INTERVENING ROLE OF TOURISTS' ENGAGEMENT IN USER-GENERATED CONTENT ON THEIR PRO-ENVIRONMENTAL BEHAVIOURS: A PERSPECTIVE OF VIRTUAL GOFFMAN'S THEORY

Huayu TANG
Universiti Putra Malaysia, School of Business and Economics, Selangor, Malaysia;
Huaihua University, School of Business, Hunan, China, e-mail: gs58067@student.upm.edu.my

Choy Leong YEE[*]
Universiti Putra Malaysia, School of Business and Economics, Selangor, Malaysia, e-mail: yee@upm.edu.my

Jo Ann HO
Universiti Putra Malaysia, School of Business and Economics, Selangor, Malaysia, e-mail: ann_hj@upm.edu.my

Yanning CHEN
Universiti Putra Malaysia, School of Business and Economics, Selangor, Malaysia, e-mail: gs58063@student.upm.edu.my

Abstract: Social media users on platforms like Weibo and XiaoHongshu influence how tourists present themselves online. However, their impact on actual tourist behaviours at destinations remains unclear. This study explores the influence of impression management motivation and online social comparison on tourists' engagement in pro-environmental user-generated content (UGC) on social media platforms in China. The research investigates how these factors impact tourists' pro-environmental behavioural intentions (TPBI) using Virtual Goffman's Theory and Social Comparison Theory as the framework. A survey of 716 social media users who had recent travel experiences in China was conducted to examine the psychological mechanisms driving tourists to participate in pro-environmental activities both online and offline. The structural equation model (SEM) results reveal that while impression management motivation did not directly influence pro-environmental UGC engagement, its impact became significant when moderated by the frequency of social media status updates. Online social comparison had a direct positive impact on pro-environmental travel UGC engagement, while social media stalking did not. Pro-environmental travel UGC engagement was found to be a strong predictor of pro-environmental behavioural intention. These findings offer valuable insights into how social media interactions foster eco-conscious behaviours, highlighting the role of impression management and online comparisons in shaping both online and offline pro-environmental actions. The study provides implications for promoting sustainable tourism practices through social media engagement strategies.

Keywords: user-generated content, UGC-induced TPBI, impression management motivation, online social comparison, social media stalking, social interaction

* * * * * *

INTRODUCTION

Pro-environmental behaviour (PEB) involves actions aimed at benefiting the natural environment or reducing harm to it, thereby mitigating and preventing environmental threats (Lange and Dewitte, 2019; Wallace and Buil, 2023). Despite increased environmental consciousness, regulatory measures, media attention, and public perceptions, tourism remains "far from sustainable" (Buckley, 2012). Prior studies have primarily focused on investigating the influence of tourists' cognition, emotions, beliefs, norms, and situational factors on their environmental responsibility behaviour primarily from the perspective of tourists themselves (Qiu et al., 2018). However, these studies solely examine the impact of visitors' personal aspects on their environmental behaviour in a static manner. Tourists are not isolated from social influences, and their cognition, emotions, and environmental behaviour are influenced by the social interactions that surround them. Therefore, in this paper, social media is used as a social interaction channel to explore tourists' pro-environmental behaviour.

The existing studies on the correlation between media use and pro-environmental behaviours are intricate and subject to debate (Ho et al., 2015; Mikami et al., 1999; Whitmarsh, 2009). Further verification is required to assess the applicability of pertinent research findings. Research posits that the utilisation of persuasive communication can effectively induce tourists to voluntarily adopt pro-environmental behaviours (Han et al., 2018). Compared to traditional media, social networking sites (SNSs) facilitate interactions among users, shaping their environmental attitudes and actions in ways that extend beyond traditional offline interactions. This suggests that tourists change their behaviour not only by consuming content but also through interaction with other tourists and users. Therefore, it is essential to explore how social media platforms, as dynamic and interactive environments, influence tourists' pro-environmental behaviour.

---

[*] Corresponding author

This research extends Goffman's theory, which conceptualises social interaction as a performance, to the virtual domain, examining the influence of impression management motivation on shaping online-offline PEBs in contexts where the "theatre settings" have shifted. Impression management (or self-presentation) on social media is a form of virtual self-identification known to influence pro-social behaviours (Lavertu et al., 2020). While prior research connects virtual self-identity to offline behaviours, few address social media posts as virtue signalling for pro-social behaviours, with divergent views on their connection to offline actions (Han et al., 2018). This study aims to explore whether pro-environmental engagement on social media induces behavioural intentions, thus complementing existing literature.

Given SNS platforms offer a wealth of opportunities and a convenient means to engage in social comparison, this research examines online comparisons among social media users triggered by travel-related posts on SNSs, attributing this to self-presentation's positive disclosure for social validation (Machado et al., 2021). Individuals often compare the social notifications they receive on social media to their own self-image. However, while some scholars highlight online social comparison as a mechanism for negative effects within social networks (Kaur, 2021; Verduyn et al., 2020), this study resonates with Lavertu et al. (2020) in suggesting that the interpretation of outcomes hinges on individuals' goal-oriented behaviours. Consequently, the use of online comparisons to promote pro-environmental behaviour change and bring out the positive aspects of social media is a matter of concern. Additionally, the study investigates individuals' passive yet consistent review of social media content, termed "social media stalking" (Tandon et al., 2021), as a passive form of cyberstalking. However, this behaviour has not been tested in relation to pro-environmental UGC engagement.

To the best of our knowledge, while existing literature highlights social media plays a pivotal role in shaping tourists' behaviours and perceptions, there remains a notable gap regarding the underlying processes through which environmental commitment develops on social media (Alsaad et al., 2023; Han, 2021; Han and Cheng, 2020). Furthermore, while theories such as impression management and social comparison have proven effective in understanding pro-social behaviours (Frey and Meier, 2004; Halbesleben et al., 2010; Whitmarsh and O'Neill, 2010), their application within the context of tourism remains underexplored. Accordingly, this study aims to answer the following two research questions (RQs).

RQ1: What is the interrelationship between impression management motivation, online social comparison, social media stalking, frequency of posting social media status updates, pro-environmental travel UGC engagement, and tourists' pro-environmental behavioural intention?

RQ2: Does the frequency of posting social media status updates have a moderating effect on the relationship between impression management motivation and pro-environmental travel UGC engagement?

Our conceptual model, which encompasses these research questions, is founded on two theories: the Virtual Goffman's Theory (Goffman, 1959) and Social Comparison Theory (SCT; Festinger, 1954). We attempt to introduce the concept of UGC-induced TPBI to elucidate the psychological processes that drive tourists to participate in environmentally responsible activities online and offline. This study aims to investigate how impression management motivation and social media use influence tourists' engagement in pro-environmental behaviour, particularly through UGC in the context of China. The study seeks to fill a gap in understanding how tourists' social media activity impacts real-world environmental actions. This study contests the notion that user engagement on social media often fails to translate into real-world behaviour change (Greijdanus et al., 2020; Jacqmarcq, 2021). Through this investigation, we aim to contribute to the ongoing discourse on sustainable tourism practices and offer practical insights for leveraging social media to promote environmental consciousness among travellers.

THEORETICAL FOUNDATION AND HYPOTHESES DEVELOPMENT
1. Virtual Goffman's theory
The concept of impression management or self-presentation, introduced by Goffman (1959), describes how individuals consciously or unconsciously take on roles in their daily lives to positively influence others' impressions of themselves. Goffman (1959) metaphorically likens it to a theatrical performance in social interactions, distinguishing between a public "front stage" and a private "backstage." By effectively delivering lines, an individual can acquire positive social value, or "face." Schlenker (1980) further developed this theory to describe activities individuals engage in to influence or control public perceptions of themselves, organisations, or groups. In their seminal two-component model, Leary and Kowalski (1990) proposed impression motivation—the extent to which individuals are driven to manage the way others perceive them. Extrinsically motivated pro-social behaviour, as explained by Lavertu et al. (2020), refers to a form of impression management where individuals engage in beneficial actions with the intention of being seen by a larger audience. Anonymous charitable donations are absolutely rare. In organisational settings, the positive impact of impression motives on organisational citizenship behaviour has been well-established in previous research (e.g., Bolino et al., 2006; Wulani et al., 2022). In the field of tourism, impression management theory is gaining traction. The results from studies of the impression of management in the tourism domain are summarised in Table 1.

The Internet's widespread use has extended Goffman's theory into the virtual domain, and the nature of self-presentation and interpersonal interaction continues to evolve. Goffman's theory has not been adequately tested in cyberspace and therefore may not be entirely applicable in online contexts (Hollenbaugh, 2021). Compared to face-to-face interactions, online interactions detach the self from the physical embodiment, allowing users to construct and express themselves through various online personas, using text and images to fulfil psychological needs for recognition and identity. Walther (2011) emphasises the collaborative nature of performances on social media, where both self-provided and other-provided information contribute to the overall presentation. In addition, the changing nature of city tourism today has led to increased overlaps between the tourism world and everyday life, and instant sharing technologies enable individuals to

improvise performances on the virtual onstage. The tourism world in performance content is closely integrated with daily life. Moreover, in the context of Chinese culture, which emphasises collectivism, "face" plays a crucial role, having performative implications and modulating self-expression (Shi et al., 2010). Therefore, we consider the evolved Virtual Goffman's theory a suitable foundation for the theoretical framework of our study. While tests of Goffman's theory can fulfil the need for research on how individuals' concerns about their social image affect their engagement in pro-social activities on the internet, can such a theory adequately explain TPBI in the mediated online environment? Some scholars argue that Goffman's theory overlooks the significance of intrinsic psychological factors in symbolic social interactions (e.g., Hollenbaugh, 2021). Therefore, we believe Goffman's theory offers a limited perspective, and we supplement it with social comparison theory to consider a more comprehensive outlook. This can be attributed to the fact that people behave pro-socially, conditional on others, which is referred to as "conditional cooperation" (Keser and Van Winden, 2000).

Table 1. Impression management in the tourism context

Author(s) and year	Focus of the study	Key findings
Tung (2019)	Impression management motives and prosocial behaviours (help a lost tourist)	Metastereotypes could influence prosocial behaviours through impression management motives.
Kim and Tussyadiah (2013)	Self-presentation and social support in tourism experience	Tourists' positive/honest self-presentation moderates the relationship between SNS use and received social support
Lyu (2016)	Travel selfies on social media and self-presentation	Appearance dissatisfaction is positively associated with strategic self-presentation.
Hajli et al. (2018)	Self-presentation and intention to visit	Self-presentation has a positive effect on tourists' intention to visit destinations
Machado et al. (2021)	Self-presentation and visit intention	Self-presentation has no effect on tourists' intention to visit destinations
Wang (2016)	Presenting oneself and behavioural intention to check-in	Presenting oneself significantly influences online customers' intention to check in on Facebook while visiting hospitality organisations
Kuhn (2020)	Self-presentation and conspicuous souvenirs	Tourists have a clear intention to present themselves when showing their souvenirs to others

2.2 Social Comparison Theory

Social Comparison Theory (SCT) (Festinger, 1954) posits that individuals tend to assess their own thoughts and talents through the comparison of themselves with others who are part of their social surroundings. These comparisons occur throughout interactions with others and can be categorised as upward, downward, or lateral (Alicke, 2000; Wills, 1981; Wood, 1989; Yukl and Falbe, 1990). Previous research indicates that social media encourages upward comparisons, where audiences will reflect on others' positive images they are supposed to see to appraise their own, increasing the likelihood of upward comparisons (Lim and Yang, 2015; Gonzales and Hancock, 2011; Vogel et al., 2014).

Whether or not the effect of this upward comparison on individuals' feelings and behaviours toward themselves and others is uniformly positive or negative has been debated (McComb et al., 2023). In this research, we argue that upward comparisons can be inspiring if users believe they can attain that status. Furthermore, in pro-environmental UGC contexts, social comparisons activate individuals' self-knowledge aligned with the comparison target (e.g., in-group members), triggering an assimilation mechanism and thereby inducing pro-social behaviour. This is in line with the power of role models emphasised in Chinese collective culture. Dunning (2000) states that impression formation inherently involves some social comparison. The direction of social comparisons can, to some extent, be influenced by individuals' impression management processes and, in turn, influence their behaviour on social media (Machado et al., 2021). Most users tend to portray a more positive image on social media (e.g., by posting photoshopped selfies) (Mei et al., 2024; Swani and Labrecque, 2020), they are motivated to seek cues for socially desirable behaviours by observing others' behaviours (i.e., engaging in social comparisons) to guide their impression management activities (Verduyn et al., 2020). Based on Virtual Goffman's Theory, which posits that individuals are motivated to present a favourable self-image, we hypothesise that impression management motivation will be positively associated with online social comparison, as individuals seek to compare themselves to others to reinforce their perceived social value. Therefore, this discussion leads to the below hypothesis:

H1: Impression management motivation is positively associated with online social comparison.

2.3 Pro-environmental Travel UGC engagement

In the realm of tourism, the Internet serves as a pivotal information hub for travellers. Platforms such as TripAdvisor.com facilitate the gathering of travel-related information, enabling consumers to post reviews and opinions and participate in interactive forums. Social media platforms host a unique form of persuasive environmental discourse initiated by tourist users (Han et al., 2018), terms as pro-environmental travel UGC in this study. Acting as a form of virtual virtue signalling (Wallace and Buil, 2023), these platforms reflect the tangible and intangible value individuals attach to the environment. The COVID-19 pandemic may have altered the risks associated with online self-disclosure, especially in terms of information being shared more readily for the public good (Nabity-Grover et al., 2020). With the surge in UGC, modern travellers prefer collectively expressing their views on environmental behaviour through video clips, blogs, and peer ratings, sharing their experiences through social media. These digital environmental dialogues contribute to the formation and perpetuation of specific eco-citizenship and consumer culture. Engagement, defined as "user-initiated action" (Gluck, 2012), manifests as behavioural actions resulting from motivational drivers. Utz (2010) suggests that

individuals form their initial impressions through digital intermediaries, where online information, especially for new acquaintances lacking offline interactions, plays a pivotal role. Hence, individuals engage in SNS activities with the purpose of creating, sustaining, and improving their public perception. Users are inclined to engage with content that may augment their desired identity and how they show themselves to their audience. Drawing from Mussweiler and Strack (2000), social comparison can enhance the accessibility of self-relevant information. Thus, a direct effect of social comparisons on social media engagement is proposed, suggesting that initiating information can directly influence an individual's behaviour. According to Festinger (1954), social comparison often exhibits a unidirectional upward drive, where superior performance is typically perceived as desirable in society. Consequently, drawing from Social Comparison Theory, which suggests that individuals are influenced by their perceptions of others' behaviours, we hypothesise that engaging in online social comparison will lead to increased participation in pro-environmental travel UGC, as individuals are motivated to align their actions with those they perceive positively. In line with Virtual Goffman's Theory, we hypothesise that tourists motivated by impression management will actively engage in pro-environmental travel UGC to enhance their social image and to match the perceived behaviours of their peers. Therefore, we propose the following hypothesis:

H2: Impression management motivation is positively associated with pro-environmental travel UGC engagement.

H3: Online social comparison is positively associated with pro-environmental travel UGC engagement.

2.4 Social media stalking

Individuals often feel compelled to avidly follow the social media profiles of others, essentially engaging in stalking (Fuchs and Trottier, 2015). Stiff (2019) defined stalking as the recreational check of social media profiles in order to gather personal information about the users. Dhir et al. (2021) further underscored the benign or passive nature of social media stalking. Tandon et al. (2021) defined social media stalking as the voyeuristic tendency of individuals to repeatedly monitor the social media profiles and shared content of others in order to gather information without any malicious intent. They stay active in online social circles regardless of time or location (Zhou, 2019).

Relationships among social comparison, social media stalking, and social network use can be found in the literature. Individuals prone to social comparison tendencies often passively utilise social media platforms to gather information (Rozgonjuk et al., 2020), thus engaging in stalking. This allows them to find information about peers who they perceive as similar, for the purpose of social comparison (Talwar et al., 2019). According to SCT, individuals evaluate themselves in relation to others, which can heighten the desire to conform to perceived social norms or standards. From the perspective of Virtual Goffman's Theory, social media serves as a stage where users present themselves to others. Social media users function both as content creators and consumers. Self-presentation on social media increases the information available about individuals within social networks, thereby heightening the utility of these platforms for tracking purposes (Mäntymäki and Islam, 2016). Moreover, during the stalking process, users experience social media affective involvement when they perceive posts and opinions of other users as friendly or hostile, or when they like or dislike others' comments. This involvement behaviour can be elucidated by the emotional attachment perspective of online user engagement with brands and can influence online consumer behaviour (Mollen and Wilson, 2010). Therefore, we propose the following hypotheses:

H4: Impression management motivation is positively associated with social media stalking.

H5: Online social comparison is positively associated with social media stalking.

H6: Social media stalking is positively associated with tourists' pro-environmental travel UGC engagement.

2.5 UGC-induced pro-environmental behavioural intention

The literature provides evidence for the impact of social media in promoting sustainable habits and lifestyles (Barszcz et al., 2023; Han et al., 2018; Nguyen et al., 2024). Research suggests that the efficacy of social media in fostering awareness and behavioural change hinges on users' active involvement with marketing efforts. This active engagement significantly guides subsequent behaviour. Sustainability-oriented communication on social media reinforces positive outcomes, such as attitudes and intentions towards PEBs, ultimately influencing the decision to take environmentally friendly actions. Moreover, impression management is suggested as one of the reasons why people engage in pro-social behaviour during social interaction (Kim and Kim, 2024).

In this study, "UGC-induced tourists' pro-environmental behavioural intention" (UGC-induced TPBI) is defined as PEBs that tourists actively engage in during travel because of (the cause), or for the sake of (the purpose), generating pro-environmental content for their positive image on social media. On one hand, it is evident that internet-using tourists are more inclined to leverage online platforms to present themselves compared to tourists in general. Audience feedback can exert a reciprocal force on performers, influencing their performance behaviour and even altering their backstage lives (Li and Xie, 2020). On the other hand, individuals engaging in these environmental behaviours are influenced by their self-played roles, in addition to their genuine environmental interests. If someone identifies with the prototype of a person who performs PEBs, they may engage in behaviours associated with that image (Mannetti et al., 2004). Thus, the extent of pro-environmental behaviour may be contingent upon its visibility to others. Therefore, we propose the following hypotheses:

H7: Pro-environmental travel UGC engagement is positively associated with tourists' pro-environmental behavioural intention.

H8: Impression management motivation is positively associated with tourists' pro-environmental behavioural intention.

2.6 Frequency of posting status updates

According to Boyd and Ellison (2007), status updates on social media homepages are the primary way for performers to

showcase their performance. Users can generate material and engage in communication with others, ranging from casual to intense talks. The frequency of updates is crucial for bloggers to retain their audience (Papacharissi, 2013), as a poorly managed, stagnant platform only risks audience fragmentation or attrition. To meet audience expectations, bloggers strive to maintain a consistent pace of updates (Cardell and Douglas, 2015), often posting multiple entries focusing on specific destinations or itineraries, each connected by a common theme. Furthermore, the frequency of status updates on social media platforms can offer insights into users' psychological states (Tokunaga and Quick, 2018). Social media users who use it frequently and intensely have more access to carefully crafted representations of their idealised selves by others (Tandon et al., 2021). Users' psychological activities of self-presentation are directly related to their frequency and extent of participation in virtual communities. Hence, the above discussion leads to the following hypotheses:

H9: The frequency of posting social media status updates is associated with tourists' engagement in pro-environmental travel UGC.

H10: The frequency of posting social media status updates moderates the association of impression management motivation with tourists' engagement in pro-environmental travel UGC, such that the effect is stronger for individuals who update more frequently. Figure 1 illustrates the proposed relationships. Following that, we will outline our methodology for collecting and analysing data.
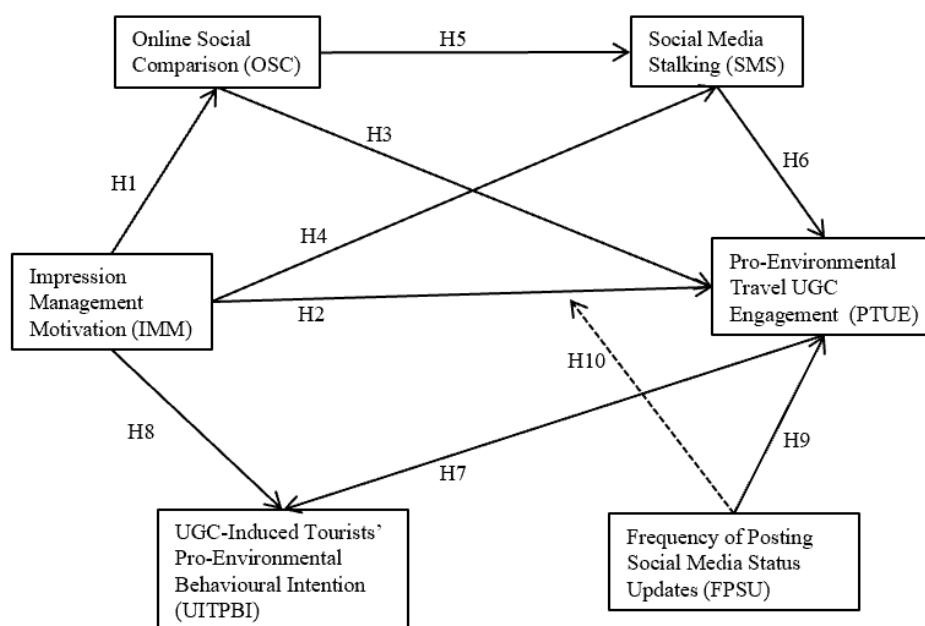

Figure 1. UGC-induced TPBI conceptual model

METHODOLOGY

1. Data collection and sampling

The sampling strategy employed in this study was purposive non-probability sampling, targeting social media users who have engaged in leisure travel within the past 12 months. This approach is justified by the need to focus on individuals who are likely to share pro-environmental travel experiences, ensuring that the sample is relevant to the research questions. Two filtering questions maintained data quality. All measurement metrics were drawn from established literature in tourism and psychology (see Supplementary Table S1 Online). A comprehensive questionnaire assessed the conceptual framework, and variables were rated on a five-point Likert scale. The total population in this study comprises the users of the online travel agency (OTA) application. UserTracker reports approximately 100 million. Consequently, the necessary sample size is determined by Krejcie and Morgan's (1970) recommendation that when population size (N) exceeds 100,000 in the cross-reference database, the minimum required sample size (S) is 384. A pilot study with 53 Chinese tourists supported the hypotheses. The formal survey, conducted in October 2023 via Wenjuan.com, obtained 716 responses, with 584 suitable for analysis after screening. This meets the minimum requirements for employing SEM analysis (Hair et al., 2010). Initially in English, the questionnaire was later translated into Chinese for dissemination.

Data collection through online surveys involved strict ethical considerations regarding privacy and consent. Participants were informed about the study's purpose and provided electronic consent, ensuring voluntary participation and response anonymity. Personal data was anonymised and securely stored to prevent unauthorised access. The study complied with relevant data protection laws, addressing privacy concerns related to sensitive social media usage and travel behaviours, and ensuring adherence to ethical standards for human subject research.

2 Data analysis

A correlation matrix was computed to assess the relationships between the constructs (Table 2), with values ranging from -1 to 1. Higher absolute values indicate stronger correlations. For model estimation, the study employs a partial least squares (PLS) path modelling technique using the SmartPLS 4 software application. PLS was chosen over other

alternative techniques due to its advantages: it does not require the assumption of normal distribution, has fewer requirements on measurement scales, and can handle samples that are smaller or much larger. Moreover, when the purpose is theory development and predictive accuracy is crucial, PLS is particularly suitable. This study aims to investigate the influence of social media usage on tourists' pro-environmental behavioural intentions. Therefore, when attempting to develop a theory, the PLS model is the preferred method (Hair et al., 2011).

In this study, all structures were reflective. To assess the measurement model, we initially tested factor loading to get acceptable item reliability. Then Cronbach's alpha and composite reliability (rho_a and rho_c) were used to evaluate the internal consistency reliability. The average variance extracted (AVE) for all items on each construct was used to assess convergent validity. To evaluate discriminant validity, the heterotrait-monotrait ratio (HTMT) was used (Hair et al., 2019). During structural model assessment, a series of five steps were undertaken. These processes covered the assessment of collinearity, path coefficients, the level of R^2, f^2 effect size, and predictive relevance Q^2 (Hair et al., 2017). For mediation analysis, bootstrapping was applied instead of the Sobel test for greater statistical power (Hair et al., 2017). To computer moderation results, a two-stage technique was employed (Becker et al., 2018).

Table 2. Correlation matrix of all variables

	IMM	FPSU	OSC	SMS	PTUE	UITPBI
IMM	1.000					
FPSU	0.273	1.000				
OSC	0.491	0.198	1.000			
SMS	0.528	0.253	0.561	1.000		
PTUE	0.360	0.289	0.513	0.388	1.000	
UITPBI	0.390	0.353	0.453	0.446	0.589	1.000

RESULTS
1. Common method bias (CMB)
When gathering primary data through a self-administered survey, it is essential to assess common method bias (CMB) to confirm that no systematic bias affects the results (Podsakoff et al., 2003). We mitigated the concerns of CMB by utilising variance inflation factors (VIFs) derived from a full collinearity test; this approach is an efficacious means of evaluating CMB in an SEM (Kock, 2015). VIF values must be below 3.3 to provide adequate proof against CMB in the gathered data (Diamantopoulos and Siguaw, 2006). The VIFs indicated that CMB did not influence our conclusions (Table 3).

Table 3. Full collinearity test

	OSC	UITPBI	IMM	SMS	PTUE	FPSU
OSC				1.324	1.589	
UITPBI						
IMM	1.000	1.150		1.324	1.555	
SMS					1.688	
PTUE		1.150				
FPSU					1.101	

Table 4. Profile of participants

Demographic	Category	Frequency	Percent
Gender	Male	248	42.5%
	Female	336	57.5%
Age	Below 18	30	5.1%
	18~24	202	34.6%
	25~34	174	29.8%
	35~44	137	23.5%
	Above 44	41	7.0%
Educational level	Middle School and under	59	10.1%
	High School or Vocational School	84	14.4%
	College or University	330	56.5%
	Master or PhD	111	19.0%
Tourism frequency (time/year)	1	139	23.8%
	2~3	271	46.4%
	4~10	90	15.4%
	Above 10	84	14.4%
Frequency of social media use for travel purpose (time/week)	1 or 2	154	26.4%
	3 or 4	168	28.8%
	5 or 6	121	20.7%
	More than 6	141	24.1%

2. Demographic Characteristics
Table 4 provides an overview of the respondents' demographics. Among the 584 respondents, 336 were female, and 248

were male. The majority (64.4%) of respondents were aged between 18 and 34, with 56.5% holding a college/university degree. Furthermore, 685 respondents (95.7%) reported travelling at least once a year. Additionally, 607 respondents were habitual social media users, with the vast majority (84.8%) using the internet for acquiring or sharing travel information several times a week. This sample represents the usual demographic traits of Chinese online community users, with the younger generation being the most proficient in technology in China (Figure 2).
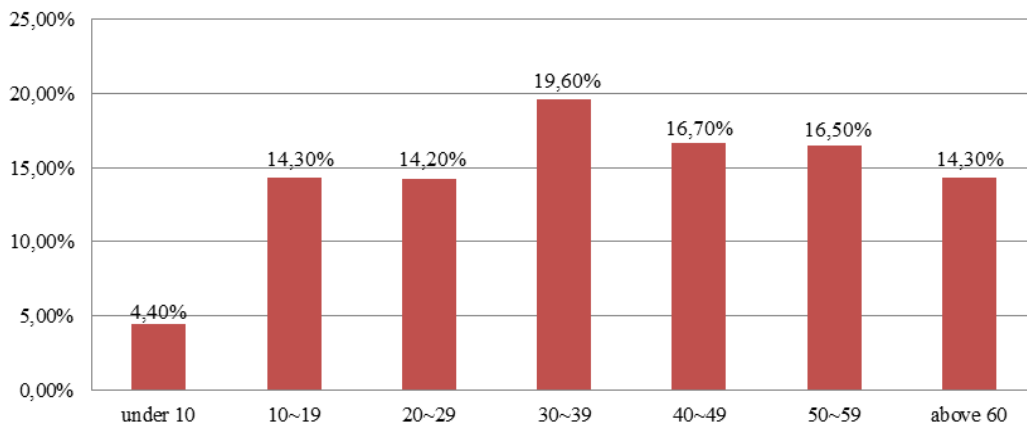
Figure 2. Age Distribution of Internet Users in China (Note: source from China Internet Network Information Centre (CNNIC): The 51st Statistical Report on China's Internet Development (in 2022)

3. Measurement model evaluation

The reflective constructs underwent an assessment to establish their reliability and validity in accurately representing the targeted measurements. Table 5 demonstrates that all constructs meet the reliability standards. The results indicate that the factor loadings of items ranged from 0.763 to 0.866, all of which surpass the minimum threshold value of 0.7. The average variance extracted (AVE) values for all constructs varied between 0.638 and 0.653, exceeding the threshold value of 0.5. Additionally, Cronbach's alpha values ranged from 0.867 to 0.908, while the Composite Reliability (rho_a and rho_c) values varied between 0.867 and 0.927 (Table 5 and Figure 3).

Table 5. Measurement model evaluation results

Constructs	Validity and Reliability Results					HTMT Results				
	Loading	alpha	rho_a	rho_c	AVE	1	2	3	4	5
IMM	0.779-0.838	0.887	0.889	0.914	0.639					
OSC	0.786-0.828	0.867	0.867	0.904	0.653	0.561				
PTUE	0.771-0.866	0.908	0.910	0.927	0.646	0.399	0.567			
SMS	0.790-0.812	0.887	0.887	0.914	0.639	0.596	0.641	0.422		
UITPBI	0.763-0.829	0.905	0.907	0.925	0.638	0.435	0.510	0.623	0.498	

These values met the minimum criteria of 0.7. Furthermore, the results revealed that all heterotrait-monotrait ratio of correlation (HTMT) values fell between the range of 0.399 and 0.641, which satisfied the $HTMT_{.85}$ criterion (Table 5 and Figure 4). This suggests that all constructs demonstrated acceptable levels of discriminant validity.
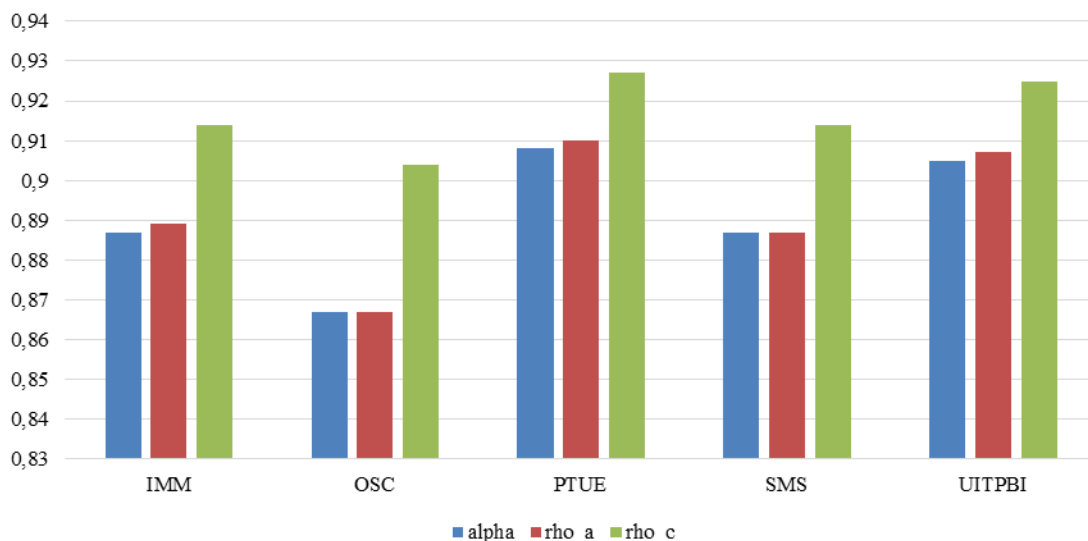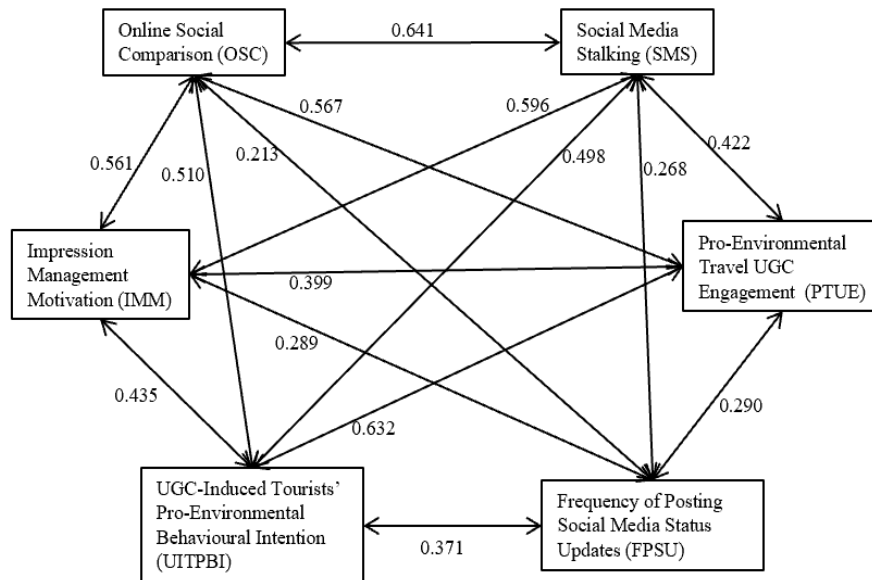

Figure 3. Results of Convergent validity

Figure 4. HTMT$_{.85}$ criterion

4. Structural model assessment

Bootstrapping, a non-parametric inferential technique, was utilised to estimate model parameters for evaluating the structural model. This method draws numerous subsamples from the original sample to derive robust estimates. The results of hypothesis testing are detailed in Table 6 and visually illustrated in Figure 5.

Then, we assessed the mediation effect of pro-environmental travel UGC engagement, online social comparison, and social media stalking. The analysis of indirect effects was conducted using bootstrapping (Table 7). Furthermore, the moderation results were computed using the two-stage approach. Table 6 presents the results of two distinct models: the model with direct effects only and the model with interaction terms. The direct effects model assesses the relationships between the main constructs without considering potential moderating factors, providing a baseline understanding of the interactions. In contrast, the model with interaction terms explores how the frequency of posting social media status updates moderates the relationship between impression management motivation and pro-environmental travel UGC engagement.
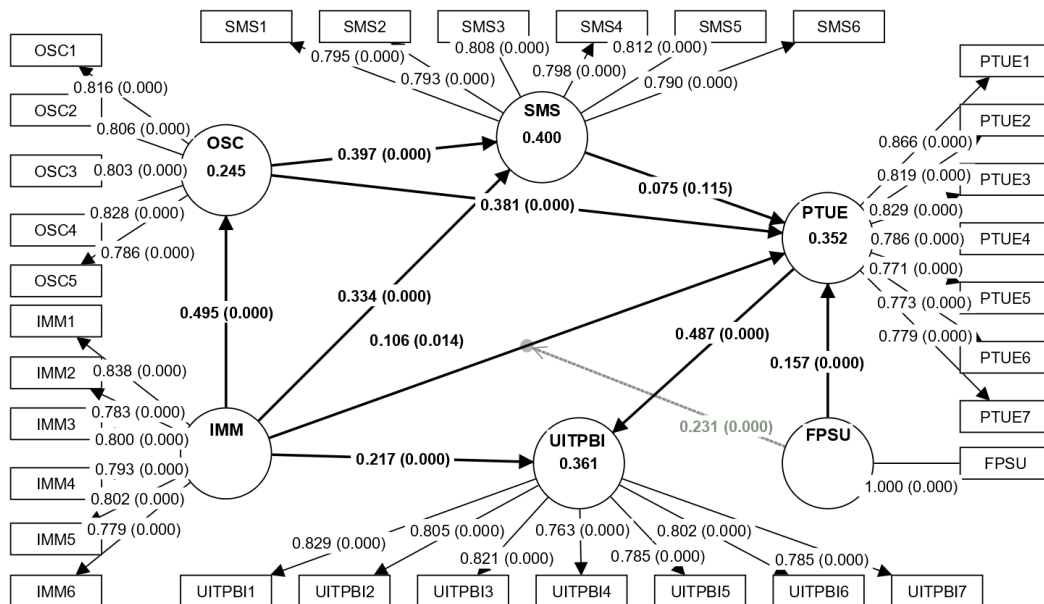

Figure 5. Model estimation (Note: The values on each construct represent
the R^2 values; the numbers on the arrows indicate the path coefficients (P-values)

Our results revealed that in the model with direct effects only, seven direct relationships were supported: H1 ($\beta = 0.495***$), H3 ($\beta = 0.389***$), H4 ($\beta = 0.334***$), H5 ($\beta = 0.397***$), H7 ($\beta = 0.487***$), H8 ($\beta = 0.217***$), and H9 ($\beta = 0.158***$), but H2 ($\beta = 0.086$) and H6 ($\beta = 0.074$) were unsupported (Table 6). While in the model with interaction terms, H2 ($\beta = 0.106$) was supported (Figure 5 and Table 6). The R^2 of the extended model improved from 30.0% to 35.2%. The effect size assessment confirmed that the R^2 improvement compared to the direct effects model was statistically significant (f^2=0.081).

Additionally, we observed that the relationship between motivation and UGC engagement was stronger for individuals with a higher level of frequency of posting status updates. The details can be found in Table 6 and Figure 6.
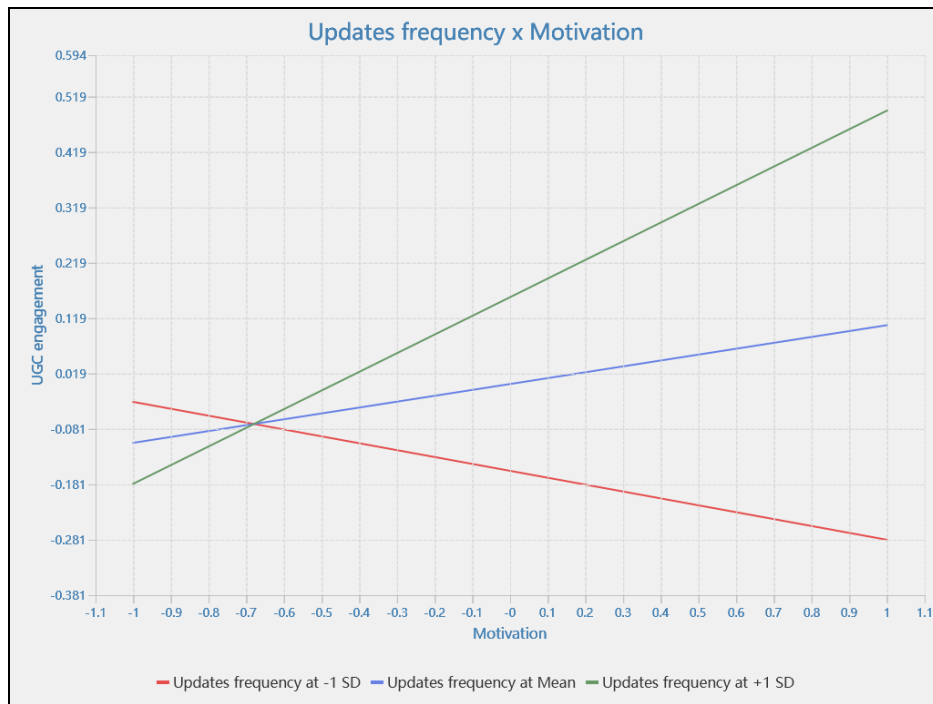
Figure 6. Simple slope analysis

Regarding the indirect relationship, results showed that UGC engagement mediated the relationship between comparison and intention, motivation and intention, and update frequency and intention. Comparison mediated the relationship between motivation and UGC engagement, as well as motivation and stalking. UGC engagement didn't mediate the stalking-intention relationship, and stalking didn't mediate the relationship between any two valuables (Table 7).

Table 6. Results of hypotheses testing (Note: ***p < 0.001; **p < 0.01; *p < 0.05; p > 0.05 = NS)

Path	Model with direct effects only	Model with interaction terms
H1: IMM -> OSC	0.495***	0.495***
H2: IMM -> PTUE	0.086[NS]	0.106*
H3: OSC -> PTUE	0.389***	0.381***
H4: IMM -> SMS	0.334***	0.334***
H5: OSC -> SMS	0.397***	0.397***
H6: SMS -> PTUE	0.074[NS]	0.075[NS]
H7: PTUE -> UITPBI	0.487***	0.487***
H8: IMM -> UITPBI	0.217***	0.217***
H9: FPSU -> PTUE	0.158***	0.157***
H10: FPSU x IMM -> PTUE	-	0.231***
R^2 for PTUE	30.0%	35.2%

Table 7. Results of indirect effects (Note: ***p < 0.001; **p < 0.01; *p < 0.05; p > 0.05 = NS)

Path	β	Standard Deviation	t value	P value
SMS -> PTUE -> UITPBI	0.036	0.024	1.536	0.125[NS]
OSC -> PTUE -> UITPBI	0.186	0.024	7.649	0.000***
IMM -> PTUE -> UITPBI	0.052	0.021	2.474	0.013*
FPSU -> PTUE -> UITPBI	0.076	0.020	3.860	0.000***
IMM -> OSC -> PTUE	0.188	0.024	7.882	0.000***
IMM -> OSC -> SMS	0.196	0.022	8.880	0.000***
IMM -> SMS -> PTUE	0.025	0.016	1.518	0.129[NS]
OSC -> SMS -> PTUE	0.030	0.019	1.537	0.124[NS]

DISCUSSION

Firstly, the results confirm that impression management motivation predicts online social comparison, and both impression management motivation and online social comparison predict social media stalking, as proposed through H1, H4, and H5. The support for H1, H4, and H5 implied that tourists' engagement in online social comparisons and social media stalking is underpinned by the broader motivation of impression management, as they seek to align their actions with socially desirable norms to enhance their online presence. Social media stalking is not merely passive but serves as a strategic behaviour, where individuals collect information to shape their own image or assess how they measure up against others. Similar to past research, individuals seek social cues for expected behaviour by observing others, and guiding their impression management activities (Jang et al., 2016; Pang and Quan, 2024; Verduyn et al., 2020).

In addition, the results support H3, confirming a significant positive association between online social comparison and tourists' engagement in pro-environmental UGC. This finding demonstrates public social validation online (through likes, shares, etc.) intensifies the impact of social comparison, which is less pronounced in the physical world. Unlike previous studies that have claimed a contrast effect, this study supports an assimilation effect. That is, while many previous scholars have argued that upward comparisons bring more negative effects (e.g., Fox and Moreland, 2015; Frampton and Fox, 2018), the study proves that social comparisons in the context of pro-environmental UGC can lead to a mechanism of assimilation of pro-environmental behaviours. This may be attributed to the accessibility of competencies for comparing targets (Mussweiler, 2003). Interestingly, this coincides with the emphasis on the power of role models in Chinese collectivist culture (Huang and Lu, 2017). The online environment thus amplifies these cultural tendencies, making social comparisons a powerful tool for fostering collective pro-environmental action.

However, H6 was not supported by results, indicating social media stalking does not significantly impact pro-environmental tourism UGC engagement. The inadvertent finding may be attributed to various factors. Firstly, the nature of stalking may lead to negative emotions or information overload, thereby reducing users' attention and participation in specific topics (Mäntymäki and Islam, 2016; Tandon et al., 2021). Secondly, the diverse purposes and content types of stalking across different research contexts may lead individuals to stalk others on social media for reasons unrelated to pro-environmental tourism participation. Lastly, the visibility of pro-environmental tourism content may be limited among social media stalkers, as such content may not be prominently featured or actively sought out.

Moreover, the results support H7 and H8, indicating that individuals motivated by impression management or already engaged in pro-environmental travel UGC are more likely to participate in UGC-induced pro-environmental behaviours. This aligns with Virtual Goffman's Theory, which posits that online interactions blur the lines between performers and audience, creating a dynamic where social validation drives engagement. The collaborative nature of social media platforms fosters real-time pro-environmental performances, encouraging individuals to align their offline behaviours with their online self-presentation. However, potential negative aspects must be considered. While social media can facilitate genuine pro-environmental actions, it may also lead to superficial engagement or "greenwashing" (Free et al., 2024), where users prioritise appearances over actual impact. Additionally, the pressure of social comparison can result in negative emotional outcomes, potentially discouraging meaningful action. Therefore, while the findings support the positive role of social media in encouraging eco-friendly behaviours, it is crucial to approach these dynamics critically and recognise the potential for superficiality and emotional fallout in the context of impression management.

The study results support H2, H9, and H10, indicating impression management motivation and frequency of posting social media status updates can predict pro-environmental travel UGC. Notably, when considering impression management motivation alone, pro-environmental travel UGC engagement may not be significantly predictable. However, moderation analysis reveals that individuals with a higher frequency of posting social media status updates are more likely to engage in pro-environmental travel UGC compared to those with lower update frequencies. For example, if there is a pro-environmental UGC campaign going on, they are more likely to see it and be motivated to participate. They may post pictures of themselves cleaning up rubbish at tourist attractions, which will make them look good to their followers and also help the tourism environment. On the other hand, individuals at the lower level of update frequencies may not see the campaign as often because they don't post as frequently. And even if they do see it, they may not be as motivated to participate because they're not as used to sharing things on social media. These results highlight the subtle relationship between impression management motivation and UGC engagement, suggesting that impression management requires the continuous execution of coherent and complementary behaviours to sustain. Additionally, these findings support the viewpoint of Archer-Brown et al. (2018) that social media intensity can predict online impression management strategies, indicating that tourists, as social media users, are more eager to gain or avoid losing online audiences. Our findings offer novel insights that contribute to the reinterpretation of Goffman's theory within the contemporary digital landscape:

• *New stage*: The open front stage of pro-environmental performers encompasses both a virtual onstage (when the camera is on) and a virtual backstage (when the camera is off, i.e., the Internet screen, distinct from a private backstage).

• *New performers and co-performers*: UGC participants assume dual roles as both "performers" and "audience," with audience members also transiently taking on the role of performers. This underscores the unique dynamics of online interactions.

• *New performance content*: Collaborative efforts are integral to new performances, with various actions such as posting, sharing, commenting, and check-in contributing to the overall online performance, reflecting different levels of engagement on social media.

• *New performance structure*: Due to widespread individual live streaming in China's tourist destinations, performances exhibit a new characteristic of real-time engagement. Performers seamlessly transition between backstage and front stage, while navigating the challenge of avoiding exposure in others' camera frames.

Based on the newly identified theatrical elements, we argue that it's hard to find real outsiders. Individuals' activities on their own private backstage, especially virtual backstage, have the potential to inadvertently become part of others' on-camera frontstage performances. Thus, context collapse occurs not only when audiences intrude into an individual's backstage but also when individuals unknowingly enter the virtual onstage of others when they have already stepped out of their roles. This is akin to the contrast between the amazing photos celebrities themselves upload to social media and ugly snapshots of them for the public's cameras. Moreover, the role of social media as a virtual onstage has transformed the "team" of performance compared to face-to-face interactions, with both self-provided information (SPI) and other-provided information (OPI) contributing to the overall presentation. Instead of presenting alone, the performer collaborates

with the audience (i.e., new co-performers) to achieve a collective presentation. Thus, the lie of "Instagram beauty" can be exposed through the lens of others or the "lines" of co-performers. Consequently, based on the synchronisation of the virtual onstage and the open front stage (contrast this with the lag of the virtual onstage in the past) and the collaborative nature of social media performances, we have reason to believe that a tourist striving to maintain a pro-environmental image in online self-presentation will similarly engage in pro-environmental behaviour offline.

Overall, these findings contribute to a deeper understanding of the interplay between UGC engagement and pro-environmental behaviour in the context of social media as an online interaction channel. The internet has expanded social networks and performance stages, transforming the audience in the past in-person contact into parts within a theatrical context nowadays. Today, Internet regulars must put in greater endeavours, both online and offline, to uphold their pro-environmental image and reputation among their social circles. It is necessary for users to execute tangible pro-environmental behaviours at tourist sites to obtain their real performance materials, as well as diligently update personal profiles with pro-environmental travel UGC to guarantee the prototype of a person who performs PEBs they've already identified with. Moreover, individuals draw motivation and refine their personas by observing peers' behaviours through online comparisons and stalking, striving for authenticity and resonance within their online communities.

CONCLUSION

Given the rising concerns about the impact of social media engagement on pro-environmental behaviours, our study contributes significantly to the literature by exploring the interplay between impression management, social comparison, social media stalking, and user-generated content (UGC) in the tourism context. We addressed two key research questions through ten hypotheses, enhancing our understanding of how online social interactions such as impression management and social comparison shape tourists' engagement in pro-environmental behaviours online and offline. Our findings reveal a positive association between these factors and underscore the potential moderating effect of the frequency of posting social media status updates. These insights provide valuable implications for both theory and practice, informing strategies for encouraging sustainable behaviours among tourists in an increasingly digital landscape.

1. Theoretical implications

The present study makes several theoretical contributions to enhance the existing literature on pro-environmental behaviour within the context of social media usage. First, the integration of Virtual Goffman's Theory and SCT provides a novel theoretical framework for understanding the dynamics of impression management in online environments. We explore the pathways that better explain how social media engagement can be motivated and manifest itself through positive consequences, which is UGC-induced TPBI, challenging the notion that user engagement on social media often fails to translate into real-world behaviour change (Greijdanus et al., 2020; Jacqmarcq, 2021). Second, our findings advance the current knowledge about impression management's effect on pro-environmental behaviours, which has primarily been studied in the context of everyday life (Dong et al., 2023; Folwarczny et al., 2023) and in organisational settings (Grant and Mayer, 2009; Zhao and Yang, 2020). This study validates its applicability to both travel and online contexts, contributing to the interpretation of recent evidence regarding image-enhancement strategies observed among tourists in various online contexts such as LinkedIn (Chiang and Suen, 2015) and Facebook (Bareket-Bojmel et al., 2016).

Third, this research is beneficial to modernising Goffman's theory through online environmental technology testing. It reinterprets the theatrical features of traditional Goffman theory inside the new arena: it identifies new "stages," "performers and co-performers," and "performing content and structure." Within this novel theatrical setting, the virtual onstage no longer lags but can synchronise with the live performance. Social media platforms and tourism attractions function as accessible front stages, facilitating intricate performances that involve collaboration among UGC participants. By exploring the consistency between online and offline behaviours, this research sheds light on the vulnerability of individuals' true backstage in the digital age and highlights the importance of maintaining coherence between online and offline personas. Despite the protective nature of the Internet screen, individuals inhabit a world where cameras are always on, and thus their backstage may be invaded by the audience, so they cannot relax and step out of character. There are also challenges posed by the collaborative nature of the performance. Therefore, in navigating this multifaceted self-presentation, individuals endeavour to maintain coherence between their online and offline personas to avert context collapse, aligning with the fundamental tenets of impression management theory. Finally, this study contributes to the social comparison literature, extending social comparison research to the field of pro-environmental behaviour in tourism. Although researchers have assumed that social comparison is commonplace among organisational employees and significantly influences their workplace behaviour (Greenberg et al., 2007), there is a lack of academic literature on social comparison themes in tourism pro-environmental behaviour. Additionally, past studies on online comparisons of social media have mostly focused on its dark side. This study confirms that social comparison on social networks (focusing on opinions rather than abilities) is unrelated to negative emotional consequences. Therefore, this study extends existing work in this field.

2. Practical implications

From a managerial perspective, identifying similar opinion providers and promoting pro-environmental UGC can help improve the quality of pro-environmental information generated on tourism UGC platforms. Environmental dialogues conducted on social media create and maintain communities, enabling members to form emotional connections with each other, which are necessary for the emergence of shared cultural meanings and resources (Rokka and Moisander, 2009). In recent years, the significant communicative influence and mobilisation capability of social media in tourism decision-

making has been confirmed (Machado et al., 2021; Taylor, 2020). As a valuable tool for promoting pro-environmental behaviours on social media platforms, UGC engagement enables these platforms to better manage user interactions and develop sustainable tourism marketing strategies (Gómez et al., 2019). In addition, the findings of this study provide insights for relevant government agencies and practitioners, aiding in understanding pro-environmental tourists' perceptions. In an era where technology profoundly impacts the sustainable tourism industry, these insights not only provide a basis for policy-making but also offer substantial insights into the industry's sustainable development. An effective strategy is to incentivise users who choose low-carbon accommodations with social media badges or insignias, creating attractive opportunities for them to showcase their sustainable choices. This not only enhances their online status but also encourages others to follow suit, thus triggering a chain reaction of ecological awareness practices within the tourism community. In fact, with the advent of mass tourism, short-distance, high-frequency travel has become a common phenomenon, and tourists' multi-act performances can continuously extend self-presentation. The continued visibility and increased attention that come with it make them willing to take on more responsibility for the tourism environment.

Moreover, this study indicates that promoting tourist participation in supporting pro-environmental tourism UGC is a commendable effort because it activates tourists' virtual environmental identities. As an acquired role, it enables tourists to see themselves as advocates of sustainable tourism. By encouraging individuals to actively participate and share their pro-environmental tourism experiences on social media platforms, their virtual identity can be used to promote pro-environmental behaviour in tourism. Community managers should provide users with rich self-presentation tools such as reputation, ranking, rating systems, signatures, personal URLs, avatars, etc. Online communities should fully utilise the characteristics of technological media to support the construction of netizens' identities and social interactions through identity presentation. This also helps activate the role of online social comparison in motivating participation and assimilating more individuals into the community. Finally, by making efforts and explicitly inviting stalkers to contribute, community managers can create a more inclusive environment that not only enhances participation but also improves the overall quality of user-generated content related to sustainable travel practices. This strategy helps bridge the gap between passive observation and active participation, making it easier for stalkers to transition into active contributors to the community.

3. Limitation and future research

As with all research, this study has certain limitations that present intriguing opportunities for future investigation. One potential limitation of this study is the cultural bias inherent in the China-based sample. The motivations and behaviours related to pro-environmental actions may significantly differ across various cultural contexts. In collectivist cultures like China, where social harmony and face-saving are paramount, the pressures associated with impression management may lead to unique patterns of pro-environmental behaviour that are not easily generalisable to more individualistic societies. This cultural backdrop may shape how individuals perceive and engage with environmental issues, potentially skewing the findings. Furthermore, the study's focus on social media dynamics and pro-environmental UGC engagement may be influenced by the specific characteristics of the Chinese social media landscape, which includes platforms like WeChat and Douyin. The interplay between social validation and environmental consciousness may manifest differently in cultures with varying levels of technological integration, environmental awareness, and societal norms. Consequently, while the findings contribute to understanding pro-environmental behaviour within the context of Chinese tourists, caution should be exercised when extrapolating these results to other cultural settings. Future research should aim to include diverse cultural perspectives to enhance the generalisability of findings related to impression management, social comparison, and pro-environmental behaviours. In addition, to ensure the generalisability of the results of this study, it is crucial to consider intervention factors that bridge the gap between participation in online pro-environmental tourism discussions and actual behaviour. When assessing participants' intentions towards pro-environmental behaviour, they may tend to respond in a socially desirable manner, aligning their answers with the study's expectations. This tendency may arise because the questionnaire explicitly outlines key variables and scenarios related to pro-environmental behaviour intentions. These scenarios include engaging in pro-environmental behaviour to gain respect and recognition from others and caring about one's image in the eyes of important individuals. Consequently, these prompts may influence participants' response patterns to align with the anticipated results sought by the current study. This limitation underscores the study's reliance on scenario assumptions rather than directly observing participants' real behaviours. To overcome reliance on scenario assumptions, future research should consider using experimental designs to assess participants' pro-environmental behaviour intentions and actual behaviour without overt prompts. Such an approach can provide more authentic and objective data.

REFERENCES

Alicke, M. D. (2000). Evaluating Social Comparison Targets. In J. Suls & L. Wheeler (Eds.), *Handbook of Social Comparison*, 271–293, Springer US. https://doi.org/10.1007/978-1-4615-4237-7_14

Alsaad, A., Alam, M. M., & Lutfi, A. (2023). A sensemaking perspective on the association between social media engagement and pro-environment behavioural intention. *Technology in Society*, 72, 102201. https://doi.org/10.1016/j.techsoc.2023.102201

Archer-Brown, C., Marder, B., Calvard, T., & Kowalski, T. (2018). Hybrid social media: Employees' USE OF a boundary-spanning technology. *New Technology, Work and Employment*, 33(1), 74–93. https://doi.org/10.1111/ntwe.12103

Bareket-Bojmel, L., Moran, S., & Shahar, G. (2016). Strategic self-presentation on Facebook: Personal motives and audience response to online behavior. *Computers in Human Behavior*, 55, 788–795. https://doi.org/10.1016/j.chb.2015.10.033

Barszcz, S. J., Oleszkowicz, A. M., Bąk, O., & Słowińska, A. M. (2023). The role of types of motivation, life goals, and beliefs in pro-environmental behavior: The Self-Determination Theory perspective. *Current Psychology*, 42(21), 17789–17804. https://doi.org/10.1007/s12144-022-02995-2

Becker, J. M., Ringle, C. M., & Sarstedt, M. (2018). Estimating moderating effects in pls-sem and plsc-sem: interaction term generation*data treatment. *Journal of Applied Structural Equation Modeling*, 2(2), 1–21. https://doi.org/10.47263/JASEM.2(2)01

Bolino, M. C., Varela, J. A., Bande, B., & Turnley, W. H. (2006). The impact of impression-management tactics on supervisor ratings of organizational citizenship behavior. *Journal of Organizational Behavior*, 27(3), 281–297. https://doi.org/10.1002/job.379

Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), 210–230. https://doi.org/10.1111/j.1083-6101.2007.00393.x

Buckley, R. (2012). Sustainable tourism: Research and reality. *Annals of Tourism Research*, 39(2), 528–546. https://doi.org/10.1016/j.annals.2012.02.003

Cardell, K., & Douglas, K. (2015). Travel Blogs. In *The Routledge Companion to Travel Writing*, 298–307, Routledge. https://api.taylorfrancis.com/content/chapters/edit/download?identifierName=doi&identifierValue=10.4324/9780203366127-30&type=chapterpdf

Chiang, J. K. H., & Suen, H. Y. (2015). Self-presentation and hiring recommendations in online communities: Lessons from LinkedIn. *Computers in Human Behavior*, 48, 516–524. https://doi.org/10.1016/j.chb.2015.02.017

Dhir, A., Talwar, S., Kaur, P., Budhiraja, S., & Islam, N. (2021). The dark side of social media: Stalking, online self-disclosure and problematic sleep. *International Journal of Consumer Studies*, 45(6), 1373–1391. https://doi.org/10.1111/ijcs.12659

Diamantopoulos, A., & Siguaw, J. A. (2006). Formative Versus Reflective Indicators in Organizational Measure Development: A Comparison and Empirical Illustration. *British Journal of Management*, 17(4), 263–282. https://doi.org/10.1111/j.1467-8551.2006.00500.x

Dong, Z., Wu, Z., & Hou, Y. (2023). Protect the environment for impressing others? Understanding whether, why, and when relational mobility shapes individual pro-environmental behaviors. *Journal of Cleaner Production*, 427, 139215. https://doi.org/10.1016/j.jclepro.2023.139215

Dunning, D. (2000). Social Judgment as Implicit Social Comparison. In J. Suls & L. Wheeler (Eds.), *Handbook of Social Comparison*, 353–378, Springer US. https://doi.org/10.1007/978-1-4615-4237-7_17

Festinger, L. (1954). A Theory of Social Comparison Processes. *Human Relations*, 7(2), 117–140. https://doi.org/10.1177/001872675400700202

Folwarczny, M., Otterbring, T., & Ares, G. (2023). Sustainable food choices as an impression management strategy. *Current Opinion in Food Science*, 49, 100969.

Fox, J., & Moreland, J. J. (2015). The dark side of social networking sites: An exploration of the relational and psychological stressors associated with Facebook use and affordances. *Computers in Human Behavior*, 45, 168–176. https://doi.org/10.1016/j.chb.2014.11.083

Frampton, J. R., & Fox, J. (2018). Social Media's Role in Romantic Partners' Retroactive Jealousy: Social Comparison, Uncertainty, and Information Seeking. *Social Media + Society*, 4(3), 205630511880031. https://doi.org/10.1177/2056305118800317

Free, C., Jones, S., & Tremblay, M. S. (2024). Greenwashing and sustainability assurance: A review and call for future research. *Journal of Accounting Literature*. https://doi.org/10.1108/JAL-11-2023-0201

Frey, B. S., & Meier, S. (2004). Social Comparisons and Pro-social Behavior: Testing "Conditional Cooperation" in a Field Experiment. *American Economic Review*, 94(5), 1717–1722. https://doi.org/10.1257/0002828043052187

Fuchs, C., & Trottier, D. (2015). Towards a theoretical model of social media surveillance in contemporary society. *Communications*, 40(1). https://doi.org/10.1515/commun-2014-0029

Gluck, M. (2012). Digital Ad Engagement: An industry overview and reconceptualization. Interactive advertising bureau (IAB).

Goffman, E. (1959). The presentation of self in everyday life. In *Social theory re-wired*, 450–459, Routledge. https://www.taylorfrancis.com/chapters/edit/10.4324/9781003320609-59/presentation-self-everyday-life-erving-goffman

Gómez, M., Lopez, C., & Molina, A. (2019). An integrated model of social media brand engagement. *Computers in Human Behavior*, 96, 196–206. https://doi.org/10.1016/j.chb.2019.01.026

Gonzales, A. L., & Hancock, J. T. (2011). Mirror, Mirror on my Facebook Wall: Effects of Exposure to Facebook on Self-Esteem. *Cyberpsychology, Behavior, and Social Networking*, 14(1–2), 79–83. https://doi.org/10.1089/cyber.2009.0411

Grant, A. M., & Mayer, D. M. (2009). Good soldiers and good actors: Prosocial and impression management motives as interactive predictors of affiliative citizenship behaviors. *Journal of Applied Psychology*, 94(4), 900. https://doi.org/10.1037/a0013770

Greenberg, J., Ashton-James, C. E., & Ashkanasy, N. M. (2007). Social comparison processes in organizations. *Organizational Behavior and Human Decision Processes*, 102(1), 22–41. https://doi.org/10.1016/j.obhdp.2006.09.006

Greijdanus, H., de Matos Fernandes, C. A., Turner-Zwinkels, F., Honari, A., Roos, C. A., Rosenbusch, H., & Postmes, T. (2020). The psychology of online activism and social movements: Relations between online and offline collective action. *Current Opinion in Psychology*, 35, 49–54. https://doi.org/10.1016/j.copsyc.2020.03.003

Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). *Multivariate data analysis: A global perspective (Vol. 7)*. Upper Saddle River, NJ: Pearson.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (Eds.). (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (Second edition). Sage Publications Inc., Thousand Oaks, CA.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139–152. https://doi.org/10.2753/MTP1069-6679190202

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Hajli, N., Wang, Y., & Tajvidi, M. (2018). Travel envy on social networking sites. *Annals of Tourism Research*, *73*, 184–189. https://doi.org/10.1016/j.annals.2018.05.006

Halbesleben, J. R. B., Bowler, Wm. M., Bolino, M. C., & Turnley, W. H. (2010). Organizational Concern, Prosocial Values, or Impression Management? How Supervisors Attribute Motives to Organizational Citizenship Behavior. *Journal of Applied Social Psychology*, *40*(6), 1450–1489. https://doi.org/10.1111/j.1559-1816.2010.00625.x

Han, H. (2021). Consumer behavior and environmental sustainability in tourism and hospitality: A review of theories, concepts, and latest research. *Journal of Sustainable Tourism*, *29*(7), 1021–1042. https://doi.org/10.1080/09669582.2021.1903019

Han, R., & Cheng, Y. (2020). The influence of norm perception on pro-environmental behavior: A comparison between the moderating roles of traditional media and social media. *International Journal of Environmental Research and Public Health*, *17*(19), 7164. https://doi.org/10.3390/ijerph17197164

Han, W., McCabe, S., Wang, Y., & Chong, A. Y. L. (2018). Evaluating user-generated content in social media: An effective approach to encourage greater pro-environmental behavior in tourism? *Journal of Sustainable Tourism*, *26*(4), 600–614. https://doi.org/10.1080/09669582.2017.1372442

Ho, S. S., Liao, Y., & Rosenthal, S. (2015). Applying the Theory of Planned Behavior and Media Dependency Theory: Predictors of Public Pro-environmental Behavioral Intentions in Singapore. *Environmental Communication*, *9*(1), 77–99. https://doi.org/10.1080/17524032.2014.932819

Hollenbaugh, E. E. H. E. E. (2021). Self-presentation in social media: Review and research opportunities. *Review of Communication Research*, *9*. https://www.rcommunicationr.org/index.php/rcr/article/view/15

Huang, C. C., & Lu, L. C. (2017). Examining the Roles of Collectivism, Attitude Toward Business, and Religious Beliefs on Consumer Ethics in China. *Journal of Business Ethics*, *146*(3), 505–514. https://doi.org/10.1007/s10551-015-2910-z

Jacqmarcq, M. (2021). Environmental activism in the digital age. *Flux: International Relations Review*, *11*(1). https://doi.org/10.26443/firr.v11i1.52

Jang, K., Park, N., & Song, H. (2016). Social comparison on Facebook: Its antecedents and psychological outcomes. *Computers in Human Behavior*, *62*, 147–154. https://doi.org/10.1016/j.chb.2016.03.082

Kaur, P. (2021). Social media users' online subjective well-being and fatigue: A network heterogeneity perspective. *Technological Forecasting*. https://doi.org/10.1016/j.techfore.2021.121039

Kaur, P., Dhir, A., Tandon, A., Alzeiby, E. A., & Abohassan, A. A. (2021). A systematic literature review on cyberstalking. An analysis of past achievements and future promises. *Technological Forecasting and Social Change*, *163*, 120426. https://doi.org/10.1016/j.techfore.2020.120426

Keser, C., & Van Winden, F. (2000). Conditional Cooperation and Voluntary Contributions to Public Goods. *The Scandinavian Journal of Economics*, *102*(1), 23–39. https://doi.org/10.1111/1467-9442.00182

Kim, D., & Kim, J. (2024). Mere presence effect on pro-environmental behavior: Exploring the role of social influence. *Social Influence*, *19*(1), 2323718. https://doi.org/10.1080/15534510.2024.2323718

Kim, J., & Tussyadiah, I. P. (2013). Social Networking and Social Support in Tourism Experience: The Moderating Role of Online Self-Presentation Strategies. *Journal of Travel & Tourism Marketing*, *30*(1–2), 78–92. https://doi.org/10.1080/10548408.2013.751220

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of E-Collaboration (Ijec)*, *11*(4), 1–10.

Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, *30*(3), 607–610. https://doi.org/10.1177/001316447003000308

Kuhn, F. (2020). Conspicuous souvenirs: Analysing touristic self-presentation through souvenir display. *Tourist Studies*, *20*(4), 485–504. https://doi.org/10.1177/1468797620956935

Lange, F., & Dewitte, S. (2019). Measuring pro-environmental behavior: Review and recommendations. *Journal of Environmental Psychology*, *63*, 92–100. https://doi.org/10.1016/j.jenvp.2019.04.009

Lavertu, L., Marder, B., Erz, A., & Angell, R. (2020). The extended warming effect of social media: Examining whether the cognition of online audiences offline drives prosocial behavior in 'real life.' *Computers in Human Behavior*, *110*, 106389. https://doi.org/10.1016/j.chb.2020.106389

Leary, M. R., & Kowalski, R. M. (1990). Impression Management: A Literature Review and Two-Component Model. *Impression management*.

Li, Y., & Xie, Y. (2020). Is a Picture Worth a Thousand Words? An Empirical Study of Image Content and Social Media Engagement. *Journal of Marketing Research*, *57*(1), 1–19. https://doi.org/10.1177/0022243719881113

Lim, M., & Yang, Y. (2015). Effects of users' envy and shame on social comparison that occurs on social network services. *Computers in Human Behavior*, *51*, 300–311. https://doi.org/10.1016/j.chb.2015.05.013

Lyu, S. O. (2016). Travel selfies on social media as objectified self-presentation. *Tourism Management*, *54*, 185–195. https://doi.org/10.1016/j.tourman.2015.11.001

Machado, D. F. C., Santos, P. C. do C., & Medeiros, M. de L. (2021). Effects of Social Comparison, Travel Envy and Self-presentation on the Intention to Visit Tourist Destinations. *BBR. Brazilian Business Review*, *18*, 297–316. https://doi.org/10.15728/bbr.2021.18.3.4

Mannetti, L., Pierro, A., & Livi, S. (2004). Recycling: Planned and self-expressive behaviour. *Journal of Environmental Psychology*, *24*(2), 227–236. https://doi.org/10.1016/j.jenvp.2004.01.002

Mäntymäki, M., & Islam, A. K. M. N. (2016). The Janus face of Facebook: Positive and negative sides of social networking site use. *Computers in Human Behavior*, *61*, 14–26. https://doi.org/10.1016/j.chb.2016.02.078

McComb, C. A., Vanman, E. J., & Tobin, S. J. (2023). A Meta-Analysis of the Effects of Social Media Exposure to Upward Comparison Targets on Self-Evaluations and Emotions. *Media Psychology*, *26*(5), 612–635. https://doi.org/10.1080/15213269.2023.2180647

Mei, X. Y., Brataas, A., & Stothers, R. A. (2024). To engage or not: How does concern for personal brand impact consumers' Social Media Engagement Behaviour (SMEB)? *Journal of Strategic Marketing*, *32*(1), 20–33. https://doi.org/10.1080/0965254X.2022.2127854

Mikami, S., Takeshita, T., & Kawabata, M. (1999). Influence of the mass media on the public awareness of global environmental issues in Japan. *Asian Geographer*, *18*(1–2), 87–97. https://doi.org/10.1080/10225706.1999.9684050

Mollen, A., & Wilson, H. (2010). Engagement, telepresence and interactivity in online consumer experience: Reconciling scholastic and managerial perspectives. *Journal of Business Research*, *63*(9–10), 919–925. https://doi.org/10.1016/j.jbusres.2009.05.014

Mussweiler, T. (2003). Comparison processes in social judgment: Mechanisms and consequences. *Psychological Review*, *110*(3), 472. https://doi.org/10.1037/0033-295X.110.3.472

Mussweiler, T., & Strack, F. (2000). The" relative self": Informational and judgmental consequences of comparative self-evaluation. *Journal of Personality and Social Psychology*, *79*(1), 23. https://doi.org/10.1037/0022-3514.79.1.23

Nabity-Grover, T., Cheung, C. M. K., & Thatcher, J. B. (2020). Inside out and outside in: How the COVID-19 pandemic affects self-disclosure on social media. *International Journal of Information Management*, *55*, 102188. https://doi.org/10.1016/j.ijinfomgt.2020.102188

Nguyen, H. V., Thanh Do, L., & Thu Le, M. T. (2024). From environmental values to pro-environmental consumption behaviors: The moderating role of environmental information. *Current Psychology*, *43*(4), 3607–3620. https://doi.org/10.1007/s12144-023-04569-2

Pang, H., & Quan, L. (2024). Assessing Detrimental Influences of Fear of Missing Out on Psychological Well-Being: The Moderating Role of Self-Presentation, Upward Contrast, and Social Media Stalking. *Applied Research in Quality of Life*. https://doi.org/10.1007/s11482-024-10272-6

Papacharissi, Z. (2013). Audiences as media producers: Content analysis of 260 blogs. In *Self-Mediation*, 69–84, Routledge. https://api.taylorfrancis.com/content/chapters/edit/download?identifierName=doi&identifierValue=10.4324/9780203722701-8&type=chapterpdf

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879. https://doi.org/10.1037/0021-9010.88.5.879

Qiu, H., Fan, J., & Zhao, L. (2018). Development of the academic study of tourists' environmentally responsible behavior: A literature review. *Tourism Tribune*, *33*(11), 122–138.

Rokka, J., & Moisander, J. (2009). Environmental dialogue in online communities: Negotiating ecological citizenship among global travellers. *International Journal of Consumer Studies*. https://doi.org/10.1111/j.1470-6431.2009.00759.x

Rozgonjuk, D., Sindermann, C., Elhai, J. D., & Montag, C. (2020). Fear of Missing Out (FoMO) and social media's impact on daily-life and productivity at work: Do WhatsApp, Facebook, Instagram, and Snapchat Use Disorders mediate that association? *Addictive Behaviors*, *110*, 106487. https://doi.org/10.1016/j.addbeh.2020.106487

Shi, Z., Furukawa, I., Jin, C., & Zhu, L. (2010). Chinese face: MIANZI and LIAN: and their influence on Chinese consumer behavior. *2010 2nd International Symposium on Information Engineering and Electronic Commerce*, 1–5. https://doi.org/10.1109/IEEC.2010.5533283

Stiff, C. (2019). The dark triad and Facebook surveillance: How Machiavellianism, psychopathy, but not narcissism predict using Facebook to spy on others. *Computers in Human Behavior*, *94*, 62–69. https://doi.org/10.1016/j.chb.2018.12.044

Swani, K., & Labrecque, L. I. (2020). Like, Comment, or Share? Self-presentation vs. brand relationships as drivers of social media engagement choices. *Marketing Letters*, *31*(2–3), 279–298. https://doi.org/10.1007/s11002-020-09518-8

Talwar, S., Dhir, A., Kaur, P., Zafar, N., & Alrasheedy, M. (2019). Why do people share fake news? Associations between the dark side of social media use and fake news sharing behavior. *Journal of Retailing and Consumer Services*, *51*, 72–82. https://doi.org/10.1016/j.jretconser.2019.05.026

Tandon, A., Dhir, A., Talwar, S., Kaur, P., & Mäntymäki, M. (2021). Dark consequences of social media-induced fear of missing out (FoMO): Social media stalking, comparisons, and fatigue. *Technological Forecasting and Social Change*, *171*, 120931. https://doi.org/10.1016/j.techfore.2021.120931

Taylor, D. G. (2020). Putting the "self" in selfies: How narcissism, envy and self-promotion motivate sharing of travel photos through social media. *Journal of Travel & Tourism Marketing*, *37*(1), 64–77. https://doi.org/10.1080/10548408.2020.1711847

Tokunaga, R. S., & Quick, J. D. (2018). Impressions on social networking sites: Examining the influence of frequency of status updates and likes on judgments of observers. *Media Psychology*, *21*(2), 157–181. https://doi.org/10.1080/15213269.2017.1282874

Tung, V. W. S. (2019). Helping a Lost Tourist: The Effects of Metastereotypes on Resident Prosocial Behaviors. *Journal of Travel Research*, *58*(5), 837–848. https://doi.org/10.1177/0047287518778150

Utz, S. (2010). Show me your friends and I will tell you what type of person you are: How one's profile, number of friends, and type of friends influence impression formation on social network sites. *Journal of Computer-Mediated Communication*, *15*(2), 314–335. https://doi.org/10.1111/j.1083-6101.2010.01522.x

Verduyn, P., Gugushvili, N., Massar, K., Täht, K., & Kross, E. (2020). Social comparison on social networking sites. *Current Opinion in Psychology*, *36*, 32–37. https://doi.org/10.1016/j.copsyc.2020.04.002

Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture*, *3*(4), 206. https://doi.org/10.1037/ppm0000047

Wallace, E., & Buil, I. (2023). Antecedents and consequences of conspicuous green behavior on social media: Incorporating the virtual self-identity into the theory of planned behavior. *Journal of Business Research*, *157*, 113549. https://doi.org/10.1016/j.jbusres.2022.113549

Wallace, E., Buil, I., & De Chernatony, L. (2020). 'Consuming Good' on Social Media: What Can Conspicuous Virtue Signalling on Facebook Tell Us About Prosocial and Unethical Intentions? *Journal of Business Ethics*, *162*(3), 577–592. https://doi.org/10.1007/s10551-018-3999-7

Walther, J. B. (2011). Theories of computer-mediated communication and interpersonal relations. *The Handbook of Interpersonal Communication*, *4*, 443–479.

Wang, H. Y. (2016). Predicting customers' intentions to check in on Facebook while patronizing hospitality firms. *Service Business*, *10*(1), 201–222. https://doi.org/10.1007/s11628-014-0265-7

Whitmarsh, L. (2009). Behavioural responses to climate change: Asymmetry of intentions and impacts. *Journal of Environmental Psychology*, *29*(1), 13–23. https://doi.org/10.1016/j.jenvp.2008.05.003

Whitmarsh, L., & O'Neill, S. (2010). Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours. *Journal of Environmental Psychology*, *30*(3), 305–314. https://doi.org/10.1016/j.jenvp.2010.01.003

Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin*, *90*(2), 245. https://doi.org/10.1037/0033-2909.90.2.245

Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin*, *106*(2), 231. https://doi.org/10.1037/0033-2909.106.2.231

Wulani, F., Handoko, T. H., & Purwanto, B. M. (2022). Supervisor-directed OCB and deviant behaviors: The role of LMX and impression management motives. *Personnel Review*, *51*(4), 1410–1426. https://doi.org/10.1108/PR-06-2020-0406

Zhao, B., & Yang, W. (2020). Research on the effect of work stress on employees' innovation behavior from the perspective of impression management motivation. *Journal of Industrial Engineering and Engineering Management*, *34*(4), 1–10. https://doi.org/10.13587/j.cnki.jieem.2020.04.001

Zhou, B. (2019). Fear of missing out, feeling of acceleration, and being permanently online: A survey study of university students' use of mobile apps in China. *Chinese Journal of Communication*, *12*(1), 66–83. https://doi.org/10.1080/17544750.2018.1523803