by subjective knowledge when the product domain was irrelevant to the salient narrow identity, with a 95% confidence interval excluding zero (CI = $.07$ to 1.11), and was significantly mediated by



Note: *** $p < .001$; ** $p < .01$; * $p < .05$.

Fig. 5. Mediation analysis: subjective knowledge as a mediator (experiment 4).

subjective knowledge when the product domain was relevant to the salient narrow identity with a 95% confidence interval falling outside zero (CI = -1.16 to $-.21$). Therefore, the interaction effect of identity breadth and product domain relevance on consumer choice of advanced camera was mediated by subjective knowledge, supporting our hypothesis 6.

General discussion

Conclusions

The current research identifies identity breadth (broad vs. narrow identity) as one important antecedent of consumers' subjective knowledge level and investigates its consequences on their decision-making. Findings from four experiments using both student and non-student samples provide consistent evidence for the proposed hypotheses. Results of experiment 1 established the basic link between identity breadth and consumer preference for advanced products. Experiment 1 also documented that the proposed effect was mediated by subjective knowledge rather than objective knowledge. Results of experiment 2A and 2B suggested that the effect of identity breadth on consumer choice of advanced products could not be explained by simple categorization mindset nor by construal level, empirically ruling out these alternative explanations.

Experiment 3 validated individual differences in self-esteem as a boundary condition for the identity breadth effect in consumer choice of more advanced products and further tested its underlying process. In particular, we found that compared with individuals whose narrow identity was made salient, those whose broad identity was made salient preferred more advanced cameras when they were primed with low self-esteem. In contrast, when they were primed with high self-esteem, the influence of identity breadth on consumer choice was alleviated. The interaction effect was mediated by consumers' subjective knowledge.

In experiment 4, we documented that product domain relevance moderates the effect of identity breadth on consumers' choice of advanced products. Specifically, priming a broad identity compared with narrow identity increased the likelihood of choosing advanced products in a domain irrelevant to narrow identity but decreased the likelihood of choosing advanced products in a narrow-identity-relevant domain. Furthermore, the interaction effect was driven by consumers' subjective knowledge.

Theoretical contributions

Findings of the present research could make substantial contributions to the existing literature in a number of ways. First and foremost, across four experiments we provide an initial investigation of the broad versus narrow identity priming paradigm, focusing on its effect on consumer choice of advanced products. Social identity plays a critical role in daily life and has received considerable academic attention in recent decades (Hogg & Vaughan, 2002; Oyserman, 2009; Turner et al., 1987). However, the existing literature has typically investigated the effect of different types of social identities (e.g., ethnicity, gender, age) on consumer judgment and behavior (e.g., Aaker & Lee, 2001; Cheng

et al., 2008; Mandel, 2003; Shih et al., 1999). The present research focuses on the impact of different breadth levels of social identity. Specifically, we extend the self-categorization theory to differentiate social identities from a broad level to a narrow level. In one context, an individual may constitute his or her identity at a superordinate level with highly inclusive features, which activates a broad identity (e.g., professor). However, in another situation the same individual may construe his or her identity at a subgroup level with constrained domains, which activates a narrow identity (e.g., a microbiology professor of science at a university).

Importantly, our conceptualization of broad versus narrow identity differs from prior work on the dynamics of self-categorization based on inclusiveness. Both the common ingroup identity model (Gaertner & Dovidio, 2000; Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993; Gaertner, Rust, Dovidio, Bachman, & Anastasio, 1994; Hong et al., 2004) and dual identity theory (Huo, Smith, Tyler, & Lind, 1996) focus on how activation of one inclusive social categorization promotes intergroup interactions between two rival groups. However, our conceptualization of broad versus narrow identity breadth concentrates on making salient one single identity with different breadths of categorization. In our framework, there are no rival groups, and the broad identity does not necessarily include a previously maligned group. Furthermore, distinct from prior studies that mainly investigate the role of self-categorization in intergroup interactions (Dovidio, Gaertner, & Kafati, 2000; González & Brown, 2003; Hong et al., 2004; Huo et al., 1996), we focus on the effect of priming a broad versus narrow identity on consumers' self-perception and subsequent personal choices.

Secondly, the current paper extends understanding of consumer knowledge calibration (Goldsmith & Pillai, 2006). Consumer knowledge calibration refers to the agreement between objective and subjective assessments of the validity of product information (Alba & Hutchinson, 2000). Our results suggest that activating identity at different levels of breadth may lead to miscalibration. Making salient a broad identity (vs. a narrow identity) is found to enhance individuals' perception of their subjective knowledge but not affect their levels of objective knowledge. Such an inconsistency is likely to result in knowledge miscalibration. Furthermore, we found that this miscalibration would decrease when people felt high self-esteem.

Thirdly, prior literature traditionally concentrates on the consequences of social identities in social settings, such as ingroup favoritism (Tajfel & Turner, 1986) and outgroup derogation (Hong et al., 2004; McGregor, Reeshma, & So-Jin, 2008). However, academics have given relatively less attention to the influence of social identity on consumers' consumption choice. Recently researchers argued that consumers make use of consumption to signal their desirable social identity (Berger & Heath, 2007; White & Dahl, 2007). By proposing an alternative process, the present research documents that priming a broad (vs. narrow) identity will enhance consumers' subjective knowledge, which in turn leads to a preference for more advanced products. Our findings can shed new light on the role of social identity in consumers' consumption choices and advance the social identity theory.

Last but not least, researchers have shown that consumers have a chronic tendency to view themselves through rose-tinted

glasses (Tanner & Carlson, 2009). For instance, people tend to believe that they are more likely than others to experience positive events and less likely to experience negative events (Armor & Taylor, 2002; Burger & Burns, 1988). Similarly, scholars have proposed a self-positivity bias wherein individuals typically underestimate their vulnerability (vs. that of others) to a variety of health risks such as heart attack, venereal disease, and even cancer (Perloff & Fetzer, 1986; Taylor & Brown, 1988; Weinstein, 1980; Yan & Sengupta, 2013). Along this line, our research can add knowledge to the literature about unrealistic optimism by identifying a new consequence in the consumer choice domain. In particular, we find that compared with a narrow identity, a broad identity will significantly enhance consumers' subjective knowledge and make them feel as if they can handle advanced products better.

Managerial implications

Findings of the current research have meaningful implications for marketing practice. Take new car promotion as an example. Consider a context where a marketing team promotes a new car to the professional legal community. Marketing managers could use slogans in advertisements to evoke different identity breadth levels. According to our findings, compared to advertisements with slogans like "Car for Legal Elites" (evoking a relatively narrow identity), advertisements with slogans like "Car for Elites" (evoking a relatively broad identity) will enhance consumers' preference for more advanced car models. In the meantime, our findings suggest that managers should pay more attention to consumers' self-perceptions because the identity breadth effect will be more

effective for consumers with low self-esteem but may lose its power for people with high self-esteem.

Limitations and future research

The current research has several limitations that could provide fruitful opportunities for further research. To begin with, we manipulated the participants' real social identity at a broader or narrower level, without making salient any out-groups. Future studies could examine how identity breadth would influence consumer product choice when out-groups are made salient. Building on the comparative ignorance hypothesis (Fox & Tversky, 1995), making participants compare themselves with more knowledgeable out-groups will undermine their sense of competence and thus lower self-assessments of their knowledge. Hence, it is interesting to investigate whether comparison with out-groups will influence the identity breadth effect on choice of advanced products. In addition, our research documents the influence on consumer product choice of activating a broad identity versus a narrow identity. By extending the identity breadth effect, future studies could explore whether activating different levels of identity breadth would affect consumers' estimation of their ability and behavior in other domains such as self-regulation.

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Appendix A. Stimuli used in experiment 1

Suppose you are considering purchasing a new digital camera. On this page you can customize your camera by choosing features from a series of digital camera features: 8 basic features and 17 sophisticated features. Please review the following 25 features carefully and check off each feature that you want to include in your camera.

Please note that your budget for the purchase will allow you to select as many features as you want.

Basic features

- 12 million pixels
- Face recognition
- 10× optical zoom
- Digital zoom
- Multiple shot scenes
- Auto-focusing
- Four white balance
- Voice recorder

Sophisticated features

- Wide-angle lens
 - Smile shutter
 - Large aperture
 - Support the video image capture
 - Video clip
 - Touch display screen
 - High-speed shutter
 - Zoom mic
 - 1080p full-HD video
 - Optical image stabilizer
 - Red-eye reduction
 - Autofocus tracking
 - Built-in Wi-Fi
 - Backlight compensation
 - Anti shake DSP
 - DIGIC DV III
 - BSI CMOS
-

Appendix B. Choice of software in experiment 4

Please imagine that you are considering purchasing one software. Below please find the information for six software models. Please note that you have enough budgets for this purchase. Based on your own situation, please choose one software that may be suitable for you.

Narrow-identity-relevant product domain condition

| | | |
|--|--|---|
| <p><i>Option A</i></p> <ul style="list-style-type: none"> English question bank: level 1 50 English conversation scenarios Quite suitable for amateurs <p><i>Option D</i></p> <ul style="list-style-type: none"> English question bank: level 4 200 English conversation scenarios Slightly suitable for experts | <p><i>Option B</i></p> <ul style="list-style-type: none"> English question bank: level 2 100 English conversation scenarios Less suitable for amateurs <p><i>Option E</i></p> <ul style="list-style-type: none"> English question bank: level 5 250 English conversation scenarios Less suitable for experts | <p><i>Option C</i></p> <ul style="list-style-type: none"> English question bank: level 3 150 English conversation scenarios Slightly suitable for amateurs <p><i>Option F</i></p> <ul style="list-style-type: none"> English question bank: level 6 300 English conversation scenarios Quite suitable for experts |
|--|--|---|

Narrow-identity-irrelevant product domain condition

| | | |
|--|--|---|
| <p><i>Option A</i></p> <ul style="list-style-type: none"> Video editing tutorial: level 1 50 video editing scenarios Quite suitable for amateurs <p><i>Option D</i></p> <ul style="list-style-type: none"> Video editing tutorial: level 4 200 video editing scenarios Slightly suitable for experts | <p><i>Option B</i></p> <ul style="list-style-type: none"> Video editing tutorial: level 2 100 video editing scenarios Less suitable for amateurs <p><i>Option E</i></p> <ul style="list-style-type: none"> Video editing tutorial: level 5 250 video editing scenarios Less suitable for experts | <p><i>Option C</i></p> <ul style="list-style-type: none"> Video editing tutorial: level 3 150 video editing scenarios Slightly suitable for amateurs <p><i>Option F</i></p> <ul style="list-style-type: none"> Video editing tutorial: level 6 300 video editing scenarios Quite suitable for experts |
|--|--|---|

Appendix C. Supplementary data

Supplementary data to this article can be found online at <http://dx.doi.org/10.1016/j.jcps.2016.11.001>.

References

- Aaker, J. L., & Lee, A. Y. (2001). “I” seek pleasures and “we” avoid pains: The role of self-regulatory goals in information processing and persuasion. *Journal of Consumer Research*, 1, 33–49.
- Alba, J. W., & Hutchinson, J. W. (1987). Dimensions of consumer expertise. *Journal of Consumer Research*, 13, 411–454.
- Alba, J. W., & Hutchinson, J. W. (2000). Knowledge calibration: What consumers know and what they think they know. *Journal of Consumer Research*, 27, 123–156.
- Alter, A. L., Oppenheimer, D. M., & Zemla, J. C. (2010). Missing the trees for the forest: A construal level account of the illusion of explanatory depth. *Journal of Personality and Social Psychology*, 99, 436–451.
- Armor, D. A., & Taylor, S. E. (2002). When predictions fail: The dilemma of unrealistic optimism. In T. D. Gilovich, D. Griffin, & D. Kahneman (Eds.), *Heuristics and biases: The psychology of intuitive judgment* (pp. 334–347). Cambridge, England: Cambridge University Press.
- Berger, J., & Heath, C. (2007). Where consumers diverge from others: Identity-signaling and product domains. *Journal of Consumer Research*, 34, 121–134.
- Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin*, 17, 475–482.
- Brockner, J. (1983). Low self-esteem and behavioral plasticity: Some implications. *Review of Personality and Social Psychology*, 4, 237–271.
- Brucks, M. (1985). The effects of product class knowledge on information search behavior. *Journal of Consumer Research*, 12, 1–16.
- Burger, J. M., & Burns, L. (1988). The illusion of unique invulnerability and the use of effective contraception. *Personality and Social Psychology Bulletin*, 14, 264–270.
- Burson, K. A. (2007). Consumer-product skill matching: The effects of difficulty on relative self-assessment and choice. *Journal of Consumer Research*, 34, 104–110.
- Campbell, J. D. (1990). Self-esteem and clarity of the self-concept. *Journal of Personality and Social Psychology*, 59, 538–549.
- Carlson, J. P., Vincent, L. H., Hardesty, D. M., & Bearden, W. O. (2009). Objective and subjective knowledge relationships: A quantitative analysis of consumer research findings. *Journal of Consumer Research*, 35, 864–876.
- Cheng, C. Y., Sanchez-Burks, J., & Lee, F. (2008). Connecting the dots within: Creative performance and identity integration. *Psychological Science*, 19, 1178–1184.
- Coleman, N. V., & Williams, P. (2015). Looking for my self: Identity-driven attention allocation. *Journal of Consumer Psychology*, 25, 504–511.
- Cowley, E., & Mitchell, A. A. (2003). The moderating effect of product knowledge on the learning and organization of product information. *Journal of Consumer Research*, 31, 229–235.
- Devine, P. G., & Monteith, M. J. (1999). Automaticity and control in stereotyping. In S. Chaiken, & Y. Trope (Eds.), *Dual process theories in social psychology* (pp. 339–360). New York: Guilford Press.
- Dovidio, J. F., Gaertner, S. L., & Kafati, G. (2000). Group identity and intergroup relations: The common in-group identity model. In S. R. Thye, E. J. Lawler, M. W. Macy, & H. A. Walker (Eds.), *Advances in group processes*. Vol. 17. (pp. 1–34). Stamford, CT: JAI Press.
- Eckrich, D. W., & McCall, M. (2009). Category width and new household technology adoption: Developments of the measures. *Journal of Management and Marketing Research*, 2, 1–10.
- Fiske, S. T. (1998). Stereotyping, prejudice, and discrimination. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (pp. 357–414). New York: McGraw-Hill.
- Fox, C. R., & Tversky, A. (1995). Ambiguity aversion and comparative ignorance. *Quarterly Journal of Economics*, 110, 585–603.
- Freitas, A. L., Gollwitzer, P. M., & Trope, Y. (2004). The influence of abstract and concrete mindsets on anticipating and guiding others’ self-regulatory efforts. *Journal of Experimental Social Psychology*, 40, 739–752.
- Gaertner, S. L., & Dovidio, J. F. (2000). *Reducing intergroup bias: The common ingroup identity model*. Philadelphia, PA: The Psychology Press.

- Gaertner, S. L., Dovidio, J. F., Anastasio, P. A., Bachman, B. A., & Rust, M. C. (1993). The common ingroup identity model: Recategorization and the reduction of intergroup bias. In W. Stroebe, & M. Hewstone (Eds.), *European review of social psychology*. Vol. 4. (pp. 1–26). New York: John Wiley & Sons.
- Gaertner, S. L., Rust, M. C., Dovidio, J. F., Bachman, B. A., & Anastasio, P. A. (1994). The contact hypothesis: The role of a common ingroup identity on reducing intergroup bias. *Small Group Research*, 25, 224–249.
- Gibbons, F. X., & Buunk, B. P. (1999). Individual differences in social comparison: Development of a scale of social comparison orientation. *Journal of Personality and Social Psychology*, 76, 129–142.
- Goldsmith, R. E., & Pillai, K. G. (2006). Knowledge calibration. *Encyclopaedia of knowledge management* (pp. 311–316). Idea Group Inc.
- González, R., & Brown, R. (2003). Generalization of positive attitude as a function of subgroup and superordinate group identification in intergroup contact. *European Journal of Social Psychology*, 33, 195–214.
- Hadar, L., Sood, S., & Fox, C. R. (2013). Subjective knowledge in consumer financial decisions. *Journal of Marketing Research*, 30, 303–316.
- Harter, S. (1985). Competence as a dimension of self-evaluation: Toward a comprehensive model of self-worth. In R. L. Leahy (Ed.), *The development of the self* (pp. 55–121). Orlando, FL: Academic Press.
- Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. Retrieved from <http://www.afhayes.com/public/process2012.pdf>
- Heatherton, T. F., & Polivy, J. (1991). Development and validation of a scale for measuring state self-esteem. *Journal of Personality and Social Psychology*, 60, 895–910.
- Higgins, E. T. (1996). Knowledge activation: Accessibility, applicability, and salience. In E. T. Higgins, & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 133–168). New York: Guilford Press.
- Hogg, M. A., & Vaughan, G. M. (2002). *Social psychology* (3rd ed.). London: Person-Prentice Hall.
- Hong, Y. Y., Coleman, J., Chan, G., Wong, R. Y., Chiu, C. Y., Hansen, I. G., ... Fu, H. Y. (2004). Predicting intergroup bias: The interactive effects of implicit theory and social identity. *Personality and Social Psychology Bulletin*, 30, 1035–1047.
- Huo, Y. J., Smith, H. J., Tyler, T. R., & Lind, E. A. (1996). Superordinate identification, subgroup identification, and justice concerns: Is separatism the problem; is assimilation the answer? *Psychological Science*, 7, 40–45.
- Johnson, E. J., & Russo, J. E. (1984). Product familiarity and learning new information. *Journal of Consumer Research*, 11, 542–550.
- Keiichi, O., Yasumasa, O., Ken'ichiro, N., Hiroshi, N., Shinpei, Y., Sigeto, Y., ... Mitsuhiro, U. (2010). Does low self-esteem enhance social pain? The relationship between trait self-esteem and anterior cingulate cortex activation induced by ostracism. *Social Cognitive and Affective Neuroscience*, 5, 385–391.
- Kleine, R. E., III, Kleine, S. S., & Kernan, J. B. (1993). Mundane consumption and the self: A social identity perspective. *Journal of Consumer Psychology*, 2, 209–235.
- Leary, M. R., & Downs, D. L. (1995). Interpersonal functions of the self-esteem motive: The self-esteem system as a sociometer. In M. Kernis (Ed.), *Efficacy, agency, and self-esteem*. New York: Plenum.
- Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of Personality and Social Psychology*, 68, 518–530.
- Mandel, N. (2003). Shifting selves and decision making: The effects of self-construal priming on consumer risk-taking. *Journal of Consumer Research*, 30, 30–40.
- McGregor, I., Reeshma, H., & So-Jin, K. (2008). Can in-group affirmation relieve out-group derogation? *Journal of Experimental Psychology*, 44, 1395–1401.
- Mooman, C. (2001). Special session summary consumer confidence and knowledge calibration. In M. C. Gilly, & J. Meyers-Levy (Eds.), *Advances in consumer research* (pp. 47). Association for Consumer Research.
- Mooman, C., Diehl, K., Brinberg, D., & Kidwell, B. (2004). Subjective knowledge, search locations, and consumer choice. *Journal of Consumer Research*, 31, 673–680.
- Oyserman, D. (2009). Identity-based motivation: implications for action-readiness, procedural-readiness, and consumer behavior. *Journal of Consumer Psychology*, 19, 250–260.
- Park, C. W., & Lessig, V. P. (1981). Familiarity and its impact on consumer decision biases and heuristics. *Journal of Consumer Research*, 8, 223–230.
- Park, C. W., Mothersbaugh, D. L., & Feick, L. (1994). Consumer knowledge assessment. *Journal of Consumer Research*, 21, 71–82.
- Perloff, L. S., & Fetzer, B. K. (1986). Self-other judgments and perceived vulnerability to victimization. *Journal of Personality and Social Psychology*, 50, 502–510.
- Punj, G. N., & Staelin, R. (1983). A model of consumer information search behavior for new automobiles. *Journal of Consumer Research*, 9, 366–380.
- Raju, P. S., Lonial, S. C., & Mangold, W. G. (1995). Differential effects of subjective knowledge, objective knowledge, and usage experience on decision making: An exploratory investigation. *Journal of Consumer Psychology*, 4, 153–180.
- Rao, A. R., & Sieben, W. A. (1992). The effect of prior knowledge on price acceptability and the type of information examined. *Journal of Consumer Research*, 19, 256–270.
- Riketta, M., & Dauenheimer, D. (2003). Manipulating self-esteem with subliminally presented words. *European Journal of Social Psychology*, 33, 679–699.
- Schacter, D. L. (1983). Feeling of knowing in episodic memory. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 9, 39–54.
- Schell, T. L., Klein, S. B., & Babey, S. H. (1996). Testing a hierarchical model of self-knowledge. *Psychological Science*, 7, 170–173.
- Shepperd, J. A., Ouellette, J. A., & Fernandez, J. Q. (1996). Abandoning unrealistic optimism: performance estimates and the temporal proximity of self-relevant feedback. *Journal of Personality and Social Psychology*, 70, 844–855.
- Shih, M., Pittinsky, T. L., & Ambady, N. (1999). Stereotype susceptibility: Identity salience and shifts in quantitative performance. *Psychological Science*, 10, 80–83.
- Snodgrass, S. E. (1985). Women's intuition: The effect of subordinate role on interpersonal sensitivity. *Journal of Personality and Social Psychology*, 49, 146–155.
- Spencer, S. J., & Steele, C. M. (1994). Self-esteem functioning: The role of affirmational resources in self-evaluation. Unpublished manuscript, Hope College, Holland, MI.
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel, & W. G. Austin (Eds.), *Psychology of intergroup relations* (pp. 7–24). Chicago, IL: Nelson-Hall.
- Tanner, R. J., & Carlson, K. A. (2009). Unrealistically optimistic consumers: A selective hypothesis testing account for optimism in predictions of future behavior. *Journal of Consumer Research*, 35, 810–822.
- Taylor, S. E., & Brown, J. D. (1988). Illusion of well-being: A social psychological perspective on mental health. *Psychological Bulletin*, 103, 193–210.
- Turner, J. C., & Oakes, P. J. (1986). The significance of the social identity concept for social psychology with reference to individualism, interactionism and social influence. *British Journal of Social Psychology*, 25, 237–252.
- Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group*. Oxford, England: Basil Blackwell.
- Ülkümen, G., Chakravarti, A., & Morwitz, V. G. (2010). Categories create mind-sets: The effect of exposure to broad versus narrow categorizations on subsequent, unrelated decisions. *Journal of Marketing Research*, 47, 659–671.
- Ward, M. K., & Dahl, D. W. (2014). Should the devil sell Prada? Retail rejection increases aspiring consumers' desire for the brand. *Journal of Consumer Research*, 41, 590–609.
- Weinstein, N. D. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology*, 39, 806–820.
- White, K., & Dahl, D. W. (2007). Are all out-groups created equal? Consumer identity and dissociative influence. *Journal of Consumer Research*, 34, 525–536.
- Yan, D. F., & Sengupta, J. (2013). The influence of base rate and case information on health-risk perceptions: A unified model of self-positivity and self-negativity. *Journal of Consumer Research*, 39, 931–946.