THE INFLUENCE OF CATEGORICAL CUES OF USER-GENERATED CONTENT ON
ATTITUDE: A TEST OF SELF-CATEGORIZATION THEORY

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Communication - Doctor of Philosophy

2014

ABSTRACT

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User-generated content (UGC) influences viewers' attitudes. Previous findings suggest that

various types of social categorical information of a user (e.g., race, gender) embedded in

UGC trigger categorized perceptions (in-group vs. out-group) among viewers. Based on self-

categorization theory (Turner, 1987) the current study predicts that, once categorized

perceptions take place on participatory websites, people identify with their in-group, and thus

UGC from the in-group exerts greater influence than that of an out-group. In addition, the

study proposes that prototypical expertise of categorized groups and a viewer's involvement

with a given topic may moderate the influence of in-group UGC on viewers' attitudes; the

gap between in-group influence and out-group influence is more pronounced when 1) the in-

group (vs. the out-group) has prototypical expertise on a topic and/or when 2) a viewer's

involvement with a topic is high (vs. low). In testing the proposed predictions, the current

study categorized individuals by gender (male vs. female). To test the hypotheses, 276

participants viewed a mock webpage of Yelp.com, which displayed information about a local

business along with four user-generated comments. The study employed a 3 (gender-typed

topic: masculine vs. feminine vs. gender-neutral) x 3 (composition of UGC: two positive

comments from male commenters and two negative comments from female commenters vs.

two negative comments from male commenters and two positive comments from female

commenters vs. one positive comment from male commenter, one negative comment from

male commenter, one positive comment from female commenter, and one negative comment

from female commenter) between-subject design. The results were consistent with self-

categorization theory. In-group commenters exerted greater influence on viewers' attitudes

than did out-group commenters. Moreover, prototypical expertise of categorized groups and topic involvement moderated the influence of in-group UGC, but only when there was high in-group identification. The gap between in-group influence and out-group influence was significant when the in-group had prototypical expertise on a topic and viewers scored high on in-group identification. Also, the gap between in-group influence and out-group influence was statistically meaningful when involvement was high and viewers possessed high in-group identification.

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INTRODUCTION

The influence of user-generated content (UGC) is now well established (see for review, Walther & Jang, 2012). Multiple studies have found that viewers' attitudes and perceptions are affected by the message features of UGC, such as valence (e.g., Edwards, Edwards, Qing, & Wahl, 2007) and argument quality (e.g., Park, Lee, & Han, 2007). Other studies have found that viewers' attitudes and perceptions are affected by their evaluations of the UGC source (e.g., Willemsen, Neijens, & Bronner, 2012; Winter & Krämer, 2012). In recording the influence of UGC on viewers' attitudes and perceptions, prior studies mainly focused on message-related and source-related aspects of UGC. What is in need of further scholarly attention, however, is how viewers' attitudes and perceptions are affected by categorical cues embedded in UGC. For instance, a viewer is often able to gather, by looking at the profile picture or user name, categorical information (e.g., gender, race) about the user who generated the UGC.

Especially, categorical cues may play an important role in understanding the influence of UGC on viewers' attitudes and perceptions when multiple users' comments contradict one another. When encountering inconsistent information, people often want to sort out the inconsistencies and determine what information is suitable for them (Weaver, 1980). The current study argues that when facing inconsistent users' comments, viewers are liable to turn to categorical information to sort out the inconsistent comments, which makes certain comments more influential than others.

Categorical information, according to self-categorization theory (Turner, 1987) often makes salient the social categories to which people belong and cause people to distinguish their in-group from an out-group. Once people distinguish their in-group from an out-group, the theory predicts that they identify with the in-group by assimilating themselves into the in-group and internalizing its values. By doing so, the in-group exerts greater influence on

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individuals' attitudes and perceptions than does the out-group (i.e., in-group favoritism; Hogg & Terry, 2000). Thus, if categorical cues embedded in UGC trigger categorized perceptions and identification with an in-group, based on self-categorization theory, the current study suggests that in-group UGC ought to exert greater influence than out-group UGC.

On participatory websites, however, the influence of in-group UGC can be contingent upon certain conditions. First, self-categorization theory holds that categorized perceptions (in-group vs. out-group) are often accompanied by prototypes (Turner, 1987). Prototypes are features (e.g., attitudes, feelings, behaviors) that best characterize one category of people and distinguish them from others (Hogg, 2011). By defining groups as distinct entities, individuals are better able to distinguish one group from another (Hogg & Terry, 2000; Reid, Giles, & Harwood, 2005).

What might lie outside the purview of self-categorization theory is what happens when a prototype of an out-group is perceived to be an expert. The literature on prototypical expertise suggests that an expectation of prototypical expertise affects one's attitude and perception (e.g., Hollingshead & Fraidin, 2003; Huddy & Terkildsen, 1993; Lee, 2007). Thus, the question remains open as to whether the influence of in-group UGC exceeds that of out-group UGC even when the out-group has prototypical expertise on a topic.

In addition, previous literature indicates that involvement may play an important role in understanding the way people process UGC (Park & Lee, 2008; Park, Lee, & Han 2007). On participatory websites, individuals often experience information overload. They may encounter a large amount of UGC (Park & Lee, 2008) or may find inconsistent viewpoints within multiple users' comments (Luo, Lan, Wang, & Ma, 2013). In dealing with information overload, people may seek available strategies or heuristics to sort out the information (see for review, Malhotra, 1984). In particular, previous studies found that, depending on their level of involvement, people engage in different strategies to sort out information on

participatory websites. For instance, individuals with high involvement focus on the quality of UGC, whereas individuals with low involvement may focus on the quantity of UGC (Lee, Park, & Han, 2008; Park & Lee, 2008).

In particular, motivational theory of social identity (Hogg, 2000) posits that depending on the level of involvement, people may make different use of the categorical cues they find with the UGC; when an issue is important to individuals, they become motivated to reduce uncertainty and tend to be influenced by group membership and group behavior (Hogg, 2000; Mullin & Hogg, 1999). Based on this rationale, the current study predicts that, depending on the level of involvement, the influence of categorical membership and in-group UGC on viewers' attitudes and perceptions varies. That is, when their involvement is high, individuals rely on categorical membership and become susceptible to the influence of in-group UGC. Taken together, the current study aims to understand how UGC, in conjunction with various categorical cues that are embedded in UGC, affects viewers' attitudes and perceptions.

The study begins by discussing the influence of users' comments on viewers' attitudes and perceptions on participatory websites. Then the study establishes a theoretical rationale based on self-categorization theory and in-group favoritism. Specifically, the present study revisits self-categorization theory by testing whether 1) the categorical cues embedded in UGC trigger categorized perceptions (in-group vs. out-group) and in turn lead to in-group identification, and whether 2) identification with the in-group predicts in-group influence on participatory websites. Furthermore, this study examines two potential moderators of in-group favoritism—prototypical expertise of categorized groups as well as a viewer's involvement with a given topic—in order to extend our understanding of how categorical cues embedded in UGC affect viewers' attitudes and perceptions.

LITERATURE REVIEW

Influence of UGC within Participatory Websites

Participatory websites (or web 2.0 systems) present messages from multiple sources. Specifically, participatory websites juxtapose messages that are generated by the proprietor of a webpage, a computational system, and/or nonproprietary users (i.e., user-generated content; see for review, Walther & Jang, 2012). For instance, messages that are generated by the proprietor of a webpage (e.g., a video on YouTube, information about a local business on Yelp, product information on Amazon) are followed by UGC (nonproprietary users' comments) and by information generated by a computational system (e.g., the number of one's Facebook friends, the number of times users have viewed a particular content, other site-related user behaviors). Participatory websites, such as social networking sites (e.g., Facebook), video-sharing sites (e.g., YouTube), local business review sites (e.g., Yelp), and review-based commercial websites (e.g., Amazon, TripAdvisor) encourage viewers to contribute messages to others' webpages.

Messages on participatory websites possess different attributes and render various types of social influence (Walther & Jang, 2012). Of particular interest are studies that have investigated that how various aspects of UGC affect viewers' attitudes and perceptions. In particular, message-related characteristics of UGC, such as the valence of UGC, may influence viewers' attitudes and perceptions. Walther, DeAndrea, Kim, and Anthony (2010) found that positive vs. negative comments about a public service announcement (PSA) video affected viewers' attitudes toward the video. When participants were exposed to negative (vs. positive) comments concerning the PSA video about the risk of marijuana use, they evaluated the video in a more negative (vs. positive) light. In reference to the valence of UGC, Edwards et al. (2007) similarly found that viewing negative (vs. positive) comments about a college

professor on a professor rating website resulted in less professor credibility and less attractiveness.

In addition to valence, previous studies have identified various message-related aspects of UGC that affect viewers' attitudes and perceptions. For instance, viewers' attitudes and perceptions about a news article were found to be affected by congruency between the news article and UGC (Lee, Jang, & Kim, 2009). Viewing others' comments that are incongruent with the tone of the news article led to less positive evaluations of the article. On product review sites, as the proportion of negative product reviews increased, participants reported more negative attitudes toward the product (Lee, Park, & Han, 2008).

In addition to message-related characteristics, previous literature reveals that viewers' attitudes and perceptions can be affected by how they evaluate the individuals who generated the comments. Willemsen et al. (2012) found that perceived expertise and trustworthiness of a UGC source predicted viewers' attitudes toward the UGC. When a source proclaimed his/her expertise on a topic, viewers' attitudes toward the UGC (e.g., bad vs. good, not useful vs. useful) were affected by viewers' perceptions of the source's expertise; if viewers perceived the source to be trustworthy, their attitudes toward the UGC were changed by their perceptions of the source's trustworthiness. Winter and Krämer (2012) also found that UGC created by an expert source was likely to be selected more frequently, to be read longer, and to be evaluated in a more positive way, than UGC created by a non-expert source.

Prior studies have identified various features of UGC that affect viewers' attitudes and perceptions. In attempting to further extend our understanding of how UGC leads to social influence, the current study focuses on the effects of categorical cues embedded in UGC on viewers' attitudes and perceptions.

Identification with In-Group and In-Group Influence

Participatory websites often contain various categorical cues about users (e.g., gender, race; Ren et al., 2012; Walther & Jang, 2012). For instance, a profile picture of an individual wearing a shirt with a university's emblem on it makes salient the social category of school affiliation (Ganster, 2011). User names alone can prompt categorized perceptions pertaining to race or gender (Jang & Walther, 2013).

Understanding the role of categorical cues embedded in UGC is crucial especially when multiple users' comments about an object or topic contradict one another. When encountering inconsistent comments, the current study suggests that a viewer may organize them according to his categorization of himself and the various commenters. When certain comments are categorized as having come from the viewer's in-group, the in-group comments may exert persuasive influence.

Self-Categorization Theory.

Self-categorization theory (Turner, 1987) assumes that the way people perceive themselves can range from being unique individuals (personal identity) to belonging to social groups or wider social categories, such as gender, ethnicity, and occupations (social identity). According to Turner (1986, 1987), when personal identity is salient, people perceive themselves as idiosyncratic individuals. Conversely, when social identity becomes strong, people differentiate one group from another, based on shared and unshared social categories.

In turn, as social identity strengthens, people tend to identify themselves with in-group members (Turner, 1987; Turner & Oakes, 1989). People assimilate themselves with in-group members by defining themselves as representatives or exemplars of the social category to which they belong. When people identify themselves with their in-group members, they become susceptible to the influence of other members of their social groups or social categories since they internalize the perspectives or norms of the group to which they belong (Hornsey, 2008; Turner, 1987; Voci, 2006).

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Self-categorization theory posits that social identity is a function of accessibility and fit (Oakes, Turner, & Haslam, 1991; Turner, 1987). Accessibility refers to the readiness with which a stimulus input with given properties becomes identified as a category (Bruner, 1957, p. 133; Turner, 1987). The theory argues that accessibility is necessary to invoke or activate categorization among individuals. Fit, on the other hand, refers to the extent to which a given categorization matches social reality (Turner, 1987). That is, categorical distinction needs to be consistent with social reality, so the given categorization can appear to be a reasonable way of organizing the world (Turner, 1991).

Self-categorization theory holds that fit operates according to the metacontrast principle. The metacontrast principle maximizes perceived inter-category differences and minimizes intra-category differences (Turner, 1987). When perceived differences between in-group and out-group are maximized and perceived differences between in-group members are minimized, the theory argues that people tend to perceive their social category as a single unit, entity, or group. Thus, people tend to perceive the given categories as a reasonable way to organize the world (Oakes, Turner, & Haslem, 1991; Simon, Hastedt, & Aufderheide, 1997).

Moreover, the metacontrast principle leads to categorized perceptions being accessible (Reid & Hogg, 2005; Turner, 1987; Turner & Oakes, 1989). For instance, when group category matches the position being advocated by a group (e.g., Group A supports Position 1 and Group B supports Position 2), people attribute the difference between the groups to group category. That is, when inter-category differences are maximized and intra-category differences are minimized as the metacontrast principle suggests, the differences between the groups are attributed to category-based differences and categorized perceptions (in-group vs. out-group) became accessible.

Through the metacontrast principle, the theoretical postulates of self-categorization theory can be applied to the context of participatory websites. Jang and Walther (2013) found

that categorical cues embedded in UGC led to categorized perceptions among viewers and caused them to identify with their in-group. In their study, participants viewed four users' comments: two comments were displayed with Caucasian profile pictures with typical Caucasian names and the other two were shown with Asian profile pictures with typical Asian names. Based on the metacontrast principle, between-group differences were maximized and within-group differences were minimized to induce salient social identity. Consistent with what self-categorization theory predicts, the study found that Asian participants identified themselves with the Asian commenters and Caucasian participants identified with the Caucasian commenters.

The current study aims to test whether self-categorization theory explains the influence of categorical cues embedded in UGC on viewers' attitudes. It tests whether categorization of gender on participatory websites induces categorized perceptions among users, makes participants identify with their in-group, and also predicts greater influence from the in-group than the out-group. Previous studies suggest that even minimal cues can induce distinct categorization (Dehl, 1990; Fazio & Dunton, 1997; Hewstone, Hantzi, & Johnston, 1991; Kurzban, Tooby, & Cosmides, 2001), and gender is known to be a strong predictor of social categorization (Cornetto & Nowak, 2006; Stangor, Lynch, Duan, & Glass, 1992). Given that various cues on participatory websites, such as profile pictures and user names, indicate gender of users, gender-based identity may become salient on participatory websites.

Moderators of In-Group Influence

The influence of in-group UGC on viewers' attitudes and perceptions, however, can be contingent upon certain moderators. The current study suggests that prototypes of categorized groups and a viewer's involvement with a given topic may serve as moderators that affect the influence of in-group UGC on viewers' attitudes and perceptions. The

moderating roles of both prototypical expertise of categorized groups and topic involvement are delineated below.

Prototypical Expertise of Categorized Groups.

According to self-categorization theory, when people perceive a group as a whole due to categorization, they often develop a prototype, a feature or a position that represents the group as a whole (Hogg & Tindale, 2005; Reid, Giles, & Harwood, 2005). Examples of such prototypes are Asians are good at math or men are more mechanical than women. Prototypes involve the metacontrast principle; they facilitate maximizing inter-group differences and minimizing within-group ones, consequently making groups into distinct entities.

Interestingly, when a prototypical belief about an out-group is associated with greater knowledge or expertise about a given topic, the influence of the in-group may not override that of the out-group. Previous studies suggest that the expectation of prototypical expertise affects one's attitude and perception (e.g., Hollingshead & Fraidin, 2003; Huddy & Terkildsen, 1993; Lee, 2007; Spencer, Steele, & Quinn, 1999; Stone, Lynch, Sjomeling, & Darley, 1999). Lee (2007) shows that people develop prototypical expertise expectations using categorical cues in a computer-mediated interaction context. In her study, she arbitrarily assigned to participants sex-marked avatars and sex-typed topics and let them interact with an ostensible partner. She found that people inferred their partners' sex through minimal and arbitrary cues (self-proclaimed expertise in sex-typed topics or randomly assigned sex-marked avatars) and, based on their inference, evaluated their interactants' opinions. For instance, when a participant inferred that his/her interactant was female, the participant was more likely to accept the interactant's opinion when the given topic was associated with females. This study suggests that an expectation of expertise that stems from prototypes or stereotypes of social categories can affect one's attitude and perception. Hollingshead and Fraidin (2003) also found that people used gender-based prototypes to infer

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expertise or knowledge about a topic. Participants expected greater knowledge about masculine topics from males and expected greater knowledge about feminine topics from female.

Taken together, the literature suggests that viewers' attitudes and perceptions can be affected by having expectations of prototypical knowledge or expertise. Based on previous findings, the current study predicts that prototypical expertise of categorized groups moderates the influence of in-group UGC on viewers' attitudes and perceptions. Particularly, in-group influence is more pronounced when the in-group, and not the out-group, has prototypical expertise on a given topic. Conversely, when a prototypical belief about an out-group is associated with greater knowledge or expertise about a given topic, the influence of the in-group may not override that of the out-group and accordingly, in-group influence is likely to be less pronounced.

Topic Involvement.

Involvement plays an important role in understanding the influence of UGC on viewers' attitudes and perceptions. Previous studies argue that, depending on their level of involvement, people engage in different strategies to organize and sort out information on participatory websites. One study found that individuals with high involvement attended to UGC content and considered the quality of its arguments, whereas individuals with low involvement focused on the quantity of UGC when they reviewed user' comments to make a purchase decision (Park, Lee, & Han, 2007). Another study found that when individuals were highly involved, the perceived informativeness of UGC predicted their purchasing intention. However when they were less involved, perceived product popularity affected individuals' purchasing intention (Park & Lee, 2008). These studies indicate that depending on the level of involvement, different aspects of UGC—its quality or quantity—become influential.

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Departing from the comparison between quality and quantity of UGC, the current study suggests that, depending on the level of involvement, what may vary is the influence of categorical cues embedded in UGC on individuals' attitudes and perceptions. Specifically, the influence of in-group UGC on viewers' attitudes and perceptions can be more pronounced when involvement is high. The motivational theory of social identity processes suggests that when an issue is important or relevant to individuals, they become motivated to reduce uncertainty and consequently rely on group membership and group behavior (Hogg, 2000). Mullin and Hogg (1999) found that when an issue was perceived to be important, individuals attended to categorical membership, becoming more susceptible to in-group influence. When the issue was less important to individuals, however, they were less swayed by categorical membership and in-group.

Based on this rationale, the current study predicts that the influence of in-group UGC on viewers' attitudes and perceptions is greater when viewers have high rather than low involvement. While the type of involvement can vary, the current study focuses on topic involvement (or issue involvement), which refers to the extent to which a topic is of personal importance (Petty & Cacioppo, 1979). Topic involvement motivates one to evaluate information extensively and reduce potential uncertainty (e.g., Laurent & Kapferer, 1985; Lee, Herr, Kardes, & Kim, 1999). Thus when topic involvement is high, individuals are likely to rely on group membership as the motivational theory of social identity processes predicts. Accordingly, the present study predicts that varying degrees of topic involvement may moderate the extent to which group membership and group behavior affect individuals' attitudes and perceptions.

HYPOTHESES

The current study proposes hypotheses to test whether 1) categorical cues embedded in UGC lead to in-group identification as well as in-group favoritism and whether 2) prototypical expertise of categorized groups and a viewer's involvement with a given topic moderate in-group favoritism on participatory websites. Given that gender is a well - established predictor for social categorization (Cornetto & Nowak, 2006; Stangor, Lynch, Duan, & Glass, 1992) and there are often multiple cues (e.g., profile pictures, user names) that indicate the gender of a user posting UGC on participatory websites (Spottswood, Walther, Holmstrom, & Ellison, 2013), the present study focuses on gender-based categorization to test the following predictions.

First, self-categorization theory (Turner, 1987) predicts that the in-group exerts greater influence than the out-group. Based on the theory, the current study suggests that people form categorized perceptions through various UGC-embedded categorical cues. Once people distinguish their in-group from the out-group, they identify with the in-group and become susceptible to its influence. Thus, the current study predicts that regardless of the topic in-group influence takes place.

H1: In-group (same gender) commenters affect viewers' attitudes more than do out-
    group commenters.

Second, given that self-categorization theory posits that in-group influence is a function of in-group identification, the current study predicts that the difference between in-group and out-group influence is more pronounced among those who score high, rather than low, on in-group identification measures.

H2: The difference between in-group influence and out-group influence is more
    pronounced with high, rather than low, in-group identification.

The current study also predicts that prototypical expertise of categorized groups and topic involvement may moderate in-group favoritism on participatory websites. Previous literature on prototypical expertise shows that when a topic triggers viewers' expectation of prototypical expertise, viewers are affected by those message sources who are prototypically associated with expertise and knowledge on the topic. Based on previous findings, the present study argues that when the in-group has prototypical expertise on a given topic, the in-group should exert greater influence than the out-group. However, when prototypical expertise is associated with the out-group, in-group favoritism on participatory websites becomes questionable. Based on this notion, prototypical expertise may moderate in-group favoritism, such that the difference between in-group and out-group influence is more pronounced when the in-group, rather than the out-group, has prototypical expertise on the topic.

> H3: The difference between in-group influence and out-group influence is more pronounced when an in-group, rather than an out-group, has prototypical expertise on a topic.

Lastly, depending on the level of topic involvement, the degree to which in-group UGC affects viewers' attitudes and perceptions may vary. Specifically, this study predicts that the influence of categorical cues embedded in UGC on viewers' attitudes and perceptions is greater when viewers have high, rather than low, involvement with a given topic.

> H4: The difference between in-group influence and out-group influence is more pronounced when individuals have high, rather than low, involvement toward a topic.

METHOD

Participants viewed a mock webpage of Yelp.com. Yelp is one of the most popular participatory websites for sharing information about local businesses, such as restaurants, beauty salons, and automotive repair shops. Users simply rate businesses or write comments to share their experiences. Motives to use Yelp vary from information seeking to entertainment to just passing time (Hicks et al., 2012). The Yelp page mock-ups in the experiment contained basic information about one local business as well as four comments from users.

Pilot Test

The purpose of the pilot test was two-fold: assessing the masculinity and femininity of several local businesses and selecting users' comments for the main study. Participants were instructed to assess nine local businesses in terms of their masculinity and femininity. Then, participants assessed 10 user-generated comments that were sampled from Yelp.com in terms of valence, helpfulness, argument quality, masculinity, and femininity. Based on the pilot test, the main experiment selected three target businesses (masculine, feminine, gender-neutral) and four users' comments (two positive and two negative).

Participants.

A total of 50 participants were recruited for the pilot test. Approximately 42.0% of participants were male and the sample included 72% White/Caucasian, 10% Black/African-American, 8% Asian, 2% Hispanic/Latino, and 4% "other." The mean age of the participants was 20.48 ($SD = 1.91$), ranging from 18 to 27. Participation was voluntary and all participants received course credit in exchange for their participation.

Masculinity and Femininity of a Topic.

A masculine topic refers to a topic that is stereotypically perceived as male-oriented or a topic that is associated with a typical male rather than a typical female. A feminine topic

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refers to a topic that is stereotypically perceived as female-oriented or a topic that is associated with a typical female rather than a typical male (Carly, 2001). To come up with one masculine topic, one feminine topic, and one gender-neutral topic, nine types of business—an automotive repair shop, a cooking class, a coffee shop, a restaurant, an electrical service center, a pet store, a musical instrument store, a daycare center, and a fabrics shop—were assessed in terms of their masculinity and femininity. These types of business are likely to be perceived as either masculine, feminine, or gender-neutral (Franck & Rosen, 1949). Participants evaluated the masculinity and femininity of each local business on a 9-point semantic differential scale (Hamilton & Nowak, 2010). Given that masculinity and femininity are independent constructs, they were measured separately (Heilburn, 1976). Items were anchored by "not masculine at all vs. very masculine," "not male-oriented at all vs. very male-oriented," "not feminine at all vs. very feminine," and "not female-oriented at all vs. very female-oriented." In addition to these four items, five additional items that also evaluate other aspects of a local business were included as fillers to make less distinguishable the purpose of this measurement. Additional items included "not professional at all vs. very professional," "not appealing at all vs. very appealing," "not favorable at all vs. very favorable," "of poor quality vs. of good quality," and "not pleasant at all vs. very pleasant" (Holbrook & Batra, 1987; Mitchell & Olson, 1981). Fillers were not further analyzed (see Appendix A).

For the main experiment, the study selected as the masculine topic a business perceived to be highly masculine while also featuring a negative correlation between its perceived masculinity and its perceived femininity. As the feminine topic, the study selected a business perceived to be highly feminine while also featuring a negative correlation between its perceived masculinity and its perceived femininity. Lastly, as the gender-neutral

topic, the study selected a business with equivalent levels of perceived masculinity and perceived femininity.

Perceived masculinity was measured by averaging the two items, "not masculine at all vs. very masculine" and "not male-oriented at all vs. very male-oriented." Perceived femininity was measured by averaging the two items, "not feminine at all vs. very feminine" and "not female-oriented at all vs. very female-oriented." The masculine business (an electric service company) for perceived masculinity ranged from 2 to 9 on a 9-point scale, $\alpha = .87$, $M = 7.34$, $SD = 1.46$ and for perceived femininity ranged from 1 to 6, $\alpha = .88$, $M = 2.89$, $SD = 1.26$. The bivariate correlation between masculinity and femininity of the masculine business was $r(48) = -.58$, $p < .001$. The feminine business (a fabric shop) for perceived masculinity ranged from 1 to 6 on a 9-point scale, $\alpha = .83$, $M = 2.32$, $SD = 1.24$ and for perceived femininity ranged from 4 to 9, $\alpha = .81$, $M = 7.48$, $SD = 1.24$. The bivariate correlation between masculinity and femininity of the feminine business was $r(48) = -.70$, $p < .001$. The gender-neutral business (a musical instrument store) for perceived masculinity ranged from 3 to 9 on a 9-point scale, $\alpha = .85$, $M = 5.57$, $SD = 1.11$ and for perceived femininity ranged from 3 to 9, $\alpha = .81$, $M = 5.28$, $SD = 0.95$. The bivariate correlation between masculinity and femininity of the gender-neutral business was $r(48) = .19$, $p = .19$.

A single-factor within-subject ANOVA was conducted to see if the masculinity and femininity of the chosen businesses differed significantly from one another. The results revealed a significant difference in perceived masculinity across three topics, $F(2, 147) = 164.35$, $p < .001$. Post hoc comparisons using Scheffe's procedure ($p < .05$) showed that the masculine topic was perceived to be more masculine than the feminine and gender-neutral topics. The results also found a significant difference in perceived femininity across three topics, $F(2, 147) = 187.76$, $p < .001$. Post hoc tests using Scheffe's procedure ($p < .05$) showed that the feminine topic was perceived to be more feminine than the masculine and

gender-neutral topics. Thus, for the main study, the most masculine (an electric service company), the most feminine (a fabric shop), and one gender-neutral target object (a musical instrument store) were employed.

User-Generated Content.

A total of 10 user-generated comments were sampled from Yelp.com. Participants were asked to review the comments carefully and rate the comments in terms of valence, helpfulness, argument quality, masculinity, and femininity. Valence was measured in order to select the two most positive and the two most negative comments for the main experiment. Helpfulness and argument quality were measured to avoid any potential confounding influence. If comments vary in these aspects, the influence of UGC on viewers' attitudes could be a function of helpfulness or of argument quality (Chu & Kamal, 2008; Racherla & Friske, 2012). Lastly, each review was measured in terms of how masculine and feminine it appeared. Given that each review could be associated with both male and female commenters, the main experiment used a review that appeared neither overtly masculine nor feminine. Accordingly, the main study employed the two most positive and the two most negative user-generated comments, which had equivalent levels of helpfulness and of argument quality, without any gender-typicality.

Participants evaluated each of the comments on a 7-point Likert scale (1 = *very negative*, 7 = *very positive* for valence; 1 = *not helpful at all*, 7 = *very helpful* for helpfulness; 1 = *very weak*, 7 = *very strong* for argument quality, 1 = *not masculine at all*, 7 = *very masculine* for masculinity, 1 = *not feminine at all*, 7 = *very feminine* for femininity). The two most positive reviews ranged from 2 to 7, $M = 6.40$, $SD = 0.94$ for valence, ranged from 2 to 7, $M = 5.66$, $SD = 1.05$ for helpfulness, ranged from 1 to 7, $M = 5.41$, $SD = 1.15$ for argument quality, ranged from 2 to 6, $M = 3.92$, $SD = 0.70$ for masculinity, and ranged 2 to 6, $M = 3.99$, $SD = 0.81$ for femininity. The two most negative reviews ranged from 1 to 4, $M = 1.44$, $SD =$

0.75 for valence, ranged from 1 to 7, $M = 5.11$, $SD = 1.61$ for helpfulness, ranged from 1 to 7, $M = 4.88$, $SD = 1.60$ for argument quality, ranged from 2 to 7, $M = 3.83$, $SD = 0.85$ for masculinity, and ranged from 2 to 7, $M = 3.80$, $SD = 0.66$ for femininity.

A single-factor within-subject ANOVA was conducted to see if the valence of UGC differed significantly from one another. The results showed that the four users' comments significantly differed in their valence, $F (3, 144) = 403.06$, $p < .001$. Post hoc comparison using Scheffe's procedures ($p < .05$) showed that the two positive comments ($M = 6.30_a$, $SD = 1.13$ and $M = 6.50_a$, $SD = 0.89$) were perceived to be more positive than were the negative comments ($M = 1.53_b$, $SD = 0.84$ and $M = 1.33_b$, $SD = 0.75$). There was no difference in perceived valence between the two positive comments or between the two negative comments.

Used for the main study were the two most positive and two most negative user-generated comments with equivalent levels of helpfulness, argument quality, masculinity, and femininity. Positive comments consisted of, "They are the best around the town. I strongly recommend this place" and "I have been with this place since college and will never leave it." Negative comments included, "So far, the experience has been terrible. I would never recommend this place" and "This place even does not deserve stars. If I could give them negative stars, I would."

The Main Experiment

Procedure.

In an online experiment, participants viewed one of nine mock webpages of Yelp.com. Each experimental webpage included basic information about a local business, such as its location, webpage address, and pictures of the business, as well as four user-generated comments about it. Participants were instructed to take enough time to view the information about a local business as well as the users' comments posted on Yelp.com. Participants then

answered dependent measure questionnaires (see Appendix B). Participation was voluntary and all participants received course credit in exchange for their participation.

Participants.

A total of 302 undergraduate students participated in this study via an online participant pool at two large universities located in the Midwest: 242 students from one university and 60 students from another. To facilitate rapid participation, the current study employed the convenient sampling approach (Yu & Cooper, 1983). The students from the two universities did not differ in their demographics and responses for the dependent measures, so the data from the two universities were collapsed. Data from 26 participants were dropped because the participants failed to complete the questionnaire or responded carelessly (e.g., indicating the same value for all questionnaire items). Thus, for the rest of the analyses, the study used data from 276 participants. Participants were randomly assigned to one of the nine experimental conditions, so approximately 31 participants were assigned to each condition (see Table 1).

Approximately 43.5% of participants were male, and the sample included 76.1% White/Caucasian, 8.0% Black/African-American, 11% Asian, 1.1% Hispanic/Latino, and 3.6% "other." The mean age of the participants was 21.84 ($SD = 4.17$), ranging from 18 to 50.

Experimental Design.

A 3 x 3 between-subject design was used. The first variable—gender-typed topic—had three levels: masculine (an electric service company), feminine (a fabrics store), and gender-neutral (a musical instrument store). The second variable—composition of user-generated comments—also had three levels. Participants viewed either 1) two positive comments from male users and two negative comments from female users, 2) two negative comments from male users and two positive comments from female users, or 3) one positive comment from a male user, one positive comment from a female user, one

negative comment from a male user, and one negative comment from a female user). The experimental design allowed the current study to test whether 1) predictions drawn from self-categorization theory and in-group favoritism occurred and whether 2) prototypical expertise of categorized groups and topic involvement moderated in-group favoritism on participatory websites.

Stimulus Materials.

Yelp webpages. Mock webpages of Yelp contained information about a local business (an electric service company, a fabric shop, or a musical instrument store) and four comments from users.

User-generated content. Participants viewed a total of four user-generated comments juxtaposed with information about the target business. Out of the four user-generated comments, two comments appeared to come from male commenters and two from female commenters. In order to manipulate self-categorization, a comment that was supposed to have been generated by a male commenter was shown with a picture of a male along with a common male name (Mike, Steve). A comment that was supposed to be generated by a female commenter was shown with a picture of a female along with a common female name (Julia, Amanda). The profile pictures of the two male commenters and the two female commenters were sampled from Yelp.com.

Drawing on the metacontrast principle, social category (i.e., gender of the commenters) was matched with the position of the comments to create distinct in-group vs. out-group perceptions. Specifically, the two commenters of the same gender expressed similar opinions. Conversely, male and female commenters held opposing opinions.

Manipulation Check.

Perceived masculinity/femininity of a topic. Perceived masculinity and femininity of a target business was measured by using the same four items used in the pilot test. Participants

rated perceived masculinity and femininity of each business on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). The reliabilities and means of this measure were, for perceived masculinity, α = .85, M = 4.98, SD = 1.89 and, for perceived femininity, α = .93, M = 5.15, SD = 1.86.

The masculine business ranged, for perceived masculinity, from 2 to 9 on a 9-point scale, α = .87, M = 6.48, SD = 1.55 and, for perceived femininity, it ranged from 1 to 7, M = 3.69, SD = 1.56. The bivariate correlation between masculinity and femininity of the masculine business was r (88) = -.55, p < .001. The feminine business ranged, for perceived masculinity, from 1 to 7 on a 9-point scale, M = 2.82, SD = 1.44 and, for perceived femininity, from 2 to 9, M = 6.82, SD = 1.53. The bivariate correlation between masculinity and femininity of the feminine business was r (87) = -.51, p < .001. The gender-neutral business ranged, for perceived masculinity, from 1 to 9 on a 9-point scale, M = 5.38, SD = 1.26 and, for perceived femininity, it ranged from 2 to 9, M = 4.70, SD = 1.27. The bivariate correlation between masculinity and femininity of the gender-neutral business was r (95) = - .03, p = .80.

A single-factor between-subject ANOVA was conducted to see if the masculinity and femininity of each topic differed substantially from each other. The results revealed a significant difference in perceived masculinity across three topics, F (2, 273) = 157.15, p < .001. Post hoc comparisons using Scheffe's procedure (p < .05) showed that the masculine topic was perceived to be more masculine than the feminine and gender-neutral topics. The results also found a significant difference in perceived femininity across three topics, F (2, 273) = 108.27, p < .001. Post hoc tests using Scheffe's procedure (p < .05) indicated that the feminine topic was perceived to be more feminine than the masculine and gender-neutral topics.

Measured Variables.

Attitude toward the topic. Attitude toward the target business was assessed using six items measured on a 9-point semantic differential scale anchored by "dislike vs. like," "positive vs. negative," "favorable vs. unfavorable," "bad vs. good," "of poor quality vs. of good quality," and "appealing vs unappealing" (Holbrook & Batra, 1987; Mitchell & Olson, 1981). Two additional items also measured attitudes toward the target business on a 9-point Likert scale. The items were: "How would you rate your overall evaluation of this business?" and "How would you rate the quality of service this business offers?" Overall, the measures were reliable, $\alpha = .93$, $M = 4.73$, $SD = 1.23$.

Identification with in-group commenters. Identification with in-group commenters was measured on a 7-point Likert scale using 11 items ranging from 1 (strongly disagree) to 7 (strongly agree), $\alpha = .82$, $M = 4.96$, $SD = 0.78$ (adapted from Leach et al., 2008; Schmader, 2002). Participants were instructed to indicate the extent to which they agreed or disagreed with the items that followed. Male participants answered "Being a man is an important part of my self-image," "Being a man is important to my sense of what kind of person I am," "Being a man is an important reflection of who I am," "Being a man has very little to do with how I feel about myself," "I have a lot in common with the average man," "I am similar to the average man," "I feel a bond with men," "Men have a lot in common with each other," "I identify with other men," "Being a man feels natural to me," and "I feel personally implicated when men are criticized." Female participants answered "Being a woman is an important part of my self-image," "Being a woman is important to my sense of what kind of person I am," "Being a woman is an important reflection of who I am," "Being a woman has very little to do with how I feel about myself," "I have a lot in common with the average woman," "I am similar to the average woman," "I feel a bond with women," "Women have a lot in common with each other," "I identify with other women," "Being a woman feels natural to me," and "I feel personally implicated when women are criticized."

Involvement. The study measured involvement with the target business (topic). Individuals may vary in their involvement with a topic, which may affect how they process categorical cues embedded in UGC. Involvement was measured on a 7-point Likert scale using five items (adapted from Cho & Boster, 2005) ranging from 1 (strongly disagree) to 7 (strongly agree), $\alpha = .81$, $M = 4.05$, $SD = 1.32$. The items included "The topic has little impact on my life," "My quality of life would not change depending on the topic," "The topic affects my life," "All in all, the effects of the topic on my life would be little," and "It is easy for me to think how the topic influences my well-being."

Perceived credibility of commenters. Dual process models, such as the elaboration likelihood model (Petty & Cacioppo, 1979), argue that as their levels of involvement vary, individuals can be influenced by either argument quality or source characteristics (Petty & Cacioppo, 1979). Since the argument quality of each comment was already controlled through the pilot test, such that all four users' comments used in the main experiments had equivalent levels of argument quality, $F(3, 196) = 1.08$, $p = .36$, and perceived helpfulness, $F(3, 196) = 0.86$, $p = .46$, participants only answered how they would evaluate the credibility of each commenter; if the commenters differ in their perceived credibility, it may affect viewers' evaluations on UGC. Participants viewed the comments of the four commenters along with the commenters' profile pictures and rated the perceived credibility of each commenter on a 7-point semantic differential scale. The items included "unintelligent vs. intelligent," "untrained vs. trained," "dishonest vs. honest," "untrustworthy vs. trustworthy," "not an expert vs. expert," "dishonorable vs. honorable," "immoral vs. moral," "incompetent vs. competent," "unethical vs. ethical," and "not understanding vs. understanding" (adapted from McCroskey & Teven, 1999). The reliabilities and means of credibility measure were $\alpha = .92$, $M = 4.31$, $SD = 0.71$ for female commenters and $\alpha = .93$, $M = 4.38$, $SD = 0.70$ for male commenters.

Computed Variables.

In-group and out-group commenters' influence on a viewer's attitude. The impact of in-group UGC on a viewer's attitude was assessed by calculating congruency between the viewer's position (i.e., attitude) and his/her in-group commenters' position, $M = 5.19$, $SD = 1.52$ (see Table 2). The impact of out-group UGC on a viewer's attitude was assessed by calculating congruency between the viewer's position and his/her out-group commenters' position, $M = 4.81$, $SD = 1.52$. (see Table 3). For instance, when in-group commenters expressed positive attitudes about the target business, then the more positive a viewer's attitude was, the stronger the impact of the in-group. When in-group commenters expressed negative attitudes about a topic, then the more positive a viewer's attitude was, the weaker the influence of the in-group. As another example, when a female viewer read two negative remarks about the target business from female commenters, then the more negatively the viewer rated the place (i.e., the lower the score), the greater the in-group influence.

RESULTS

Based on self-categorization theory, H1 predicts that in-group commenters more greatly affect viewers' attitudes than do out-group commenters. In order to test H1, a paired-sample t-test was used to compare the influence of the in-group ($M = 5.19$, $SD = 1.52$) with that of the out-group ($M = 4.81$, $SD = 1.52$). The results indicated that, across all topics, the in-group exerted greater influence than the out-group, $t(183) = 1.70$, $p = .045$ (1-tailed). Thus, the results were consistent with H1.

Given that self-categorization theory argues that in-group influence is a function of in-group identification, H2 predicts that the difference between in-group influence and out-group influence is more pronounced among those with high rather than low in-group identification. In order to test H2, a paired-sample t-test was used to compare in-group influence among those who scored higher on the in-group identification measure with in-group influence among those who scored lower on the in-group identification measure. The cutoff for the median split was 5.00 while the means for high and low in-group identification groups were $M = 5.53$, $SD = 0.48$ and $M = 4.15$, $SD = 0.74$, respectively. The results revealed that the in-group exerted greater influence than the out-group only when in-group identification was high, $t(103) = 2.23$, $p = .014$ (1-tailed). When in-group identification was low, however, in-group influence did not differ from out-group influence, $t(183) = 0.17$, $p = .43$ (1-tailed). Thus, the results were consistent with H2.

Hypothesis 3 proposes that prototypical expertise of categorized groups moderates the influence of in-group UGC on viewers' attitudes. Specifically, H3 predicts that the difference between in-group influence and out-group influence is more pronounced when the in-group, rather than the out-group, has prototypical expertise on a topic. A paired-sample t-test was used to test H3. The results were not consistent with H3; the difference between in-group influence, $M = 5.10$, $SD = 1.69$, and out-group influence, $M = 4.97$, $SD = 1.69$, was not

significant when the in-group had prototypical expertise on a topic, $t(57) = 0.31$, $p = .38$ (1-tailed). When the out-group has prototypical expertise on a topic, the difference between in-group influence, $M = 5.08$, $SD = 1.36$, and out-group influence, $M = 4.92$, $SD = 1.36$, was not significant, $t(60) = 0.47$, $p = .32$ (1-tailed), either.

Given that the difference between in-group influence and out-group influence was only observed among those with high in-group identification, further analysis was conducted. Specifically, a series of paired-sample t-tests were conducted to see how prototypical expertise of categorized groups and in-group identification affected in-group vs. out-group influence. The results revealed that exerting greater influence was the in-group, $M = 5.56$, $SD = 1.71$, over the out-group, $M = 4.56$, $SD = 1.74$, when the in-group had prototypical expertise on the topic and viewers also had high in-group identification, $t(33) = 1.72$, $p = .047$ (1-tailed). The difference between in-group influence and out-group influence was not significant when the out-group had prototypical expertise on a topic or when the in-group had prototypical expertise but viewers scored low on the in-group identification measure.

Lastly, H4 predicts that the difference between in-group and out-group influence is more pronounced when individuals have high, rather than low, involvement with a topic. In order to test H4, a paired-sample t-test was used to compare in-group influence among those who scored higher on the involvement measure with among those who scored lower on the involvement measure. The cutoff for the median split was 3.90 while the means for high and low involvement groups were $M = 4.87$, $SD = 0.84$ and $M = 2.78$, $SD = 0.82$, respectively. The results were not consistent with H4. The difference between in-group influence, $M = 5.20$, $SD = 1.43$, and out-group influence, $M = 4.80$, $SD = 1.43$, was not significant when involvement was high, $t(111) = 1.45$, $p = .08$ (1-tailed). When involvement was low, the difference between in-group influence, $M = 5.18$, $SD = 1.65$, and out-group influence, $M = 4.82$, $SD = 1.65$, was not significant, $t(71) = 0.93$, $p = .18$ (1-tailed).

Additionally, given that the difference between in-group influence and out-group influence was only observed among those with high in-group identification, further analysis was conducted. The results lend partial support for H4; the in-group, $M = 5.40$, $SD = 1.60$, exerted greater influence than the out-group, $M = 4.60$, $SD = 1.60$, when viewers were highly involved with a topic and when they also had high in-group identification, $t (64) = 2.02$, $p = .024$ (1-tailed). The difference between in-group influence and out-group influence disappeared when topic involvement was low or when involvement was high but viewers scored low on in-group identification.

Post hoc Analysis

Post hoc analyses found that the valence of comments affected viewers' evaluations of the commenters. Positive comments led to greater perceived source credibility than did negative comments. The results indicated that commenters who left positive comments were perceived to be more credible than commenters who left negative ones. A series of paired-sample t-tests indicated that positive commenters were perceived to be, in general, more credible than negative commenters (see Table 4).

DISCUSSION

In testing how social categorical cues embedded in UGC affect viewers' attitudes and perceptions, the current study yields support of self-categorization theory. Regardless of the topic, viewers were more influenced by the in-group commenters than by the out-group commenters. Moreover, when viewers were divided into two groups—high vs. low in-group identification—in-group influence was observed only among those with high in-group identification. This finding is consistent with self-categorization theory which posits that in-group influence is a function of in-group identification. The current study also found that the influence of in-group UGC on viewers' attitudes and perceptions was moderated both by the prototypical expertise of categorized groups and involvement with a given topic. However, this occurred only when viewers had high in-group identification. Specifically, the in-group exerted greater influence than did the out-group when in-group identification was high and the in-group also had prototypical expertise on a topic. Likewise, when in-group identification was high, those who found a topic to be involving were affected by in-group UGC.

The results indicate that in-group identification plays a crucial role in understanding the influence of categorical cues on viewers' attitudes and perceptions. First, categorical cues embedded in UGC caused, among those with high in-group identification, categorized perceptions (in-group vs. out-group) and in-group favoritism. In other words, in-group influence or in-group favoritism was observed only among those with high in-group identification. However, when viewers scored low on in-group identification, in-group favoritism disappeared. This finding is consistent with self-categorization theory; once people identify themselves with their in-group, they become susceptible to its influence.

Second, the influence of the two moderators was contingent upon in-group identification. The two factors—prototypical expertise of categorized groups and topic

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involvement—moderated the influence of in-group UGC on viewers' attitudes, but only for those viewers with high in-group identification. Together, these findings suggest that in-group identification is crucial to understand in-group influence on participatory websites. Only those with heightened in-group identification utilized categorical cues to sort out information which made certain users' comments more influential than others.

When it comes to the findings from post hoc analyses, the question remains as to how the valence of comments affects one's evaluation of the source's credibility. The finding that commenters who left positive comments were perceived to be more credible than commenters who left negative comments appears to be related to transfer of attitude recursively (TAR) effect (Gawronski & Walther, 2008). Transfer of attitude recursively effect suggests that evaluations endorsed by a source can be transferred to the source. For instance, when a source evaluates a target in a negative manner, the source can acquire negative evaluations. In Gawronski and Walther's experiments (2008), pictures of several sources were presented with evaluative statements (positive vs. negative). Specifically, four sources evaluated their colleagues (targets) in positive ways and four sources evaluated their colleagues in negative ways. The results indicate that a statement's valence generated by a source can be transferred back onto the source (sources leaving positive statements were perceived to be more positive than sources leaving negative statements.) In this sense, the current results appear to be consistent with TAR effects. Positive commenters were assessed in more positive ways than negative commenters. However, even if the TAR effects were observed across experimental conditions, since the effects of valence were only identified as post hoc explanations, the effects remain empirically unverified.

Issues for Future Research

There are several issues that deserve attention in future research. First, the current study employed the metacontrast principle to distinguish categorized groups (male vs.

female). Its employment, however, could affect the external validity of the research. On participatory websites, multiple categorical cues are often accessible to viewers and thus the distinction between an in-group and an out-group may not be as clear as depicted in the current study. Previous literature indicates that multiple categorization criteria may hinder categorized perceptions (in-group vs. out-group; Hall & Crisp, 2005). Crisp, Hewstone, and Rubin (2001) argue that when individuals face multiple categorization criteria, in-group vs. out-group distinctions become too complex to allow the sorting out of inconsistent information, failing thus to trigger categorized perceptions. On the other hand, other studies point out that when one category becomes relatively salient than others, it triggers categorized perceptions. For instance, priming one of several alternative categories leads to its activation and inhibition of alternative categories, which sparks categorized perceptions (Macrae, Bodenhausen, & Milne, 1995). Another study argues that, even in the presence of other categories, one category may become salient based on what other categories are present. van Rijswijk and Ellemers (2002) point out that whether category-based perceptions are triggered or not is determined by a comparative context (i.e., to which one category is mainly compared). Specifically, the study argues that when evaluating targets that vary in multiple categories, individuals tend to focus on a category that readily compares the targets and come up with category-based perceptions using the category employed. These findings indicate that the accessibility of multiple categories complicates the way categorical cues affect viewers' attitudes. In order to extend our understanding of how categorical cues actually affect viewers' attitudes on participatory websites, future research needs to examine 1) how categorical cues affect viewers' attitudes when multiple categorization criteria exist and 2) what makes certain criteria more salient than others.

Second, the findings from the current study could be restricted due to the existence of opposing messages (positive vs. negative UGC). For instance, this study employed the

metacontrast principle to distinguish groups. In order to distinguish groups (male vs. female), participants viewed the two most positive and two most negative comments. However, it is possible that the presence of a counter-argument could constrain the possible influence of social categorical information. Meta analyses of one-sided vs. two-sided messages indicate that two-sided messages without refutation lack persuasiveness compared to one-sided persuasive messages or two-sided messages with refutation (Allen, 1991). Hale, Mongeau, and Thomas (1991) suggest that arguments in two-sided, refutational messages lead to positive evaluations and greater persuasive influence than do arguments in one-sided messages or two-sided, non-refutational messages. In the present study, opposing arguments were present, though none was refutational. Accordingly, the presence of the opposing argument could have constrained the possible influence of social categorical cues embedded in UGC.

Lastly, future study needs to synthesize how message-related and source-related features of UGC affect viewers' attitudes and perceptions along with the influence of categorical cues. Post hoc analyses found that the credibility of the commenters was affected by the valence of their comments. Even though evaluation of source failed to affect the influence of in-group UGC, future research needs to expand our understanding of how people actually utilize different kinds of information on participatory websites and how this leads to social influence. For instance, the current study found that categorical cues trigger in-group influence when individuals have high, rather than low, involvement. Future studies may examine how, when involvement varies, in-group vs. out-group influence triggered by categorical cues interacts with message-related (e.g., argument quality) and source-related (e.g., source credibility) features of UGC. By synthesizing prior findings on UGC, future studies may extend our understanding of how social influence occurs on participatory websites.

Participatory websites display messages from multiple sources. The current study focuses on how UGC affects viewers' attitudes and perceptions. In particular, it captures the dynamic nature of participatory websites by showing that categorical information about a user that is embedded in UGC can activate in-group perception and in-group identification among viewers. The findings imply that categorical information may allow viewers to feel connected to certain users. Future research needs to further investigate how this dynamic connection between a user and a viewer predicts social influence.

APPENDICES

Appendix A

Masculinity and femininity of a target business

Please indicate your impressions of this business.

Not masculine at all	1 2 3 4 5 6 7 8 9	Very masculine
Not professional at all	1 2 3 4 5 6 7 8 9	Very professional
Not appealing at all	1 2 3 4 5 6 7 8 9	Very appealing
Not female-oriented at all	1 2 3 4 5 6 7 8 9	Very female-oriented
Not favorable at all	1 2 3 4 5 6 7 8 9	Very favorable
Not feminine at all	1 2 3 4 5 6 7 8 9	Very feminine
Of poor quality	1 2 3 4 5 6 7 8 9	Of good quality
Not pleasant at all	1 2 3 4 5 6 7 8 9	Very pleasant
Not male-oriented at all	1 2 3 4 5 6 7 8 9	Very male-oriented

Valence

Please read each review and indicate how positive or negative each review sounds.

Strongly negative	1 2 3 4 5 6 7	Strongly positive

Helpfulness

Please indicate how helpful each review is in terms of making your decision.

Not helpful at all	1 2 3 4 5 6 7	Very helpful

Argument quality

Please indicate how strong of an argument each review presents. How would you evaluate argument quality of each review?

Very weak	1 2 3 4 5 6 7	Very strong

Masculinity and femininity

Please indicate how masculine or feminine each review sounds.

Very masculine   1 2 3 4 5 6 7   Very feminine

Demographic questions

What is your sex?

What is your current class standing?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate student

What is your age?

What is your major?

How would you describe your primary ethnic heritage?

- European
- Asian
- Hispanic
- Pacific Islander
- Native America
- African
- Others

If you have any comments or feedback about this study, please write them here.

Appendix B

Attitude toward a target object I

How would you rate your overall evaluation of the business?

Very negative   1 2 3 4 5 6 7 8 9   Very positive

How would you rate the quality of service this business offers?

Very negative   1 2 3 4 5 6 7 8 9   Very positive

Attitude toward a target object II (Holbrook & Batra, 1987; Mitchell & Olson, 1981) (9-point semantic differential scale)

Dislike	1 2 3 4 5 6 7 8 9	Like
Negative	1 2 3 4 5 6 7 8 9	Positive
Favorable	1 2 3 4 5 6 7 8 9	Unfavorable
Of poor quality	1 2 3 4 5 6 7 8 9	Of good quality
Appealing	1 2 3 4 5 6 7 8 9	Unappealing
Bad	1 2 3 4 5 6 7 8 9	Good

Perceived expertise (adapted from Ohanian, 1990) (7-point Likert scale)

This reviewer seems to be an expert about the topic.

This reviewer seems to be experienced about the topic.

This reviewer seems to be knowledgeable about the topic.

This reviewer seems to be qualified to discuss the topic.

This reviewer seems to be skilled about the topic.

Perceived credibility (adapted from McCroskey and Teven, 1999) (7-point bipolar scale)

This reviewer seems to be…

Unintelligent   1 2 3 4 5 6 7   Intelligent

Untrained	1 2 3 4 5 6 7	Trained
Dishonest	1 2 3 4 5 6 7	Honest
Untrustworthy	1 2 3 4 5 6 7	Trustworthy
Not an expert	1 2 3 4 5 6 7	Expert
Dishonorable	1 2 3 4 5 6 7	Honorable
Immoral	1 2 3 4 5 6 7	Moral
Incompetent	1 2 3 4 5 6 7	Competent
Unethical	1 2 3 4 5 6 7	Ethical
Not understanding	1 2 3 4 5 6 7	Understanding

Prototypical expertise of a topic (adapted from Ohanian, 1990) (7-point Likert scale)

Men tend to be an expert about the topic.

Men tend to be experienced about the topic.

Men tend to be knowledgeable about the topic.

Men tend to be qualified to discuss the topic.

Men tend to be skilled about the topic.

Women tend to be an expert about the topic.

Women tend to be experienced about the topic.

Women tend to be knowledgeable about the topic.

Women tend to be qualified to discuss the topic.

Women tend to be skilled about the topic.

Social identification with in-group (adapted from Leach et al., 2008) (7-point Likert scale)

Being a woman/man is an important part of my self-image.

Being a woman/man is important to my sense of what kind of person I am.

Being a woman/man is an important reflection of who I am.

Being a woman/man has very little to do with how I feel about myself.

I have a lot in common with the average woman/man.

I am similar to the average woman/man.

I feel a bond with women/men.

Women/men have a lot in common with each other.

I identify with other women/men.

Being a woman/man just feels natural to me.

I feel personally implicated when women/men are criticized.

Masculinity and femininity of a target business

Please indicate your impressions of this business.

Not masculine at all	1 2 3 4 5 6 7 8 9	Very masculine
Not professional at all	1 2 3 4 5 6 7 8 9	Very professional
Not appealing at all	1 2 3 4 5 6 7 8 9	Very appealing
Not female-oriented at all	1 2 3 4 5 6 7 8 9	Very female-oriented
Not favorable at all	1 2 3 4 5 6 7 8 9	Very favorable
Not feminine at all	1 2 3 4 5 6 7 8 9	Very feminine
Of poor quality	1 2 3 4 5 6 7 8 9	Of good quality
Not pleasant at all	1 2 3 4 5 6 7 8 9	Very pleasant
Not male-oriented at all	1 2 3 4 5 6 7 8 9	Very male-oriented

Involvement (adapted from Cho & Boster, 2005) (7-point Likert scale)

Please read each statement and indicate the extent to which you agree or disagree.

The topic has little impact on my life.

My quality of life would not change depending on the topic.

The topic affects my life.

All in all, the effects of the topic on my life would be little.

It is easy for me to think how the topic influences my well-being.

Demographic questions

What is your sex?

What is your current class standing?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate student

What is your age?

What is your major?

How would you describe your primary ethnic heritage?

- European
- Asian
- Hispanic
- Pacific Islander
- Native America
- African
- Others

If you have any comments or feedback about this study, please write them here.

Appendix C

Table 1 *Sample size for experimental conditions*

UGC Composition	Topic		
	Masculine	Feminine	Gender-neutral
Male (+), Female (-)	$n = 29$	$n = 31$	$n = 30$
Male (-), Female (+)	$n = 30$	$n = 29$	$n = 30$
Male (+, -), Female (+, -)	$n = 34$	$n = 31$	$n = 32$

Note. (+) indicates positive comments and (-) indicates negative comments.

Table 2 *Influence of the in-group commenters on viewers' attitudes*

In-group commenters' position: **positive**			In-group commenters' position: **negative**		
In-group position	A viewer's position	In-group influence	In-group position	A viewer's position	In-group influence
9	1	1	1	1	9
9	2	2	1	2	8
9	3	3	1	3	7
9	4	4	1	4	6
9	5	5	1	5	5
9	6	6	1	6	4
9	7	7	1	7	3
9	8	8	1	8	2
9	9	9	1	9	1

Note. For 'In-group position' and 'A viewer's position' columns, 1 = strongly negative, 9 = strongly positive

Table 3 *Influence of the out-group commenters on viewers' attitudes*

Out-group commenters' position: **positive**			Out-group commenters' position: **negative**		
Out-group position	A viewer's position	Out-group influence	Out-group position	A viewer's position	Out-group influence
9	1	1	1	1	9
9	2	2	1	2	8
9	3	3	1	3	7
9	4	4	1	4	6
9	5	5	1	5	5
9	6	6	1	6	4
9	7	7	1	7	3
9	8	8	1	8	2
9	9	9	1	9	1

Note. For 'Out-group position' and 'A viewer's position' columns, 1 = strongly negative, 9 = strongly positive

Table 4 *Comment valence and credibility evaluation of commenters*

	Masculine topic	
	Male (+) Female (-)	Male (-) Female (+)
Credibility of M	$M = 4.51, SD = 0.65, n = 29$	$M = 4.12, SD = 1.00, n = 31$
Credibility of F	$M = 4.05, SD = 0.82, n = 29$	$M = 4.15, SD = 0.86, n = 31$
Comparison of M and F	$t(28) = 2.07, p = .02$	$t(30) = 0.16, p = .44$
	Feminine topic	
	Male (+) Female (-)	Male (-) Female (+)
Credibility of M	$M = 4.52, SD = 0.89, n = 30$	$M = 4.10, SD = 1.07, n = 29$
Credibility of F	$M = 4.10, SD = 0.92, n = 30$	$M = 4.77, SD = 0.69, n = 29$
Comparison of M and F	$t(29) = 3.31, p = .002$	$t(28) = 3.36, p = .001$
	Gender-neutral topic	
	Male (+) Female (-)	Male (-) Female (+)
Credibility of M	$M = 4.56, SD = 0.57, n = 34$	$M = 4.30, SD = 0.65, n = 31$
Credibility of F	$M = 3.86, SD = 0.73, n = 34$	$M = 4.48, SD = 0.52, n = 31$
Comparison of M and F	$t(33) = 4.49, p < .001$	$t(30) = 1.69, p = .05$

Note. M indicates male commenters and F indicates female commenters. (+) indicates positive comments and (-) indicates negative comments.

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