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Full Length Research Paper

The influence of product contagion effect on consumer evaluation: The moderating role of cognitive style

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Contagion theory stated that consumer product perceptions can be affected by a transfer of properties from one object to another. This study was performed using candy and bitter gourd as the experimental sources. Moreover, we employed 233 students to participate in two experiments and used a 2 × 2 × 2 + 1 between-subjects design to measure the contagion effect. This research focused on how different source properties and presentation types affected consumer evaluations and how cognitive style moderated the result for positive versus negative contagion. Results revealed no significant difference between objects and photos. However, displaying the source and target product simultaneously produced a stronger contagion effect than displaying the source and target product sequentially. In addition, cognitive style moderated two factors in positive contagion. For source property, a photo had a stronger contagion effect than an object among field-dependence consumers, but there was no difference among field-independence consumers. For presentation type, simultaneous presentation created a stronger contagion effect than sequential presentation among field-independence consumers, but produced no difference among field-dependence consumers. Hence, this was the first study to discuss the personality on the contagion effect. Based on the obtained results, marketers could display their products in a better way.

Key words: Contagion effect, cognitive style, source property, presentation type.

INTRODUCTION

Contagion theory is one of the central laws of sympathetic magic and states that qualities can be transferred from a source (person/object) to a target (person/object) directly or indirectly (Argo et al., 2008; Mishra, 2009; Nemeroff and Rozin, 1994, 2002; Rozin et al., 1986, 1992). Research on this theory has determined that exchanged essence can be mental, physical, or moral in nature and can be positive or negative. In addition, the contagion effect not only influences how people think but also forms the basis for many customs in primitive culture (Morales and Fitzsimons, 2007). Previous studies on consumer behavior indicated that qualities are contagious, and that proximity to the source enhances feelings of contagion (Argo et al., 2006; Mishra, 2009; Morales and Fitzsimons, 2007). Morales and Fitzsimons (2007) showed that consumers had less desire to try target products which were put with other disgusting products in the same shopping cart. In their study, which employed six experiments with touching and non-touching conditions, they found that consumer evaluation can also be influenced in the non-touching conditions. Moreover, Mishra (2009) demonstrated that consumers prefer to choose from contagious groups in gain domain even without physical contact. Their research showed that contagion effects occur when products and sources are displayed at the same time. However, this study proposes that the contagion effect could be induced even when the source and the target object are displayed separately in the retail context. In addition, using a photo may elicit the essence of target product in the form of nonphysical contact with the sources. Furthermore, we considered that different consumers may have dissimilar evaluations on source property and presentation type.

However, most empirical studies neglect this distinction,

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tacitly assuming that all consumers have the same perception and evaluation. Although previous research focused on different consumers, showing that the attractiveness level of the other shoppers and participant's sex could affect consumer evaluation (Argo et al., 2008), it tended to ignore consumers' internal trait. Their study put emphasis on positive consumer contagion and revealed that consumers have higher evaluation and purchase intention on T-shirt touched by the highly attractive other, who is of the opposite sex. To the best of our knowledge, there is little empirical evidence on the influence of personality on the cognition effects. Researchers have long attempted to understand consumer behavior and modes of thinking. Moreover, magical thinking is the important step in dealing with the information. Consumers recognize whole objects, and not partial ones, when facing stimuli. Specifically, cognitive style is regarded as a person perceives, organizes and cues information (Witkin et al., 1973, 1977). It is divided into field-dependence (FD) and field-independence (FI), which have different information processing and selective attention in the same environment (Davies, 1982; Demick, 1991; Dooley and Harkins, 2010; Witkin and Goodenough, 1981). Some studies found that FD individuals tended to use the external cues and emotional information, but FI individuals relied on central cues to guide their behavior (Kogan and Block, 1991; Sabatelli et al., 1979). Hence, this study explores whether cognitive style moderates source property and presentation type on positive versus negative contagion effects. By way of two experiments, our research revealed that FD consumers had no difference on presentation type, but they felt that photos induced a stronger contagion effect than objects. Conversely, FI consumers had no difference on source property, but they felt that simultaneous presentation induced a stronger contagion effect than sequential presentation.

CONCEPTUAL BACKGROUND - HYPOTHSIS FORMATION

Positive and negative contagion

Prior research focuses on negative versus positive contagion, and shows negative effects are stronger in intensity (Rozin and Kalat, 1971; Rozin et al., 1994). Physical contagion between products and consumers, and between products, can influence the consumer evaluation of target objects (Argo et al., 2006; Morales and Fitzsimons, 2007). However, in all cases, previous research indicates that the source and the target object are shown simultaneously. In addition, most consumers have the same feelings and beliefs on target products. No studies to day describe how consumer personalities may play an important role in the contagion effect.

Likewise, this study hypothesizes that there is no difference for consumers on negative contagion because consumers have lower evaluation from negative sources to the objects. Thus, positive contagion effect should differ, depending on who views the products. This may elicit different extents of product contagion and subsequently influence consumer evaluations.

The effects of source property on the contagion effect: 1st hypothesis

Previous studies demonstrate that consumers are influenced by stimulus characteristics when sources are put next to target products (Mishra et al., 2009; Morales and Fitzsimons, 2007; Rozin et al., 1986, 1992). However, previous research uses objects (Mishra, 2009; Mishra et al., 2009; Morales and Fitzsimons, 2007), pictures (Rozin et al., 1986) or people (Argo et al., 2008) to elicit positive and negative feelings toward the target. Indeed, diverse sources may induce different intensities of contagion effect. For instance, in a department store, many restaurant practitioners replace photos of food with food models in display cabinets to stimulate consumers' visual perception and enhance their purchase intention. Moreover, some studies in the field of education show that using objects can enhance learning attitudes for students (Field, 1996; Greeu, 1969; Hooper-Greenhill, 1994; Talboys, 1996). Many studies on internet shopping demonstrate that people feel the vendor is unreliable and unrealistic when they can't view the products. In addition, pictures lack some important characteristic of the actual objects such as three-dimensional (3D) cues (Fagot et al., 1999). As discussed earlier, this study hypothesizes that consumers who easily perceive a sense of reality from the source will have stronger feelings and visual perceptions when they see a real object than a photo. Therefore, different source properties could affect contagion effect. This formed the basis of our hypothesis:

H_1: An object produces stronger contagion effects than a photo.

The effects of presentation type on the contagion effect: 2nd hypothesis

Prior research shows that physical proximity facilitates the transmission of qualities and enhances the sense of contagion (Morales and Fitzsimons, 2007; Rozin et al., 1992). People are more likely to believe that good or bad quality will be spread in close proximity groups than in groups in which the products are placed far apart (Mishra, 2009). Consumers that can observe the target products and sources at the same time can directly evaluate their relation. In contrast, Argo et al. (2006) demonstrated that consumers still transfer the source's essence to the target product when they receive cues (for

example, someone who you like or dislike has touched the product) before looking at the target product. Nevertheless, the contagion effect is stronger when buyers see someone try on the product in the retail context. This implies that the presentation type of the source and target product both influence the contagion effect. This formed the basis of our hypothesis:

H_2: Simultaneous presentation produces a stronger contagion effect than sequential presentation.

The moderating effect of cognitive style on the contagion effect: 3rd hypothesis

For several centuries, researchers considered that the problem of cognitive styles is in the view of their realization when perceiving sensory information. Current research reveals many style peculiarities. Cognitive style may be defined as an individual's consistent approach to organizing and processing information during thinking (Hayes and Allinson, 1994; McKenna, 1990; Witkin and Goodenough, 1977; Witkin et al., 1977). Muhamadeev (2008) showed that a complex of cognitive styles is characteristic for each person, and that an individual realizes different cognitive processes when carrying out sensory tasks. Witkin (1973) indicated that FI consumers are able to deal with complex situations and disembed items from an organized context, whereas FD consumers must spend more time looking at what they are interested in to determine the relation or differences in the simple context. Hence, FI consumers can concentrate on the surrounding situation and have ability to make immediate decisions. In contrast, FD consumers cannot immediately determine the relation between items because they are easily influenced by the surrounding visual framework when defining their feelings or beliefs. Therefore, no matter the object or photo, FI consumers can focus more on the product and the source simultaneously and then induce a stronger contagion effect using their own perception and reference. However, FD consumers cannot clearly connect with external sources and transfer the essence to the target products. Therefore, a photo should provide them with more emotional cues to enhance their evaluations. Based on the inferences, we formed the following hypotheses.

H_{3a}: Cognitive style moderates the contagion effect on source property. For FD consumers, a photo induces a stronger contagion effect than an object. However, for FI consumers, there is no significant difference between objects and photos.

H_{3b}: Cognitive style moderates the contagion effect on presentation type. For FI consumers, simultaneous presentation induces a stronger contagion effect than sequential presentation. However, for FD consumers, there is no significant difference between presentation types.

MATERIALS AND METHODS

Participants and design

The objective of present research is to examine whether cognitive style moderates source property and presentation type on taste on positive versus negative contagion effects. This study contained two experiments, one for positive source and the other for negative source, using candy and bitter gourd (*Momordica charantia*) as positive contagion source and negative one. Specifically, bitter gourd is a vine of the family Cucurbitaceae, widely grown on tropical region in this world, including Asia, Africa, and South American for its edible fruit, which is among the most bitter of all fruits. In addition, the target product in this study is medicine. We would explore how candy and bitter gourd affect participants to evaluate the taste of medicine. Both experiments examined H_1, H_2, H_{3a}, and H_{3b}. Two hundred and forty-four students from a large university in Taiwan participated in this study. Of these, 11 were eliminated from the analysis because of incomplete data or because of accurately guessing the purpose of the experiment. The 233 remaining participants were randomly assigned to two experiments. This study adopted a 2 (source property: object vs. photo) × 2 (presentation type: simultaneous vs. sequential) × 2 (cognitive style: field-dependence vs. field-independence) + 1 control (no source) between-subjects factorial design. However, we used t-test and analysis of variance (ANOVA) to analyze the results.

Procedure

Participants were taken into a room at a time. When participants arrived in the room, they were told to look at the items on the table before answering any questions. In the condition of positive source, the stimuli presented to participating students were candy. For the source property condition, the stimuli presented to participating students were a dish of candy or a photo of a child eating the candy. For the presentation type condition, they would see a dish of candy next to a white plastic gallipot on the table, or see a dish of candy in the first room and then see a gallipot in the other room. After looking over the products, participants responded to the questions and completed the Group Embedded Figure Test (GEFT) (Witkin et al., 1971). Specifically, participants with a score higher than the average + (SD÷2), that is, a score exceeding 9.87 + (4.114÷2) = 10.8985, were judged as FI. Participants with a score lower than the average - (SD÷2), that is, a score lower than 9.87 - (4.114÷2) = 8.8415, were judged as FD. Based on the results from the GEFT experiment, 123 were judged as FI, 91 were judged as FD, and 19 were judged as unidentifiable. However, in the condition of negative source, the candy was replaced by bitter gourd and other procedure was not changed. In the control condition, participants simply looked at a gallipot on the table and answered the questions.

Pretest measure

Pretests were conducted to ensure that the products of positive and negative source we proposed. Thirty participants participated in a pretest containing 4 items relevant to the positive versus negative source. They responded to two items: "you think that the candy is sweet" and "generally, you think that the candy is good to eat" on a 5-point scale from 1 ("disagreed") to 5 ("agreed"). Two items "you think that the bitter gourd is bitter" and "generally, you think that the bitter gourd is bad to eat" to measure negative source. Results indicated that the mean response of the positive source was significantly higher than the midpoint of the 5-point scale (M_{sweet} = 4.23, t = 7.87, $p < 0.000$; $M_{good\ to\ eat}$ = 3.90, t = 6.14, $p < 0.000$),

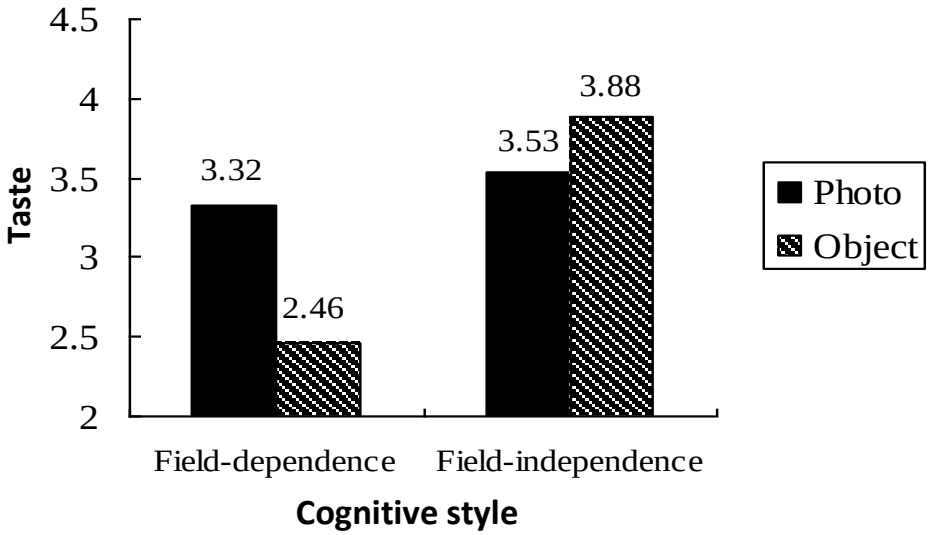

Figure 1. Effects of source property and cognitive style on taste for experiment 1.

whereas the mean of negative source was higher than the midpoint of the 5-point scale (M_{bitter} = 4.37, t = 9.79, p < 0.000; $M_{bad\ to\ eat}$ = 3.76, t = 6.02, p < 0.000).

Dependent measure

Participants rated how much they perceived the taste of the target product on a scale from 1 ("bad") to 5 ("good").

RESULTS

Experiment 1: Positive contagion

Manipulation checks

To determine whether participants viewed the candy as a positive source, we asked them to describe the sweetness of the candy on the table or in the photo on a 5-point scale. The mean response of 4.51 was significantly higher than the midpoint of a 5-point scale (t = 28.88, p < 0.000), indicating that the candy was perceived as a positive source.

Taste

A 2 (source property) × 2 (presentation type) × 2 (cognitive style) ANOVA was conducted using the taste index as the dependent variable, which produced two significant main effects for presentation type (F (1, 85) = 4.27, p < 0.05) and cognitive style (F (1, 85) = 17.89, p < 0.000). Results showed that H_1 was rejected because using the candy (M = 3.43) or the photo (M = 3.17) produced no difference. Although this result was not significant, it was consistent with prior studies showing that a positive source can increase the consumers' evaluation (Rozin and Kalat, 1971; Rozin et al., 1994; Argo et al., 2008) and our inference showing that an object induced stronger effect than a photo. In support of H_2, participants evaluated the taste sweeter on simultaneous presentation (M = 3.53) than sequential presentation (M = 2.96). In addition, there were two-way interactions between source property and cognitive style (F (1, 85) = 6.53, p < 0.01; Figure 1) and between presentation type and cognitive style (F (1, 85) = 12.99, p < 0.001; Figure 2). However, these effects were qualified by a significant three-way interaction (F (1, 85) = 4.73, p < 0.05).

The interaction test for FD consumers revealed a significant main effect for source property (F (1, 39) = 5.15, p < 0.05) and a significant interaction effect (F (1, 39) = 4.65, p < 0.05). As expected, the photo (M = 3.32) induced a stronger contagion effect than object (M = 2.46) among FD consumers but no significant difference on presentation type ($M_{simultaneous}$ = 2.74, $M_{sequential}$ = 3.04; F (1, 39) < 1, p > 0.10). A simple interaction test for FI consumers revealed a significant main effect for presentation type (F (1, 46) = 20.01, p < 0.00) and no significant interaction effect (F (1, 46) < 1, p > 0.10). There was no difference between photo (M = 3.53) and object (M = 3.88, F < 1.0) but the simultaneous condition (M = 4.25) induced stronger contagion effect than the sequential condition (M = 3.16). These results were consistent with H_{3a} and H_{3b}.

Control group

A one-way ANOVA compared the control group with the source property conditions and the presentation type conditions in a one-way ANOVA, producing significant

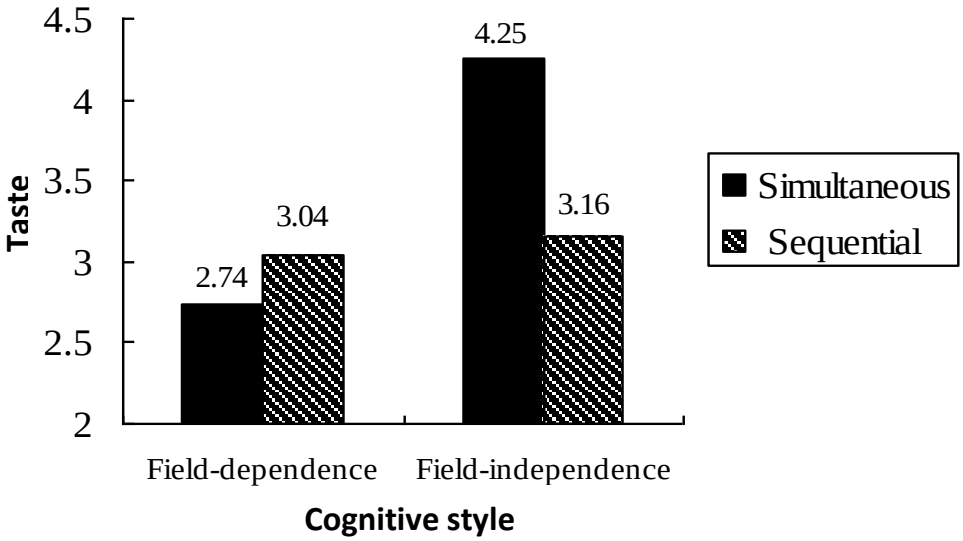

Figure 2. Effects of presentation type and cognitive style on taste for experiment 1.

results for product taste on positive source ($F(4, 114) = 4.177$, $p < 0.003$). Post hoc tests indicated that the control group differed significantly from other conditions (all ps < 0.05).

Experiment 2: Negative contagion

Manipulation check

To determine whether participants considered the bitter gourd was a negative stimulus, we asked them to rate the bitterness of the bitter gourd on the table or in the photo on a 5-point scale. The mean response of 4.58 was significantly higher than the midpoint of the 5-point scale ($t = 31.01$, $p < 0.000$), indicating that the bitter gourd was perceived as a negative source.

Taste

A 2 (stimulus property) × 2 (presentation type) × 2 (cognitive style) ANOVA was conducted using the taste index as the dependent variables, producing a significant main effect for presentation type ($M_{sequential} = 2.30$, $M_{simultaneous} = 1.81$; $F(1, 91) = 7.11$, $p < 0.005$) but not for source property ($F < 1.0$, $p > 0.50$). Consistent with experiment 1, H_1 was rejected and H_2 was supported. However, this ANOVA revealed no significant two-way interactions among three factors (all ps > 0.10). These results failed to support H_{3a} and H_{3b}. Prior studies indicated that negative effects were stronger in both intensity and extent (Morales and Fitzsimons, 2007; Rozin and Kalat, 1971; Rozin et al., 1994). In addition, several oral pharmaceuticals had unpleasant and bitter-tasting components which made people dislike them (Ishizaka et al., 2004; Matsui, 2007; Sohi et al., 2004). Thus, the negative source induced a bitter taste in all conditions because most participants thought that the medicine was not good to taste and bitter in normal situations. In other words, cognitive style had no significant influence on source property and presentation type.

Control group

A one-way ANOVA compared the control group with the source property conditions and the presentation type conditions, producing significant results for product taste on negative source ($F(4,116) = 6.36$, $p < 0.000$). Post hoc tests indicated that the control group differed significantly from other conditions (all ps < 0.05).

DISCUSSION

The experiments in this study provide some evidence for the existence of product contagion without touching.

1st Hypothesis

This study uses the food as sources. Generally speaking, the consumers already have a fixed impression of the taste of the specific food in their mind. Whether the sources presented by object or photo, the consumers perceive the same taste. For example, most consumers feel that the candy is sweet, the lemons are sour, bitter gourd is bitter, and the chili peppers are spicy, etc. Thus,

this study shows that the different source properties do not produce significant differences in positive versus negative contagion.

2nd Hypothesis

Simultaneous presentation can easily make consumers transfer the essence of sources to the target products compared with sequential presentation. The results of this study are consistent with prior research (Rozin et al., 1986) showing that people are unable or unwilling to admit that the reason for their impression about another object is based on a belief that contagion had occurred. Hence, no matter positive or negative condition, displaying the source and target product together induced a stronger contagion effect.

3rd Hypothesis

However, the purpose of this study is to investigate the role of cognitive style on contagion effect. As expected, the results revealed a significant difference between field-dependence and field-independence on positive contagion. Specifically, FD consumers were easily influenced by surrounding stimulus and needed more information to evaluate the target product. Previous studies show that individuals are likely to recover the details of emotional items' presentation (Dewhurst and Parry, 2000; Kensinger and Corkin, 2003; Ochsner, 2000). In other words, they appear to focus on emotional sources, increasing the likelihood of transferring the source essence. However, FI consumers experienced no difference in source property because they used their own references to analyze the sources, inducing the same taste between object and photo and then transferring that taste to the products. Finally, regardless of simultaneous or sequential presentation, FD consumers could not efficiently determine the relationship between the source and the target product. Moreover, comparing simultaneous presentation with sequential presentation, FD consumers had more time to organize whole structure for the latter one. In contrast, FI consumers paid more attention to organize the information and immediately evaluated the two items at the same time.

MANAGERIAL IMPLICATIONS

This study recommends that marketing practitioners should keep their products separate from related negative items on the shelf. Conversely, they can take advantage of the expected contagion effect by displaying their products next to relatively positive sources. Second, the contagion effect occurs when the source is displayed near the target products, but the source property creates no significant difference. Practitioners can use emotional photos to stimulate consumer evaluation if wanting to to save costs or difficulty obtaining the real objects. Furthermore, practitioners should analyze the characteristics of their main consumers and understand how to change their evaluation. If an advertising message needs to increase the consumers' perceived contagion, advertising practitioners should use contagious stimuli to capture attention of the consumers.

LIMITATIONS AND FUTURE RESEARCH

This study uses medicine as the target product, and explores the contagion effect by conducting experiments on a university campus. Future research could consider how different product categories, such as hedonic product, functional product, etc., influence the contagion effect. Moreover, performing experiments in the retail context could increase the sense of realism for participants. In addition, this study only considers cognitive style as a moderator. Therefore, future research should extend the findings of this study by exploring different personalities and various sources.

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