

PRIMARY RESEARCH

The digital eco-push: Exploring the relationship between social media marketing activities and environmental collaboration, with user engagement as a mediator and gender as a moderator

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Keywords

Social media marketing activities
User engagement
Internal environmental collaboration
External environmental collaboration
Gender

Abstract

Drawing upon resource-based view theory, this study explores how social media marketing activities impact the environmental collaboration of restaurant Instagram pages, with the mediating role of user engagement and the moderating role of gender. Data from students who follow the Instagram pages of restaurants was gathered using a convenience sample approach. A structural equation modeling technique and PROCESS macro was used based on 373 online surveys answered by those who follow restaurant Instagram pages. The moderating effect for gender and the mediating effect for user engagement were examined. The result shows that social media marketing has a significant impact on user engagement. Also, gender has a significant moderating impact on social media marketing activities and user engagement. Lastly, user engagement has a significant mediating impact between SMMA and environmental collaboration. Despite its many useful applications, this study has certain drawbacks. First, the results can only be compared with those of other developing nations because the data was gathered in Indonesia. Second, not many social media sites have been taken into account, although their numbers are growing and may be utilized in future research. Regarding how SMMA can successfully improve user engagement and environmental collaboration on Instagram pages, this research offers important implications for restaurant businesses.

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INTRODUCTION

Organizations' concerns about environmental rules have grown as a result of current sustainability developments (Syed, Song, & Junaid, 2024). In order to improve green environmental collaboration and the creation of new goods, procedures, and services, organizations are attempting to force new forms of information sharing. People have witnessed a massive shift in technology over the past 20 years; smartphones and small devices are commonplace, leading to a variety of platforms for blogs, sharing movies and photographs, as well as conversation (Siba Borah, Iqbal, & Akhtar, 2024). People are creating the majority of the data and spending an increasing amount of time in front

of screens. Microblogs, video logs, social networking platforms, interactive web pages, YouTube clips, and image-sharing apps are all included in social media (Elf, Werner, & Black, 2022).

Given that social media marketing activities are the most effective means of information dissemination, businesses are unavoidably examining to make use of them.

Previous research has employed social media technology to examine user engagement and environmental collaboration (Salim, Ab Rahman, Abd Wahab, & Muhamed, 2020; Siba Borah et al., 2024).

With innumerable downloading and publishing, posts and hunts, messages exchanged and received, watching and

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broadcasting, and more happening every minute on the world wide web, our world is changing quickly (Irum, Khan, Abbas, Tabasum, & Jabeen, 2025). A special example of swift expansion and erratic shift in businesses may be seen in the digital world of social network sites (SNSs) such as Facebook, Instagram, and Twitter (Syed et al., 2024). Building effective advertising tactics for hospitality and travel firms requires the use of social media marketing (Hamzah, Abdul Wahab, & Waqas, 2021; Siba Borah et al., 2024). These tactics are currently and will remain the foundation for developing business marketing strategies, cultivating client relationships, and drawing clients to particular brands by enticing them to buy from, promote, and share content about them (Diam, 2022). Restaurant marketers are aware that Instagram is a massive and extensive social media platform that may build connections between businesses and consumers (Hazzam*, 2022; Hussain, Hussain, Nasir, & Munaf, 2024). Scholars are paying more attention to social media marketing activities research as a result of the business's interest in the topic. By investigating empirically how social media marketing contributes to the encouragement of use engagement on restaurant Instagram profiles, the current study closes this gap.

Another gap relates to the circumstances in which social media marketing could improve user interaction in a restaurant setting. According to Ji, Mieiro, and Huang (2022), this construct illustrates the psychological state or process that leads to loyalty in users. I. Khan (2022) contends that user engagement characterizes users' endeavors and aspirations to establish intimate relationships with companies or brands. The degree of a user's cognitive, emotional, and behavioral investment in certain brand encounters is known as user engagement (Oliveira & Fernandes, 2022). According to Rahman, Mutum, and Ghazali (2022), user engagement takes place in the dynamic and iterative processes of internal and external environmental collaboration through interactive experiences. A few studies have attempted to look into the connection between environmental cooperation user engagement and social media marketing efforts (Diam, 2022; Elf et al., 2022; Hazzam*, 2022; Shao & Chen, 2021). Nevertheless, there is currently little scholarly study on how social media marketing initiatives affect user engagement. As a result, it is crucial to investigate how user engagement mediates social media marketing efforts and environmental collaboration (Ji et al., 2022). Examining how SMM affects consumer behavior requires taking gender-based differences in beliefs and opinions into account (Shao & Chen, 2021). For example, (Li & Wei, 2021) made the case that women prioritize social support and

knowledge-seeking more than men do when it comes to influencing liking behavior. Voluntary, regular, and immediate contact with the focus topic can result in user engagement (Mansour & Farmanesh, 2020). In the past few years, user engagement research has grown rapidly (Yang, Du, Wang, & Wu, 2019). An unresolved difficulty in the study of SMM is that the relationship between the variables is moderated by gender and user engagement. Evidently, induced moderation is encouraged by SMM research carried out in the hospitality industry (Ibrahim & Aljarah, 2024).

This study examined how social media marketing initiatives affected user engagement both directly and indirectly. The Indonesian fashion business was investigated using the original social media marketing activities model (Ibrahim & Aljarah, 2024). This study investigates the overall impact of SMMA on various relationships and operationalizes the idea of SMMA (Siba Borah et al., 2024; Syed et al., 2024). Most people agree that SMMA is a subset of SMMs conducted via SNSs (Irum et al., 2025). Relatively few studies have focused on the effects of intricate interactions between these variables on a restaurant's Instagram pages, despite the fact that numerous studies have explained how customers interpret SMM in a service context.

In light of the discussion previously, the purpose of this study is to fill in the research gaps and concentrate on the goals listed below.

Hypothesis 1: Social media marketing activities have a direct impact on user engagement.

Hypothesis 2: Gender moderates social media marketing activities and user engagement.

Hypothesis 3: User engagement mediates between social media marketing activities and internal environmental collaboration.

Hypothesis 4: User engagement mediates between social media marketing activities and external environmental collaboration.

The Resource Based-View (RBV) theory is used to create a thorough model that emphasizes social media marketing initiatives, internal and external environmental collaboration, and user engagement. Gender was added to the indirect influence estimates to conclude the moderated analysis. The thorough model employed for this aim provided a fresh perspective on how SMMA affect user engagement. Partial least square structural equation modeling (PLS-SEM) was used to examine the modeled relationships in a sample of 373 students who follow restaurants' Instagram pages. The findings offer a number of recommendations for managers and legislators on how to give environmental concerns top priority so they can meet their carbon

neutrality goals. The other portions of the paper are organized as follows: a description of the literature and the hypotheses, the study's methodology, the study's results, a discussion of the findings and conclusions, and, lastly, the study's implications.

THEORETICAL BACKGROUND

Resource Based-View Theory

The Resource Based-View (RBV) of the organization serves as the foundation for this research piece. The RBV is thought to be the main focus of research on strategic administration (Mahoney & Pandian, 1992) and provides an explanation of the organization's internal strengths and resources, which aid in maintaining competitive advantage (Gerhart & Feng, 2021). The RBV only explains results at the organizational level; it ignores how the environment affects an organization's operations. A theoretical foundation linking social media technologies, environmental collaboration, and user engagement is provided in the current part. Zahra (2021) states that an organization has assets and skills that contribute to gaining an edge over its competitors, is the main theoretical stance. According to the RBV, the company's social media conduct has been influenced by three things. First and foremost, people must have the proper mindset when using social media platforms because doing so can benefit the organization as well as themselves. When people have a positive attitude about sharing and exchanging knowledge on social media, it will inspire them to do the same with others. The second element is that employees are more inclined to share and trade information on social media if they believe that someone they care about, like friends or family, is active on the platform. Group norms, which include sharing and referring to a general introducing oneself guide to accomplish goals and share them with an ensemble of individuals; subjective standards, which involve recognizing social pressures to engage or not; and social identification, which involves defining one's place in the network of people (Hazzam*, 2022; Mishra, 2019; Yang et al., 2019). According to Cheung, Pires, and Rosenberger III (2019), environmental collaboration can be divided into two categories: internal and external. Because social media technologies facilitate collaboration, businesses use them to improve communication within or between organizations (Koay, Ong, Khoo, & Yeoh, 2020; Pukdeemai, 2020).

Environmental Collaboration

The idea that a company's many departments and operating regions should cooperate with one another is known as internal environmental collaboration (Pukdeemai, 2020).

It increases their mutual trust and guarantees that the data and resources needed to make wise judgments are promptly available (Elf et al., 2022). A producer may have a functional organizational structure, but in order to make the right decisions, information sharing is necessary at every level. For instance, if an order is delayed, customers would perceive this as unfavorable even when they are not interested in learning the cause (such as a human mistake). The collaborative customer order fulfillment process is a collection of tasks and operations. This method requires information exchange, diverse teams, cooperative functioning, and joint planning. According to Salim et al. (2020), the primary determinants are pressure satisfaction and consumer expectations. Organizations, therefore, need a way to communicate information in a timely and accurate manner, and SMMA is one of the most effective ways to do so. While keeping their distance from others, organizations build more cooperative, strategically important relationships with a select group of suppliers and customers. Businesses need to provide information about how they operate as well as the impact of risk and responsibility (Siba Borah et al., 2024). Customer happiness and returns are increased, while environmental expenses and waste are reduced when customers are integrated through environmental partnerships. According to Syed et al. (2024), a company that collaborates on environmental issues can surpass a rival that was unable to identify the environmental problem. EEC could improve production and efficiency while reducing the cost of operations and the use of natural resources (Elf et al., 2022; Pukdeemai, 2020; Syed et al., 2024).

Social Media Marketing Activities

Social media is now widely regarded as a potential medium for modern enterprises to carry out promotional operations in order to successfully engage and attract their clientele (Cheung et al., 2019). The study report states that around 89% of publications back up social media's ability to raise consumer knowledge and perception (Z. Khan, Yang, Shafi, & Yang, 2019; Jam, Khan, Zaidi, & Muzaffar, 2011). Social media has been embraced in a variety of situations, including the political, educational, business, financial, and social spheres. With the introduction of new styles and designs, Pakistani clothing brands are changing quickly, making it difficult for marketers to establish their brands and draw in clients. According to Chen and Qasim (2021), Indonesia's textile sector is successfully using social media marketing to draw in clients. According to Cao, Meadows, Wong, and Xia (2021), social media platforms have become an essential component of young consumers' everyday lives for in-

teractions and communication with their friends or favorite companies. Traditional methods of communication, information gathering, building relationships with customers, and creating value are all altered by these online social networks (Hazzam*, 2022). Hamzah et al. (2021) claim that social media interactive communication and tools transform the marketing ecosystem and give brand community sites a chance to communicate and connect with their clientele by exchanging expertise and information (Ji et al., 2022). Since SMMA has a profound impact on the cognitive, emotional, and activation processes of engagement, it serves as the stimulus that awakens customers' internal states and promotes engagement. Ibrahim and Aljarah (2024) examined how Facebook likes and shares affected consumers' intentions to make purchases. In their comparison of YouTube, Twitter, and Facebook, I. Khan (2022) discovered that Facebook and Twitter are more powerful social media platforms that not only engage with customers but also produce and share brand narratives. Kumar and Hsieh (2024) examined how student recruiting success in the education industry was affected by Facebook likes, Twitter followers, Facebook links shared, and Twitter links shared. The impact of Facebook likes, Twitter followers, and YouTube viewers/subscribers on clothing brand equity and consumer response is measured in this study via a survey.

Hypothesis Development

Social media marketing activities and user engagement

Social media marketing activities give businesses ways to interact with their customers and motivate them to participate in various SNS projects (Siba Borah et al., 2024). Diam (2022) investigated SMMA in the context of luxury fashion and discovered that they offer an opportunity to increase brand value by establishing social networking sites for members of brands' online communities to share opinions and information. Researchers have examined the potential effects of SMMA on customer-brand connections in a variety of settings, including banking and aviation (Irum et al., 2025; Syed et al., 2024). By promoting interaction, exchange of data, customized buying suggestions, and word-of-mouth promotion of current and popular goods and services, social media marketing is described as "a process by which companies create, communicate, and deliver online marketing offerings via social media platforms to build and maintain stakeholder relationships that enhance stakeholders' value" (Koay et al., 2020; Sehar, Ashraf, & Azam, 2019). On the other hand, perceived social media marketing activities describe how customers view users' participation in different social media marketing initiatives. Marketers may

communicate, work together, and exchange material with their customers through social media (Salim et al., 2020). Since they now understand how important social media marketing initiatives are to fostering relationships, value, and user engagement, many government agencies and commercial enterprises have been urged to use social media for marketing and advertising (Chen & Qasim, 2021; Hamzah et al., 2021). Additionally, companies that actively interact with consumers on social media can win their love and attention. Accordingly, Diam (2022) suggests that user engagement is more likely to be increased by successful social media marketing initiatives. Numerous academics investigated the connection between SMMA and user engagement in the body of existing literature. SMMA are essential for strengthening user engagement relationships, according to numerous other academics (Ibrahim & Aljarah, 2024; Kumar & Hsieh, 2024). Siba Borah et al. (2024) provided an example, arguing that SMMA greatly improve environmental issues by using user participation on brand pages as a mediator. Customer interaction with a brand's SMMA via social media pages strengthens user engagement, as shown by Syed et al. (2024).

H1: Social media marketing activities have a direct impact on user engagement.

Gender as Moderator

One of the main methods for determining online user behavior has long been to comprehend gender distinctions. According to Shao and Chen (2021), males are eager to spend their time online engaging in activities that are focused on tasks (such as learning new things and researching products) and achieving advantages. However, as evidenced by their online connections with other service providers and clients, women are more likely than men to engage in online interactions (i.e., emailing, chatting, holding conversations, and exchanging feelings) (Li & Wei, 2021). Therefore, brand identity might influence female consumers' decisions more strongly. According to Mansour and Farmanesh (2020), based on content created by users, practical use (practical benefit) is a more important intention to purchase factor for men than for women. It makes sense to presume that there are gender disparities in the ways that SMMA affect user engagement, given the earlier study mentioned above. According to Shao and Chen (2021) and Yang et al. (2019), gender modifies the association between user engagement and social media marketing efforts. Customers are, therefore, more inclined to interact with SMA if they believe it offers amusement, information, and promotional incentives. However, according to Cheung

et al. (2019), consumers are prepared to devote time and energy to their relationship with the products they purchase. According to Koay et al. (2020), social media marketing efforts and environmental collaboration were mediated by consumer participation. Based on the resource-based view theory, men and women have distinct social roles in their daily lives, which may affect how they behave in social situations and how they make decisions (Pukdeemai, 2020). Females are more likely to display amiable, facilitating, and interactive behaviors than males because they are more social and process-oriented. On the other hand, men are more likely to display autonomous, competent, and masterful behaviors because they are practical and task-oriented (Mansour & Farmanesh, 2020). Diam (2022) discovered that when it came to Internet usage, women utilized it to improve interpersonal contact, whereas men used it more for entertaining and practical purposes. According to Gerhart and Feng (2021), men prefer to use blog platforms for information search, whereas women prefer between brands and customers. As a result, we propose a hypothesis that follows.

H2: Gender moderates among social media marketing activities and user engagement.

User Engagement as Mediator

While some researchers have taken a unidimensional approach, focusing solely on the behavioral aspects of consumer engagement, others have separated it into three dimensions: "cognitive, emotional (or effective), and behavioral" (Ibrahim & Aljarah, 2024).

This phenomenon is caused by motivating factors. The conceptualization put forth by Ji et al. (2022) and Oliveira and Fernandes (2022), who focused on the function of user engagement behaviors (individual involvement and promotion behavior) on Facebook pages, was applied in this study. Understanding how SMMAs directly affect environmental collaboration and how user engagement directly affects the formation of such a connection is crucial to determining if user engagement mediates the relationship between the two. According to Hazzam* (2022), consumers' engagement behaviors are greatly influenced by their perceptions of SMMAs. This conclusion stands in contrast to the non-significant findings regarding the impact of customization and enjoyment on consumer-brand interactions.

Elf et al. (2022) discovered that brand engagement is positively correlated with interaction, perceived relevance, informativeness, and enjoyment. Although SMMAs have been shown to increase customer engagement (Diam, 2022), brand equity, and brand loyalty Shao and Chen (2021).

According to (Li & Wei, 2021), consumer participation strengthens the bond between the self and the brand. On the one hand, the idea changed as social media grew, and the co-creative digital component of consumer interaction entered the picture. Conversely, the researchers investigate client interaction from many angles. Hamzah et al. (2021) examine a media engagement strategy, emphasizing the qualitative experiences with the medium and its advertising, whereas Cao et al. (2021) concentrated on customer brand engagement. Because internal and external environmental collaboration promote knowledge development and help organisations make more accurate and cohesive judgements, their existence is hence demanding. In addition, internal and external environmental collaboration are principally responsible for environmental communication in order to promote information sharing amongst different functional divisions and ensure that the company maintains its environmental innovation (Oliveira & Fernandes, 2022). One of the study's objectives is to highlight the significance of SMMA, which motivates technology adaptation. According to Ibrahim and Aljarah (2024), social media marketing activities enables developers, users, and managers to acquire new skills for interacting and acting in ways that were previously impractical or challenging in offline or online contexts. The following hypotheses are developed in this study based on the above discussion.

H3: User engagement mediates between social media marketing activities and internal environmental collaboration.

H4: User engagement mediates between social media marketing activities and external environmental collaboration.

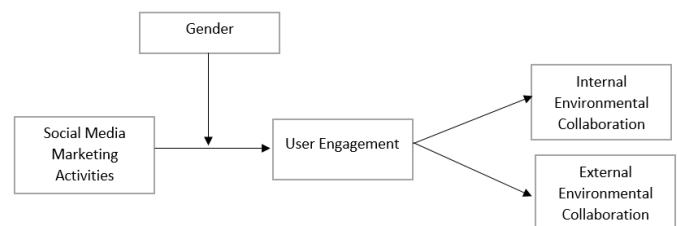


FIGURE 1. Conceptual model Source: Primary Data

METHODOLOGY

Participants, Data Collection and Sampling

For this research, the quantitative approach was used in accordance with our goals and hypotheses. In order to comprehend the linkages empirically, this research examines the connection among various variables. Information regarding respondents' gender, membership, and experience with restaurant Instagram sites was gathered via a self-administered questionnaire. In Indonesia, convenience sampling was employed to collect data from consumers.

During an online lesson, university students who followed the Instagram pages of eateries were given an online questionnaire. The study gave information about secrecy and defined terms. Instagram is sufficient to draw attention from the general population. This is due to the fact that over 50% of users of the photo-sharing app, which was first released in 2023, are young individuals. This information is corroborated by CNN Indonesia's discovery of Instagram facts from many sources, which show that young people between the ages of 18 and 24 make up the majority of Instagram users. Instagram is a mobile native social networking platform, meaning it originated on mobile smartphones (Natiqa, Kusumawati, & Aprilianty, 2022).

Oliveira and Fernandes (2022) stated that Instagram exploits a single activity mobile photo sharing to allow users to engage with one another through shared interests. Students who actively followed restaurants' Instagram profiles in order to engage with companies were part of the studies demographic. The study examined youth for a number of reasons. Young people are the most active users of social networking sites (SNSs), and they are also thought to be the age group that investigates for restaurant reviews and recommendations the most frequently (Rahman et al., 2022). The approach we used aligns with previous empirical research on social media marketing activities and consumer behavior. An opinion poll was carried out to gather data about one of the eateries that participants followed on Instagram and whose posts regularly showed up in their feed, similar to earlier research (Ibrahim & Aljarah, 2024). Following their responses to the questionnaire on the selected brand, participants answered questions about their experience. Participants who were willing to get involved in the research and regularly interacted with students who follow restaurants' on Instagram were invited to fill out the questionnaires depending on these preliminary enquiries. 37 of the 410 surveys that were sent out did not fit the selection conditions; the remainder of 373 were analysed to test the research's assumptions.

Data Collection Measurements

The validity of the study is guaranteed because the constructs' pieces were taken from the body of recognized literature. A five-point Likert scale ("1=strongly disagree and 5= strongly agree") was used to score the questionnaire. Every study construct was modified from existing literature. A questionnaire with a five-point Likert scale was used to measure each issue. Abbas et al. (2019) provided the metrics for social media marketing activities, were measured by adopting 9 items. A 6-item scale was measured by Mishra

(2019) for user engagement. A 5-item scale was measured by Vachon and Klassen (2006) for internal environmental collaboration. Finally, 8-item scale was measured by Vachon and Klassen (2006) for external environmental collaboration.

Analysis Approach

To perform the statistical analysis for this study, PLS-SEM and IBM SPSS 23.00 were utilised (Abu-Bader & Jones, 2021; Hair, Sharma, Sarstedt, Ringle, & Liengaard, 2024). When exploratory results are needed and heterogeneity is detected, PLS-SEM is regarded as a suitable technique. It can identify the sample's hidden differences, which aids in confirming the validity of the findings. Because PLS-SEM is robust and produces dependable findings for extremely complicated models, it is used (Hair et al., 2024). Thus, this study used PLS-SEM in two phases in order to check the direct and indirect correlations among the social media marketing activities, environmental collaboration, and use engagement. The PLS-Algorithm approach is used in the first step to verify the validity and reliability of the constructs. The bootstrapping technique was employed in the second stage to examine the direct and indirect path impacts.

RESULTS

Demographic Profiles

According to the demographic results, 24.7% of the respondents were women and 75.3% of the respondents were men. In terms of restaurant trips, the majority of respondents (48.4%) went once a week, while those who went more than once a week (51.6%) came in second. When asked about their experiences with the restaurant's Instagram page, the majority of respondents (52.4%) said they had spent less than an hour there, while 47.6% said they had spent one to two hours there. In reference to the restaurant's Instagram page affiliation, the majority of respondents (36.4%) had followed the page for less than a year, while 45.3% had done in 10 months.

Assessment of Measurement Approach

The findings of this investigation are presented in two phases. First, the constructs' validity and reliability are examined. All of the items' factor loadings, which we calculated, are higher than 0.70 and show a good fit to the threshold values.

According to Fornell and Larcker (1981) and Hair et al. (2024), the constructions' reliability is confirmed by Cronbach's alpha (CB) and composite reliability (CR), both of which are greater than 0.70. This study took into account both convergent and discriminant validity in order to guar-

antee the validity of the conceptions. Average variance extracted (AVE) is used to quantify convergent validity. All of the constructions' AVE values are greater than 0.50, indicat-

ing that the values fall within the acceptable range. Table 1 displays the reliability and convergent validity results.

TABLE 1. Constructs Validity, Reliability and AVE

Constructs	Items	Loadings	Cronbach Alpha	Composite Reliability	AVE
External Environmental Collaboration	EEC1	0.766	0.888	0.911	0.564
	EEC2	0.833			
	EEC3	0.808			
	EEC4	0.749			
	EEC5	0.798			
	EEC6	0.778			
	EEC7	0.751			
	EEC8	0.706			
Internal Environmental Collaboration	IEC1	0.780	0.892	0.921	0.700
	IEC2	0.877			
	IEC3	0.893			
	IEC4	0.805			
	IEC5	0.822			
Social Media Marketing Activities	SMMA1	0.816	0.926	0.938	0.628
	SMMA2	0.787			
	SMMA3	0.747			
	SMMA4	0.777			
	SMMA5	0.779			
	SMMA6	0.804			
	SMMA7	0.829			
	SMMA8	0.727			
	SMMA9	0.860			
User Engagement	UE1	0.730	0.849	0.890	0.579
	UE2	0.812			
	UE3	0.860			
	UE4	0.776			
	UE5	0.808			
	UE6	0.733			

The values of the Fornell–Larcker criterion were thoroughly examined for discriminant validity Fornell and Larcker (1981).

After being square-rooted, the values are compared to the construct's inner correlation. There is validity if the value is less than the square-rooted values.

Additionally, the variance inflation factor (VIF) for each item was less than 3, ruling out the multi-collinearity problem.

TABLE 2. Discriminant Validity

	1	2	3	4
External Environmental Collaboration	0.791			
Internal Environmental Collaboration	0.719	0.837		
Social Media Marketing Activities	0.720	0.793	0.793	
User Engagement	0.758	0.682	0.657	0.761

Direct and Indirect Hypothesis Testing

This study gives the findings of the proposed model at three stages after evaluating its validity and reliability. First, Table 3 and Figure 2 display the route analysis results, which show the variables' one-to-one relationship. The study shows that social media marketing activities has direct impact on use engagement. Table 3 presents the outcomes of the moderated impact. Additionally, the interaction effect of gender on the connection between SMMA and user engagement was investigated using the PROCESS macro. Additionally, the mediation effects were examined and are shown in Figure 2 and Table 3. User engagement between social media marketing activities with internal and external environmental collaboration.

TABLE 3. Hypothesis results

Path	B	CI low	CI High
Direct Analysis			
H1: SMMA -> UE	0.657	0.118	0.312
Moderation Analysis			
H2: SMMA* Gender -> UE	0.758	0.125	0.419
Mediation Analysis			
H3: SMMA -> UE -> IEC	0.448	0.102	0.328
H4: SMMA -> UE -> EEC	0.498	0.152	0.298

Male patrons were more engaged with the restaurants than female patrons when the SMMA were low. Nonetheless, in the circumstances of elevated SMMA, the gap between male and female levels of participation narrowed, with males remaining greater than females (Figure 2). Table 4 describes the outcomes of the moderated mediation effect. The findings indicate that social media marketing efforts had a greater indirect impact on user engagement ($\beta=0.31$), which was higher for male samples than for female samples ($\beta=0.19$). The significance of this discrepancy was demonstrated by the moderated mediation index utilizing PROCESS macros. Since the zero value was excluded from the 95% bias-corrected CI, the moderated mediation index using PROCESS was given to demonstrate the significance of this difference. As a result, the moderated hypothesis has complete support (Abu-Bader & Jones, 2021).

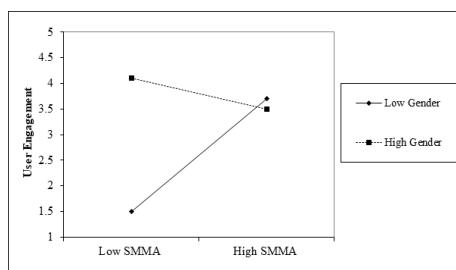


FIGURE 2. Interaction effects of gender

TABLE 4. Conditional indirect effects of Male and Female

Gender	Effect	BOOT LL- CLI	BOOT UCIL
Simple path for male	0.31	0.166	0.361
Simple path for female	0.19	0.069	0.129
The conditional indirect effect	0.21	0.089	0.217

DISCUSSION AND IMPLICATIONS

Theoretical Implications

Creating new theories or improving upon existing ones is one of the goals of scientific study. The objective is to investigate the circumstances in which these phenomena occur in order to enhance the current ideas (Hazzam*, 2022). Testing and developing theories are comparable in how they handle knowledge produced across various fields (Ibrahim & Aljarah, 2024). There are few studies in the restaurants literature that look at how social media marketing initiatives strengthen internal and external environmental collaboration, despite some studies in the hospitality sector searching into how these initiatives increase user engagement (Kumar & Hsieh, 2024; Siba Borah et al., 2024). By offering a fresh perspective on the emerging subject of social media marketing initiatives in the body of existing hospitality literature, our study contributes in some way to the field. As far as we are aware, no study in the restaurant research field has examined the effects of social media marketing initiatives on the dimensions of environmental collaboration, despite the fact that prior work has framed relationship quality dimensions like commitment, love, passion, and intimacy as crucial outcomes of social media marketing initiatives (Siba Borah et al., 2024). The study's conclusions validated the ability of social media marketing campaigns to forecast user involvement. Consumers are more likely to connect with a restaurant brand through Instagram profiles, and they spend more time and effort on social media platforms that reflect their own self-images. Second, previous research has solely examined at the connection between environmental cooperation and social media marketing campaigns (Diam, 2022; Ji et al., 2022). But in addition to addressing these drawbacks and the notion that social media marketing campaigns are only relational and promotional communication tools, this study positioned social media marketing campaigns as useful instruments for fostering customer relationships and drawing customers to restaurant brands.

According to earlier research in the hospitality industry,

customer involvement has a favorable effect on a number of customer-brand relationships, such as self-brand connection, brand attachment, brand loyalty, and confidence in a brand (Hamzah et al., 2021; I. Khan, 2022). The function of user engagement behavior as a mediating variable should be explored since it is a result of SMMAs (Oliveira & Fernandes, 2022) and a predictor of collaboration (Syed et al., 2024). Instagram as a social analysis medium in the context of SMM has only been the subject of a small number of research. Further crucially, further research on Instagram firms is required to comprehend deeper marketing tactics and how businesses uphold ties with their customers. Not frequently discussed in the current hospitality literature, the moderating effects of gender on the mediating impact of user participation between social media marketing activities and environmental collaboration have been investigated. By providing a thorough, moderated mediation model, this study now offers fresh perspectives on the connection among social media marketing initiatives and environmental cooperation. Furthermore, a more thorough understanding of how social media marketing initiatives connect environmental cooperation with the modification of user engagement behavior a novel concept was offered. Additionally, the moderated mediated model makes a substantial contribution to the expanding corpus of research on SMM. Our work is unique since such a two-way interaction has never been investigated before, particularly in the hospitality sector.

Practical Implications

In this sense, social media is crucial, and we can observe a variety of environmental campaigns on various social media platforms (Mishra, 2019). Thus, our study used this occasion to inform managers and practitioners about the importance of social media technologies in the company's internal and external environmental collaboration (Syed et al., 2024). Social media data is typically gathered in an unprocessed state that needs to be cleaned, filtered, sorted, and analyzed in order to be useful. Numerous solutions offered by big data analytics can assist businesses in managing the data gathered via social media (Pukdeemai, 2020). Similar to this, the utilisation of cloud computing, which provides creative, adaptable, and efficiencies of scale approaches, can be used to accomplish storage, databases, social media, statistical analysis, and surveillance services. Nonetheless, executives in marketing should post entertaining, engaging, and customer-friendly content on their SNSs in order to draw in clients. By sharing and discussing topics and viewpoints with patrons, restaurant management can encour-

age direct communication. Marketers need to inspire consumers to engage with social networking sites brand material and earn their trust. By presenting distinctive material that fosters one-way exchanges between the business and its clients, a firm can gain the trust of its customers through social networking sites. These exchanges give consumers the impression that they are familiar with a brand, which boosts their trust in it and motivates them to engage with it. To increase the reach of their content, marketers can make use of social media tools like hashtags (#), which restaurants can utilize. Marketing professionals ought to use hashtags that best represent the brand and the needs of their target audience.

In order to foster quick engagement and problem-solving, restaurant marketers should post information on many social networking sites (such as Facebook, Instagram, and Twitter). This will enable patrons to visit the restaurant's website or share their experiences with the service. Third, marketers should concentrate their efforts on social networking sites to create and offer significant self-brand relationships by using restaurant Instagram pages. For example, brand managers ought to provide engaging content and postings that entice users to provide reviews and recommendations, promote the brand to others, and leave comments, like, and share posts. Marketers can generate personal aspects in the brand that resemble the traits and distinctive qualities of the target customers by using the level of customer participation via social networking sites to determine the target market for the restaurant's items (Ibrahim & Aljarah, 2024). The degree to which social media marketing activities impact patrons' user involvement on the restaurant's Instagram page varies between male and female users. Different tactics should be used to target male and female restaurant patrons. Marketers could enhance the perceived benefits on the restaurant's Instagram profile in order to promote user interaction among male users. Due to their differences in providing greater interaction and sharing information about goods and services, female consumers might find this strategy less successful than male ones.

Limitations and Future Research Directions

This study has a number of managerial and practical consequences, but it also has several shortcomings that can be fixed in future research. First off, the only data we have gathered comes from Indonesia. To determine if the findings are generally applicable, we advise gathering data from several nations and comparing them across national borders. It is preferable if developed and emerging countries

may be compared. Second, environmental uncertainty is currently at the forefront, which can be utilised in future research, and this study solely focusses on environmental collaboration. Third, as part of the connections between social media marketing and user engagement, future study should confirm several mediation functions, including perceived inventiveness, pleasant feelings aesthetic appeal, positive attitude, and brand participation. To confirm their moderating influence on the relationship between social media marketing efforts and user engagement, sociodemographic factors like gender should be investigated. Therefore, when measuring the aforementioned correlations, future research may take into account all of the SMMA dimensions. Future research could investigate at how SMMA affect advertising and involvement. Finally, only Instagram users were chosen for this study. Other social networking sites, such as Instagram and Twitter, should be included in future research.

CONCLUSION

The current study investigated empirically how user engagement is facilitated by social media marketing initiatives. The mediation function of user participation in the connection between environmental collaboration and so-

cial media marketing initiatives was also investigated in this study. Consistent with other research (Irum et al., 2025; Syed et al., 2024), our findings showed that social media marketing initiatives have a major and favorable impact on user engagement and environmental collaboration. Companies that engage in useful social media marketing activities enable consumers to interact with a variety of information and build stronger brand bonds. Additionally, this study discovered that the association between environmental collaboration and social media marketing activities is mediated by user involvement. The moderating hypotheses in the model were approved based on this investigation. The direct benefits of social media marketing initiatives on user engagement are favourably moderated by gender and trust. In a gender sample with more women, the effect of social media marketing initiatives on user engagement is less pronounced. These findings suggest that customers' views and behaviours towards online communities are influenced by gender differences (Shao & Chen, 2021), which amplifies the beneficial benefits of social media marketing initiatives on user engagement in a male sample. As a result, this study fills an empty spot in the literature and offers managers, professionals, politicians, and academics useful insights.

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