

Food Selfie Sharing as a Friendship-Building Process: The Moderating Effect of Service Aesthetic Appeal

Abstract

Foodstagramming is an increasingly popular indulgence in both foodservice settings and social media. While existing studies primarily examine individual benefits, they overlook its interpersonal influence, and in particular, how the dynamic interplay between foodstagramming and dining settings shapes one's dining experience and social media friending process. Using an explanatory sequential mixed-methods design through a combination of experiment, field survey, and semistructured interview, this research reveals that foodstagramming-induced social interactions significantly enhance dining fun and online interpersonal relationship building. However, while these interactions improve reciprocity, they do not strengthen affective relationships. The findings also indicate that tie strength with peers positively influences online social interactions. Additionally, the relationship between foodstagramming-induced social interaction and dining fun is moderated by service aesthetic appeal. Notably, food and environmental aesthetics exert distinct boundary effects. These insights clarify how foodstagramming could enhance dining experience and foster interpersonal relationships on social media in the restaurant setting.

Keywords: foodstagramming, service aesthetic, social interaction, tie strength, fun, reciprocity

Introduction

The so-called *micro-celebrity restaurants* have received significant attention from both academic researchers and industry practitioners in recent years (Tang et al., 2023). These restaurants are distinguished by their innovative approaches to gourmet design and presentation as well as an aesthetically embellished service environment. Such novel improvisations have become fashionable in the hospitality service industry, making them highly popular in cyberspace with a substantial customer base (Fong et al., 2023). Their fame is largely driven by customers' foodstagramming practice, where diners take photos of their meals, the environment, and themselves, and share them on social media (Chen et al., 2024; Huang et al., 2021). This activity creates a mutually beneficial relationship, as the aesthetically appealing and innovative elements of these restaurants encourage customers to engage in foodstagramming. A survey found that 97.8% of sampled customers expressed a strong interest in visiting such establishments in the future, and 30.5% reported dining at these eateries on a monthly basis (iiMedia Research, 2021). Conversely, customers' foodstagramming enhances a restaurant's online visibility, boosts its popularity, and attracts even more customers. For instance, there are over 250 million posts under the hashtag #Food on Instagram, and this number is continually growing. Furthermore, 43% of consumers expressed interest in visiting a restaurant solely based on seeing a food photo on social media (MenuTiger, 2024). Therefore, understanding why customers are so enthusiastic about foodstagramming and examining relevant facilitating roles could provide insights into the development of micro-celebrity restaurants.

The prevailing view is that foodstagramming enhances patrons' dining experience and helps manage their self-impression on social media (Huang et al., 2021; Lin et al., 2022; Wong et al., 2019). However, the benefits of posting food selfies extend beyond the selfie-takers; this activity also holds substantial value for viewers and restaurant operators by facilitating

communications and spreading positive word-of-mouth for featured restaurants (Chang, 2022). An increasing number of studies have begun to explore how foodstagramming fosters social bonding and influences dining choices and experience (Chang, 2022; Wong et al., 2019). For instance, Wong et al. (2019) highlighted that foodstagramming could enhance virtual community engagement and strengthen social connections, but failed to further demonstrate the mechanisms of such influence. Chen et al. (2024) took a leap forward by revealing that foodstagramming boosts online social interactions by establishing social presence through food-selfie sharing. However, their focus remained largely on individualistic outcomes, such as social sharing satisfaction and subjective well-being, without examining broader social consequences (e.g., friending), despite recognizing foodstagramming as a meaningful way to strengthen social bonds (Chang, 2022). Establishing friendships not only enhances peer communication but also increases receptiveness to recommendations (Wang et al., 2012), which is crucial in amplifying the marketing value of foodstagramming.

Building on social penetration theory (SPT) (Altinay et al., 2019), this research examines how foodstagramming and the ensuing social interactions influence dining fun and facilitate the friending process on social media, thereby contributing to the development of interpersonal relationships. This research employs reciprocity and affection to represent the social outcomes, as they are key elements of interpersonal relationships (Yang, 2020). Reciprocity involves voluntary and discretionary behaviors that help interactive partners (Chan and Li, 2010), while affection relates to the need for mutual support and connection (Rubin and Martin, 1998). Additionally, the antecedents of foodstagramming-induced social interactions have only received cursory attention. One mechanism that can facilitate social interaction is tie strength with peers, which Wang et al. (2012) contend is a key determinant of peer communication on social media. Tie strength refers to one's willingness to maintain relationships with peers through online interactions (Wang et al., 2012). Understanding how these antecedents and

interpersonal outcomes are associated with foodstagramming and dining experiences is crucial for comprehending customers' foodstagramming practices.

To encourage foodstagramming behavior, restaurants have invested considerable effort in the aesthetic design of both their gourmet offerings and visually appealing service environments (Huang et al., 2021). These designs reflect service aesthetic appeals that are mesmerizing (Tang et al., 2023). They not only create an urge for diners to take selfies, but may also foster social interactions with other patrons and online friends and hence, greater dining pleasure (i.e., dining fun). Unfortunately, little is known about whether food aesthetic appeal and environmental aesthetic appeal exert the same influence on foodstagramming and relevant outcomes (Horng and Hsu, 2020; Tang et al., 2023). Understanding this discrepancy could help practitioners prioritize their investments in aesthetic competencies accordingly.

Drawing on social penetration theory (SPT) (Altinay et al., 2019), this research proposes an integrative framework to understand how foodstagramming affects consumers' dining experience and social media friending process. The framework encompasses personal characteristics (tie strength with peers), outcomes of exchange (online social interaction, dining fun, reciprocity, and affection), and situational context (service aesthetic appeal). Consistent with SPT, our research finds that foodstagramming and related positive online social interactions influence both offline dining fun and online relationship building (including reciprocity and affection). This process is influenced by tie strength with peers and conditioned by food aesthetics and physical environment aesthetics. This research contributes to the existing literature as it 1) empirically tests SPT in the foodstagramming context to better understand how this selfie taking and sharing process could foster diners' relationship building; 2) examines the formation and downstream effect of foodstagramming-induced social interaction; and 3) identifies service aesthetic appeal as a moderator between such interaction

and dining fun, strengthening the view of engaging foodstagramming at micro-celebrity restaurants as a social media friending mechanism.

Theoretical background

Social penetration theory

Social penetration theory provides a theoretical lens to understand the development of interpersonal relationships (Altman and Taylor, 1973). The theory suggests that individuals share personal information at a gradual pace, thus deepening their social connections. Altman and Taylor liken this process to peeling an onion, where the outermost layer represents superficial information sharing and the inner layers involve disclosing more intimate details. As intimacy increases through this penetration process, individuals have more opportunities to know and evaluate others in their social networks based on the information shared and the depth of their interactions (Osatuyi et al., 2018). Social networks offer users a unified platform to share life experiences and engage with others (Wang et al., 2016). Through these interactions, individuals increasingly disclose their inner thoughts and emotions (Huang et al., 2020). Social penetration theory identifies three main factors that significantly influence self-revelation: the personal characteristics of the participants, the outcomes of their exchanges, and the situational context (Altman and Taylor, 1973; Baack et al., 2000).

Personal characteristics encompass both superficial cues, such as publicly disclosed traits like age and gender, and more intimate information, such as one's beliefs and interests (Baack et al., 2000). The outcomes of exchange involve assessing the rewarding benefits and underlying costs associated with the interpersonal relationship (Altman and Taylor, 1973). Intimacy grows when one perceives rewards exceeding costs (Baack et al., 2000). The third factor, situational context, suggests that early assessments of rewards and costs influence subsequent involvement in the relationship (Altman and Taylor, 1973).

SPT offers a framework for understanding the development of interpersonal relationships through gradual self-disclosure, and it has recently been explored in the context of social networking sites (Huang et al., 2020; Utz, 2015). Within the foodstagramming context, food-selfie sharing represents a complex form of visual self-disclosure. This act reveals not only situational factors, such as the aesthetic appeal of dining establishments, but also some private information like food preferences, economic status, social standing, emotions, and expressions of self-identity (Chang, 2022; Huang et al., 2021; Lin et al., 2022). Such self-disclosure facilitates social exchange, which is achieved through online social interactions (Huang et al., 2020). According to SPT (Altman and Taylor, 1973; Baack et al., 2000), this process might be influenced by situational context (e.g., the aesthetic appeal of the service) and personal characteristics (e.g., the strength of ties with peers), ultimately leading to exchange outcomes. This study proposes that these outcomes include both dining experiences (e.g., dining fun) and relationship development. Specifically, two relationship-building variables—reciprocity and affection—were selected for this research, representing instrumental and affective relationships, respectively. The following section will further elaborate on the relationship between these constructs.

Tie strength with peers and positive online social interaction

Tie strength with peers refers to the degree to which an individual is committed to maintaining relationships with peers through social media (Wang et al., 2012). This concept is divided into strong-tie and weak-tie relationships. Strong-tie relationships are characterized by frequent communication, close connections, and intimacy, while weak-tie relationships lack these qualities (Granovetter, 1973). Strangers or casual acquaintances on social media are considered weak-tie friends due to their limited interaction, whereas close friends and family

members are strong-tie friends because of their frequent communication and stronger emotional bonds (Ryu and Feick, 2007).

Previous studies have demonstrated that individuals share fewer personal details with acquaintances compared to close friends (Wang et al., 2016). Wang et al. (2012) also found that people are more inclined to discuss products on social media with strong-tie peers than with weak-tie connections. The theoretical underpinning rests on social penetration theory (Altman and Taylor, 1973), which likens self-disclosure to the gradual peeling of an onion. The theory states that personal characteristics (i.e., tie strength) of participants can hasten or restrain the process (Mangus et al., 2020). Strong-tie relationships create a conducive environment for self-disclosure, as individuals tend to feel more comfortable sharing personal information with strong-tie peers (Wang et al., 2016). As a result, sharing food selfies on social media represents foodstagrammers actively peeling the peripheral layer of the self. Tie strength with peers further increases their positive online social interactions, manifested through a greater willingness to disclose deeper personal preferences (i.e., dining tastes or taboos) by engaging in discussions and sharing more on social media platforms (Chen et al., 2024; Huang et al., 2020). Therefore, the following hypothesis was proposed:

Hypothesis 1: Tie strength with peers is positively related to positive online social interaction.

The effects of positive online social interaction

Social interaction is a fundamental activity on cyberspace (Kaplan and Haenlein, 2010; Zhu et al., 2019). It takes various forms, including text-based communication, photo or video sharing, and real-time interactions through live streams (Chen and Lin, 2018; Huang et al., 2020). This process involves an exchange in which individuals connect by sharing information and emotions (Lin et al., 2020), either with positively or negatively valenced contents. This

research focuses on the positive aspect, defined as the direct interaction between foodstagrammers and their online audience within the context of food-selfie sharing. In line with Huang and Hsu's (2010) perspective, such interaction encompasses both quantity and quality dimensions. The quantity of online social interaction refers to the degree of behavioral interdependence between interactive partners and can be measured using social media engagement metrics such as the number of likes (Zhu et al., 2019). In contrast, the quality of online social interaction reflects foodstagrammers' positive perceptions and experiences of their interaction with the audience (Chen et al., 2024). Prior research has shown that social interactions following the posting of food selfies can impact individuals' experiences both online and offline (Chen et al., 2024).

Dining fun, which is defined as the entertainment and pleasure derived from the dining experience, is a benefit that can be reaped in the physical world via online social interactions (Chen et al., 2024). Fun-seeking is a key motivation for diners and a focal point for restaurants aiming to enhance their food service (Nenkov and Scott, 2014; Tasci and Ko, 2016). For example, many micro-celebrity restaurants invest significantly in service design, offering aesthetically pleasing food, exquisite environments, and interactive and entertaining services (Tang et al., 2023). These thoughtfully designed elements not only enhance the on-site dining experience for customers (Xiong et al., 2023) but also add significant dining fun through foodstagramming activities and online social interactions (Chen et al., 2024).

When viewers engage with foodstagramming posts (i.e., commenting), social interactions can then be unfolded. According to SPT (Altman and Taylor, 1973), customers gradually increase self-disclosure during foodstagramming-induced online interactions. These interactions may involve exchanging thoughts about restaurants, dishes, or even personal memories associated with the experience. The self-revelation process determines the pace and

pattern of self-disclosure (Baack et al., 2000). People tend to reveal deeper aspects of themselves when their partners acknowledge their sharing or reciprocate with self-disclosure (Sprecher et al., 2013). Supportive online interactions can in turn enhance one's self-validation (Zhu et al., 2019), and such peer recognition can further boost offline dining fun (Chen et al., 2024). Reis et al. (2017) further suggest that positive social interactions amplify affective experiences, with fun being more pronounced when shared with others. Accordingly, stronger online interactions, such as those facilitated by selfie sharing, can lead to greater dining fun. This reasoning led to the following hypothesis:

Hypothesis 2: Positive online social interaction is positively related to dining fun.

Social media friendships are online outcomes of foodstagramming-induced social interactions (Wong et al., 2019). According to SPT, relationships develop progressively along a spectrum characterized by increasing levels of self-disclosure, expanding both in breadth and depth (Altman and Taylor, 1973). The act of posting food selfies and engaging in subsequent social interactions mirrors the process of peeling an onion from its superficial layer to its core. During this process, foodstagrammers often develop friendships with their interactive partners, as evidenced by the reciprocity and affection that are essential to interpersonal relationships (Yang, 2020).

Reciprocity refers to voluntary and flexible behaviors in terms of helping others on social media (Chan and Li, 2010). According to the norm of reciprocity, individuals who receive help are more inclined to reciprocate and believe that their assistance to others would be repaid in the future (Gouldner, 1960). This mutual exchange of resources, performed voluntarily and without formal rewards, is gratifying for both parties (Rosenbaum and Massiah, 2007). According to SPT, foodstagrammers gradually share personal information, moving from superficial levels to more intimate layers through online social interactions (Chen et al., 2024).

As these positive interactions progress, the relationship between the participants becomes increasingly intimate (Utz, 2015). Consequently, foodstagrammers are not only more willing to reciprocate positive online social interactions (i.e., in line with the reciprocity norm), but they may also respond to their interactive partners on a deeper level as the interaction becomes more intimate. Reciprocal behavior can be positively reinforced when the feedback loop remains active (Surma, 2016), strengthening social media friendships as a result. Thus, the following hypothesis was proposed:

Hypothesis 3: Positive online social interaction is positively related to reciprocity.

Affection is consistently regarded as a fundamental dimension of interpersonal relationships (Yang, 2020). Defined as “the need to achieve or maintain mutual support of and connection with others” (Rubin and Martin, 1998, p. 293), affection encompasses both the desire for positive recognition from others and the sentiment of valuing someone else (Pendell, 2002). To some extent, this concept overlaps with the belongingness and love needs in Maslow’s hierarchy of needs (Prager and Buhrmester, 1998). Consequently, fulfilling the need for companionship and association with others can enhance affection (Pendell, 2002). Previous studies indicate that social interaction is a useful tool to achieve this objective (Altinay et al., 2019; Chen et al., 2024). For instance, Altinay et al. (2019) demonstrated that social interaction positively influences individual dining satisfaction and subjective well-being. Rosenbaum (2006) also found that positive interactions during dining lead customers to develop deeper affection for other customers and the restaurant. This positive relationship is further supported by social penetration theory (Altman and Taylor, 1973), which posits that individuals gradually increase self-disclosure during social interaction with online friends; the more they know each other, the stronger the emotional bond between them. Hence, an intimate relationship with

intense social interaction could help to bring affection to patrons. This reasoning led to the following hypothesis:

Hypothesis 4: Positive online social interaction is positively related to affection.

Dining fun, reciprocity, and affection

Previous studies showed that fun experience is associated with reciprocity and affection (Choi et al., 2013; Yang, 2020). For instance, Choi et al. (2013) found that individuals in a good mood are more likely to do favors for others, suggesting that customers who enjoy their dining experiences are more likely to exhibit reciprocity. The underlying mechanism is rooted in the norm of reciprocity, which considers the balance of benefits and costs received in the social exchange process, as SPT posits (Altman and Taylor, 1973; Utz, 2015). Individuals benefit from foodstagramming (Wong et al., 2019), while sharing the dining experience and related interacting on social media can enhance the benefits of dining fun (Chen et al., 2024). According to the reciprocity norm, customers are more inclined to prolong this enjoyment and the related personal benefits through reciprocal self-disclosure (Sprecher et al., 2013). Furthermore, delightful dining experiences allow customers to strengthen their social presence and manage their online impressions, thereby attracting more social approval from online friends and reinforcing social connections (Lin et al., 2022; Zhu et al., 2019). Sharing satisfying experience on social media also creates a shared affective state between the foodstagrammer and viewers, thereby increasing mutual affection and commitment toward the virtual community (Wong et al., 2019; Wu et al., 2010). Therefore, the following hypotheses were proposed:

Hypothesis 5: Dining fun is positively related to reciprocity.

Hypothesis 6: Dining fun is positively related to affection.

The moderating effect of service aesthetic appeal

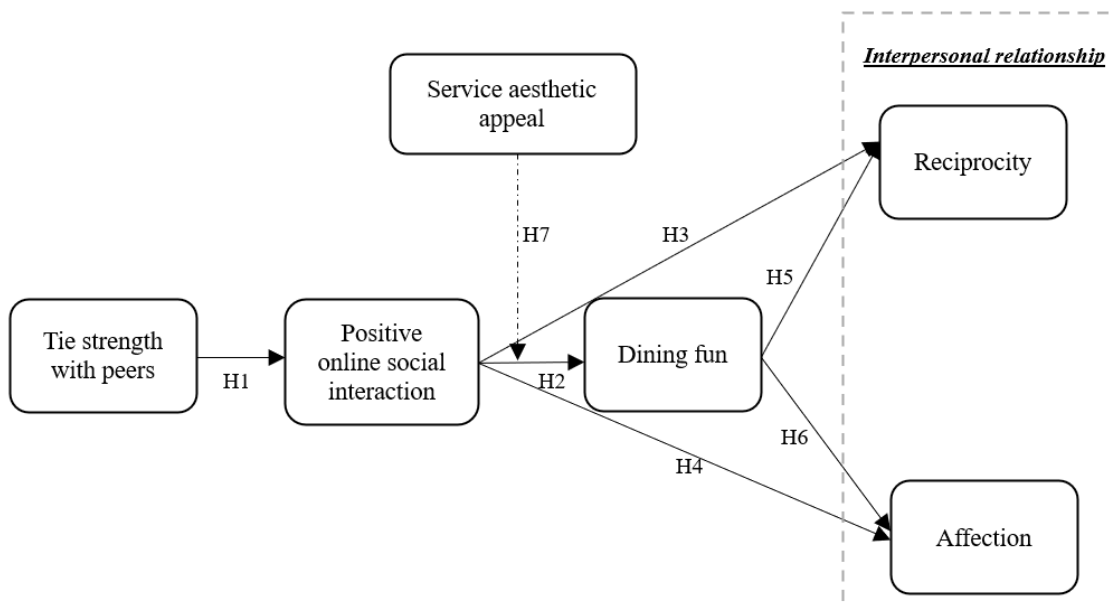
The above discussion primarily focuses on personal characteristics and the outcomes of exchanges in SPT, instead of on situational contexts (Baack et al., 2000). While it effectively explains how individuals develop social media friendships through foodstagramming-induced social interaction, the relationship between such interaction and dining fun requires further exploration, as emotions can be influenced by person–environment relationships (Lazarus, 1991). Given that dining fun and foodstagramming are closely associated with services received in restaurants, the aesthetic appeal in the dining environment and food may act as a boundary condition for the foodstagrammer’s emotional valence. Service aesthetics is also one of the salient features in micro-celebrity restaurants, attracting consumers and encouraging them to take and post pictures on social media (Huang et al., 2021).

Service aesthetic appeal is defined as the sensory and visual aspects of a restaurant that make a service setting attractive and enjoyable, contributing to the overall dining experience (Chen et al., 2024). In the context of foodstagramming, it primarily refers to food aesthetic appeal and environment aesthetic appeal, which are commonly recorded by photos (Huang et al., 2021). Food aesthetics primarily pertain to the creative and novel presentations by chefs, also known as expressive aesthetics (Yu and Liu, 2023). In contrast, environmental aesthetic appeal encompasses the overall attractiveness of physical surroundings, such as facility aesthetics, decorations, ambiance, and table settings (Horng and Hsu, 2020; Lian et al., 2025). Previous studies have shown that aesthetic qualities of both food and the physical environment in restaurants can significantly enhance customers’ dining enjoyment and pleasure (Chen et al., 2015; Yu and Liu, 2023). However, there is limited research on how these aesthetic elements, when captured in photos and shared on social media, further influence the dining experience.

According to SPT, situational context plays a key role in individuals’ future disclosure (Altman and Taylor, 1973). If the initial calculation of rewards and costs is positive, individuals

are more likely to disclose themselves (Baack et al., 2000). Service aesthetic appeal presents benefits that foodstagrammers can gain from posting food selfies on social media (Huang et al., 2021). Aesthetically pleasing selfies not only can fulfill one’s impression management objective, it can also facilitate social interaction and hence, its impact on one’s emotions. Aesthetic posts usually receive more interactive feedback (Huang et al., 2021), while serving as a means for social validation that recognizes the foodstagrammers’ personal taste and dining experience (Wong et al., 2019). This outcome strengthens the benefits of foodstagramming and enhances dining enjoyment (Chen et al., 2024). Accordingly, we argue that the aesthetic appeal of the dining setting and food should improve dining fun by facilitating the effect of online social interaction. Thus, we proposed the following hypothesis:

Hypothesis 7: The relationship between positive online social interaction and dining fun is moderated by service aesthetic appeal such that the online social interaction – dining fun relationship is strengthened when the aesthetic appeal is high.



Note: -----▶ means moderating effect.

Fig. 1 Research Model

Method Overview

This investigation utilized an explanatory sequential mixed-methods design. Study 1 utilized an online experimental design to investigate whether the interaction of online social interaction and food aesthetic appeal directly influence dining fun and indirectly influence online relationship building. Study 2 conducted a field survey to replicate Study 1's findings and further investigated the role of tie strength with peers and environment aesthetic appeal. Study 3 reexamined these relationships with GPT participants in an English-language context, thereby extending the external validity and generalizability of the findings. Study 4 employed a qualitative approach to examine the relationship-building process through foodstagramming, providing additional evidence that supports the findings from Studies 1 – 3.

Study 1: Experiment

The objective of this experiment is to examine the moderating effect of food aesthetic appeal on the relationship between online social interaction and customers' dining fun, and whether the interaction effect indirectly influences online relationship building via dining fun.

Pilot study

A pilot study employing a 2×2 factorial between-subjects design (online social interaction: low vs. high; food aesthetic appeal: low vs. high) was conducted to evaluate the effectiveness of the manipulations for positive online social interaction and food aesthetic appeal. Participants were exposed to experimental stimuli through a simulated scenario. Specifically, they were instructed to imagine a foodstagramming experience through a short description and a social media post screenshot. To avoid potential confounding effects from prior usage experience of specific social media platforms, a fictitious social media platform—"social media A"—was used in each scenario. Adapted from Zhu et al. (2019), the number of likes was used to manipulate the level of online social interaction. The high online social

interaction group received 100 likes, while the low online social interaction group received only one like. For the manipulation of food aesthetic appeal, we selected four types of food based on previous literature and food expressive aesthetics (Wu et al., 2017; Yu and Liu, 2023; Zellner et al., 2014): fried rice, dessert, baked buns, and fruit salad. These delicacies can be found in most restaurants and are commonly acceptable by most consumers, regardless of gender, age, or consumer segments, thereby mitigating sampling bias (Yu and Liu, 2023). These dishes were prepared to look more visually appealing (i.e., high aesthetic appeal of a cupcake with frosting in the shape of flower) for the high aesthetic appeal condition or less appealing (i.e., low aesthetic appeal with a plain frosting) for the low aesthetic appeal condition, while keeping other factors (e.g., flavor and taste) that are unrelated to aesthetics unchanged (Wu et al., 2017) (see Appendix A for details).

A total of 160 participants ($M_{age} = 30.35$, 71.3% female) from Credamo, an online Chinese survey platform, completed the pilot study. Participants were randomly assigned to one of four scenarios and asked to evaluate the food expressive aesthetic appeal using two items from Yu and Liu (2023) and the post's likability based on Zhu et al. (2019), both measured on 7-point Likert scales. Independent sample t tests revealed significant differences in participants' recognition of food aesthetic appeal ($M_{low} = 4.59$ vs. $M_{high} = 6.02$, $t_{(158)} = 8.35$, $p < 0.001$) and online interaction ($M_{low} = 3.28$ vs. $M_{high} = 6.23$, $t_{(158)} = 12.80$, $p < 0.001$), warranting the effectiveness of the manipulations.

Data collection and participants

A 2 (online social interaction: low vs. high) \times 2 (food aesthetic appeal: low vs. high) factorial between-subjects design was performed. A total of 169 participants (69.8% female) were recruited through Credamo (Credamo.com), a popular data collection platform with a diverse participant pool. Qualified participants were over 18 years old, had foodstagramming

experience within the past six months, and successfully passed all attention check questions in the survey. They were randomly assigned to one of the four scenarios.

The experimental scenarios were identical to that used in the pilot study. After reading the stimulus, participants were then asked to complete a subsequent survey, which included measures of constructs, manipulation and realism checks, and demographic questions.

Measures

Participants rated their expected dining fun on four items adopted from Chen et al. (2024) (Cronbach's $\alpha = 0.91$). An example item is "I believe I could have fun with this dining experience." Four items adapted from Yang (2020) measured reciprocity (Cronbach's $\alpha = 0.78$). Affection was measured using three items borrowed from Thomson et al. (2005) (Cronbach's $\alpha = 0.92$). All the items were evaluated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Then, participants reported their evaluations of the scenario, including the food expressive aesthetic appeal, online social interaction, and scenario realism check. Additionally, participants answered three questions from (Gao et al., 2017) on a 7-point scale to measure their perceived realism of the scenario. Participants' social media activeness was measured with the item "Please indicate the level of your daily activity on social media" (1 = not active at all, 7 = very active) adopted from Zhu et al. (2019).

Results

Manipulation check. Two independent sample *t* tests were performed to check the manipulation of food expressive aesthetics and online social interaction. The results showed that participants in the high (vs. low) expressive aesthetic scenario rated food aesthetic performance higher ($M_{\text{low}} = 4.41$, $M_{\text{high}} = 5.92$, $t_{(1, 167)} = 8.45$, $p < 0.001$). Participants in the

high online social interaction condition reported to a greater extent that the post was well liked ($M_{\text{low}} = 2.84$, $M_{\text{high}} = 6.05$, $t_{(1, 167)} = 16.93$, $p < 0.001$). The results indicated that the manipulation for both expressive aesthetic and online social interaction were successful.

Realism check. Participants among each condition believed that the experimental scenario was realistic ($M_{\text{high-SI_high-aes}}: 6.02$. vs. 4.00 , $t_{(41)} = 21.09$, $p < 0.001$; $M_{\text{high-SI_low-aes}}: 5.97$ vs. 4.00 , $t_{(41)} = 22.79$, $p < 0.001$; $M_{\text{low-SI_high-aes}}: 5.77$ vs. 4.00 , $t_{(42)} = 15.29$, $p < 0.001$; $M_{\text{low-SI_low-aes}}: 5.64$ vs. 4.00 , $t_{(41)} = 21.32$, $p < 0.001$).

Dining fun and moderation analysis. A two-way ANCOVA (including gender, age and social media activeness as control variables) was used to verify the moderating role of food aesthetic appeal on the relationship between online social interaction and dining fun. The results showed that the main effects of online social interaction ($F_{(1, 162)} = 42.227$, $p < 0.001$) and food aesthetic appeal ($F_{(1, 162)} = 9.967$, $p < 0.01$) were significant, whereas the covariates were non-significant ($ps > 0.10$). Thus, H2 was supported. Moreover, the interaction of online social interaction and food aesthetic appeal on dining fun was significant ($F_{(1,162)} = 4.223$, $p < 0.05$, partial $\eta^2 = 0.03$), supporting H7. In the high online social interaction condition, customers perceived greater dining fun regardless of sharing photos of food with either high ($M_{\text{high-SI}} = 5.95$, $SD = 0.79$; $M_{\text{low-SI}} = 5.10$, $SD = 1.23$, $t_{(1,80)} = 11.89$, $p < 0.001$) or low ($M_{\text{high-SI}} = 5.77$, $SD = 0.67$; $M_{\text{low-SI}} = 4.23$, $SD = 1.42$, $F_{(1,79)} = 32.77$, $p < 0.001$) aesthetic appeal. Specifically, the effect of online social interaction on perceived dining fun was particularly pronounced when the food aesthetic appeal was low (partial $\eta^2_{\text{low aesthetic}} = 0.29$ vs. partial $\eta^2_{\text{high aesthetic}} = 0.13$) (see Fig. 2).

Moderated mediation analysis. A moderated mediation analysis was conducted using PROCESS Model 7 and 5,000 bootstrapped samples, including gender, age and social media activeness as control variables) to test whether or not the interaction effect between online

social interaction and food aesthetic appeal would indirectly affect consumers' online relationship building (including reciprocity and affection) through dining fun. The results showed that the moderated mediation effect was significant for reciprocity ($b = -0.22$, $SE = 0.12$, $95\% \text{ CI} = [-0.475, -0.005]$) but not for affection ($b = -0.20$, $SE = 0.11$, $95\% \text{ CI} = [-0.413, 0.004]$).

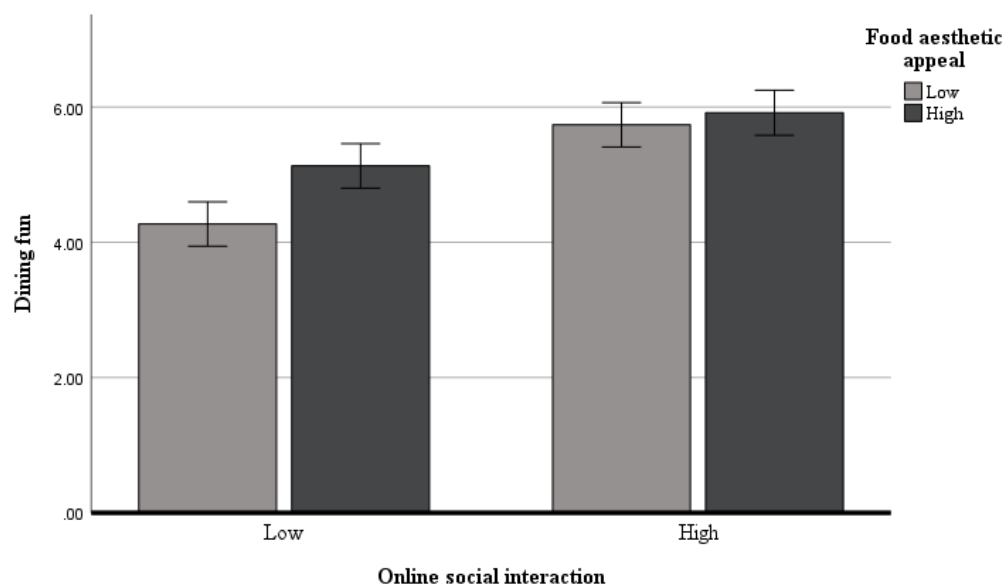


Fig. 2 Study1: Interaction effects between online social interaction and food aesthetic appeal on dining fun

Discussion

This experiment provided evidence that foodstagramming-induced online social interaction can enhance dining fun and foster online relationships. Notably, food aesthetic appeal moderated the relationship between online social interaction and dining fun. When the food has high aesthetic appeal, customers who post food selfies and engage in social interaction expect greater dining fun. Customers may find the dining experience much more enjoyable, even if the food aesthetic appeal is lacking, if they experience high social interaction online.

However, this study also had several limitations. Firstly, participants were required to imagine the consumption scenario based on textual and visual stimuli, which resulted in limited

external validity. Secondly, previous research indicates that online social interaction varies among different online friends (i.e., strong-tie and weak-tie) (Wang et al., 2012). Thus, tie strength might significantly affect an individual's foodstagramming behavior and the subsequent relationship-building process. Thirdly, micro-celebrity restaurants attract customers due to either their aesthetically pleasing food presentation or their attractive environment (Chen et al., 2024). Study 1 used image stimuli to manipulate the aesthetic appeal of food. However, a restaurant environment encompasses various aspects, including architecture design, interior design and decor, furnishing and equipment, and layout (Hornig and Hsu, 2020). Thus, using pictures to manipulate aesthetic appeal of the service environment may not accurately reflect the actual aesthetic appeal in the restaurant setting. Moreover, this study examined only the quantity of online social interaction, without addressing the quality dimension. Additionally, due to the inherent limitations of the experimental approach, Study 1 was unable to fully test the complete model as proposed. To address these limitations, Study 2 employed a field survey with data collected from customers in the real restaurant setting, thereby enhancing external validity and re-testing the proposed relationships.

Study 2: Field Survey

Data collection and sampling

Data were collected in Guangzhou, China. The city is renowned for its culinary delights and has numerous micro-celebrity restaurants. We followed Huang et al. (2021) and used a two-stage sampling approach. First, we selected twenty micro-celebrity restaurants in Guangzhou from the first 100 popular posts with the keyword "micro-celebrity restaurant" on RedNote, a popular social media platform for restaurant postings. Next, three well-trained field investigators conducted person-administered surveys with consumers at these restaurants. They greeted participants with the study's objectives and screened potential participants. Eligible

participants were those who took and shared dining photos at these restaurants. To reduce sampling bias and enhance participant representativeness, quota and systematic sampling methods were employed. Specifically, investigators intercepted every third diner at the restaurant exits and distributed at least 24 questionnaires per restaurant. If a customer declined to participate or was not qualified, the next available consumer was selected. This sampling method ensured a more representative sample and enhanced the reliability of the results.

The survey questionnaire was developed using a back-translation method by three bilingual hospitality researchers. It was first designed in English, then translated into Chinese, and then back-translated into English to ensure the accuracy of the translation. A total of 439 valid responses were received. Of the respondents, 74.9% were female, and the majority (90%) were between the ages of 18 and 30. Additionally, 78.6% reported having a bachelor's degree or higher.

Measures

The survey instruments were adopted from previous studies and adapted to the research context. Participants evaluated the aesthetic appeal using a three-item semantic differential scale including “monotonous/fascinating,” “conventional/creative,” and “unremarkable/impressive” adopted from Wang et al. (2011). Tie strength with peers was measured using four items adapted from Wang et al. (2012). One item, “How likely would you share personal confidences with your peers?” was deleted due to low factor loading. Online social interaction was measured with three items from Huang and Hsu (2010). The measurements for dining fun, reciprocity, and affect remained the same as in Study 1. Except for aesthetic appeal, the rest of the items were evaluated using a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Each scale showed satisfactory reliability, with Cronbach's alpha values between 0.78 and 0.90, and composite reliability scores above 0.81. Moreover, all factor loadings exceeded 0.70, and the average variance extracted (AVE) values were higher than the 0.50 threshold, indicating strong convergent validity (see Table 1). Discriminant validity was supported with square root of AVEs exceeding the correlations among the constructs of interest (see Table 2). The results from the confirmatory factor analysis revealed an acceptable measurement model fit: comparative fit index (CFI) = 0.96, Tucker Lewis index (TLI) = 0.95, root mean square error of approximation (RMSEA) = 0.06, and standardized root mean square residual (SRMR) = 0.04. Common method variance was assessed using Harman's single-factor method, showing it was not a major issue, as the single factor explained only 35.4% of the variance. Multicollinearity was not a concern in this study, as all variance inflation factor (VIF) values were below 1.60.

Table 1 Survey scale items

Scale items	FL	α	CR	AVE
<i>Tie strength with peers</i>				
How likely would you spend some free time socializing with your peers?	0.76	0.87	0.88	0.70
How likely would you perform a large favor for your peers?	0.92			
How likely would your peers perform a large favor for you?	0.83			
<i>Positive online social interaction</i>				
My interaction with online friends is harmonious.	0.73	0.78	0.81	0.59
My interaction with online friends is friendly.	0.83			
My interaction with online friends is cooperative.	0.75			
<i>Dining fun</i>				
This is a fun place to dine.	0.88	0.90	0.89	0.67
At this restaurant, I try to have fun whenever I can.	0.83			
I laughed a lot for this dining experience.	0.83			
This restaurant has a fun atmosphere.	0.73			
<i>Service aesthetic appeal for the environment</i>				
The restaurant's environment is monotonous / fascinating.	0.76	0.81	0.81	0.59
conventional / creative.	0.78			
unremarkable / impressive.	0.76			
<i>Reciprocity</i>				

When posting food selfies, I feel a sense of obligation to my friends on social media for doing them a favor.	0.76	0.84	0.85	0.58
When posting food selfies, I feel doing my friend a favor.	0.76			
I think that sharing food selfies is part of interacting with my friends on social media.	0.78			
The practice of posting food selfies is a key part of the relationship between my friends on social media and me.	0.75			
<i>Affection</i>				
After posting food selfies, the relationship with my friends is affectionate.	0.79	0.90	0.91	0.77
After posting food selfies, the relationship with my friends is friendly.	0.89			
After posting food selfies, the relationship with my friends is loved.	0.94			

Note: FL: factor loading, α : Cronbach's alpha, CR: Composite reliability, AVE: Average variance extracted.

Table 2 Descriptive statistics and construct correlations.

	Mean	S.D.	1	2	3	4	5	6
Tie strength with peers	5.69	1.02	0.84					
Positive online social interaction	5.64	0.92	.43**	0.77				
Dining fun	5.10	1.09	.35**	.33**	0.82			
Service aesthetic appeal	5.19	1.16	.21**	.20**	.53**	0.77		
Reciprocity	4.61	1.30	.28**	.42**	.31**	.26**	0.76	
Affection	5.83	0.93	.43**	.73**	.32**	.19**	.35**	0.88

Note: ** $p < 0.01$.

The value in bold are square root of the average variance extracted.

Results

The hypothesized relationships were tested using structural equation modeling in AMOS 29.0, controlling for age, gender and the source of the participants. The results revealed an acceptable model fit: CFI = 0.93, TLI = 0.91, SRMR = 0.05, and RMSEA = 0.06.

Hypothesis 1 posits that tie strength with peers is positively related to online social interaction. Results from Table 3 support this hypothesis ($\beta = 0.51, p < 0.001$), indicating that stronger tie strength with peers leads to better online social interaction. Hypotheses 2, 3, 4 postulate that online social interaction is positively associated with dining fun, reciprocity and

affection. The results reveal that these relationships are positive and significant ($p < 0.001$), with $\beta_{SI \rightarrow DF} = 0.26$, $\beta_{SI \rightarrow reciprocity} = 0.40$, $\beta_{SI \rightarrow affection} = 0.81$, thus supporting all three hypotheses. Hypotheses 5 and 6 suggest that dining fun positively influences consumers' online relationships. Results show that dining fun positively correlates with reciprocity ($\beta = 0.24$, $p < 0.001$) but does not significantly relate to affection ($\beta = 0.05$, $p > 0.05$). Thus, Hypothesis 5 is supported, but Hypothesis 6 is not.

Hypothesis 7 proposes that service aesthetic appeal moderates the relationship between online social interaction and dining fun. The results show that this relationship is positively conditioned by aesthetic appeal ($\beta = 0.14$, $p < 0.05$). We further graphed the moderating effect using the simple slope approach suggested by Aiken et al. (1991). As shown in Fig. 3, the effect of online social interaction on dining fun is stronger when the level of aesthetic appeal is higher.

Table 3 Results of path estimates.

	Dependent variables			
	Positive online social interaction	Dining fun	Reciprocity	Affection
Control variable				
Gender			0.02 ^{n.s.}	-0.03 ^{n.s.}
Age			0.04 ^{n.s.}	-0.07*
Participant source			0.10**	-0.01 ^{n.s.}
Main effects				
Tie strength with peers	0.51***			
Positive online social interaction		0.26***	0.40***	0.81***
Dining fun			0.24***	0.05 ^{n.s.}
Moderating effects				
Service aesthetic appeal		0.62***		
Positive online social interaction × service aesthetic appeal		0.14**		
R ²	0.26	0.49	0.29	0.69

Fit statistics: $\chi^2/df = 2.47$, CFI = 0.93, TLI = 0.91, SRMR = 0.05, and RMSEA = 0.06.

Note: *** $p < 0.001$, ** $p < 0.05$, * $p < 0.10$, n.s. denotes not significant. Parameters are standardized.

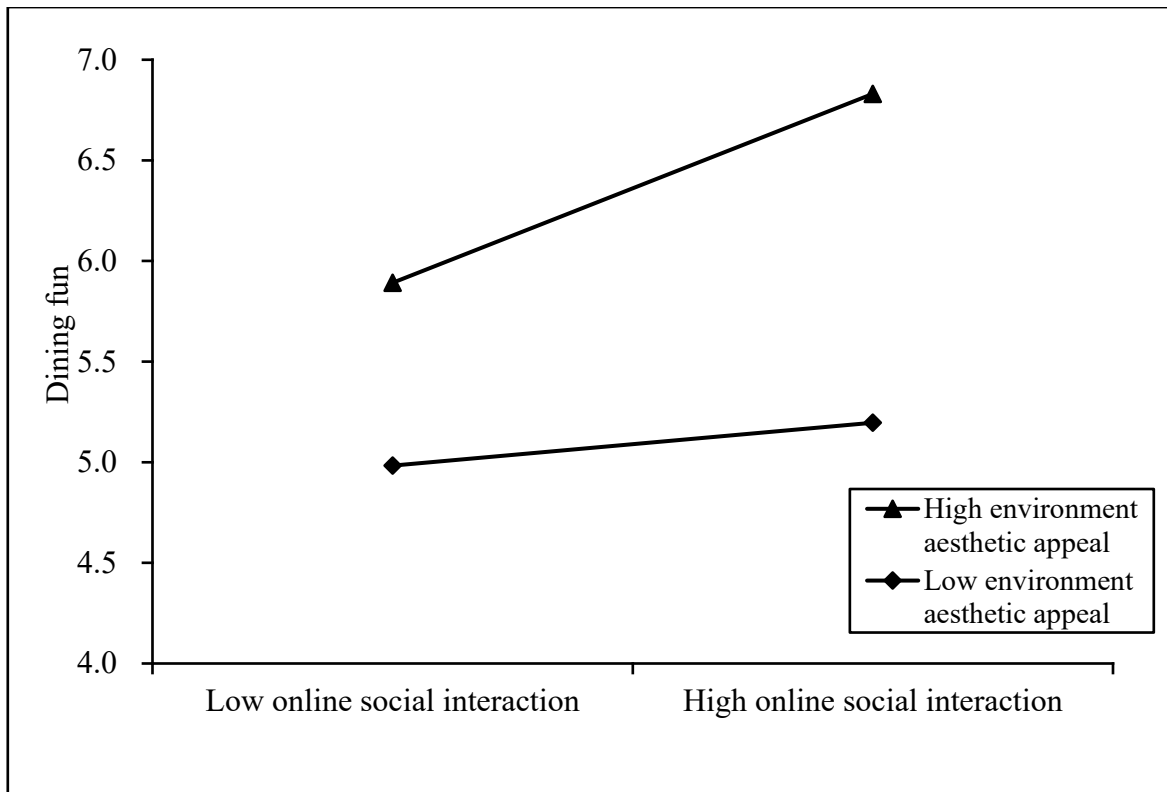


Fig. 3 Study 2: Interaction effects between positive online social interaction and environment aesthetic appeal on dining fun

We also performed serial mediation analyses using a bootstrapping technique with 5,000 resamples. Results from Table 4 show that tie strength with peers has an indirect effect on reciprocity (Tie strength with peers → Online social interaction → Dining fun → Reciprocity) with $\beta = 0.03$ and 95% CI = [0.016, 0.059]. However, the indirect effect of tie strength with peers on affection is not evident, with $\beta = 0.01$ and 95% CI = [- 0.004, 0.023].

Table 4 Results of serial mediation tests.

Path	Standardized estimates	S.E.	95% Lower CI	95% Upper CI	<i>p</i>
Tie strength with peers → Positive online social interaction → Dining fun → Reciprocity	0.03	0.01	0.016	0.059	0.000
Tie strength with peers → Positive online social interaction → Dining fun → Affection	0.01	0.01	-0.004	0.023	0.191

Discussion

Study 2 replicated the results of Study 1 and enhanced external validity by utilizing field survey data. It also examined the quality of online social interaction. The results further indicate that tie strength with peers is positively related to foodstagramming-induced online social interactions. Additionally, the study found that the aesthetic appeal of the environment moderates the relationship between positive online social interaction and reciprocity. This result extends Study 1's findings, which focused on the moderating effect of food aesthetics, and it underscores the important role of high aesthetic appeal in promoting restaurants by encouraging foodstagramming.

Study 3: Cross-Validation in English Context by GPT

Although Studies 1 and 2 provide strong support for the proposed model, two limitations remain. First, both studies were conducted with Chinese participants, while foodstagramming is a global phenomenon. This constraint may limit the generalizability of the findings. Second, the operationalization of positive online social interaction differed between the two studies: Study 1 measured interaction quantity, whereas Study 2 assessed interaction quality. Although both approaches capture the positive aspects of social interaction, this discrepancy may weaken internal consistency and complicate cross-study comparisons.

To address these limitations, the current study conducted additional cross-validation in an English-language context using Generative Pre-trained Transformers (GPT) as experimental participants. Previous research has shown that GPT is a valid tool for simulating user responses and verifying key findings in tourism research (Xiong et al., 2024). More importantly, this study also manipulated positive online social interaction in alignment with the scale measurement used in Study 2. The results consistently supported the moderating effect of food aesthetic appeal between online social interaction and dining fun, aligning with the conclusions drawn from the prior two studies, thereby reinforcing the findings of Studies 1–2 and enhancing

the robustness and generalizability of the conclusions. Due to space limitations, detailed methodologies and results are provided in Appendix B.

Study 4: Qualitative Field Inquiry

Methods

To enhance our understanding of how foodstagramming facilitates friendship-building on social media, we conducted semi-structured interviews using a purposive sampling approach. Nineteen participants (see Table 5), aged 18 to 38, were recruited through online social media platforms (e.g., RedNote). Qualified participants should have posted food-related photos on social media within the past three months. Participants were also invited to share screenshots of their posts during the interviews.

The interview protocol began by inviting participants to share their general views on foodstagramming as a social phenomenon, followed by questions focusing on participants' posting behaviors, interactions with others after sharing food selfies, and how these interactions shaped their attitudes toward dining experiences and restaurants (see Appendix D). Each interview lasted approximately 30 minutes and was audio-recorded and transcribed verbatim for analysis.

Guided by the four stages of relationship development outlined in social penetration theory (Altman and Taylor, 1973), we employed content analysis to analyze the data corpus. Following Saldaña's (2009) coding guidelines, the first author conducted initial coding by reading the transcribed data line by line. The first two authors then collaboratively completed the second and third coding cycles, grouping initial codes into broader themes and categorizing them according to the four stages of relationship development. The findings were summarized and are presented in Table 6 (see Appendix E).

Table 5 Interviewee profiles

No.	Gender	Age	Occupation
#1	Female	30	Community Worker
#2	Male	24	Private Company Employee
#3	Female	33	Education and Training Professional
#4	Female	25	Education Practitioner
#5	Female	26	Student
#6	Female	26	Unemployed
#7	Female	27	Student
#8	Female	24	Self-Media Professional
#9	Female	26	Journalist
#10	Male	28	Public Institution Staff
#11	Female	22	Self-Media Blogger
#12	Female	22	Self-Media Blogger
#13	Male	35	Technical Manager
#14	Male	18	Student
#15	Male	28	Education Practitioner
#16	Female	29	Student
#17	Female	31	Teacher
#18	Female	27	Education Practitioner
#19	Male	27	Engineer

Results

Friendship-building via foodstagramming

Nearly all participants expressed positive views toward foodstagramming. They described it not only as a personal activity to “document life,” “show passion for life,” and create “special memory records” (e.g., Interviewees #1–4 and #11–15) but also as a means for building a social media presence and facilitating socialization. For instance, Interviewee #10 remarked:

These social media posts have become tools for me to promote myself to the public. Even though audiences don't know who I really am, they've accepted the persona I've created on social media.... To me, foodstagramming and the subsequent interactions are a universal way of socializing, similar to how people bond over sports. Food can also serve as a tool for building connections and socializing.

This perspective was echoed by other participants, who acknowledged that one of their motivations for posting food-related content was to engage and interact with their audience (e.g., Interviewees #5, #7, #8, and #13).

Foodstagramming plays a pivotal role in building and maintaining relationships on social media, with its impact varying depending on the tie strength between the foodstagrammers and their audience. For audiences who are already friends with the foodstagrammers, foodstagramming posts and interactions can strengthen relationships by fostering intimacy through positive self-disclosure, akin to general disclosure behaviors on social networking sites (Utz, 2015). Conversely, for online acquaintances, foodstagramming often serves as a catalyst for discovering shared interests and increasing the potential for friendship development (e.g., Interviewees #6, #10, #11, #12, and #14). The choice of social media platform also influences these dynamics. Participants indicated that relationship maintenance (i.e., retaining existing social ties) primarily occurs on more private platforms (e.g., WeChat), while friendship-building (i.e., developing new ties) tends to take place on public platforms (e.g., RedNote and TikTok). Regardless of the platform or the strength of ties, relationships in both contexts evolve through the four stages proposed by social penetration theory (Altman and Taylor, 1973): orientation, exploratory affective exchange, affective exchange, and stable exchange.

In the orientation stage, interactions are characterized by superficial disclosure and the exchange of basic information. Two key themes emerged in this stage: posting introductory content and engaging in superficial interactions. Introductory contents typically include photos, hashtags, and descriptive captions. These captions often consist of brief comments or

recommendations about the food or restaurant, as well as short reflections on recent emotional states or life experiences. For example, several interviewees shared that they commonly write captions such as, *“This dish is amazing—highly recommend you try it!”* (Interviewees #2, #3, #4, #5, #6, #8, and #15), *“Finally got myself a good meal—much-needed comfort after getting drenched by the rain all day, both physically and emotionally.”* (Interviewee #5), and *“Post-workout hunger is the best”* (Interviewee #15). Superficial interactions in this stage are reflected through actions such as liking posts, offering one-way compliments, and engaging in informational exchanges. These interactions typically revolve around basic details about the restaurant, including its culinary style, recommended dishes, location, and average price. For example, participants often discussed practical information, such as *“Some people might ask whether a certain dish is spicy, or they might want to know about the restaurant’s ambiance, like if they have highchairs for babies”* (Interviewee #13).

In the exploratory affective exchange stage, participants demonstrate a greater willingness to share information, though it remains primarily factual and lacks deep emotional attachment. Interview data revealed four key themes in this stage: reciprocal self-disclosure, playful banter, trust-building, and friending. At this stage, interactions shift from one-sided information-seeking to mutual sharing. For example, Interviewee #8 shared, *“After my posting, a friend messaged me, saying he had been to this restaurant too and thought it was really good. He also recommended some other restaurants he thought were great.”* Interviewee #9 added, *“When I accepted this recommendation and dined there, I sent the food photos back to the friend. Both of us felt great during this process.”* Playful banter also emerges as a way to make interactions more engaging. For instance, Interviewee #5 recounted, *“When I posted about eating grilled rabbit head in Chengdu, someone started joking in the comments using a famous line from the popular movie Women Who Flirt: ‘Bunnies are so cute, how can you eat bunnies?’”* Through these mutual exchanges, trust begins to develop between involved parties. For instance,

Interviewee #11 shared her experience: “*I once met up in person with a guy I connected with through foodstagramming. Before that, we had chatted on RedNote for about a month.*” In some cases, these interactions lead to the formation of friendships, as Interviewee #12 explained:

I came across her post, or she saw mine on RedNote, and we realized we had both been to the same restaurant and liked it—that’s how we got to know each other. Sometimes, when I see someone’s post and feel like we have similar tastes, I’ll ask if they’d like to go out for a meal together. Over time, because of our shared food preferences, we became meal buddies.

In the affective exchange stage, both parties begin to disclose more private and sensitive information, interacting like close friends while still maintaining certain emotional boundaries. Foodstagrammers start sharing personal experiences related to dining, such as “*embarrassing moments*” and “*unexpected encounters*” (Interviewees #2, #14, and #15). At this stage, interactions often shift from public comments to private messages, reflecting a deeper level of engagement. Conversations extend beyond food-related topics to include broader topics of interest, such as funny stories about dining companions (Interviewee #2), holiday and travel destinations (Interviewee #5), and personal pressures and encouragement (Interviewee #14). Emotional expressions also become more prominent, with many respondents noting that friends often express envy or admiration after viewing their foodstagramming posts (e.g., Interviewees #11 and #15). Interestingly, several interviewees highlighted how foodstagramming helped them reconnect with old friends. For example, Interviewee #3 shared:

A friend I hadn’t been in touch with for a long time suddenly messaged me late at night, asking if I remembered a really good restaurant I had mentioned during a trip to Chengdu. He had wanted to find the info in my Moments but couldn’t. I was shocked because that post was from several years ago... We talked a lot then. Even though we hadn’t been in touch for a while, through sharing food, we got back in contact.

The final stage, stable exchange, is characterized by greater intimacy, honesty, and openness in sharing personal information. Interview data revealed two key themes in this stage: ongoing interaction and inside terms. These elements serve as effective mechanisms for maintaining and deepening friendships. For instance, Interviewees #10 and #11 both described how they initially connected with someone through foodstagramming. Food selfie sharing eventually transformed from online interactions to offline meetups; the process ultimately helped foster close friendships through shared dining experiences and enjoyable activities. Additionally, long-term interactions around dining often lead to the creation of inside terms, which further strengthen bonds. For example, intimate friends might rename a restaurant or a dish with a private, shared term. When one mentions this term, the other immediately knows which restaurant or dish is being referred to (e.g., Interviewees #17, #18, and #19).

It is worth noting that, for most participants, the last two stages— affective exchange and stable exchange— typically occur among close friends rather than new acquaintances. As Interviewee #9 explained:

For me, foodstagramming-induced interaction is like a brief connection that makes me feel recognized and appreciated. This kind of experience encourages me to share more online and interact with others, but it doesn't necessarily build personal emotional connections. I think, online, people generally maintain a polite, respectful, and friendly attitude, but it's hard to easily build trust or deeper emotional bonds. Most people, out of self-protection, don't pay much attention to others or try to form deeper connections.

This perspective highlights the inherent limitations of foodstagramming-induced online interactions in fostering deep emotional bonds, particularly when compared to the intimacy and trust that develop among close friends. This finding aligns with the results of Studies 1 and 2, which suggest that while foodstagramming-induced interactions can enhance reciprocity among acquaintances, they are less effective in cultivating affection.

Business implications

Beyond relationship-building, the interview data also sheds light on the business outcomes associated with foodstagramming. Most interviewees noted that positive online interactions enhance their satisfaction with dining experiences by reaping fun and joy in the sharing process (Interviewees #1, #2, #5, #7, #10, #12, and #15). As Interviewee #10 described, “*Positive interactions online are like adding a special seasoning to that meal—a seasoning called ‘emotion’ or ‘connection.’*” These interactions can also strengthen their impression of the restaurant (Interviewees #3, #4, #14), with some participants following the restaurant’s official social media accounts and planning to invite friends to try when new dishes are promoted (Interviewees #1 and #15).

Furthermore, many interviewees stated that positive feedback after sharing their experiences boosts their confidence to continue sharing and recommending restaurants (Interviewees #5, #6, #9, #11, #12, and #14). For example, Interviewee #6 shared, “*The positive feedback from that post inspired me to keep sharing my experiences and try new restaurants.*” For those aspiring to become social media influencers, foodstagramming serves as a facilitator, motivating them to visit new restaurants more frequently and post more food selfies (Interviewees #11 and #12). These individuals believe their promotions on social media attract more customers to the restaurants, which is why many establishments have reached out to foodstagrammers, offering them complimentary meals and other incentives to post their dining encounters (Interviewees #11, #12, and #13). Interestingly, some participants mentioned that joyful interactions can counterbalance or mitigate unsatisfactory dining experiences (Interviewees #7, #10). For example, Interviewee #10 mentioned that “*When I encounter an unsatisfying dining experience, venting with friends about it helps ease my emotions and makes dining more bearable.*”

Discussion

Foodstagramming serves not only as a means to foster social interactions, but also as an effective mechanism building relationships on social media through gradual self-disclosure; this logic aligns perfectly with the premise of SPT. Specifically, for most foodstagrammers, relationship development typically progresses through the orientation and exploratory affective exchange stages in SPT, with some reaching the affective exchange stage. Only individuals who extend their interactions beyond food-related content and establish offline friendships progress to the stable exchange stage. This progression also reflects SPT's assertion that relationship penetration occurs rapidly in initial stages but slows in later stages (Altman and Taylor, 1973).

According to participants' responses, the social media relationship-building process initiated by foodstagramming-related interactions advances systematically, characterized by self-disclosure moving from a superficial level to an increasingly intimate level. In the orientation stage, foodstagrammers disclose general information about their dining experiences through descriptive text and images. When these posts elicit interactive comments beyond simple likes or compliments, relationships transition into the exploratory affective exchange stage. Here, foodstagrammers deepen their disclosures by addressing specific queries about dining services or establishments, even engaging in playful banter about the shared experiences. For some individuals, trust and friendship development begin at this stage. However, consistent with SPT, even though self-disclosure deepens and mutual assistance is offered, most relationships remain casual, with limited expression of deeper personal emotions. Findings from our experiments, field survey, and qualitative interview inquiry corroborate this pattern, indicating a willingness to assist others but difficulty in cultivating deeper emotional connections.

Individuals reaching the affective exchange stage experience greater depth and breadth in self-disclosure, comfortably sharing personal stories, such as embarrassing moments and humorous anecdotes. At this point, disclosures expand beyond food experiences to broader life topics and sentiments. Positive reciprocal interactions significantly contribute to mutual intimacy and relationship advancement. Ultimately, only those who can also establish friendships in real life, supported by continuous online and offline interactions, reach the stable exchange stage. Herein, their interactions around foodstagramming are primarily for relationship maintenance and increasing intimacy. Additionally, some interactive pairs grow increasingly intimate and close, developing insider terms and jargon for dishes or restaurants. The private references are understood exclusively within their interpersonal circle.

Therefore, dining, photographing, and sharing experiences on social media initiate self-disclosure, with subsequent interactions facilitating increasingly profound self and mutual disclosure, systematically fostering relationship development in alignment with the stages proposed by SPT.

Discussion and Conclusion

As foodstagramming becomes increasingly popular, it substantially influences both people's online and offline dining experiences. This dynamic of foodstagramming is further reflected in the present inquiry. On one hand, this research is underpinned by SPT to explore the effects of foodstagramming on dining fun and social media friendship building, highlighting the moderating effect of service aesthetic appeal. It further contributes to the literature on foodstagramming and social media friending by examining the determinants, process and outcomes of foodstagramming-induced social interactions through three empirical studies. Results reveal a positive correlation between tie strength with peers and online social interaction. On the other hand, this foodstagramming-induced social interaction has the

potential to influence both offline dining fun and the development of online social relationships. The process is moderated by the aesthetic appeal of the service. However, it is worth noting that dining fun primarily enhances instrumental-personal ties rather than affective relationships. This discrepancy may be attributed to the varying levels of self-disclosure involved. Individuals tend to reciprocate engagement on their posts, as suggested by the norm of reciprocity, particularly when these interactions are enjoyable (Huang et al., 2020; Yang, 2020). However, it is difficult for individuals to develop emotional closeness with others solely due to the enhancement of dining enjoyment from likes and comments. Several implications on theory and practice are detailed below.

Theoretical implications

Foodstagramming has become a common practice that customers engage in before dining. Therefore, understanding the antecedents and outcomes of foodstagramming is fundamental for future hospitality research. Prior studies on foodstagramming primarily focus on its role in self-presentation and its impacts on dining enjoyment and revisit intention (Lin et al., 2022; Xiong et al., 2023). However, the online social benefits of foodstagramming have received less attention. This research addresses this gap by examining foodstagramming as a means of online social interaction within virtual communities, investigating the antecedents, process and outcomes of foodstagramming-induced social media interactions. The research thus builds on and extends Chen et al.'s (2024) work, which primarily investigates personal benefits for foodstagrammers, such as social sharing satisfaction and subjective well-being. By focusing on interpersonal relationships on social media, our findings support the notion that posting food selfies is an effective way to develop friendships within virtual communities.

Grounded in SPT, this research focuses on the development of social media friendships by considering personal characteristics (tie strength with peers), outcomes of exchange (social

interaction, dining fun, reciprocity, and affection), and situational context (service aesthetic appeal). Results from the experiment (Study 1 and 3), the field survey (Study 2) and interviews (Study 3) provide support to the proposed framework, revealing that foodstagramming-induced social interactions are increasingly relevant for socialization and social media friending. The findings also corroborate Wong et al.'s (2019) research, which showed that foodstagramming can enrich the dining experience and enhance social connections. Specifically, Study 3 provides a detailed explanation of the process through which social connections are enhanced, based on the four stages of relationship development proposed by SPT. Yet, different from Wong et al. (2019), the current investigation elaborates the hedonic side of dining by focusing on dining fun instead of dining experience in general. Also, this research goes a step further by demonstrating that such enhancements are primarily due to online social interactions following foodstagramming. Notably, this research identifies the mutual influence between the subdimensions of foodstagramming benefits summarized in Wong et al.'s (2019) early work. Specifically, the enrichment of the dining experience can strengthen social connections in virtual communities, but this enhancement primarily manifests in instrumental relationships (reciprocity) rather than affective relationships (affection). This finding contrasts with Yang's (2020) conclusions about workplace fun and social media usage, thus adding nuance to the application of SPT in the context of social media use for food-selfie sharing.

The results further align with previous studies indicating that reciprocity in virtual communities is nurtured and reinforced by social interactions (Chan and Li, 2010). Enjoyment from interactions has been shown previously to enhance reciprocating behaviors (Chan and Li, 2010; Lin et al., 2022); and our research further reveals that offline dining enjoyment can also strengthen reciprocity, encouraging customers to voluntarily and actively share information. The findings also resonate with the weak-tie strength literature, which suggests that weak ties are advantageous for transmitting novel information rather than fostering deep interactions

(Granovetter, 1973). Social media friending is an integral part of life, yet relationships among online acquaintances typically remain weak ties, leading to fragile affective bonds. As Utz (2015) noted, public social sharing on social media is generally positive but not very intimate, whereas private conversations can foster intimacy. Thus, it is unlikely that individuals develop affection merely from dining fun enhanced by receiving likes or comments from an online acquaintance based on food selfie postings. However, our findings also indicate that foodstagramming-induced interactions could strengthen closeness among strong-tie relationships and has the potential to transform weak ties into strong ties through the process of social media friending; thus they extend our understanding of the emerging foodstagramming concept and of online–offline social relationships.

This research clarifies the role of service aesthetic appeal in foodstagramming-induced social interactions and the social media friending process. It advances the literature by showing that service aesthetic appeal acts as a boundary condition for the effect of online social interaction on dining fun, while previous studies primarily emphasized its direct effect on dining enjoyment (Horng and Hsu, 2020). Notably, the moderating role of aesthetic appeal has a rather divergent effect on dining fun. This discrepancy may stem from different perceptions of food presentation and the physical environment. Food presentation enhances food temptation (Yu and Liu, 2023), but foodstagrammers can disclose more about the food through increased social interaction, and feedback from others validates their sharing, enhancing dining enjoyment. In contrast, customers intuitively associate environmental aesthetics with food perception. Wu et al. (2022) showed that customers rate food higher on visual, olfactory, and gustatory aspects with positive emotions when served in an environment with high aesthetic appeal. As a result, customers are more inclined to visit foodstagram restaurants with an aesthetically pleasant environment (Huang et al., 2021). These boundary conditions offer nuanced insights into explaining why customers are drawn to restaurants known for aesthetic

food offerings or environmental decorations, and why they share this experience on social media.

Practical implications

The present research provides practical implications for restaurateurs and hospitality operators. The findings emphasize the importance of tie strength in promoting meaningful interpersonal relationships through online social interactions. Restaurateurs could develop strategies to strengthen relational bonds between customers and their social media audiences. For example, encouraging foodstagrammers to share personal stories related to their dining experiences can enhance mutual closeness and audience engagement. Open-ended questions or prompts that highlight commonalities between the poster and their audience can further deepen these connections. Restaurants can also create dedicated online communities or forums, allowing customers to interact with one another and share their experiences, thereby fostering a sense of belonging and strengthening social ties. By actively engaging with customers through comments, direct messages, or personalized responses, restaurateurs can further enhance relationship quality and encourage repeat interactions, aligning with the study's findings on the role of sharing food selfies and interacting with viewers in building lasting social capital and reciprocity. This strategy resonates with the "third place" concept, which views restaurants and pubs as communities that foster socio-emotional exchanges. In turn, patrons dine at a particular establishment for communal benefits, while restaurants are perceived in the sense of place-as-community (Wong et al., 2024).

Evidence presented in this research also underscores the critical role of aesthetic appeal in enhancing customers' dining fun and social sharing. Operators may invest in the visual presentation of both food and the dining environment, as these elements significantly influence customers' willingness to capture and share their experiences on social media. For instance,

restaurateurs can adopt visually appealing plating techniques, optimize lighting, and design Instagram-worthy interiors to encourage photo-taking. Providing customers with techniques for using professional photo-editing tools (e.g., Lightroom, Snapseed, and VSCO) to enhance their posts could boost engagement and strengthen online connections. By prioritizing aesthetics, restaurateurs can create a dining experience that not only delights customers on-site but also extends its impact through visually compelling social media content.

The results also indicate that foodstagramming-induced interactions can serve as a powerful tool for enhancing customer satisfaction and motivate them to promote restaurants through social media postings. In this regard, foodservice providers are encouraged to design interactive activities that foster social media engagement and encourage reciprocating behaviors. These activities should possess interactive attributes beyond merely sharing photos, collecting likes, and getting coupons. For example, the popular American fast-casual chain restaurant Shake Shack in Singapore held a photo-sharing activity on Facebook and Instagram that encouraged customers to share their best Shake Shack moments on social media using a specific hashtag. This initiative not only improved brand visibility but also created a sense of community commitment among patrons. Additionally, operators can host events where customers share their dining experiences via livestreams or interactive Q&A sessions on platforms like Instagram or TikTok. These types of activities, which encourage dialogue and interaction, can strengthen online relationships and ultimately increase customer loyalty and their willingness to patronize the establishments.

Limitations and future research directions

Several limitations in this research should be acknowledged. First, this research did not differentiate the role of media platforms on which customers may post food selfies. Previous research suggests that the type of social media can influence customers' impulsive buying

intentions at micro-celebrity restaurants (Zhou et al., 2023). We encourage future research to explore the contextual effect of the media platform on selfie sharing and its role in relationship building. Second, this research examined tie strength with peers as the only personal aspect in the relationship-building process. We recommend further investigation into other personal characteristics that elicit online social interaction. According to SPT, personal characteristics influence the degree of self-disclosure during social interactions, thereby affecting relationship building (Altman and Taylor, 1973). One possible mechanism could be self-efficacy, which has been shown to enhance foodstagramming practices and positive emotions (Lin et al., 2022). Third, this research primarily focused on the positive aspects of online social interactions. However, negative interactions are also common and can significantly hamper interpersonal relationship-building (i.e., Interviewee #10 in Study 3). Therefore, we encourage future studies to explore the effects of negative social interactions. Additionally, this research focused on the social media friending process, which is akin to relationship building. However, previous studies have shown that digital disclosures are also crucial for maintaining relationships on social media (Pennington, 2020). Replicating this study with different motivations for relationship development would provide additional insights into the effect of foodstagramming on social media friending.

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