

## EFFECTS OF CONSUMER SOCIAL INTERACTION ON TRUST IN ONLINE GROUP-BUYING CONTEXTS: AN EMPIRICAL STUDY IN CHINA

Zhe Zhang

Department of Marketing, School of Management, Fudan University  
No.670 Guoshun Road, Shanghai,China, 200433  
[zhezhang@fudan.edu.cn](mailto:zhezhang@fudan.edu.cn)

Chenyan Gu

Department of Marketing, School of Management, Fudan University  
No.670 Guoshun Road, Shanghai,China, 200433  
[12210690036@fudan.edu.cn](mailto:12210690036@fudan.edu.cn)

### ABSTRACT

As a type of online shopping, online group-buying is inherently affected by consumers' social interaction. In the context of group-buying, consumers can be affected by other group members who share information and communicate with them online. Previous researchers have found that in an online environment, trust can significantly influence consumers' purchase intentions. Therefore, in this paper we study social interaction factors that affect consumer trust in the context of online group-buying in China. The results of this empirical study of online group-buying in both product and service contexts indicate that social interaction has significant informational and normative influences on consumer trust. However, informational influence affects consumer trust more in service contexts, whereas normative influence affects trust more in product contexts. Moreover, the results of the study show that the valence of comments (i.e., positive or negative) does not significantly impact how informational influence and normative influence affect consumer trust in the online group-buying context.

Keywords: Online Group-Buying; Trust; Consumers' Social Interaction; Informational Influence; Normative Influence

### 1. Introduction

Online group-buying enables individual consumers to combine their purchasing power on the Internet in order to obtain discounts. Demand aggregation and volume discounting are core principles of online group-buying, with the goals of decreasing transaction costs and risk and eventually increasing customers' utility [Anand and Aron 2003]. As network technology and e-commerce continue to develop, online group-buying is becoming more and more popular as a business model for online shopping.

According to the China Internet Network Information Center (CNNIC), as of December 2013, the number of online group-buying customers in China had reached 141 million, representing a usage rate of 22.8%, an 8.0% increase since the end of 2012 [CNNIC2014]. According to data from the China Electronic Commerce Research Center (CECRC) on group-buying, services sales (e.g., catering, entertainment, hotel, beauty) yielded 32.0 billion RMB (60% of the market), while product sales (e.g., food and beverage, clothing, household items) yielded 21.2 billion RMB (40% of the market) in 2013 [CECRC 2013].

Since the first Groupon-like group-buying website was set up in China in March 2010, many group-buying websites have emerged. The number of group-buying websites totaled more than 1,800 at the end of 2010, a number that more than doubled during the first half of 2011 to 4,800. During the second half of 2011, some small group-buying websites shut down due to funding problems, while other large group-buying websites were shut down due to product quality problems. For instance, Gaopeng (Groupon's Chinese website) was exposed for selling fake Tissot Swiss watches. According to CECRC, by the end of 2013, 6,246 group-buying websites had been set up in China, 5,376 of which had been shut down—a failure rate of 86%. The top ten independent group-buying websites currently account for 42% of the group-buying market [CECRC 2013].

For group-buying websites, it is important to know how to obtain the trust of consumers and what factors affect trust in the context of online group-buying. Trust formation is viewed as a dynamic process [Lee and Choi 2011; Walczuch and Lundgren 2004], and many researchers have focused on trust formation from a process-oriented rather than a static perspective [Chang et al. 2006; Kim 2012]. Many scholars have dedicated themselves to the study of trust

antecedents [Gefen et al. 2003; Zucker 1986] and some have examined how trust formation contributes to reducing the uncertainty associated with online transactions [Li 2008; Kim 2012; Zucker 1986]. However, few have investigated the multi-person nature of purchase decisions and how social interaction influences consumer trust over time.

Online group-buying is a process of aggregating consumer demand. During this process, most consumers from the group engage in social interaction by communicating with each other and sharing information. Nowadays, most third-party group-buying websites, such as Tuan 800 (<http://www.tuan800.com/>) and Liba (<http://www.liba.com>), form discussion communities. After websites launch group-buying services, group members or potential customers can freely discuss options in these online communities. Although many burgeoning group-buying websites (e.g., MeiTuan.com, t.58.com, ju.taobao.com, t.dianping.com, etc.) have not specifically set up discussion communities, they allow consumers to post comments, which essentially are a form of interactive communication. In this way, group-buying members are able to autonomously form social interaction groups in which they share information and mutually influence each other. As group members tend to exaggerate their initial points of view during the communication phase, group decision-making tends to be more dynamic, and shifts in direction tend to be more extreme, a phenomenon called group-shift [Hale and Boster 1988; Isenberg 1986; Kogan and Wallach 1967]. Positive group-shifts create more demand, which results in more group-buying. Hence, we propose that a group member's trust in products, sellers and the website is influenced by social interaction effects of group communication.

In most prior studies about online purchasing behaviors, most scholars have used models of trust [Ba and Pavlou 2002; Chang and Chen 2008; McCole et al. 2010] or social interaction [Chen et al. 2011; Godes et al. 2005]; few have considered both social interaction and trust dynamics. In particular, the influence of social interaction on trust in the context of online group-buying has rarely been studied. Therefore, in this paper we investigate how social interaction influences consumer trust in the online group-buying context in China. Furthermore, we aim to identify whether influencing factors exert different effects in the context of positive and negative comments. In addition, since the online group-buying market is currently split between products and services, we explore the differences between them. Our primary aims are: (1) to build a model of trust change in the context of online group-buying and verify that informational and normative influences affect consumer trust; (2) to test the model in the context of positive and negative comments; and (3) to test the model based on purchase type (products and services).

The rest of this article is organized as follows. First, we thoroughly review existing relevant research. Based on prior research results and our conceptual background, we develop our framework of trust change and research hypotheses. We then describe our empirical research methods and present the results of our analysis. Finally, we discuss managerial implications and future research directions.

## 2. Literature Review

### 2.1. Online Group-Buying

Previous studies of online group-buying were focused primarily on business models, price discounts and pricing mechanisms [Anand and Aron 2003; Rezabakhsh et al. 2006]. Kauffman and Wang [2001, 2002] researched an operation model and a profit model of online group-buying and found that online group-buying is characterized by: (1) demand-side network externality, in which the number of existing orders has a significant positive effect on new orders placed during each three-hour period; (2) a price threshold effect, in which people are more willing to engage in online group-buying when the number of orders approaches the next price drop level and when the transaction price will fall in the near future; and (3) an ending effect, in which more orders are expected to be placed during the last three-hour period of an auction cycle. Jing and Xie [2011] compared online group-buying to traditional individual selling strategies and some other popular social interaction schemes. They found that group-buying is optimal when interpersonal communication is very efficient, or when the product valuation of a less-informed consumer segment is high. Tang [2008] compared foreign online group-buying with Chinese online group-buying ("Tuangou") based on the following six standard components of business models: basic structure, pricing strategy, revenue source, customer acquisition costs, customer appeal, and vendor appeal. He provided several reasons why this business model flourishes more in China than in other countries. Since such websites develop into social interaction mechanisms for youth, the potential of online group-buying cannot be ignored; the emergence of social media has been an important factor contributing to the emergence and development of online group-buying.

Recently, many scholars have identified key determinants of online group-buying behavior, including electronic word-of-mouth (e-WOM), website quality, trust, reputation, and information diffusion [Chang et al. 2011; Chen and Wu 2010; Cheng and Huang 2013; Sun et al. 2010; Tsai et al. 2011; Zhou et al. 2013]. Sun et al. [2010] identified five ascendants of perceived risk and trust on initiator and found that the degree of trust on initiator positively influences group-buying. Picazo-Vela et al. [2010] suggested that e-WOM is a way of enforcing subjective norms (societal influences on individuals). When reference groups continue to post similar positive or negative comments (e-WOM)

on group-buying websites, they create a strong social norm. Tsai et al. [2011] proposed that technology acceptance factors and social factors impact online group-buying. They found that perceived usefulness, a sense of virtual community and trust in the virtual community are determinants of intention. Using large-scale datasets from the top two group-buying websites in China, Zhou et al. [2013] found that information diffusion in group-buying can greatly influence consumers' purchase decisions. Their findings suggest that mass media communication and interpersonal communication have different effects during different phases of the buying process. Cheng and Huang [2013] explored antecedents of intention in online group-buying and the relationship between intention and behavior. Using a framework based on the theory of planned behavior, they collected data on e-WOM, network embeddedness, and attitudes about website quality to examine antecedents that influence potential and current consumers' intentions related to online group-buying.

With the popularity of online group-buying in China, researchers pay close attention to the China case nowadays. Zhou et al. [2013] used large-scale datasets from the top two group-buying websites in China and find that information diffusion in group-buying can greatly influence consumers' purchase decisions. Their findings suggest that mass media communication and interpersonal communication show different effects during different periods of the buying process. Based on data from 30,272 customers of a group-buying website in China, Luo et al. [2014] confirmed longevity effects of deal popularity, and the moderating role of social influence factors on consumer purchase and redemption decisions.

## 2.2. Consumer Social Interaction and Social Influence

Social interaction is a dynamic interdependent process of information diffusion between an individual and an individual, an individual and a group, or a group and a group. Godes et al. [2005] defined social interaction as the actions taken by individuals who are not actively engaged in selling a product or service that impact others' expected utility for the product or service. Consumers tend to be influenced by social interactions with others when they make purchase decisions offline and online [Yadav and Pavlou 2014]. Based on the research of Godes et al. [2005], Chen et al. [2011] further analyzed online social interaction in the context of online shopping. They indicated that consumers' purchase decisions can be influenced by two types of social interaction: word-of-mouth (WOM), and observational learning (OL). An interesting finding of their research is that while negative WOM is more influential than positive WOM, positive OL information significantly increases sales, but negative OL information has no effect. Moreover, Ho-Dac et al. [2013] indicated that consumers who are confronted with many user reviews are likely to find them to be a highly credible source of information on product quality and performance.

From the perspective of social influence, Kaplan and Miller [1987] found that group decision-making and individual opinions are always induced to shift after group discussion or communication due to informational and normative influences [Aronson et al. 2005; Deutsch and Gerard 1955; Kallgren et al. 2000; Kaplan and Miller 1987]. Informational influence is based on the acceptance of information from others as evidence about reality [Kaplan and Miller 1987]. When people experience decisional uncertainty, they can ask others or observe their actions; doing so helps them to readjust their evaluations and make decisions. Hence, information sharing among group members affects consumers' judgments. Normative influence, however, is based on the desire to conform to others' expectations so as to not feel excluded by other group members [Kaplan and Miller 1987]. There are two general effects of normative influence: public compliance and private acceptance [Kelman 1961]. Normative influence elicits conformity behavior, in which an individual does what others do or makes decisions based on others' advice. This is not because the individual views others as a source of information, but because he or she believes others are correct [Cialdini et al. 1991]. In our study, the effect of normative influence is private acceptance, not public compliance. During group discussions, consumers are exposed to the opinions of other online group-buying members, which represent normative influences on their judgments.

## 2.3. Social Identity Theory

Social identity theory (SIT) was proposed by Tajfel et al. in the early 1970s and continued to be developed in the context of group behavior. Turner et al. [1987, 1989] elaborated and refined SIT with their self-categorization theory (SCT). Social identity is one part of self-concept in both SIT and SCT. Importantly, the same person may have different social identities in different groups [Tajfel, 1982]. Tajfel [1970, 1971] showed that an individual's self-evaluation closely relates to groups. Once an individual is classified into a group, he will act in accordance with group norms, beliefs and behaviors in order to realize his value in the group. During the group-buying process, once an individual decides to participate, he will classify himself into the group. Therefore, group rules and beliefs will have important social influence effects on the individual that emerge during interactions with other group members.

#### 2.4. Trust

Trust has different definitions across a range of disciplines. In the field of marketing, Moorman et al. [1992] defined trust as a willingness to rely on an exchange partner in whom one has confidence. Consumer trust in the Internet has an important and far-reaching effect on online commercial activities [Hoffman et al. 1999]. In general, people find it substantially more difficult to judge the trustworthiness of a vendor in an online setting than in the conventional business context [Reichheld and Scheffer 2000]. Previous studies have examined the effects of trust on online business environments because such environments are unpredictable and there are no face-to-face interactions between customers and sellers [Gefen 2000]. Many researchers have shown that trust can significantly influence a consumer's willingness to make online purchases [Chang and Fang 2013; Gefen et al. 2003; McKnight et al. 2002; Patrick et al. 2007]. McKnight and Chervany [2002] built an online shopping trust model in which consumer trust in sellers is comprised of trusting beliefs and trusting intentions. Trust propensity has a positive effect on trusting beliefs and trusting intentions, and influences institution-based trust (including situational normality and structural assurance). Institution-based trust has a positive effect on trusting intentions. Trusting beliefs are also influenced by seller involvement. Trusting beliefs and trusting intentions have a positive effect on network behavior related to trust. Bart et al. [2005] thought that unlike offline trust, the object of online trust is the website, the Internet, or the technology. Online trust includes consumers' perceptions of how the site will meet expectations and the believability of the site's information and commands. Thus, we believe that compared to trust in traditional purchasing contexts, the objects of online trust are not only sellers, but also websites, networks and online shopping forums.

Many scholars are dedicated to the study of trust antecedents. Zucker [1986] proposed that there are three types of trust antecedents: (1) institutional-based trust, (2) process-based trust and (3) personality-based trust. Furthermore, Gefen et al. [2003] identified five patterns of trust building: (1) knowledge-based trust, (2) institutional-based trust, (3) calculative-based trust, (4) cognition-based trust, and (5) personality-based trust. Lee and Turban [2001] described a theoretical model for investigating the four main antecedents of consumer trust in online shopping contexts: trustworthiness of the online merchant, trustworthiness of the Internet as a shopping medium, infrastructural (contextual) factors (e.g., security, third-party certification), and other factors (e.g., company size, demographic variables). The antecedent variables are moderated by an individual consumer's degree of trust propensity, which reflects personality traits, culture, and experience. Kim and Prabhakar [2002] proposed that trust building is influenced by trust propensity, third-party certification, system reliability, Internet familiarity, website reputation, and perceived transaction feasibility. Sultan et al. [2002] found that characteristics of both websites (i.e., privacy, security, website design, and navigation) and consumers (i.e., network experience and demographic factors) affect trust in online purchasing contexts. Yoon [2002] empirically studied antecedents of online trust and found that website properties such as company awareness and company reputation significantly impact website trust, while website functionality is not significantly correlated with a consumer's level of trust in a website. Gorner et al. [2012] explored how to improve the modeling of agent trust in multi-agent systems that involve a social network of advisors. Trust between buyers and sellers is essential to the sustainability of e-commerce as well as social commerce [Zhou et al. 2013].

#### 2.5. Positive and Negative Word-Of-Mouth (WOM)

The results of prior studies have shown that the effects of positive and negative information are different. In particular, scholars have emphasized the stronger effects associated with negative information. In impression formation, negative information is more influential [Vonk 1996]; in social memory, negative events are encoded more deeply [Skowronski et al. 1991]; and in evaluative learning, negative reinforcement has a stronger impact [Baeyens et al. 1990]. Many of these findings have been attributed to the adaptive priority of negative information [Dijksterhuis and Aarts 2003; Rozin and Royzman 2001]. Through analysis of subjects' subconscious reactions to all kinds of information, scholars at London University concluded that the human subconscious is more sensitive to negative information and can influence its dissemination [Xinhuanet.com 2009]. Psychology studies on impression formation also revealed that negative WOM is given greater weight than positive WOM during appraisal processes. This is because people's response intensity in the face of positive WOM and negative WOM is different. Positive WOM is weaker than negative WOM in stimulating psychological arousal, attention, emotion, evaluation, attribution, and social action [Gelb and Madeline 1995]. However, in other research, scholars have explored and demonstrated faster processing of positive information [Unkelbach et al. 2010]. Furthermore, Ho-Dac et al. [2013] showed that brand equity moderates the relationship between online customer reviews (OCRs) and sales. Positive (negative) online customer reviews increase (decrease) the sales of weak brands. In contrast, OCRs have no significant impact on the sales of products with strong brands, which means that OCRs matter less for strong brands.

### 3. Research Hypotheses

#### 3.1. Trust Change Process Framework

Consumers who participate in online group-buying engage in social interaction and share information with each other [Wei et al. 2011]. In China, consumer social interaction primarily happens in two ways: (1) via special discussion groups on third-party websites (e.g., Tuan800.com, Liba.com, etc.) where group members and potential customers discuss new offerings and exchange information freely; and (2) via e-WOM and reviews posted on content pages of group-buying websites (e.g., MeiTuan.com). During the discussion and information sharing process, consumers update their own information and their trust changes as a result.

Prior to social interaction, consumer trust is typically based on previous online purchase experiences and website familiarity. In the group-buying context, members with similar preferences who pursue common interests will spontaneously form virtual social groups that are unconstrained by time and space. During online social interaction, consumers communicate with other group members, share information and learn from others. According to group decision-making theory, consumers will update their information and their trust will change in response to informational and normative influences of social interaction. Hence, we propose a process framework for describing and measuring changes in customer trust in the context of online group-buying (Figure 1).

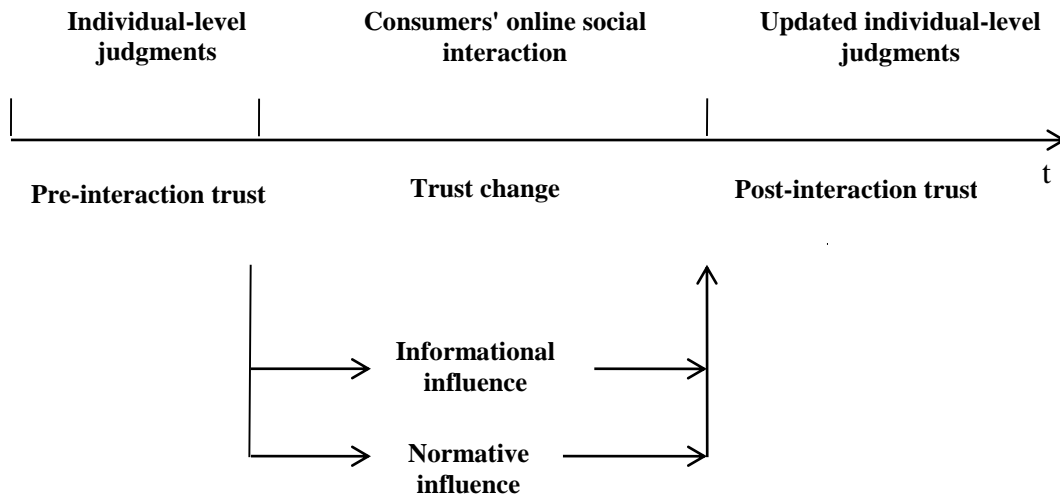


Figure 1: Trust Change Process Framework

During the online group-buying process, consumers participate in groups and communicate with group members, and thus are affected by informational and normative influences [Kaplan and Miller 1987], as illustrated in Figure 1. We expect that individual consumers will revise their trust in online group-buying based on information they obtain during group interaction about others' experiences, consistent with the anchoring and adjustment process proposed by Hogarth and Einhorn [1992]. At the same time, according social identity theory, consumers who intend to participate in group-buying typically imagine being part of the community or group, which means their trust will be influenced by group norms. An individual's sense of identification with the group's norms is not only based on objective information about others' opinions, but also on how well the opinions of other group members match the individual's expectations.

#### 3.2. Factors Influencing Trust Change

Homsey et al. [2008] indicated that individual consumers consider and accept information provided by others, which is an effective way to correctly judge objective reality in situations in which information is limited. Valuable external information can help a consumer make the right decision. In the context of online group-buying, informational influence causes consumers to accept information from other group members as evidence of reality and they use that information to update their trust. As shown in the framework (see Figure 1), when individual consumers receive additional information via social interaction with other group members (i.e., informational influence increases), their level of trust in group-buying changes from the level of pre-interaction trust. Thus, we propose:

**H1a:** *During the process of social interaction in online group-buying, informational influence has a significant and positive effect on changes in consumer trust.*

Ross et al. [1976] suggested that individuals listen to others and continue to conform in order to meet the expectations of the group as well as to obtain rewards or avoid punishment. In the context of online group-buying, consumers shift their pre-interaction trust to better align with other group members due to normative influences. Consumers in the group want to be accepted by other members for self-esteem reasons and do not want to be excluded. In addition, Picazo-Vela et al. [2010] found that when reference groups continue to post similar positive or negative comments (e-WOM) on group-buying websites, they create strong social norms. Therefore, in our framework, when individual consumers are exposed to consistent feedback during social interaction with other group members (i.e., the normative influence is great), individual consumers' level of trust will change significantly from the level of pre-interaction trust. Thus, we propose:

**H1b:** *During the process of social interaction in online group-buying, normative influence has a significant and positive effect on changes in consumer trust.*

### 3.3. Changes in Trust Related to Comment Valence

During social interaction and information exchange, individual customers may accept both positive information and negative information. The results of prior research have shown that the effects of positive information and negative information are different. The effects of negative information are stronger in terms of impression formation, social memory, and evaluative learning [Baeyens et al. 1990; Skowronski et al. 1991; Vonk 1996]. Arndt [1967] found that the purchase rates of consumers who were exposed to positive reviews were 12% higher than those who did not, while the purchase rates of consumers who were exposed to negative reviews were 24% lower than those who did not. Thus, compared with the positive comments, negative comments attract more consumer attention and can also cause greater changes in attitudes, which affect consumers' purchase decisions.

Moreover, negative information may appear more credible than positive information in the context of purchase decisions [Ahluwalia et al. 2000]. Herr et al. [1991] suggested that negative comments are more likely to attract increased attention because consumers assume that most products are good and negative WOM is contrary to their initial expectations. Fiske [1980] provided further theoretical justification for the idea that negative information usually has a stronger influence on judgments than positive information. He found that negative information is rarer because positive information can often be presumed. Rarity or novelty is highly informative and people often assign relatively high value to informative cues. Negative comments thus convey more information, and more informativeness is hypothesized to attract more attention; consequently, negative comments should result in more changes in trust. Therefore, we propose the following hypothesis:

**H2a:** *Trust changes caused by informational influence are greater when a consumer is exposed to negative comments than when a consumer is exposed to positive comments.*

Studies suggest that consumer attributions are stronger when two or more individuals agree on the performance level of a product [Bone 1995; Richard et al. 1980]. Moreover, when many group members provide negative comments about a product, group pressure is stronger than when positive comments are provided. Due to stronger normative influences, consumers are more likely to change their initial trust when exposed to negative comments. Thus, we propose:

**H2b:** *Trust changes caused by normative influences are greater when consumers are exposed to negative comments than when they are exposed to positive comments.*

## 4. Research Methods and Design

According to data from CECRC, in 2013 products and services accounted for 40% and 60% of the online group-buying market, respectively, and that proportion has remained relatively stable. Therefore, we used two types of offers (a product and a service) in our experiments in order to represent the overall group-buying market and to create more external validity.

### 4.1. Experiment Design

#### 4.1.1. Experiment 1: Product

We used a 2 (pre-interaction trust: high vs. low)  $\times$  2 (comment valence: positive vs. negative) design in this experiment. First, we primed participants with either positive or negative information to manipulate high (low) pre-interaction trust. Then, participants participated in an online group-buying simulation in which they evaluated an offer for a mobile hard disk (see Appendix A). We chose a mobile hard disk as the product for our simulation because it was familiar to our participants and is gender neutral. Next, participants filled in the first questionnaire which assessed pre-interaction trust, their knowledge of product information, and their expectations about other group members' trust. The subjects were asked to play some mental games as a distraction in order to prevent potential bias on the second questionnaire based on their initial answers. We then asked participants to scan the discussions and comments (positive or negative) posted by other group members. Finally, participants completed the second questionnaire, which assessed post-interaction trust, their knowledge of product information, and perceptions of other group members' trust.

#### 4.1.2. Experiment 2: Service

For the service experiment, we used the same 2 (pre-interaction trust: high vs. low)  $\times$  2 (comment valence: positive vs. negative) design. The only difference between the two experiments was the offer. We selected a restaurant coupon (see Appendix B) since the service was familiar to participants and is gender neutral.

#### 4.2. Construct Measurement

We measured three important constructs in this research: (1) trust change as a result of social interaction (i.e., the difference between pre-interaction trust and post-interaction trust) (see Figure 1); (2) informational influence (i.e., the difference between pre-interaction information and post-interaction information known by group members); and (3) normative influence (i.e., the discrepancy between pre-interaction expectations of other group members' trust and post-interaction perceptions of other group members' trust).

We used a rigorous process to select measurement items for these constructs (see Appendix C). After selecting a measurement technique based on the existing literature, we conducted a focus group discussion to identify what types of information consumers obtain from discussions on online group-buying websites, what inferences they make based on that information, and what factors influence their trust in online group-buying contexts. Based on what we learned from the focus group, we created measurement items and performed a pretest to check their validity. We used the valid items to measure the constructs in the formal experiments.

#### 4.3. Data Collection

We performed a pretest with 106 students, which showed the instruments had satisfactory reliability and validity. The formal experiments were conducted in a computer laboratory and participants were recruited via the Internet. In order to encourage serious and truthful participation in the experiment, we provided a small monetary compensation to participants.

We recruited 179 subjects for the first experiment (i.e., product group-buying context). After excluding incomplete or abnormal data, our final sample included data from 171 participants. For the second experiment (i.e., service group-buying context), we recruited 171 participants. After excluding incomplete or abnormal data, our final sample included data from 159 participants. In the two experiments, participants were randomly assigned to one of 4 groups: positive comments–high pre-interaction trust, positive comments–low pre-interaction trust, negative comments–high pre-interaction trust, and negative comments–low pre-interaction trust. Detailed information about participants in the two experiments is presented in Table 1.

Table 1: Detailed Information about Participants

Criteria	Type	Participants in product experiment (N = 171)	Participants in service experiment (N = 159)
Group	Positive comments–high pre-interaction trust	41 (23.4%)	42 (26.4%)
	Positive comments–low pre-interaction trust	39 (22.2%)	41 (25.8%)
	Negative comments–high pre-interaction trust	49 (28.7%)	41 (25.8%)
	Negative comments–low pre-interaction trust	42 (25.7%)	35 (22.0%)
Gender	Male	71 (42.0%)	62 (39.0%)
	Female	100 (58.0%)	97 (61.0%)
Educational level	Undergraduate	72 (42.0%)	64 (38.0%)
	Graduate	99 (58.0%)	95 (62.0%)

## 5. Data Analysis

### 5.1. Manipulation Checks

We performed two manipulation checks. The first was to check whether we successfully manipulated high and low pre-interaction trust and the second was to check whether positive (negative) comments induced positive (negative) trust change.

5.1.1. Manipulation Checks of Pre-Interaction Trust

First, we checked the internal consistency and reliability of pre-interaction trust in the two studies, and found that Cronbach’s  $\alpha$  was greater than 0.07 reliability coefficient suggested by Devellis [1991] (both Cronbach’s  $\alpha = 0.925$ ). Then, we performed an ANOVA (see Table 2). The results show that the manipulation was successful. Pre-interaction trust differed significantly based on comment valence and met the homogeneity of variance test.

Table 2: Manipulation Checks of Pre-Interaction Trust

Comment valence	Pre-Interaction Trust			
	Product Context		Service Context	
	<i>F</i>	Sig.	<i>F</i>	Sig.
Positive	35.059	0	14.992	0
Negative	52.345	0	13.969	0

5.1.2. Manipulation Checks of Positive Comments and Negative Comments

First, we checked the internal consistency and reliability of trust change (Cronbach’s  $\alpha = 0.897$  and  $0.942$ , respectively, in Experiments 1 and 2). Then, we used the mean to analyze the direction of trust change (see Figure 2). The figure shows that trust decreased with negative comments in both the high pre-interaction trust and low pre-interaction trust conditions (i.e., negative trust change, values  $< 0$ , see the white bars), and trust increased with positive comments both in the high pre-interaction trust and low pre-interaction trust conditions (i.e., positive trust change, values  $> 0$ , see the red bars).

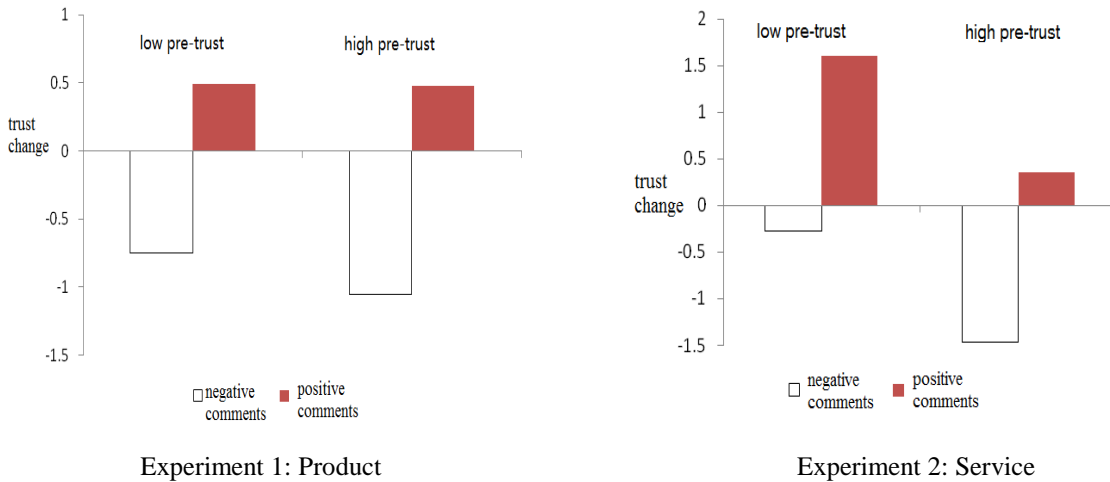


Figure 2: Manipulation Checks for Comment Valence

5.2. Reliability and Validity Tests

We analyzed the data using Partial Least Squares (PLS) in order to test the hypothesized relationships. We performed the analysis using PLS-GRAPH v.3.00. We chose PLS because it is suited to estimating a complex structural equation model [Bagozzi and Yi 1994], especially (1) when the model incorporates both formative and reflective indicators; (2) when assumptions of multivariate normality and interval scaled data cannot be made; and (3) when the primary concern of the study is the prediction of dependent endogenous variables [Chin 1998; Diamantopoulos and Winklhofer 2001]. PLS models are typically evaluated based on (1) the reliability and validity of measures, (2) the size and significance of path coefficients, and (3) the ability of the model to predict the outcome variables [Hulland 1999].

When performing this type of research, scholars typically test for internal consistency, convergent validity, and discriminant validity [Gefen and Straub 2005]. Internal consistency was examined using composite reliability. In PLS, composite reliability relies on actual loadings to compute the factor scores and is a better indicator of internal consistency than Cronbach’s alpha [Ranganathan et al. 2004]. As shown in Tables 3 and 4, the composite reliability scores for all the constructs in the model were above the suggested threshold of 0.7 [Chin 1998; Straub 1989]. When different measurement techniques are used, convergent validity tests are performed to assess correlations between



items measuring the same construct. In Tables 3 and 4, we provide information about the weights and loadings of our measurement items. All items have significant path loadings or weights at the 0.01 level. Weights are relevant for the formative measures while loadings are relevant for the reflective ones [Petter et al. 2007]. As shown in Tables 3 and 4, the average variance extracted (AVE) values for all the constructs were above the limit of 0.50 recommended by Fornell and Larcker [1981]. These results provide evidence for convergent validity. Testing for

Table 3: Psychometric Table of Measurements (Product)

Construct	Items	Weight	Loading	St. Error	t-value
Trust change (TC) (reflective)					
CR = 0.9321 AVE = 0.6967	TC1		0.7916***	0.0721	10.9864
	TC2		0.8841***	0.0225	39.3639
	TC3		0.8526***	0.0270	31.6133
	TC4		0.8798***	0.0279	31.5546
	TC5		0.7536***	0.0582	12.9914
	TC6		0.8358***	0.0414	20.1729
Informational influence (II) (formative)					
CR = 0.8791 AVE = 0.5114	II1	0.2411***		0.0490	4.9202
	II2	0.1692***		0.0316	5.3501
	II3	0.1677***		0.0411	4.0788
	II4	0.1866***		0.0285	6.6130
	II5	0.1972***		0.0332	5.9438
	II6	0.2225***		0.0251	8.8545
	II7	0.2106***		0.0307	6.8706
Normative influence (NI) (formative)					
CR = 0.9716 AVE = 0.8952	NI1	0.2607***		0.0104	25.0662
	NI2	0.2487***		0.0105	23.7753
	NI3	0.2733***		0.0107	25.5333
	NI4	0.2738***		0.0116	23.5617

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

Table 4: Psychometric Table of Measurements (Service)

Construct	Items	Weight	Loading	St. Error	<i>t</i> -value
Trust change (TC) (reflective)					
CR = 0.9514 AVE = 0.7655	TC1		0.8457***	0.0395	21.4130
	TC2		0.8922***	0.0259	34.5086
	TC3		0.8918***	0.0185	48.1573
	TC4		0.9248***	0.0145	63.8434
	TC5		0.8263***	0.0371	22.2465
	TC6		0.8653***	0.0540	16.0385
Informational influence (II) (formative)					
CR = 0.9105 AVE = 0.5962	II1	0.1292***		0.0253	5.1079
	II2	0.1925***		0.0253	7.6120
	II3	0.2163***		0.0194	11.1514
	II4	0.1406***		0.0270	5.1986
	II5	0.1964***		0.0213	9.2183
	II6	0.1631***		0.0205	7.9583
	II7	0.2375***		0.0227	10.4359
Normative influence (NI) (formative)					
CR = 0.9635 AVE = 0.8684	NI1	0.2720***		0.0142	19.1561
	NI2	0.2742***		0.0086	31.7469
	NI3	0.2565***		0.0121	21.1926
	NI4	0.2701***		0.0108	25.1033

Note: \**p* < 0.05, \*\**p* < 0.01, \*\*\**p* < 0.001

discriminant validity involves checking whether the items measure the construct in question or other (related) constructs. Since there is only one reflective construct in our research model, a discriminant validity test is not necessary.

5.3. Hypothesis Tests

5.3.1. Main Effect Test

Each participant was assigned to one of four experimental groups: positive comments–high pre-interaction trust, positive comments–low pre-interaction trust, negative comments–high pre-interaction trust, and negative comments–low pre-interaction trust. Our research model is shown in Figure 3, and the corresponding path coefficients are presented in Table 5, where  $\alpha$  denotes the informational influence coefficient and  $\beta$  denotes the normative influence coefficient. Subscript 1 denotes the product offer and subscript 2 denotes the service offer.

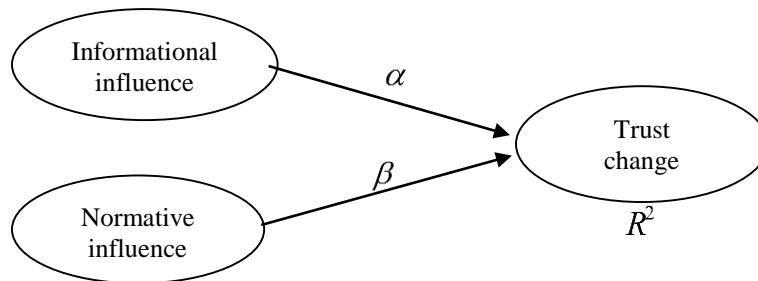


Figure 3: Research Model

Table 5: Path Coefficients

Group	Product			Service		
	$\alpha_1$	$\beta_1$	$R^2$	$\alpha_2$	$\beta_2$	$R^2$
Positive comments–high pre-interaction trust	0.3785***	0.4243***	0.597	0.4219***	0.5192***	0.730
Positive comments–low pre-interaction trust	0.3272***	0.3068***	0.498	0.2898***	0.4648***	0.531
Negative comments–high pre-interaction trust	0.2196**	0.5465***	0.495	0.3245***	0.3391***	0.666
Negative comments–low pre-interaction trust	0.3423***	0.5166***	0.595	0.2773***	0.5895***	0.671

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

We used a bootstrapping method to explain the stability and significance of the parameter estimates. As shown in Table 5, all of the corresponding  $p$ -values are less than 0.05, and most are less than 0.001, which shows that for both products and services, trust changes of individual members in an online group-buying context are associated with both informational and normative influences. In Table 5, we see that informational influence coefficients and normative influence coefficients for both the product and service groups are positive regardless of comment valence, so H1a and H1b are supported.

### 5.3.2. Interaction Effect Test

We used paired  $t$ -tests<sup>1</sup> to test H2a and H2b. As shown in Table 6, all  $t$ -values are below 1.96 ( $p > 0.05$ ), except for the high pre-interaction trust group in the service context, where the  $t$ -value is 2.34 ( $p < 0.05$ ), a number that is below the next significance threshold of 2.6 ( $p > 0.01$ ). Thus, in general, regardless of comment valence, the effects of informational and normative influences on trust change in the online group-buying context do not differ significantly. However, in terms of normative influence, positive and negative comments had significantly different effects on trust for the high pre-interaction trust group in the service experiment. This may be due to the fact that services are experiential; when individual consumers have high initial trust, other group members' negative comments may change trust levels more than positive comments.

Table 6: Paired  $t$ -Tests of Negative Comments and Positive Comments

Paired groups	Paired constructs	$t$ -value	
		Product	Service
Negative comments–low pre-interaction trust vs. Positive comments–low pre-interaction trust	Informational influence	0.2435	0.1286
Negative comments–high pre-interaction trust vs. Positive comments–high pre-interaction trust	Normative influence	1.8788	1.2875
Negative comments–low pre-interaction trust vs. Positive comments–low pre-interaction trust	Informational influence	1.6642	1.1152
Negative comments–high pre-interaction trust vs. Positive comments–high pre-interaction trust	Normative influence	0.8559	2.3455

### 5.4. Products vs. Services

We checked the internal consistency and convergent validity of the items in both experiments (see Tables 3 and Table 4). The results show that the CR values for all constructs in both experiments are higher than the suggested critical value of 0.7 [Chin 1998; Straub 1989] and the AVE values for all constructs are above the limit of 0.50 [Fornell and Lacker 1981]. Thus, the internal consistency and convergent validity are good. Based on the research model in Figure 3, we compare the corresponding path coefficients for product and service groups in Table 7.

Table 7: Path Coefficients for Product and Service Groups

	$\alpha$	$t$ -value	$\beta$	$t$ -value	$R^2$
Product	0.2067*	2.224	0.5291***	7.7928	0.633
Service	0.4784***	7.7078	0.3516***	5.9904	0.825

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

<sup>1</sup> We followed Chin [1998],  $t = \frac{Path_{sample\_1} - Path_{sample\_2}}{\sqrt{\frac{(m-1)^2}{(m+n-2)} * S.E.^2_{Sample\_1} + \frac{(n-1)^2}{(m+n-2)} * S.E.^2_{Sample\_2}}}$  \*  $\sqrt{\frac{1}{m} + \frac{1}{n}}$ , which is based on a  $t$ -distribution with  $m + n - 2$  degrees of freedom. Subsample-specific path coefficients are denoted as  $Path$ , the sizes of the subsamples are denoted as  $m$  and  $n$ , and the path coefficient standard errors are denoted as  $S.E.$

Table 7 shows that for both products and services, the  $t$ -values corresponding to the coefficients are significant ( $p < 0.05$ ). Thus, the trust change model in Figure 3 represents online group-buying dynamics in both product and service contexts.

In order to test for different effects of informational and normative influences in product and service contexts, we used paired  $t$ -test to compare data from the two experiments. The results are shown in the Table 8.

Table 8: Paired  $t$ -Test for Product and Service Groups

Paired groups	Paired constructs	$t$ -value
Product	Informational influence	2.5860
Service	Normative influence	2.0263

In Table 8, we find that the  $t$ -values for both informational influence and normative influence are greater than 1.96 ( $p < 0.05$ ), which means informational influence and normative influence have different effects on trust in product and service contexts. As shown in Table 7, informational influence ( $\alpha$ ) for the service group is significantly larger than that for the product group; however, normative influence ( $\beta$ ) for the service group is significantly smaller than that for the product group. Hence, informational influence has a greater impact on trust change in service contexts, while normative influence plays a more important role in product contexts.

## 6. Discussion

### 6.1. Findings and Discussion

We built a model of trust change in online group-buying contexts for both products and services based on social interaction (i.e., positive and negative comments) and social influences (i.e., informational and normative). The results of our experiments reveal that although comment valence, informational influence and normative influence all affect consumer trust in the online group-buying context, there are no significant differences among them. However, informational influence and normative influence play different roles when consumers evaluate products vs. services.

#### 6.1.1. Social Interaction and Online Group-Buying Trust Model

Kaplan and Miller [1987] found that group and individual opinions shift based on informational and normative influences. Abrams and Hogg [1990] proposed that a consumer's perception of group normative influence is based on the consistency between the opinions of other members and their own initial expectations. The results of this study verify that information and normative influences affect the trust of group members. The trust change model that we have built in the context of online group-buying in China creates a foundation for follow-up research.

Luo et al. [2014] indicated that most group-buying deals in China are offered by new, unbranded merchants; therefore, consumers may be uncertain about a deal's worth and quality. They analyzed the moderating role of social influence factors of referral intensity and group consumption on consumer purchase and redemption decisions, but they did not study the process of social interaction during the online group-buying process. However, we studied social interaction and trust change in the context of online group-buying in China from a dynamic perspective. Our research shows that group-buying members spontaneously form a virtual social group that is unrestricted by time and space. Social identity mechanisms cause group-buying members with similar preferences and common interests to join the same virtual social group. An individual group-buying member's trust is therefore influenced by the comments and opinions posted by other group members.

We manipulated the level of initial trust (low or high) and tested the informational influence and normative influence of social interaction in the form of exposure to positive or negative comments from other group members. Individuals updated their trust based on the information and opinions provided by other members. We found that regardless of comment valence, informational influence and normative influence have significant positive effects on trust change. Individual customers change their level of trust when they receive additional information from the group (informational influence) and when the opinions of other group members differ from their expectations (normative influence).

#### 6.1.2. Comment Valence

The results show that regardless of comment valence (i.e., positive or negative), informational influence and normative influence both affect consumer trust in the online group-buying context. Contrary to our hypothesis, no significant differences in influence can be attributed to comment valence. Fiske [1980] indicated that compared with positive comments, negative comments attract more attention from consumers and may cause them to change their attitudes. However, in the online group-buying context, all comments, whether positive or negative, can be regarded as information that reduces risk and uncertainty. Other group-buying customers' experiences are more valuable than advertisements in this regard. Regardless of comment valence, individual customers can imagine themselves having

similar consumption experiences. In addition, according to social identity theory, group members want to be consistent with others. Therefore, both positive and negative comments can attract an individual customer's attention and have an impact. Specifically, we have identified several explanations for this phenomenon:

(1) Anchoring effect. The participants were primed to form high or low initial trust prior to reading a brief description of the product or service and interacting with other group members. By manipulating their initial trust, we set an "anchor" [Hogarth and Einhorn 1992]. During the social interaction and information sharing process, even when provided with positive or negative comments, participants unconsciously recalled their initial evaluations due to this anchoring effect. Since the participants obtained the same objective group purchase information, and to a certain extent, the "anchor" was consistent, informational influence had no significantly different effect on their trust change, regardless of comment valence.

(2) Effect of social identity. Past studies have shown that negative information usually comes from members of the public, who are considered relatively reliable, so negative comments seem to be more influential than positive comments [Bond and Kirshenbaum 1998]. When sellers post WOM, if it is positive consumers will doubt its veracity but if it is negative they will believe that it is true and reliable. However, in the context of group-buying, consumers can form invisible groups based on social identity. Since they view themselves as members of the group, they trust information and comments provided by other group members. Hence, regardless of comment valence, posts by other group members influence trust in online group-buying contexts.

(3) Effect of price discounts. One important reason why online group-buying can attract a large number of customers in a short time period is price discounts, especially in China. According to a report on group purchase user behavior published in 2013, price discount is the most important factor motivating users to participate in group purchase activities, followed by geographic location and user comments. In this research, when group members considered negative or positive comments, they also considered the price discount, which may have caused interference.

(4) Effect of consumer maturity. Online group-buying has developed over a period of time in China and many consumers participate regularly. As consumers become more mature, they may view the comments differently based on their own experiences. They are likely to only believe some comments, and disregard extremely positive or negative comments. Thus, the degree of influence of positive comments and negative comments may be affected.

#### 6.1.3. Products and Services

Previous research indicated that consumers usually seek product related information before making purchase decisions. Since products are tangible, evaluation standards are more objective and relatively easy to reconcile with product features. However, since services are intangible it is difficult to create objective evaluation standards because services are diverse and subjective. Specifically, service evaluations involve comparing a consumer's desired service level to the experienced service level.

The results of our research reveal that informational influence and normative influence play different roles when consumers evaluate products than when they evaluate services. Specifically, informational influence has a greater effect on trust change in service contexts, while normative influence has a greater effect in product contexts. There are several potential explanations for this phenomenon. During the group-buying process, consumers are exposed to standardized information about products. Although consumers cannot see the color, style and appearance of the real product, they already have an objective expectation based on previous experience. Before interacting with other group members, consumers have already obtained product-related information (in this case, brand, price, capacity, stability, noise, data transmission speed, and warranty). However, since services are intangible, consumers can obtain relatively little information prior to interacting with other group members. Therefore, during communication, the group members pay attention to information selectively. When buying products, consumers pay less attention to the product-related information provided by other group members, which results in less informational influence. However, when buying services, group-buying customers pay more attention to information provided by others since existing information is lacking, which leads to a stronger informational influence. Since product parameters are objective and consumers' comments about them are relatively similar, normative influence is dominant. Individual customers are willing to choose popular products that members of the public deem satisfactory. Therefore, conformity due to normative influence has a greater impact on trust change. For services, consumers' evaluations are subjective and sometimes the opinions of group members vary widely. In such cases normative influence decreases, since individuals tend to update their trust based on the information they receive. For example, in the second experiment in which the offer was a restaurant coupon (service), consumers were more focused on their own preferences and whether the offer was a match for their eating habits. They cared more about the quality of the food and the service the restaurant could provide and they typically did not change their initial intentions due to normative influences.

#### 6.2. Managerial Implication

Our research findings are important to online group-buying websites and sellers, as well as consumers. According to the Online Group-Buying Industry Research Report [Baidu 2010], consumers are becoming increasingly concerned

about WOM and website credibility. Due to the rapid expansion of online group-buying and lack of regulation, false advertising has become consumers' primary concern. Customers pay more attention to brand and reputation, and seek websites with official certifications. During the online group-buying process, consumers are increasingly concerned about website WOM. According to Baidu data, searches related to online group-buying reputation exceeded 6,000 in December 2010. Search terms such as "best online group-buying site" and "online group-buying site, fake" are becoming common. Online group-buying websites emerge rapidly and the online group-buying model is easy to copy, which creates fierce competition. Consumer trust in an online group-buying website is certainly a competitive advantage. Thus, online group-buying websites should focus on increasing consumer trust. Our research shows consumer trust is influenced significantly by other group members. Trust change occurs during social interaction with other online group-buying members. Our research suggests that online group-buying websites should incorporate communication platforms (e.g., discussion threads, the ability to post comments and reviews) for online group-buying members or consumers who have used the products and services being offered.

As consumers are driving social commerce, they are looking for more personalized, informative and engaging online experiences [Zhou et al. 2013]. Huang and Benyoucef [2013] indicated that it is important to be aware of the relationships among participants, and how they affect interaction, the online community and commerce. They proposed that social commerce platforms focus on identifying users, motivating participation, building conversation, utilizing the online community, and providing quality websites that allow users to establish a community within a specific online shopping environment. Our research suggests that sellers can use social commerce platforms to enhance social interaction among group-buying members and improve consumer trust.

In addition, group-buying websites can set up specialized channels for customers to communicate suggestions and complaints. It is important for websites that have set up such channels to provide feedback and resolve consumers' problems in a timely fashion. By doing so, websites can make things right with customers who have had negative experiences with online group-buying, which will reduce the number of negative comments made during social interaction with other consumers. Moreover, offers should be carefully selected by group-buying websites. If websites offer inferior products or services, consumers will have low trust and communicate their feelings via interaction platforms. As trust decreases among more and more consumers, an online group-buying website will eventually fail.

Further, we have found that informational influence and normative influence have different effects in product and service contexts; this knowledge can help group-buying websites design evaluation systems. For products, group-buying websites can guide customers to share some subjective and non-standardized information, such as whether or not they recommend them. However, for services, websites should encourage customers to provide more standardized information such as service environment or service quality to help others evaluate intangible services. Moreover, online group-buying participants should confirm the veracity and reliability of information provided by other members.

### 6.3. Research Limitations and Future Research

First, the offers in our experiments were a hard disk and a restaurant coupon. However, there are many different categories of online group-buying offers. In the future, the robustness of our results can be tested in other product and service contexts. Second, for the effect of social interaction on trust change, group characteristics such as group cohesiveness and individual characteristics such as susceptibility to social influence can be studied further. Third, price discounts might influence group members' opinions and make them indifferent to negative or positive comments. Further experiments could be designed to test these effects by comparing data from experimental groups to data from control groups comprised of participants who are not exposed to price or discount information; this would enable researchers to identify whether discounts really influence customer responses to negative and positive comments. In addition, we performed this empirical study in China and the external validity of the results could be tested in cross-cultural contexts.

### Acknowledgments

This research was supported by the National Natural Science Foundation of China (70972049, 71428004), the Key Innovation Program of Shanghai Municipal Education Commission (14ZS017), and the Shanghai Philosophy and Social Science Foundation (2013BGL010).

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Appendix A: Stimulus for Product Experiment (Mobile Hard Drive)

朗科 (Netac) 2.5英寸UVD-DUTE网络播放移动硬盘E266 320GB **Capacity**

**Brand**



**Mobile HDD**

市场价：¥450

团购价：¥358 **Price**

折扣：8折 **Discount**

- 商品介绍
- 规格参数
- 包装清单
- 售后服务
- 评测资讯

商品名称：朗科UVD-DUTE  
 生产厂家：朗科  
 商品产地：中国大陆  
 商品毛重：0.28千克  
 上架时间：2009-9-29 15:43:27

E266是一款2.5寸移动硬盘和网络电影播放器功能二合一产品，既可以联接电脑，当做移动存储设备使用，也可以联接电视机，做网络电影播放器使用。一款“可以播放网络电影的2.5寸移动硬盘”，是这个产品的设计目标。

**产品特色：**

移动硬盘功能	最适用于
USB总线供电，无需外接电源	存储或备份自己的大型文件、数字音乐、视频和照片
网络电影播放器功能	在电脑与电视机间共享音/视频文件，照片和图片文件
支持网络电影、电视剧和短片等视频播放	将网络电影、音乐和照片在普通电视机上播放
支持MP3、WAV、WMA等音乐播放	
支持数码照片的浏览观看	
支持电子书阅读	
支持SD/MMC卡做为存储媒介	
通过智能遥控器进行所有的操作	
USB HOST支持独有电路设计	
附送音/视频线、色差分量线两条联接线，无需另外购买色差分量联接线	

**移动硬盘功能**

本产品具有一个miniUSB接口，可通过包装附带的USB延长线联接电脑，做为移动硬盘使用。本产品电路经专门设计，在联接电脑做为移动硬盘使用时，播放器部分电路不工作，整个产品的功耗仅是“移动硬盘”部分的功耗，所以，即使不使用外接电源适配器，在大部分电脑上也可以正常工作。

**售后服务：**

本产品全国联保，享受三包服务，质保期为：一年质保  
 售后服务电话：400-830-3662  
 品牌官方网站：<http://www.netac.com.cn/>

Appendix B: Stimulus for Service Experiment (Restaurant Coupon)

上海今日团购：地处“第一八佰伴”商圈！，仅68元，享原价176元川蜀之家超值3人套餐！口感极佳的香辣蟹、酸菜鱼……香辣挡不住，让你感受正宗川菜的麻辣滋味！

**Price** ¥ 68.0

**Discount** 原价 ¥176.0 折扣 3.86 节省 108.0

**Cumulative Sales** 461人已购买！

**Recommend to friends** 推荐给朋友！



**川蜀之家 超值3人套餐**

**精彩卖点**  
正宗川菜，辣爽的口感  
地处八佰伴周边，交通方便  
品种丰富，带给你不一样的享受

**温馨提示**  
请提前1天电话预约  
有效期：2011年7月15日至2011年10月31日

**Selling points**

**【川蜀之家】**  
地址：浦东新区潍坊路194号（近世纪大道）  
电话：021-58310872  
营业时间：周一至周五14:00—24:00；周六、周日11:00—24:00  
乘车路线：地铁：乘坐2、4、6、9号线至世纪大道，7号出口



**Address and business hours**

**本单详情**

请提前1天电话预约  
有效期：2011年7月15日至2011年10月31日  
每次/每桌限用1张  
不与店内其它优惠同时进行  
不退还现金，不参加邀请返利，不开具发票  
可用时间：周一至周五14:00—24:00；周六至周日11:00—24:00

**川蜀之家 超值3人套餐**

香辣蟹3只	78元/份
酸菜鱼	28元/份
卷心菜回锅肉	20元/份
特色生煎包6只	6元/份
冰镇水果羹	28元/份
乌梅汁	16元/扎
餐具免费	

原价 176元      团购价 68元

**Dishes**

**Appendix C: Construct Measurement Items**

Construct	(Code) Measurement Item		Scale	Source(s)
Trust change (The difference between pre- and post-interaction trust)	(TC1) The online group-buying organizer will deliver on promises made.		1 = strongly disagree to 10 = strongly agree	Bart [2005]; Gefen et al. [2003]
	(TC2) I believe the information presented on this online group-buying website is true.			
	(TC3) I'm confident with the recommendations in this online group-buying forum.			
	(TC4) I think this online group-buying website is honest.			
	(TC5) I think this online group-buying website cares about customers.			
	(TC6) I think this online group-buying website is not opportunistic.			
Informational influence	<i>Product-related</i>	<i>Service-related</i>	1= lowest score to 10 = highest score	Bohlmann et al. [2006]
	(II1) brand	restaurant environment		
	(II2) price	price		
	(II3) capacity	food taste		
	(II4) stability	service		
	(II5) noise	food freshness		
	(II6) data transmission speed	dish ingredients		
	(II7) warranty	food quality		
Normative influence	(NI1) I believe that other group-buying members have high levels of trust in the Internet.		1= strongly disagree to 10 = strongly agree	Bart [2005]; Bohlmann et al. [2006]
	(NI2) I believe that other group-buying members have high levels of trust in this website.			
	(NI3) I believe that other group-buying members have high levels of trust in this online group-buying format.			
	(NI4) I believe that other group-buying members have high levels of trust in this product/service.			

**C.1. Measurement of Trust and Trust Change**

Trust in online group-buying consists of trusting beliefs and trusting intentions [McKnight and Chervany 2002]. We adopted the trust scale used by Bart [2005] and Gefen et al. [2003]. We selected items matching the context of online group-buying and performed a pretest before the formal experiments. We included six items (see Appendix C) that were measured using 10-point scales ranging from 1= “strongly disagree” to 10 = “strongly agree.” Participants answered these questions before and after social interaction. Trust change was measured as the difference between pre-interaction trust and post-interaction trust.

**C.2. Measurement of Informational Influence**

Informational influence comes into play when consumers become aware of additional information about an offer [Bohlmann et al. 2006]. Product-related information included brand, price, capacity, stability, noise, data transmission speed, and warranty of mobile hard disk; service-related information included restaurant environment, service, food taste, price, food freshness, dish ingredients and food quality. The participants were asked to score each item from 1 (lowest) to 10 (highest). We measured informational influence as the changes in these scores post-interaction.

**C.3. Measurement of Normative Influence**

Normative influence comes into play when consumers compare their pre-interaction trust to their perceptions of other group members' trust. We measured normative influence by measuring discrepancies between a consumer's initial trust and the perceived trust level of the group. We used the trust scale used by Bart [2005] and Bohlmann et al. [2006]. We measured normative influence with four items (see Appendix C) using 10-point scales ranging from 1= “strongly disagree” to 10= “strongly agree.”