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RESEARCH ARTICLE

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# Avoiding the Diffusion of Responsibility in Social Networking Groups: A Field Experiment on Responses to Online Help-Request Referrals

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**Abstract**

Help-request referral (HRR) campaigns are being increasingly adopted by online service providers to attract online traffic and engage new users. In these campaigns, participants are required to collect a specific amount of help from their social network in exchange for attractive rewards. Participants often face challenges in obtaining positive feedback from their social networking groups due to the diffusion of responsibility. Based on the triangle model of responsibility, this study proposes and empirically tests a research model that examines two key determinants (i.e., request personalization and relational closeness) of recipients' perceived responsibility that further shape their responses to HRR. Our field experiment empirically supports the research hypotheses. Overall, this study enriches the literature on online social referrals by focusing on HRR, where social referrals are broadcasted and senders reap referral benefits. The study also provides practical insights for HRR designers and social networking service providers.

**Keywords:** Help-Request Referral Campaign, Triangle Model of Responsibility, Request Personalization, Relational Closeness, Perceived Responsibility, Helping, Endorsing

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## 1 Introduction

Online social referral campaigns are widely used by online service providers to engage new users (Hong et al., 2017). For example, Groupon provides a $10 bonus to users for each successful referral but provides nothing to the recipients of referrals. In China, this type of sender-benefitting referral is often framed as "help requests"; thus, we call this type of referral a *help-request referral* (HRR). In HRR campaigns, the senders of referrals (hereafter, senders) need to obtain the requested amount of help (e.g., "liking" or "voting") from their friends on social networking services (SNS) to win a reward (Guo et al., 2020). To help the senders, the recipients of the referrals (hereafter, recipients) may need to download relevant apps and register as new users of an app before providing help. HRRs have become popular in China, in forms such as "price bargaining" on online social commerce platforms (e.g., Pinduoduo.com). According to a market report of Pinduoduo,[1] a leading Chinese social commerce platform with approximately 300 million users, almost 90% of its active users have sent at least one referral, and HRR is the main reason that 22.1% of its users stay on this platform.

[1] https://new.qq.com/omn/20180731/20180731A10ZVC.html

Despite the wide prevalence of HRRs, there is a dearth of research on HRRs. Most extant social referral studies focus on designing financial incentives that promote senders' referrals and recipients' adoption of the relevant apps (Hong et al., 2017; Ryu & Feick, 2007). Moreover, the burgeoning literature has begun to explore the design of prosocial incentives from the sender's perspective. For example, Gershon et al. (2020) showed that the prosocial (recipient-benefitting) referral design provides reputational benefits for senders, and Jung et al. (2020) posited that simply framing a referral as prosocial by highlighting the rewards to the recipient increases senders' propensity to initiate a referral. However, the prosocial incentives design literature has paid little attention to recipients' responses when receiving an HRR. Financial incentives are not offered to the recipients of the HRR; they are merely helping senders obtain referral rewards. Thus, the other-oriented prosocial motivation, i.e., the desire to expend effort to benefit others (Grant, 2008), becomes a salient concern for recipients. Furthermore, recipients' response behaviors may be effortful when proceeding with a referral; for example, they may be required to download an app and sign into it (Gershon et al., 2020). Hence, given the paucity of research specific to HRRs, this study investigates the underlying mechanisms of recipients' responses to HRRs.

Given that HRRs are particularly prevalent in China, Chinese Confucian culture is important in understanding recipients' responses to HRRs. Contrary to the advocacy of agency and self-interest in individualistic cultures (Miller, 1999), Chinese Confucian culture highly emphasizes *GuanXi* and interpersonal obligations (Davison et al., 2009). In Chinese Confucian culture, obligations are fully internalized into personal value systems so that complying with obligations is something that one "wants to do" and does not diminish one's sense of personal agency (Buchtel et al., 2018). Moreover, social networking groups (SNGs) typically consist of people with common traits and goals; hence, SNGs function as a social category that marks people as intrinsically obligated to one another (Rhodes & Chalik, 2013). In Chinese Confucian culture, individuals are sensitive to group membership (i.e., in-group versus out-group) during social interactions (Markus & Kitayama, 1991). Given the above reasons, we maintain that Chinese consumers are more inclined to employ the principle of responsibility (i.e., the feeling of obligation to act in ways that benefit others) in guiding their behavior when receiving an HRR in an SNG.

Although HRRs can also be sent in other communication systems, such as one-to-one emails via private messaging and online communities via public posts, the unique features of SNGs make them an attractive place to conduct HRRs. Instead of only involving one recipient (e.g., emails) or indiscriminately disseminating a request to all contacts (e.g., online communities), the group messaging function in SNGs enables messages to be conveniently sent to a manageable audience size (Lin & Armstrong, 2019). SNGs are often built for specific objectives such as knowledge sharing, social support, and affective attachment (Bulgurcu, Van Osch, & Kane, 2018). Thus, members of SNGs are expected to be responsive when asked for relevant support (Tsai & Bagozzi, 2014). Also, the active interaction between close dyads may further induce group members to respond through the mechanism of social influence (Kuan et al., 2014). Moreover, for requesters, SNGs are typically interpreted as a less-intrusive channel for making social referrals because they are perceived as public rather than private spaces (Lin & Armstrong, 2019). Therefore, SNGs are generally the preferred context for HRR senders.

Although HRRs are quite popular due to their high cost-efficiency, recipients' response rate to HRRs remains low in SNGs. The low response rate is mainly caused by the diffusion of responsibility in SNGs, which can be explained by the *bystander effect* (Darley & Latané, 1968). Specifically, the bystander effect implies that each individual's likelihood of assuming responsibility and providing help will decrease with an increase in the number of potential helpers. Responsibility is typically considered to be a salient psychological mechanism when multiple potential helpers are involved (Baek & Shore, 2020). In contrast to traditional one-to-one communication (e.g., instant messaging), HRRs are typically broadcasted to many users. The presence of other potential helpers in SNGs allows the recipients of HRRs to become deindividuated and hence not accountable for inaction (Chiou et al., 2014). Therefore, online service providers often face challenges in inducing recipients' responsibility in response to HRRs.

The literature has discussed various ways to cope with the diffusion of responsibility. For instance, instead of disseminating untargeted HRRs in SNGs, the *personalization strategy* (e.g., using tags to identify recipients explicitly) has been shown to enhance the likelihood of obtaining responses (Gunarathne et al., 2018). In contrast to offline social referrals that typically happen among known friends, HRRs sent in SNGs involve various relationships, from acquaintances to close friends. Previous research has demonstrated that relational closeness attenuates the diffusion of responsibility (Brody & Vangelisti, 2016) and promotes the effectiveness of social referrals (Ryu & Feick, 2007). Hence, the *relationship strategy* may matter in avoiding the diffusion of responsibility in SNGs. Further, recipients' interpretation of being

individuated is largely contingent on their relationship with the sender in the social networking context (Choi et al., 2015). Thus, we assume that the *relationship strategy* serves as a boundary condition for the *personalization strategy*. In summary, this study aims to address the following research question:

**RQ:** How do the personalization strategy and relationship strategy jointly influence recipients' perception of responsibility and thereby shape their responses to HRRs in SNGs?

To address the research question, we conducted a field experiment by organizing a real HRR campaign on WeChat. We employed confederates, who were members of real WeChat groups, to administrate various experimental conditions. These confederates served as senders who sent a hyperlink of the HRR to their respective WeChat groups. We also captured recipients' actual responses to the HRR. In addition, recipients' perception of responsibility was measured at the immediate conclusion of the experiment using online questionnaires. Compared to scenario-based or lab experiments, the subjects (i.e., recipients) in our field experiment did not know that they were participating in our experiment beforehand; thus, they could experience the real stimulus and respond naturally (Morales et al., 2017).

Our results show that request personalization and relational closeness, reflecting the *personalization* and *relationship strategies*, respectively, jointly influence perceived responsibility, determining *helping* and *endorsing* behavioral responses. Specifically, we found that request personalization and relational closeness positively interact to improve perceived responsibility. The results also demonstrate that perceived responsibility increases recipients' helping and endorsing behaviors.

This study makes several significant theoretical contributions. First, this study adds to the literature on online referral campaigns by introducing the design of prosocial incentives. Second, this study enriches the research stream of personalized marketing by demonstrating the strategy of personalizing recipients via their friends in the SNG context. Third, this study also extends the literature on social referrals, as well as the literature on the more general topic of electronic word-of-mouth (eWOM) by uncovering the interaction between social relationships and personalized marketing. Fourth, this study identifies *endorsing* as another response to public referrals (or eWOM). Moreover, our results offer practical implications for referral campaign designers and SNS providers by explaining the importance of the personalization and relationship strategy design and its boundary condition in recruiting new users in the specific context of SNGs.

# 2 Theoretical Foundation

In this section, we first review the relevant literature on online social referrals and further demonstrate the relevance of responsibility in explaining recipients' responses to HRRs. Second, we depict the triangle model of responsibility (TMR), which serves as the overarching framework of our research model and use TMR to identify the key antecedents of perceived responsibility. Finally, we explore how individuals respond to HRRs based on the proactivity literature.

## 2.1 Online Social Referral Campaigns

Online social referrals are effective in engaging new users, indicating the importance of the design and implementation of online social referral campaigns (Schmitt et al., 2011). Existing research illustrates that providing monetary incentives is an effective approach to encouraging senders' referral decisions and recipients' adoption decisions (Hong et al., 2017; Ryu & Feick, 2007). Moreover, the burgeoning literature has begun to explore the design of prosocial incentives in promoting the referral decisions of senders. For example, research has shown that a prosocial referral design for senders (i.e., recipient-benefiting referral) will be as effective as sender-benefiting referrals in promoting senders' referrals (Gershon et al., 2020); simply framing referrals as prosocial by highlighting the rewards to the recipients has also been found to be effective (Jung et al., 2020). To the best of our knowledge, the design of prosocial incentives for recipients (as in the case of HRRs) has never been explored. To better understand prosocial motivation, we draw on Chinese Confucian culture, which highly values prosociality.

Chinese Confucian culture is the prototype of collectivism (Zou et al., 2009). It strongly emphasizes a sense of duty to groups, fulfilling one's social roles, and interpersonal obligations (Oyserman et al., 2002). In Chinese Confucian culture, obligations are fully internalized into personal value systems, such that complying with obligations is something that one "wants to do" and does not diminish one's sense of personal agency (Buchtel et al., 2018). One's sincere adaptability to others' requests is considered a perfect virtue (Chuang et al., 2015). Moreover, Chinese culture is sensitive to the group membership (i.e., in-group versus out-group) of other parties during social interactions (Markus & Kitayama, 1991). In-group members are connected by common traits, goals, and fates (Campbell, 1958). SNGs typically consist of a group of people with common traits and goals, and a foundational functional role of such a social category is to mark people as intrinsically obligated to one another (Rhodes & Chalik, 2013). In HRRs, social

referrals are framed as help requests, and recipients' adoption of such requests is aimed at helping senders get referral rewards. There is a much lower threshold for instantiating responsibility in Chinese Confucian culture than in other cultures; thus, a simple HRR in an SNG may instantiate a perception of responsibility in Chinese Confucian culture.

Unlike offline social referrals that are typically targeted at one specific person, online social referrals can be conducted through information broadcasting, such as posting a social referral on Facebook or sending an HRR in an SNG. To the best of our knowledge, broadcasted referrals, which are common in practice, have yet to be explored in the extant literature. When an HRR is sent through an SNG, the sender explicitly asks all group members for help. A responsibility mechanism is a prominent approach to understanding individual behaviors when multiple potential helpers are present (Latané & Nida, 1981; Levine & Crowther, 2008). Specifically, as the number of potential helpers increases, the likelihood of each individual providing help will decrease, which is known as the *diffusion of responsibility* or *bystander* effect (Darley & Latané, 1968). Unlike recipients in offline one-to-one social referrals, who undoubtedly recognize their responsibility to a social referral, recipients in SNGs may experience the diffusion of responsibility. The resulting low response rate in SNGs discourages the continuous participation of senders (Zhang et al., 2014) and hinders the success of HRRs (Lin et al., 2019). However, previous research has demonstrated that the personalization strategy can eliminate the diffusion of responsibility. For example, in online chat groups, individuals who are personalized through the use of their names are more inclined to provide help (Markey, 2000).

Whereas offline social referrals mostly occur among close relationships, online referrals can be sent easily to acquaintances with a large social distance. The extant literature suggests that the effectiveness of social referrals is conditional on the social relationship between two individuals (Tuk et al., 2009), especially when monetary incentives are not provided (Ryu & Feick, 2007) or the fairness of rewards-splitting is infeasible (Hong et al., 2017). In the context of HRRs, senders are the sole beneficiary of referral rewards, whereas recipients are asked to spend some time and effort without any gains for themselves. Thus, the attractiveness and fairness of HRRs are low in the eye of recipients, which makes relationship closeness much more significant for recipients' adoption decisions. Moreover, relationship closeness is also an important determinant of responsibility (Liu et al., 2015). As offline social referrals occur between close contacts, recipients are less likely to question their responsibility. However, for recipients of HRRs in SNGs, there are diverse levels of relational closeness between contacts; thus, recipients will judge how responsible they are for providing help according to their relationship closeness with the sender. Hence, relational closeness may also determine the diffusion of responsibility when receiving an HRR.

## 2.2 Antecedents of Responsibility

We draw on TMR to identify the key antecedents of responsibility. TMR is the most comprehensive theory regarding the judgment of responsibility (Britt, 1999). It posits that any judgment of responsibility involves three key elements and the linkages among them (Schlenker et al., 1994). These elements include a specific event that occurred, prescriptions that govern the event, and an identity that is relevant to the event and prescriptions. Moreover, TMR posits that responsibility acts as a psychological adhesive that connects an actor to an event and to relevant prescriptions that govern conduct (see Figure 1). Specifically, in this study, the event is a sender participating in an HRR campaign, the prescriptions are the social norms of helping others, and the identity is the role that recipients play in relation to the sender, such as a close friend versus an acquaintance. In line with Schlenker et al. (1994), we define perceived responsibility as the combined strength of the three linkages that lead to the judgment of responsibility.

TMR has mainly been used to identify the antecedents of responsibility judgment in professional contexts, such as investors' management responsibility for an adverse event (Tan & Yu, 2018), auditors' professional responsibility for detecting fraud (DeZoort & Harrison, 2018), and trainers' responsibility for training (Wisshak & Barth, 2021). Although Schlenker et al. (1994) demonstrated the potential of using TMR to explain individuals' responsibility in personal contexts, such as parents' responsibility for school chaperoning and students' responsibility for class performance, little research has used TMR to examine responsibility in interpersonal interactions, especially for online contexts. Given that responsibility is also a salient psychological mechanism in online interactions, such as content contribution in online communities (Baek & Shore, 2020) and proactive reporting responses to social media harassment (Wong et al., 2021), we seek to fill this gap by introducing TMR to identify interpersonal and IT factors that contribute to recipients' responsibility formation when receiving an HRR in an SNG. In the following sections, we elaborate the identifications of these three linkages in the context of TMR.

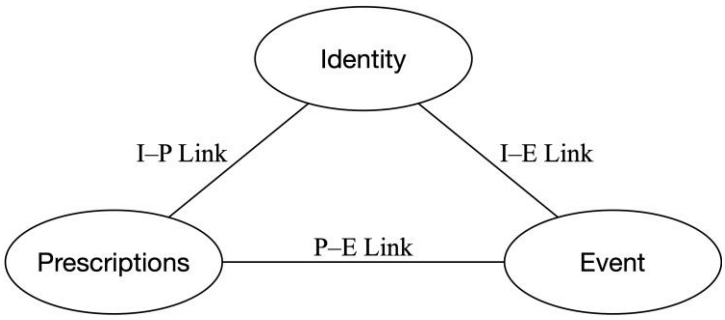


**Figure 1. Triangle Model of Responsibility**

#### 2.2.1 Identity Event Link: Request Personalization

The identity-event (I-E) link refers to the extent to which an actor appears to be connected to the event (Schlenker et al., 1994). At the most primitive level, people are held responsible "for each effect that is in any way connected" with them or that "seems to belong" to them (Heider, 1958, p. 113). Based on how messages are connected to people, online communication can be performed in either an undirected one-to-many manner or a directed one-to-one manner (Goh et al., 2013). An important technical function of SNS is tagging, which helps build a connection between an individual and an event (e.g., a post, photo, or activity), thereby resulting in directed communication (Choi et al., 2015). Accordingly, we used *request personalization* (i.e., broadcasted requests vs. requests with tagging) to reflect the I-E link. We define request personalization as whether or not a help-request message is sent by tagging a specific group member in an SNG. When a request is sent by broadcasting in an SNG, no recipient is explicitly involved in the event and the event is seen as weakly connected to all recipients in the group; thus, each group member experiences a weak I-E link. By contrast, when a request is sent by tagging a specific group member, the targeted recipient is explicitly involved in the event. The targeted recipient receives a system-generated notification of the tagging and is thereby informed of the relevant event. This tagging action leads the targeted recipient to experience a strong I-E link.

#### 2.2.2 Identity Prescriptions Link: Relational Closeness

The identity-prescriptions (I-P) link refers to the extent to which prescriptions are perceived as being applicable to the actor by virtue of the actor's roles (Schlenker et al., 1994). For example, a lawyer is obliged to follow the ethical canons of the profession, and a supervisor is duty-bound to obey the company's rules for supervisory employees. People typically have more than one role. During personal interactions, the role that one plays is determined by the relationship between two actors (Montgomery, 1998). Given the importance of relational closeness during interactions on SNS (Choi et al., 2018), we used relational closeness (i.e., low closeness versus high closeness) to reflect the I-P link. According to Berscheid et al. (1989), relational closeness is defined as the extent of interdependence between a sender and a recipient regarding their activities. It includes three aspects: frequency, diversity, and strength. With HRRs, the recipients often believe that they are strongly obliged to help the sender when the relational closeness between the sender and recipient is high (Burtch et al., 2013); this situation leads to a strong I-P link. By contrast, low relational closeness leads to a weak I-P link.

#### 2.2.3 Prescriptions Event Link

The prescriptions-event (P-E) link refers to the clarity of prescriptions governing conduct that should be applied to an event (Schlenker et al., 1994). The strength of the P-E link depends on the extent to which the purpose and procedure are specified, not subject to alternative interpretations, and pertinent to the event in question. With HRRs, recipients simply visit a hyperlink and click on the "help" button on the campaign page. The campaign page also provides helpful instructions about the purpose and procedure of the campaign. Thus, we assume that the P-E link is nearly identical for all recipients receiving HRRs.[2] Moreover, our ultimate objective is to explore the tactics that HRR designers and senders could employ

[2] Although individuals' perception of procedural clarity may be subjective to a certain degree, this effect can be largely eliminated by the prevalence of HRRs. According to our pilot results, more than 95% of our subjects have received HRRs more than once. Moreover, the difference in the perception of procedural clarity among each experimental group was largely eliminated by the randomization of subject assignment.

to avoid the diffusion of responsibility in SNGs. In contrast, the P-E link is an attribute of the HRR campaign and is beyond manipulation by senders. Hence, the P-E link is not included in this study.

### 2.3 Acceptance of Responsibility

The strength of the three links is a prerequisite to the judgment of responsibility and acts as a threshold for instantiating the acceptance of responsibility and initiating appropriate behaviors, i.e., manifestations of responsibility. According to TMR, the perception of responsibility provides purpose and direction to behaviors (Schlenker et al., 1994). Behaviors can be performed in either a reactive or proactive form (Parker et al., 2010). By definition, reactive behaviors occur simply in response to a situation or incident (Parker & Collins, 2010), whereas proactive behaviors emphasize the notion of foresight and imply an individual initiating actions in anticipation of future outcomes (Penner et al., 1997). Spitzmuller and van Dyne (2013) further contend that reactive responses will cease to exist when the beneficiary or context no longer needs help, whereas proactive responses focus on self-interest and will continue to exist, irrespective of the beneficiary and context. Thus, a salient difference between reactive and proactive responses to help requests is that the former only aim to meet the minimum requirement, while the latter often go above and beyond the sender's expectations.

In the context of HRRs, recipients are typically confronted with two decisions. The first decision regards helping (i.e., whether to click on the "help" button on the campaign page). The second decision concerns endorsing (i.e., whether to declare their helping decision in the SNG). Helping behavior is enacted in response to a help request and satisfies the sender's expectations. By contrast, endorsing behavior expresses public support for both the sender and the HRR campaign (Liu et al., 2015), going above and beyond the expectations of the sender. Hence, we define helping as a reactive response and endorsing as a proactive response in the context of HRRs.

Reactive and proactive responses can be independent of each other in certain circumstances—for example, when social environments allow segregated communication channels (Choi et al., 2015). With HRRs, helping is performed on the campaign page and only visible to the sender, whereas endorsing is typically performed in an SNG and is visible to all group members. Thus, recipients could declare that they helped in the SNG (i.e., endorsing behavior) in order to build a positive image, even if they did not actually click on the "help" button on the HRR page (i.e., helping behavior). Therefore, we focus on the two responses (i.e., helping and endorsing) as our outcomes.

## 3 Research Model and Hypothesis Development

The research model employs TMR as an overarching framework to explain the behavioral responses to HRR in SNG (see Figure 2). First, we identified two antecedents of perceived responsibility—namely, request personalization (broadcasted request vs. request with tagging) and relational closeness (low closeness vs. high closeness). Additionally, we assessed the effects of perceived responsibility on individuals' responses, including helping and endorsing behaviors.

### 3.1 Determinants of Perceived Responsibility

The effect of request personalization on perceived responsibility is attributed to the notion of the deindividuation effect (Diener, 1979). The deindividuation effect implies that when individuals merge into a crowd, they lose their self-awareness and loosen the normal constraints on behaviors (Lea et al., 2001). We conclude that individuals in the deindividuation condition are less likely to be aware of the personal responsibility to help; thus, responsibility perception is low. In HRR, all recipients are equally connected to the help request when receiving a broadcasted request in an SNG. The recipients will find themselves merged into the crowd and experience deindividuation; here again, they will be less likely to assume responsibility. By contrast, the targeted recipient is explicitly singled out when receiving a request in which they are tagged. In this case, the recipient will have a high level of self-awareness and the sense of deindividuation will be eliminated. Thus, we posit:

**H1:** Request personalization has a positive effect on perceived responsibility.

Individuals typically hold expectations for their behaviors and the behaviors of others and try to live up to the expectations they set for themselves and others (Biddle, 1986). Relational closeness often indicates the responsibility to offer help (Liu et al., 2015). Specifically, people generally feel more responsible for helping close friends than acquaintances (Sheldon & Schachtman, 2007). In HRR, recipients with low relational closeness with the sender are unlikely to consider themselves responsible for providing help, resulting in a low level of perceived responsibility. By contrast, recipients with a high level of relational closeness are likely to believe that they are responsible for helping the sender and thereby develop a high level of responsibility perception in such context. Thus, we posit:

**H2:** Relational closeness has a positive effect on perceived responsibility.

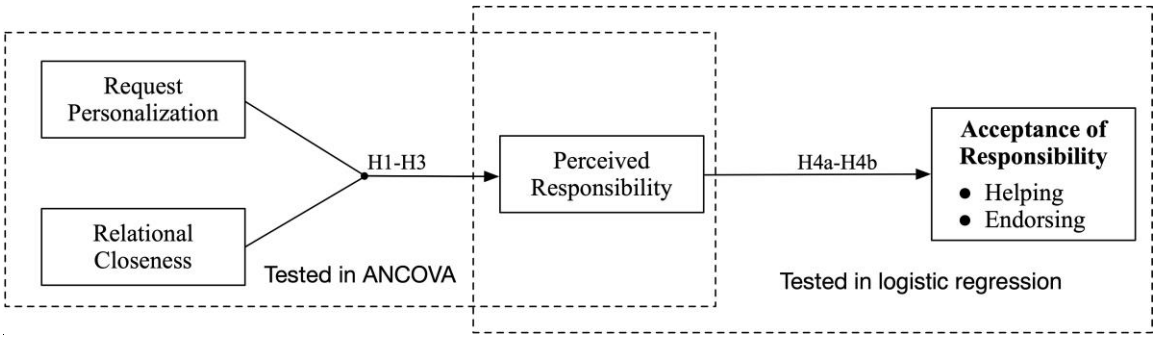


**Figure 2. Research Model**

Request personalization can lead to a normative focus, and social norms will be more predictive of behaviors under conditions of normative focus (Cialdini, Kallgren, & Reno, 1991). Specifically, when receiving a broadcasted request in an SNG, recipients feel deindividuated, which loosens the normal constraints on behavior (Lea et al., 2001), resulting in a weak effect of relational closeness on perceived responsibility. However, when a request is sent and specific group members are tagged, the targeted recipient's behavior will be witnessed and evaluated by other audience members; hence, the targeted recipient will experience physiological arousal (Zajonc, 1965), which will further lead to a normative focus (Kallgren et al., 2000). With a normative focus, the social norm of "helping close friends" becomes more salient and draws more attention from recipients, providing a stronger effect of relational closeness on perceived responsibility. Thus, we hypothesize:

**H3:** Request personalization positively moderates the effect of relational closeness on perceived responsibility.

### 3.2 Perceived Responsibility and Acceptance of Responsibility

Once perceived responsibility has overcome a specific threshold for recipients, it will lead to the acceptance of responsibility. Instead of directly focusing on the acceptance of responsibility, we examine the relationship between perceived responsibility and the more visible consequences of behavioral responses. According to TMR, the perception of responsibility provides purpose and direction to behaviors (Schlenker et al., 1994). Based on the dichotomy of reactive and proactive behaviors, we contend that helping is a reactive response to a help request in an HRR, whereas endorsing is a proactive response. When people perceive the responsibility to help, their goal is to ensure that their behaviors are aligned with the personal value of "helping others in need" (Bandura, 2001). In HRRs, senders directly express their need for help. Thus, recipients who perceive responsibility can achieve their goal of aligning their behaviors with their personal values by performing helping behaviors. Hence, perceived responsibility leads recipients to perform helping behaviors.

In contrast to helping, endorsing is a proactive form of response. With HRRs, endorsing is not only a proactive interaction with the sender but also a positive signal to the other members of the SNG (Wang et al., 2021). Hence, endorsing may induce more members to perform the helping behavior. Although senders do not directly ask for endorsements, endorsing can still be interpreted as an alternative way of achieving the recipients' goal of aligning their behaviors with their personal values. Moreover, providing unexpected help (e.g., endorsing) is typically regarded as a more proactive way of assuming responsibility. Hence, perceived responsibility leads recipients to perform endorsing behaviors. In sum, we posit:

**H4a:** Perceived responsibility will increase the likelihood of helping.

**H4b:** Perceived responsibility will increase the likelihood of endorsing.

## 4 Research Method

### 4.1 Research Setting

We chose WeChat as the SNS platform for this study. WeChat is known as China's "mega app" because of its rich functions, including more than 12 general categories of functions, such as messaging (including private messaging, and group messaging), social feeds, mobile payments, mini-program, official accounts, city services, and seeking friends (Zheng et al., 2019). We chose WeChat for three reasons: (1) WeChat is the most popular and influential SNS platform in China; (2) WeChat launched the mini-program project on January 9, 2017, which further supports social referral campaigns on the WeChat platform; (3) WeChat also offers an IT feature of "tagging" in SNGs, allowing users to send targeted messages to a specific member in their SNG.

We chose the "grabbing tickets" campaign as the HRR for this study for four reasons: (1) It represents a typical HRR cluster, involving, for example, "vote for me" requests and "like collecting," where people need to ask their friends for help to win attractive prizes. (2) It is popular on WeChat and our confederates (i.e., senders) and subjects (i.e., recipients) were highly familiar with it. (3) In this HRR campaign, the costs and benefits of helping and the emotions evoked are generally quite lower, such that it fits our goal of investigating responsibility. (4) It provides a visible list of helpers, which contains helpers' profile photos and WeChat IDs; accordingly, we were able to monitor and collect the recipients' actual behaviors. Figure 3 illustrates the experimental setting.

## 4.2 Experimental Design

A field experiment with a 2 (request personalization: broadcasted request vs. request with tagging) × 2 (relational closeness: low vs. high) factorial design was conducted to test the proposed hypotheses. To capture the actual behaviors of recipients, experimental conditions were manipulated using confederates (i.e., senders) to ensure that subjects (i.e., recipients) experienced a real stimulus and responded to the stimulus naturally (Morales et al., 2017).

We manipulated request personalization by asking the senders to request help without tagging anyone (or tagging a specific person). Relational closeness was manipulated through the behavioral and psychological closeness perceived by the senders. The vignettes (see Table 1) evoking different levels of relational closeness were based on the relationship closeness inventory (RCI) (Berscheid et al., 1989). RCI proposes that relational closeness comprises three dimensions: the frequency with which one person impacts another, the diverse types of activities through which one person can impact another, and the strength of the impact one has on another.

## 4.3 Sample and Experimental Procedures

The confederates (i.e., senders) were students at a large public university in China. The experiment was performed in real WeChat groups of confederates[3]; thus, the subjects (i.e., recipients) were from different provinces. The recipients were indirectly allocated by randomly assigning the senders to the four experimental conditions (Table 2). Following the instructions of previous studies (Feltz & Cova, 2014; Kandaurova & Lee, 2019), 117 subjects ensure sufficient power (statistical power = 0.825 > 0.8, calculated by G*Power) to test a medium with a high effect size ($f$ = 0.32) for main effects and interaction effects (Cohen, 1992).

Two days before the experiment, the "grabbing tickets" hyperlinks, unique to each confederate, were created using the Zhixing WeChat mini-program. [4] All confederates were randomly assigned to one of the four experimental conditions. Before the experiment, we asked the confederates to provide demographic information and added the research WeChat account to their personal WeChat network. The confederates attended a brief training session on how to view the entire member list of a WeChat group and how to forward the "grabbing tickets" hyperlink to their respective WeChat groups. After completing the training, they were instructed to open their WeChat groups of high school classmates, write down the group size (i.e., the number of group members), and go through the entire member list for two minutes. Then, they were asked to recall three group members with whom they had high relational closeness (or low relational closeness), according to the corresponding manipulation condition of relational closeness. We then asked them to write down the acronyms of the three names. Afterward, each confederate received an exclusive "grabbing tickets" hyperlink. Then, they were asked to forward the hyperlink to their previously chosen WeChat groups of high school classmates and ask their classmates for help. Additionally, in the *request with tagging* experimental condition they were asked to tag a specific person (*X*), randomly selected out of the three names identified in Step 3. After 24 hours, we asked them to report whether the specific tagged person (for the *request with tagging* condition) or all three classmates selected in Step 3 (for the *broadcasted request* condition) had publicly declared that they helped in the WeChat group.

While we controlled the words used to make requests and express thanks, confederates were allowed to slightly modify the words according to their own language style. In both the *broadcasted request* and *request with tagging* conditions, confederates were asked to send the message: "Dear all, please help me grab a train ticket 😁 ." Additionally, in the *request with tagging* condition, they were asked to tag *X* (selected previously) and send the message: "Would you please help me grab a train ticket? 😁 *@X*." For both conditions, we instructed them to say "thank you 😁 " to express thanks. We asked the confederates to behave naturally for 24 hours after the help requests were sent; however, they were instructed to disclose their participation In the experiment. The confederates received a remuneration of 20 Chinese yuan (about US$3.00) and a 10% percent chance of winning a bonus of 50 Chinese yuan (about US$7.50). Figure 4 illustrates the overall experimental flow.

[3] To eliminate the effect of the SNG's attributes on recipients' behaviors, all confederates (i.e., senders) were asked to forward the HRR hyperlinks to their respective WeChat groups of high school classmates.

[4] Zhixing launched a WeChat mini-program that primarily offers ticket-booking services. Zhixing conducted the "grabbing tickets" HRR campaign to promote its brand and services.


**Figure 3. Experimental Setting**

**Table 1. Manipulation of Relational Closeness**

| | |
|---|---|
| 1. High | Think about a group member with high relational closeness. He (or she) is a WeChat friend with whom you often communicate via private messaging. Sometimes you two talk about something important and personal about you, and you take his (or her) suggestion into account. If he (or she) posts an interesting update in WeChat Moments, you probably click on the "like" button and comment on it. |
| 2. Low | Think about a group member with low relational closeness. He (or she) is a WeChat friend with whom you rarely interact. The conversation between you two never involves something important and personal to each other. If he (or she) posts an interesting update in WeChat Moments, you might click on the "like" button but are unlikely to comment on it. |
| *Note:* Text is translated from the Chinese version | |

**Table 2. Experimental Conditions**

| | RP | RC | No. of senders (i.e., confederates) | No. of recipients (i.e., subject) | Response rate |
|---|---|---|---|---|---|
| **A** | RWT | HRC | 30 | 30 | 100.00% = 30/(30*1) |
| **B** | RWT | LRC | 31 | 28 | 90.32% = 28/(31*1) |
| **C** | BR | HRC | 11 | 29 | 87.88% = 29/(11*3) |
| **D** | BR | LRC | 11 | 30 | 90.91% = 30/(11*3) |

*Note*: RP: request personalization; RWT: request with tagging; BR: broadcasted request; RC: relational closeness; HRC: high relational closeness; LRC: low relational closeness. For the *broadcasted request* condition, researchers tried to contact all 3 recipients selected in step 3. In contrast, for the *request with tagging* condition, researchers only need to contact the targeted recipients selected in step 5.

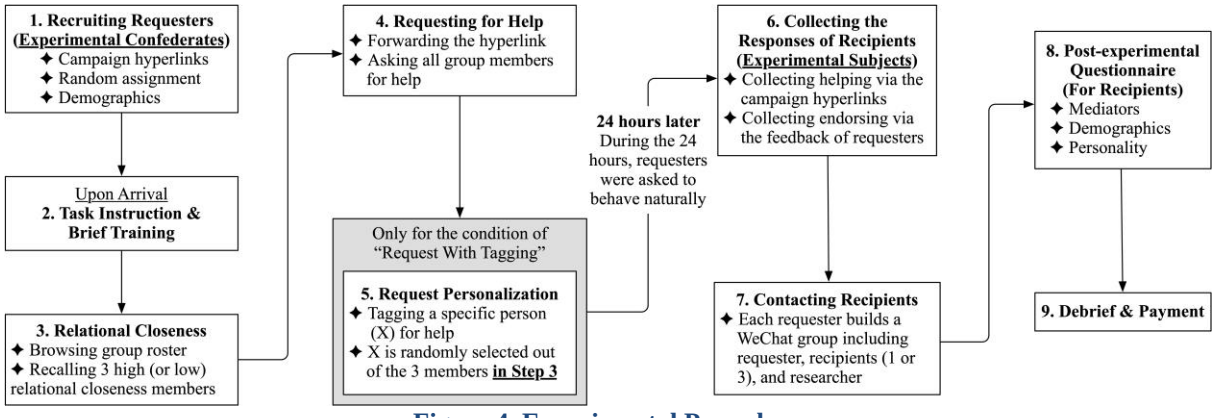


**Figure 4. Experimental Procedure**

### 4.4 Data Collection

While we did not directly measure whether recipients accepted personal responsibility, this was indirectly measured by their helping and endorsing behaviors. The selected recipients' behavioral response of *helping* was collected via hyperlink visit logs 24 hours after the requests were sent. The behavioral response of *endorsing*, i.e., publicly declaring their help was collected via senders' feedback. Following this, we asked each confederate in the *request with tagging* condition to build a WeChat group consisting of the sender (i.e., the confederate), the researcher, and the tagged classmate *X* (i.e., the subject). Likewise, each confederate in the *broadcasted request* condition was asked to build a WeChat group consisting of the sender, the researcher, and all three classmates selected in Step 3. Then, the researcher introduced himself, briefly explained the experiment, and privately invited the recipients to complete a post-experimental online questionnaire.

A potential challenge in our study is the social desirability bias. The recipients might be unwilling to admit that they did not help a friend (especially a close friend), and might be reluctant to report their actual experience in the questionnaire. We performed the following actions to minimize the social desirability bias: (1) Recipients were informed that the primary objective of this questionnaire was to investigate the psychological experience of receiving a "grabbing tickets" hyperlink; we thereby diverted attention away from social desirability concerns. (2) After the recipients agreed to complete the online questionnaire, the researcher built a personal connection with each of them and sent the online questionnaire privately to prevent perceptions of possible social pressure. (3) Before completing the questionnaires, recipients were explicitly informed that the questionnaire was being anonymously collected and the information was not accessible to anyone, especially the senders.

The first section of the questionnaire included demographic information and WeChat usage. The last question in the first section asked whether the specific recipient noticed the help request sent by the sender. If the answer was "*no*," the questionnaire automatically jumped to the end of the questionnaire. The second section covered manipulation checks for request personalization and relational closeness and measurement items of perceived responsibility. To avoid the potential influence of tagging on the recipients' perceived relational closeness, recipients were informed that they were not intentionally tagged by the senders but randomly chosen by the researcher. Upon completing the questionnaire, the recipients were debriefed and thanked with a remuneration of 20 Chinese yuan (approximately US$3.00).

## 5 Data Analysis

### 5.1 Subject Demographics and Background Analysis

Among the 117 recipients, 54 were women, 45 were freshmen, 32 were sophomores, and 40 were juniors. The recipients were from 88 universities across the country, covering 24 provinces. The recipients' ages ranged from 18 to 23 years old, with the average WeChat experience and WeChat daily usage time being 3.41 years and 0.47 hours, respectively. The average time a recipient spent completing the post-experimental questionnaire was 416 seconds.

### 5.2 Measurement of Variables

We conducted a manipulation check for request personalization by asking recipients one question on how the help request was sent (see Appendix A for manipulation check items). All 117 recipients chose the correct answer. We performed the manipulation check for relational closeness by asking recipients to rate four items, measuring the extent to which they felt the sender was close to them. On a 7-point Likert scale, the subjects in the high and low relational closeness conditions reported mean values of 5.43 ($SD$ = 0.91) and 3.25 ($SD$ = 1.12), respectively. The difference was significant ($t$ = −11.28, $p$ < 0.001); hence, the manipulation for relational closeness worked as anticipated (see Figure 5).

The items measuring perceived responsibility were adapted from Schlenker et al. (1994) and Farsides (2010). The Cronbach's alpha of perceived responsibility was 0.90. Two types of behavioral responses were noted: helping and endorsing. Helping was manifested by recipients clicking on the "help" button on the campaign page. Endorsing was displayed by their choice to declare that they helped in the WeChat group. These two responses were coded as binary scores (i.e., 0 or 1). For each response performed, subjects received a score of 1. Appendix A lists all measurement items.[5]

[5] Because our experiment was conducted in the Chinese context, all measurement items went through the process of back-translation, two rounds of card sorting, and a pilot test.

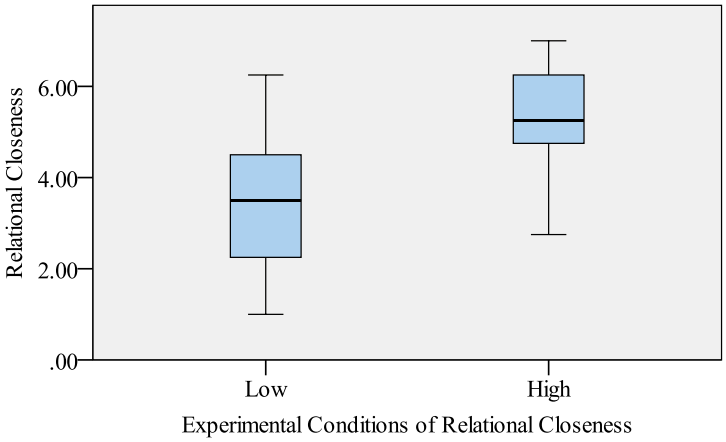


**Figure 5. Results of Manipulation Check on Relational Closeness**

## 5.3 Control Variables

We included several covariates in the model that could have affected the recipients' behavioral responses to a help request. The helping literature suggests that the number of bystanders (Levine & Crowther, 2008) and the cost of helping (Lanaj et al., 2016) reduce the likelihood of helping. Given that we used the "mini-campaign" feature on the WeChat platform, which has the benefits of instant loading and no need to download a relevant app, the major cost for our recipients to provide help is signing up for the specific mini-campaign. This sign-up process is automatic for existing users but requires an extra step to authorize the use personal information for new users. Thus, we adopted the use experience of the Zhixing mini-campaign as a proxy for the cost of helping. Additionally, recipients' responses to a help request may depend on their personal characteristics, such as gender (Raihani & Smith, 2015), altruism (Wang & Wang, 2008), shyness (Cheek & Buss, 1981), and individuation (Maslach et al., 1985). Based on the literature on peer influence and descriptive norms, individuals likely follow other helpers in responding to the help request (Lee-Won et al., 2016). Hence, we controlled for the SNG size, total number of helpers, gender similarity between sender and recipient, recipients' Zhixing use experience, and personality traits (including altruism, shyness, and individuation) were controlled. The items measuring personality were adopted from existing scales. Specifically, we included the altruism scale from Kahana et al. (2013), the shyness scale from Cheek and Buss (1981), and the individuation scale from Maslach et al. (1985) (see Appendix A).

## 5.4 Results on Perceived Responsibility

An analysis of covariance (ANCOVA) was conducted on perceived responsibility as the dependent variable. The results reveal the significant effects of request personalization ($F$ (1, 106) = 6.86, $p$ < 0.05) and relational closeness ($F$ (1, 106) = 5.56, $p$ < 0.05) (see Table 3). In general, requests with tagging lead to a higher level of perceived responsibility than broadcasted requests. High relational closeness leads to a higher level of perceived responsibility than low relational closeness. Hence, H1 and H2 are supported.

Considering that the interaction effect ($F$ (1, 106) = 18.23, $p$ < 0.01) is significant, we further conducted the simple main effect analysis. The results suggest that the effect of relational closeness on perceived responsibility is moderated by request personalization. A simple main effect analysis reveals that (1) low relational closeness and high relational closeness are indifferent to each other in affecting perceived responsibility in the *broadcasted request* condition ($F$ (1, 50) = 1.85, p > 0.05), and (2) high relational closeness is associated with significantly higher perceived responsibility than low relational closeness in the *request with tagging* condition ($F$ (1, 49) = 25.79, $p$ < 0.01; see Tables 3 and 4, Figure 6). Therefore, H3 is supported. Among all seven covariates, individuation ($F$ (1, 106) = 9.21, $p$ < 0.01), shyness ($F$ (1, 106) = 10.59, $p$ < 0.01), and altruism ($F$ (1, 106) = 18.89, $p$ < 0.01) have significant effects on perceived responsibility.

## 5.5 Results on Behavioral Responses

A binary logistic regression was first conducted to test the effects of perceived responsibility on helping. Among all 117 recipients, 100 subjects performed *helping* and 60 subjects performed *endorsing*. To facilitate results interpretation, we standardized perceived responsibility scores before fitting the logistic regression models, with *helping* as the outcome, in Model A (see Table 5). The Cox and Snell pseudo-$R^2$ is 0.30; hence, Model A correctly predicted approximately 30% of *helping*, whereas the Cox and Snell pseudo-$R^2$ of the covariates-only model is 0.26. This suggests that Model A is significantly stronger than the covariates-only model in predicting *helping*. Table 5 shows that perceived responsibility had a significant positive effect (β = 0.70, $p$ < 0.05) on *helping*. Therefore, H4a is supported. Among all seven covariates, SNG size (β = −0.15, $p$ < 0.01), total number of helpers (β = 0.16, $p$ < 0.05), and Zhixing use experience (β = 2.38, $p$ < 0.05) had significant effects on helping.

**Table 3. ANCOVA and Analysis of Simple Mean Effects on Perceived Responsibility**

| Source | Type III sum of squares | *df* | Mean square | *F* | Sig |
|---|---|---|---|---|---|
| ***Overall sample*** | | | | | |
| RP | 10.12 | 1 | 10.12 | 6.86 | 0.01 |
| RC | 8.21 | 1 | 8.21 | 5.56 | 0.02 |
| RP* RC | 26.90 | 1 | 26.90 | 18.23 | 0.00 |
| Error | 156.42 | 106 | 1.48 | | |
| Total | 2513.64 | 117 | | | |
| ***RP = broadcasted request*** | | | | | |
| RC | 3.46 | 1 | 3.46 | 1.85 | 0.18 |
| Error | 93.46 | 50 | 1.87 | | |
| Total | 1067.26 | 59 | | | |
| ***RP = request with tagging*** | | | | | |
| RC | 24.93 | 1 | 24.93 | 25.79 | 0.00 |
| Error | 47.37 | 49 | 0.97 | | |
| Total | 1446.38 | 58 | | | |

*Notes.* $R^2 = 0.42$ (adjusted $R^2 = 0.36$); RP: request personalization; RC: relational closeness; SNG size, total number of helpers, gender similarity, ZhiXing use experience (0 or 1), individuation, shyness, altruism are covariates.

**Table 4. Mean Value of Perceived Responsibility**

| | BR | RWT | Mean |
|---|---|---|---|
| **LRC** | 4.27 | 3.97 | 4.13 |
| **HRC** | 3.67 | 5.56 | 4.63 |
| **Mean** | 3.97 | 4.79 | |

*Note:* LRC: low relational closeness; HRC: high relational closeness; BR: broadcasted request; RWT: request with tagging.

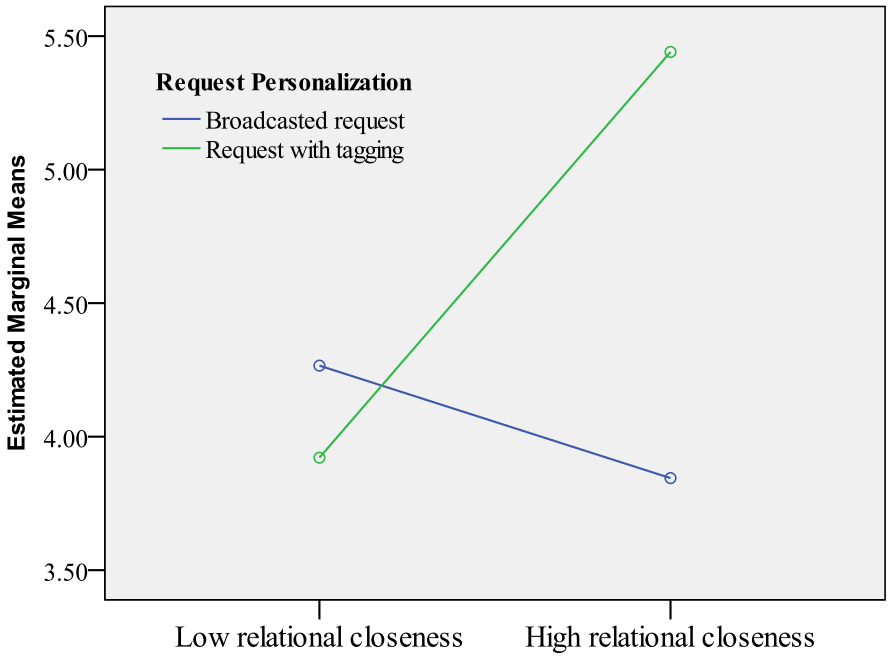


**Figure 6. Mean Plotting of Perceived Responsibility**

**Table 5. Logistic Regression on Helping (*N* = 117)**

| Fit index | Model A | Covariates-only |
|---|---|---|
| Likelihood ratio chi-square | 55.21 | 61.44 |
| Degrees of freedom | 8 | 7 |
| Significance | 0.00 | 0.00 |
| Cox & Snell pseudo $R^2$ | 0.30 | 0.26 |

| Predictors | β | SE | Wald | Sig | OR | 95% CI | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower | Upper |
| PR | 0.70 | 0.30 | 5.50 | 0.02 | 2.02 | 1.12 | 3.62 |
| SS | -0.15 | 0.04 | 12.10 | 0.00 | 0.86 | 0.79 | 0.94 |
| NH | 0.16 | 0.06 | 6.55 | 0.01 | 1.17 | 1.04 | 1.32 |
| GS | -0.01 | 0.75 | 0.00 | 0.99 | 0.99 | 0.23 | 4.26 |
| ZE | 2.38 | 0.95 | 6.27 | 0.01 | 10.77 | 1.68 | 69.23 |
| In | 0.82 | 0.50 | 2.71 | 0.10 | 2.26 | 0.86 | 5.96 |
| Sh | -0.20 | 0.42 | 0.23 | 0.63 | 0.82 | 0.36 | 1.86 |
| Al | 0.26 | 0.49 | 0.28 | 0.60 | 1.30 | 0.50 | 3.38 |

*Note:* PR: perceived responsibility; SS: SNG size; NH: total number of helpers; GS: gender similarity; ZE: ZhiXing use experience (0 or 1); In: individuation; Sh: shyness; Al: altruism; OR: odds ratio.

**Table 6. Logistic Regression on Endorsing (N = 117)**

| Fit index | Model B | Covariates-only |
|---|---|---|
| Likelihood ratio chi-square | 135.69 | 141.13 |
| Degrees of freedom | 8 | 7 |
| Significance | 0.00 | 0.01 |
| Cox & Snell pseudo $R^2$ | 0.20 | 0.16 |

| Predictors | β | SE | Wald | Sig | OR | 95% CI | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower | Upper |
| PR | 0.38 | 0.17 | 5.02 | 0.03 | 1.46 | 1.05 | 2.04 |
| SS | -0.06 | 0.02 | 7.37 | 0.01 | 0.94 | 0.91 | 0.98 |
| NH | 0.02 | 0.03 | 0.51 | 0.47 | 1.02 | 0.96 | 1.09 |
| GS | 0.87 | 0.44 | 3.91 | 0.05 | 2.39 | 1.01 | 5.67 |
| ZE | 0.68 | 0.54 | 1.54 | 0.21 | 1.97 | 0.68 | 5.71 |
| In | -0.20 | 0.27 | 0.54 | 0.47 | 0.82 | 0.48 | 1.40 |
| Sh | 0.07 | 0.23 | 0.10 | 0.75 | 1.08 | 0.68 | 1.69 |
| Al | 0.24 | 0.29 | 0.68 | 0.41 | 1.27 | 0.72 | 2.21 |

Notes. PR: perceived responsibility; SS: SNG size; NH: total number of helpers; GS: gender similarity; ZE: ZhiXing use experience (0 or 1); In: individuation; Sh: shyness; Al: altruism; OR: odds ratio.

In Model B, we conducted a binary logistic regression on *endorsing* (see Table 6). The Cox and Snell pseudo-$R^2$ of Model B is 0.20; however, that of the covariates-only model is 0.16. This suggests that Model B is significantly stronger than the covariates-only model in predicting *endorsing*. Table 6 shows that perceived responsibility had a significant positive effect ($\beta = 0.38$, $p < 0.05$) on *endorsing*. Therefore, H4b is supported. Among all seven covariates, SNG size ($\beta = -0.06$, $p < 0.01$) and gender similarity ($\beta = 0.87$, $p < 0.05$) had significant effects on *endorsing.*

# 6 Discussion and Conclusion

## 6.1 Discussion of Results

From the responsibility perspective, we investigated how request personalization and relational closeness influence SNG members' acceptance of responsibility, manifested as *helping* and *endorsing* behaviors. Our experimental results confirmed three key findings. First, perceived responsibility acts as the underlying psychological mechanism explaining how SNG members respond to HRRs in the Chinese context.

Second, the effect of relational closeness on perceived responsibility is contingent on whether or not the HRR is sent in a personalized way. Specifically, only when HRRs are sent in a personalized way (e.g., tagging a specific person) will recipients with high relational closeness to senders experience a higher level of responsibility than recipients with low relational closeness to senders. That is to say, both high relational closeness and a personalized message are necessary to form the responsibility perception of recipients. Third, responsibility perception not only leads to a reactive response of helping (i.e., simply complying with the help request) but also leads to the proactive response of endorsing (i.e., publicly expressing their support to the sender in the eyes of all group members).

## 6.2 Theoretical Contributions

This study offers several important theoretical contributions. First, this study adds to the literature on online social referral campaigns by introducing the design of prosocial incentives. The traditional literature on online referral campaigns typically focuses on one-to-one referral and the design of monetary incentives and considers recipients to be self-interested (Hong et al., 2017; Liang et al., 2013). In HRRs, social referrals are framed as help requests. For recipients, adopting an HRR is motivated by the desire to help senders obtain referral rewards, making the other-oriented prosocial motivation more salient. Moreover, SNGs consist of members with the same goals, which makes it more likely that members will sense an intrinsic obligation to help other members (Rhodes & Chalik, 2013). This is especially true in Chinese culture, where *GuanXi* and interpersonal obligation are highly valued (Davison et al., 2009). Thus, we introduce and reveal perceived responsibility as an other-oriented prosocial motivation for recipients' adoption decisions when receiving an HRR in the SNG context.

Second, this study enriches the personalized marketing research stream by demonstrating the strategy of personalizing recipients via their friends in the SNG context, even when merchants do not have personal information regarding the recipients. In line with previous personalized marketing studies, our results also confirm that personalized messages (e.g., *request with tagging* in the present study) can obtain more responses than general messages (Tong et al., 2020). However, it is worth noting that being personalized by friends is significantly different from being personalized by merchants and also involves different psychological mechanisms. Specifically, prior literature suggests that recipients are directly personalized by merchants based on their personal information, such as product preferences and personally identifiable information (Wattal et al., 2012). We advance the knowledge regarding personalized marketing by highlighting that recipients can also be personalized via their friends in the SNG context, even when merchants do not have private information about the recipients. When people are personalized by merchants, they are self-oriented and focus on whether or not their personal preferences are met (Bleier & Eisenbeiss, 2015). In contrast, our findings indicate that when people are personalized by friends participating in HRR campaigns, they tend to be other-oriented and focused on their responsibility to help their friends.

Third, this study extends the literature on social referral and a more general topic of eWOM by uncovering the interaction between social relationships (i.e., relational closeness) and personalized marketing (i.e., request personalization). Prior literature shows that the relationship between recipients and merchants (e.g., closeness and trust) moderates the effectiveness of personalization (Bleier & Eisenbeiss, 2015). For example, in email advertisements, familiarity with merchants mitigates negative feelings of privacy invasion and psychological reactance when customers are personalized based on personally identifiable information (e.g., greeting customers by name) (Wattal et al., 2012). This study adds to the existing literature by demonstrating that when customers are personalized via their friends in SNGs, the relational closeness between recipients and senders strengthens the effect of personalization through the mechanism of perceived responsibility. In this sense, we also contribute to TMR by revealing the potential interaction effect between I-E and I-P links, which have yet to be explored in the extant literature.

Finally, this study also contributes to the social referral and eWOM literature by identifying and verifying *endorsing* as another response to public referrals (or eWOM). Existing studies mainly focus on the adoption behaviors, such as sign-up (Trusov et al., 2009) and purchase (Rosario et al., 2016). This study demonstrates that recipients not only perform adoption (helping in this study) but also publicly acknowledge their adoption (i.e., endorsing) in the SNG context. Endorsing acts as public support for both senders and eWOM messages and can induce more recipients to adopt and disseminate eWOM (Li & Wu, 2018). In particular, our study identifies *helping* and *endorsing* as recipient responses to HRRs in SNGs. Moreover, based on the dichotomy of reactive behaviors and proactive behaviors (Spitzmuller & van Dyne, 2013), we define *helping* as a reactive response and *endorsing* as a proactive response. Specifically, helping is a direct response to the help request and satisfies the sender's minimum expectations, whereas endorsing goes above and beyond the sender's expectations and aims to make a bigger difference. Our deep understanding of response behaviors provides new insights that can be applied to future eWOM studies.

## 6.3 Practical Implications

This study reveals new insights for referral campaign designers considering prosocial incentives. Existing referral campaigns primarily focus on designing monetary incentives, which are less effective when recipients are close to each other (Hong et al., 2017). However, this study reveals that other-oriented prosocial motivations (perceived responsibility in this study) become more salient when recipients' adoption can help senders obtain referral rewards. Thus, our findings suggest that prosocial incentives are more powerful than monetary incentives for social referrals in the context of close relationships—especially in collectivistic cultures (e.g., China), where helping others is highly valued (Buchtel et al., 2018). Although HRR campaigns are primarily used in China, similar campaigns have also been found in the United States (e.g., a Facebook auction hosted by Skittles asked users to collect Facebook "likes" from their friends). Prosocial incentives have the potential to act as an important complement to monetary incentives in individualistic cultures as well.

Furthermore, our study demonstrates the importance of conducting personalized marketing in the SNG context. Consisting of highly homogeneous group members, SNGs (or "online communities" in a more general sense) are typically considered to be a perfect venue for disseminating eWOM (Goh et al., 2013). The public adoption of eWOM in SNGs (i.e., *endorsing* in this study) not only directly contributes to the development of new users but also acts as a positive signal to other group members, potentially resulting in eWOM going viral, leading to greater success (Joshi & Musalem, 2021). However, the diffusion of responsibility may hinder recipients from proactively responding in SNGs. This study reveals that personalized messages (e.g., tagging a recipient's name in the message) can promote responsibility perceptions, leading to more positive responses from group members. Although a personalized request only involves one recipient, it imposes a much stronger social influence on the tagged recipient. Proactive responses from tagged recipients may, in turn, generate helping responses from other SNG members. This strategy can serve as a seeding tactic that may be particularly effective when most potential users are unfamiliar with a new service or product. Overall, we recommend that eWOM marketing designers introduce and promote personalized marketing in the SNG context by using the "tagging" feature to identify recipients and providing additional bonuses for senders who perform personalized marketing in SNGs.

Finally, this study also suggests that SNS providers should enhance existing technical features to nudge senders toward tagging, and senders should prudently select tagged targets when requesting help in SNGs. Our results demonstrate that responsibility perceptions are only induced when close friends rather than distant friends are tagged. Prior studies have shown that tagging a distant friend can be negatively interpreted by recipients (Choi et al., 2015). Moreover, tagging a recipient with low relational closeness in an SNG may lead recipients to focus on the negative aspects of being tagged (e.g., increased social pressure). Thus, we propose that tagging close friends for help is more appropriate and effective in obtaining timely and helpful responses than tagging acquaintances. Moreover, the tagged target's positive response can "act as a shill," inducing other group members to actively respond to the sender. Combining our results with the extant SNS literature on the sense of community (Mamonov et al., 2016), this type of positive interaction among group members facilitates the sustainability of SNS platforms.

## 6.4 Limitations and Future Research

Our study has several limitations. First, although "grabbing tickets" is one of the most popular HRRs in China, our results may not generalize to all social referral campaigns. Recipients may need to download and install additional apps to help friends in other social referral campaigns, making the cost of helping more salient. Nevertheless, HRRs represent a specific type of social referral campaign characterized by obtaining help from friends. Although HRR campaigns primarily take place in China, as mentioned above, similar campaigns have also been found in the US; thus, we believe that the findings of our study can be generalized to similar social referral campaigns in other countries.

Second, this study did not consider seller-side monetary factors. We adopted the field experiment method and chose the "grabbing tickets" campaign as the HRR campaign for this study. In the "grabbing tickets" campaign, senders can obtain a free one-time high-priority booking of train tickets after receiving enough help from their friends; however, recipients get no rewards. Accordingly, in our field experimental design, seller-side monetary factors are difficult to manipulate. Nevertheless, future studies involving the joint investigation of seller-side monetary factors and interpersonal social factors (e.g., request personalization and relational closeness) would be valuable.

Third, given that all our subjects were students, the sample limitation may be a valid concern. Nevertheless, student samples are widely accepted in the experimental design of online personal interaction studies (Hibbeln et al., 2017) because students represent an important age group and demographic that commonly uses the internet (Pew, 2021). Furthermore, it has been argued that students are an appropriate population with which to establish causality relationships among constructs (Compeau et al., 2012).

Fourth, this study only examined two levels of relational closeness—namely, low and high relational closeness—whereas the condition of no relational closeness was not considered. Pairs in a no-relational-closeness condition would be two group members who have not built personal WeChat connections. Indeed, such pairs comprise a large proportion of members in some SNGs. Therefore, our results cannot be generalized across all group members. In real-world settings, tagging a member with no relational closeness with the sender is typically considered to be somewhat impolite, or even practically impossible, and would likely cause discomfort for both senders and recipients. Further, it would be much more challenging to contact recipients with no relational closeness to senders. Future research could develop other research designs that could take recipients with no relational closeness to senders into account.

Finally, there is a potential self-selection bias in our study because recipients who helped were more inclined to fill out questionnaires than those who did not, especially in the case of broadcasted requests. To address this concern, we tried to contact all selected recipients. The response and completion rates of the post-experimental survey were above 87.9% (Table 2), indicating that self-selection bias likely did not influence our main research findings and is not a major concern for our study.

### 6.5 Conclusion

HRR campaigns are increasingly being adopted by online service providers. This study is one of the first attempts to introduce the perspective of perceived responsibility to the emerging context of HRR campaigns. We demonstrate how the diffusion of responsibility in SNGs can be eliminated by personalization and relationship strategies when performing HRRs. Our results reveal that request personalization and relational closeness jointly influence perceived responsibility and shape the behavioral responses of helping and endorsing in terms of help requests. These results contribute to the online social referral literature and have important practical implications.

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## References


Baek, J., & Shore, J. (2020). Forum size and content contribution per person: A field experiment. *Management Science, 66*(12), 5906-5924.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*(1), 1-26.

Berscheid, E., Snyder, M., & Omoto, A. M. (1989). The relationship closeness inventory: Assessing the closeness of interpersonal relationships. *Journal of Personality and Social Psychology, 57*(5), 792-807.

Biddle, B. J. (1986). Recent developments in role theory. *Annual Review of Sociology, 12*(1), 67-92.

Bleier, A., & Eisenbeiss, M. (2015). The importance of trust for personalized online advertising. *Journal of Retailing, 91*(3), 390-409.

Britt, T. W. (1999). Engaging the self in the field: Testing the triangle model of responsibility. *Personality and Social Psychology Bulletin, 25*(6), 698-708.

Brody, N., & Vangelisti, A. L. (2016). Bystander intervention in cyberbullying. *Communication Monographs, 83*(1), 94-119.

Buchtel, E. E., Ng, L. C. Y., Norenzayan, A., Heine, S. J., Biesanz, J. C., Chen, S. X., Bond, M. H., Peng, Q., & Su, Y. (2018). A sense of obligation: Cultural differences in the experience of obligation. *Personality and Social Psychology Bulletin, 44*(11), 1545-1566.

Bulgurcu, B., van Osch, W., & Kane, G. C. (2018). The rise of the promoters: User classes and contribution patterns in enterprise social media. *Journal of Management Information Systems, 35*(2), 610-646.

Burtch, G., Ghose, A., & Wattal, S. (2013). Cultural differences and geography as determinants of online prosocial lending. *MIS Quarterly, 38*(3), 773-794.

Campbell, D. T. (1958). Common fate, similarity, and other indices of the status of aggregates of persons as social entities. *Behavioral Science, 3*(1), 14-25.

Cheek, J. M., & Buss, A. H. (1981). Shyness and sociability. *Journal of Personality and Social Psychology, 41*(2), 330-339.

Chiou, W.-B., Chen, S.-W., & Liao, D.-C. (2014). Does Facebook promote self-interest? Enactment of indiscriminate one-to-many communication on online social networking sites decreases prosocial behavior. *Cyberpsychology, Behavior, and Social Networking, 17*(2), 68-73.

Choi, B., Jiang, Z., Xiao, B., & Kim, S. S. (2015). Embarrassing exposures in online social networks: An integrated perspective of privacy invasion and relationship bonding. *Information Systems Research, 26*(4), 675-694.

Choi, B., Wu, Y., Yu, J., & Land, L. (2018). Love at first sight: The interplay between privacy dispositions and privacy calculus in online social connectivity management. *Journal of the Association for Information Systems, 19*(3), 124-151.

Chuang, A., Hsu, R. S., Wang, A.-C., & Judge, T. A. (2015). Does west "fit" with east? In search of a Chinese model of person-environment fit. *Academy of Management Journal, 58*(2), 480-510.

Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1991). A focus theory of normative conduct: A theoretical refinement and reevaluation of the role of norms in human behavior. *Advances in Experimental Social Psychology, 24*, 201-234.

Compeau, D., Marcolin, B., Kelley, H., & Higgins, C. (2012). Generalizability of information systems research using student subjects—A reflection on our practices and recommendations for future research. *Information Systems Research, 23*(4), 1093-1109.

Darley, J. M., & Latané, B. (1968). Bystander intervention in emergencies: Diffusion of responsibility. *Journal of Personality and Social Psychology, 8*(4), 377-383.

Davison, R. M., Martinsons, M. G., Ou, C. X., Murata, K., Drummond, D., Li, Y., & Lo, H. W. (2009). The ethics of IT professionals in Japan and China. *Journal of the Association for Information Systems, 10*(11), 834-859.

DeZoort, F. T., & Harrison, P. D. (2018). Understanding auditors' sense of responsibility for detecting fraud within organizations. *Journal of Business Ethics, 149*(4), 857-874.

Diener, E. (1979). Deindividuation, self-awareness, and disinhibition. *Journal of Personality and Social Psychology, 37*(7), 1160-1171.

Farsides, T. (2010). Perceived responsibility to act: An investigation with respect to registering willingness to become a posthumous organ donor. *British Journal of Psychology, 101*(3), 503-517.

Feltz, A., & Cova, F. (2014). Moral responsibility and free will: A meta-analysis. *Consciousness and Cognition, 30*, 234-246.

Gershon, R., Cryder, C., & John, L. K. (2020). Why prosocial referral incentives work: The interplay of reputational benefits and action costs. *Journal of Marketing Research, 57*(1), 156-172.

Goh, K. Y., Heng, C. S., & Lin, Z. (2013). Social media brand community and consumer behavior: Quantifying the relative impact of user-and marketer-generated content. *Information Systems Research, 24*(1), 88-107.

Grant, A. M. (2008). Does intrinsic motivation fuel the prosocial fire? Motivational synergy in predicting persistence, performance, and productivity. *Journal of Applied Psychology, 93*(1), 48-58.

Gunarathne, P., Rui, H., & Seidmann, A. (2018). When social media delivers customer service: Differential customer treatment in the airline industry. *MIS Quarterly, 42*(2), 489-520.

Guo, J., Li, N., Wu, Y., & Cui, T. (2020). Examining help requests on social networking sites: Integrating privacy perception and privacy calculus perspectives. *Electronic Commerce Research and Applications, 39*, 100828.

Heider, F. (1958). *The psychology of interpersonal relations*. John Wiley.

Hibbeln, M. T., Jenkins, J. L., Schneider, C., Valacich, J., & Weinmann, M. (2017). How is your user feeling? Inferring emotion through human-computer interaction devices. *MIS Quarterly, 41*(1), 1-21.

Hong, Y., Pavlou, P. A., Shi, N., & Wang, K. (2017). On the role of fairness and social distance in designing effective social referral systems. *MIS Quarterly, 41*(3), 787-809.

Joshi, Y. V., & Musalem, A. (2021). When consumers learn, money burns: Signaling quality via advertising with observational learning and word of mouth. *Marketing Science, 40*(1), 168-188.

Jung, J., Bapna, R., Golden, J. M., & Sun, T. (2020). Words matter! Toward a prosocial call-to-action for online referral: Evidence from two field experiments. *Information Systems Research, 31*(1), 16-36.

Kahana, E., Bhatta, T., Lovegreen, L. D., Kahana, B., & Midlarsky, E. (2013). Altruism, helping, and volunteering: Pathways to well-being in late life. *Journal of Aging and Health, 25*(1), 159-187.

Kallgren, C. A., Reno, R. R., & Cialdini, R. B. (2000). A focus theory of normative conduct: When norms do and do not affect behavior. *Personality and Social Psychology Bulletin, 26*(8), 1002-1012.

Kandaurova, M., & Lee, S. H. M. (2019). The effects of Virtual Reality (VR) on charitable giving: The role of empathy, guilt, responsibility, and social exclusion. *Journal of Business Research, 100*, 571-580.

Kuan, K. K. Y., Zhong, Y., & Chau, P. Y. K. (2014). Informational and normative social influence in group-buying: Evidence from self-reported and EEG data. *Journal of Management Information Systems, 30*(4), 151-178.

Lanaj, K., Johnson, R. E., & Wang, M. (2016). When lending a hand depletes the will: The daily costs and benefits of helping. *Journal of Applied Psychology, 101*(8), 1097-1110.

Latané, B., & Nida, S. (1981). Ten years of research on group size and helping. *Psychological Bulletin, 89*(2), 308-324.

Lea, M., Spears, R., & de Groot, D. (2001). Knowing me, knowing you: Anonymity effects on social identity processes within groups. *Personality and Social Psychology Bulletin, 27*(5), 526-537.

Lee-Won, R. J., Abo, M. M., Na, K., & White, T. N. (2016). More than numbers: Effects of social media virality metrics on intention to help unknown others in the context of bone marrow donation. *Cyberpsychology, Behavior, and Social Networking, 19*(6), 404-411.

Levine, M., & Crowther, S. (2008). The responsive bystander: How social group membership and group size can encourage as well as inhibit bystander intervention. *Journal of Personality and Social Psychology, 95*(6), 1429-1439.

Li, X., & Wu, L. (2018). Herding and social media word-of-mouth: Evidence from Groupon. *MIS Quarterly, 42*(4), 1331-1351.

Liang, H., Xue, Y., & Wu, L. (2013). Ensuring employees' IT compliance: carrot or stick? *Information Systems Research, 24*(2), 279-294.

Lin, J., Luo, Z., Cheng, X., & Li, L. (2019). Understanding the interplay of social commerce affordances and swift *guanxi*: An empirical study. *Information & Management, 56*(2), 213-224.

Lin, S., & Armstrong, D. (2019). Beyond information: The role of territory in privacy management behavior on social networking sites. *Journal of*

*the Association for Information Systems, 20*(4), 434-475.

Liu, D., Brass, D., Lu, Y., & Chen, D. (2015). Friendships in online peer-to-peer lending: Pipes, prisms, and relational herding. *MIS Quarterly, 39*(3), 729-742.

Mamonov, S., Koufaris, M., & Benbunan-Fich, R. (2016). The role of the sense of community in the sustainability of social network sites. *International Journal of Electronic Commerce, 20*(4), 470-498.

Markey, P. M. (2000). Bystander intervention in computer-mediated communication. *Computers in Human Behavior, 16*, 183-188.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*(2), 224-253.

Maslach, C., Stapp, J., & Santee, R. T. (1985). Individuation: Conceptual analysis and assessment. *Journal of Personality and Social Psychology, 49*(3), 729-738.

Miller, D. T. (1999). The norm of self-interest. *American Psychologist, 54*(12), 1053-1060.

Montgomery, J. D. (1998). Toward a role-theoretic conception of embeddedness. *American Journal of Sociology, 104*(1), 92-125.

Morales, A. C., Amir, O., & Lee, L. (2017). Keeping it real in experimental research—Understanding when, where, and how to enhance realism and measure consumer behavior. *Journal of Consumer Research, 44*(2), 465-476.

Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin, 128*(1), 3-72.

Parker, S. K., Bindl, U. K., & Strauss, K. (2010). Making things happen: A model of proactive motivation. *Journal of Management, 36*(4), 827-856.

Parker, S. K., & Collins, C. G. (2010). Taking stock: Integrating and differentiating multiple proactive behaviors. *Journal of Management, 36*(3), 633-662.

Penner, L. A., Midili, A. R., & Kegelmeyer, J. (1997). Beyond job attitudes: A personality and social psychology perspective on the causes of organizational citizenship behavior. *Human Performance, 10*(2), 111-131.

Pew Research Center. (2021). Internet/broadband fact sheet. http://www.pewinternet.org/data-trend/internet-use/latest-stats/

Raihani, N. J., & Smith, S. (2015). Competitive helping in online giving. *Current Biology, 25*(9), 1183-1186.

Rhodes, M., & Chalik, L. (2013). Social categories as markers of intrinsic interpersonal obligations. *Psychological Science, 24*(6), 999-1006.

Rosario, A. B., Sotgiu, F., De Valck, K., & Bijmolt, T. H. (2016). The effect of electronic word of mouth on sales: A meta-analytic review of platform, product, and metric factors. *Journal of Marketing Research, 53*(3), 297-318.

Ryu, G., & Feick, L. (2007). A penny for your thoughts: Referral reward programs and referral likelihood. *Journal of Marketing, 71*(1), 84-94.

Schlenker, B. R., Britt, T. W., Pennington, J., Murphy, R., & Doherty, K. (1994). The triangle model of responsibility. *Psychological Review, 101*(4), 632-652.

Schmitt, P., Skiera, B., & van den Bulte, C. (2011). Referral programs and customer value. *Journal of Marketing, 75*(1), 46-59.

Sheldon, K. M., & Schachtman, T. R. (2007). Obligations, internalization, and excuse making: Integrating the triangle model and self-determination theory. *Journal of Personality, 75*(2), 359-382.

Spitzmuller, M., & van Dyne, L. (2013). Proactive and reactive helping: Contrasting the positive consequences of different forms of helping. *Journal of Organizational Behavior, 34*(4), 560-580.

Tan, H.-T., & Yu, Y. (2018). Management's responsibility acceptance, locus of breach, and investors' reactions to internal control reports. *The Accounting Review, 93*(6), 331-355.

Tong, S., Luo, X., & Xu, B. (2020). Personalized mobile marketing strategies. *Journal of the Academy of Marketing Science, 48*(1), 64-78.

Trusov, M., Bucklin, R. E., & Pauwels, K. (2009). Effects of word-of-mouth versus traditional marketing: Findings from an internet social networking site. *Journal of Marketing, 73*(5), 90-102.

Tsai, H. T., & Bagozzi, R. P. (2014). Contribution behavior in virtual communities: Cognitive, emotional, and social influences. *MIS Quarterly, 38*(1), 143-164.

Tuk, M. A., Verlegh, P. W. J., Smidts, A., & Wigboldus, D. H. J. (2009). Sales and sincerity:

The role of relational framing in word-of-mouth marketing. *Journal of Consumer Psychology, 19*(1), 38-47.

Wang, C.-C., & Wang, C.-H. (2008). Helping others in online games: Prosocial behavior in cyberspace. *CyberPsychology & Behavior, 11*(3), 344-346.

Wang, N., Liang, H., Xue, Y., & Ge, S. (2021). Mitigating information asymmetry to achieve crowdfunding success: Signaling and online communication. *Journal of the Association for Information Systems, 22*(3), 773-796.

Wattal, S., Telang, R., Mukhopadhyay, T., & Boatwright, P. (2012). What's in a "name"? Impact of use of customer information in e-mail advertisements. *Information Systems Research, 23*(3), 679-697.

Wisshak, S., & Barth, D. (2021). Perceptions of accountability for the transfer of training by leadership trainers. *International Journal of Training and Development, 00*, 1-19.

Wong, R. Y. M., Cheung, C. M., Xiao, B., & Thatcher, J. B. (2021). Standing up or standing by: Understanding bystanders' proactive reporting responses to social media harassment. *Information Systems Research, 32*(2), 561-581.

Zajonc, R. B. (1965). Social facilitation. *Science, 149*(3681), 269-274.

Zhang, H., Lu, Y., Gupta, S., & Zhao, L. (2014). What motivates customers to participate in social commerce? The impact of technological environments and virtual customer experiences. *Information & Management, 51*(8), 1017-1030.

Zheng, J., Qi, Z., Dou, Y., & Tan, Y. (2019). How mega is the mega? Exploring the spillover effects of WeChat using graphical model. *Information Systems Research, 30*(4), 1343-1362.

Zou, X., Tam, K.-P., Morris, M. W., Lee, S.-l., Lau, I. Y.-M., & Chiu, C.-y. (2009). Culture as common sense: Perceived consensus versus personal beliefs as mechanisms of cultural influence. *Journal of Personality and Social Psychology, 97*(4), 579-597.

# Appendix A: Measurement Items

| |
|---|
| **Request personalization (RP), self-developed** |
| Yesterday, when *X* asked for help in your WeChat group, *X*<br>a) Tagged none.<br>b) Tagged me only. |
| **Relational closeness (RC), adapted from Berscheid et al. (1989)** |
| RC1 I and *X* communicate with each other frequently.<br>RC2 I and *X* do all kinds of things together.<br>RC3 *X*'s opinions influence my decision-making.<br>RC4 In general, *X* is very close to me. |
| **Perceived responsibility (PR), adapted from Schlenker et al. (1994) and Farsides (2010)** |
| PR1 I feel obliged to help *X* grab tickets.<br>PR2 I think it is my duty to help *X* grab tickets.<br>PR3 I think I ought to help *X* grab tickets.<br>PR4 I think I have a responsibility to help *X* grab tickets. |
| **Shyness (Sh), adopted from Cheek and Buss (2015)** |
| Sh1 I feel tense when I am with people I do not know well.<br>Sh2 I am often uncomfortable at parties and other social functions.<br>Sh3 I am socially somewhat awkward.<br>Sh4 When conversing, I worry about saying something dumb. |
| **Altruism (Al), adopted from Kahana et al. (2013)** |
| Al1 I enjoy doing things for others.<br>Al2 I try to help others, even if they do not help me. |
| **Individuation (In), adopted from Maslach et al. (1985)** |
| In1 Give a lecture to a large audience.<br>In2 Raise your hand to ask a question in a meeting or lecture.<br>In3 Volunteer to head a committee for a group of people you do not know very well.<br>In4 Tell a person that you like him/her.<br>In5 Publicly challenge a speaker whose position clashes with your own.<br>In6 Accept a nomination to be a leader of a group.<br>In7 Present a personal opinion, on a controversial issue, to a group of strangers.<br>In8 When asked to introduce yourself, say something more personal about yourself than just your name and occupation.<br>In9 Give an informal talk in front of a small group of classmates or colleagues.<br>In10 Speak up about your ideas even though you are uncertain whether you are correct.<br>In11 Perform on a stage before a large audience.<br>In12 Give your opinion on a controversial issue, even though no one has asked for it. |

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