The Zenith of Flow Consciousness in Metaverse: Glancing the Consumer Behavior in the Future

International Journal of Consumer Studies

WILEY

International Journal of Consumer Studies

ORIGINAL ARTICLE OPEN ACCESS

The Zenith of Flow Consciousness in Metaverse: Glancing the Consumer Behavior in the Future

Uzma Noor[1] | Mahnaz Mansoor[2] | Tariq Iqbal Khan[3] | Mohammad Nisar Khattak[4]

[1]Faculty of Management Sciences, International Islamic University Islamabad, Islamabad, Pakistan | [2]Faculty of Management, Sciences and Engineering, University of Bradford, Bradford, UK | [3]Institute of Management Sciences, The University of Haripur, Haripur, Pakistan | [4]Department of Management, College of Business Administration, Ajman University, Ajman, UAE

Correspondence: Mahnaz Mansoor (m.mansoor5@bradford.ac.uk)

Received: 12 March 2025 | **Revised:** 6 September 2025 | **Accepted:** 8 September 2025

Keywords: affinity for technology interaction | E-trust | flow consciousness | metaverse | social presence

ABSTRACT

This study investigates consumer behavior within the metaverse, focusing on the influence of social presence, flow consciousness, e-trust, and affinity for technology interaction on the propensity to buy online and intentions to prosume. A quantitative research approach was employed, with data collected via an online survey from 502 Zepeto users. Hypothesis testing was done to analyze the relationships among variables. The study found significant positive relationships of social presence and flow consciousness with the propensity to buy online and intentions to prosume within the metaverse. E-trust was identified as a moderator, enhancing the effects of social presence and flow consciousness on consumer behaviors. Additionally, affinity for technology interaction moderates the relationship between flow consciousness and consumer actions in virtual environments. This research makes a novel contribution by integrating Social Presence Theory, Flow Theory, and the Technology Acceptance Model (TAM) within an immersive, avatar-based metaverse context, a combination that has not been previously explored in virtual environment or social commerce literature. By addressing this theoretical gap, the study provides a comprehensive framework to understand how emotional, cognitive, and social factors interact to drive behavior in emerging digital ecosystems. The findings offer actionable insights for businesses aiming to enhance virtual experiences by prioritizing social interaction design, fostering immersive flow states, and embedding trust-building mechanisms to support secure and engaging consumer journeys.

1 | Introduction

Over the past few decades, the marketing literature has witnessed significant progress in media theories and cognitive sciences (Paul et al. 2024; Sharma et al. 2025). A substantial body of research examines the role of media as both a creator and transmitter of stimuli while positioning the human mind as the recipient, interpreter, and processor of these stimuli (Alagarsamy et al. 2024; Alzoubi et al. 2025). With the emergence of virtual reality and the Metaverse as central platforms of digital interconnectivity, the integration of media and cognitive frameworks has become increasingly important. Therefore, there is a need for more connections to be made in the examination of interactive and immersive media environments and their impact on human cognition, action, and perception (Moriuchi and Murdy 2024). The Metaverse is an emerging paradigm that seeks to create a completely immersive, hyper spatiotemporal, and self-sustaining virtual shared space by using technologies such as virtual environments, digital objects, immersive technologies for virtual people, virtual reality (VR), augmented reality (AR), mixed reality (MR), and extended reality (XR).

Metaverse is often associated with the concept of the "singularity," where humans and machines merge to create a new form of existence (Dwivedi et al. 2023). Mostly, things are moving towards the digital world at the fastest pace and

are eventually becoming the metaverse (Paul et al. 2023). For example, AI tools are being adopted worldwide, such as AI newscasters, ChatGPT, etc. As most businesses shift online, the growing popularity of virtual experiences presents an opportunity to cater to consumers' evolving needs and preferences (Arman and Mark-Herbert 2024; Oh et al. 2023). However, despite growing interest, limited empirical evidence exists on how consumers engage with brands and experiences in metaverse environments. This knowledge gap, combined with the lack of practical understanding among firms (Buhalis et al. 2023), underscores the need for focused research that explores consumer behavior within immersive, avatar-driven digital platforms.

One of the central psychological constructs within immersive virtual spaces is social presence, the feeling of being fully immersed and involved in a virtual environment. It plays a critical role in shaping engagement and relational experiences (Upadhyay and Khandelwal 2022). While prior research has examined social presence and flow separately (Hew et al. 2023), little is known about how social presence facilitates flow consciousness and ultimately influences online purchasing and prosumption behaviors in the metaverse, which the current study aims to address. Furthermore, flow is a mental state characterized by complete absorption in an activity, characterized by enjoyment, intrinsic motivation, and temporal dissociation (Herrando, Jiménez-Martínez, and Hoyos 2018; Herrando, Jimenez-Martinez, and Martin de Hoyos 2018). Flow consciousness refers to the user's perception of having consciously experienced the flow state (Chen et al. 2000). It is characterized by a deep sense of engagement and enjoyment, and is linked to a range of positive outcomes, including enhanced creativity (Thomson and Jaque 2023), improved performance (Marty-Dugas et al. 2023), and increased satisfaction (Barta et al. 2023). Research indicates that experiences can happen consciously and subconsciously, often without individuals realizing it (Thomson and Jaque 2023). Consequently, people may enter a flow state unknowingly, which can affect their self-awareness and comprehension of their behavior (Shafqat and Zeeshan 2025). By understanding the role of flow consciousness in shaping consumer behavior, it is possible to gain new insights into how users engage within the Metaverse and make purchase decisions in this new space (Dwivedi et al. 2023; Hong and Cho 2023).

Additionally, the propensity to buy online has received significant attention from researchers (Sadiq et al. 2021), yet there is still room for research in understanding the role of flow consciousness as a mediator between the causal relationships of social presence with propensity to buy online in the perspective of Metaverse. Furthermore, little is known about the prosumption behavior of online users (Shen et al. 2023). Prosumption is a behavior of online users in which they create and consume products (Arman and Mark-Herbert 2024). It gives consumers freedom of choice and recognition. While prosumption has historical roots (Toffler 1980), its rise in digital marketing necessitates a deeper exploration of how prosumers can drive competitive advantage and motivate their value co-creation behavior (Chatterjee et al. 2023). New theories are needed to explain online prosumption behavior. This study advances the literature by investigating how flow consciousness links social presence with both propensity to buy and intention to prosume.

Additionally, Trust remains a critical determinant of behavioral intention in digital settings (Mansoor, Paul, et al. 2025). In the metaverse, trust extends to interactions between avatars and the platforms they inhabit (Kar and Varsha 2023). Zhang et al. (2023) identified the need to examine the contingent effect of avatars' trust on their Metaverse experience and behavioral outcomes, and the present study addresses this gap. Furthermore, any behavior, such as buying online or prosumption, is reported to be affected by individuals' internal or external factors, no matter how engaged and inclined an individual might be with a product in the virtual world (Gilal et al. 2023). One such factor is the affinity for technology interaction, which is defined as users' comfort and inclination to engage with digital tools (Sharma et al. 2025). The current study contributes to the literature by proposing that affinity for technology interaction conditions the effect of flow consciousness on online buying and prosumption intentions, thereby contextualizing individual differences in digital engagement.

Finally, despite growing interest in consumer behavior in virtual environments, the integration of theoretical perspectives that explain how immersive experiences shape behavioral intentions in the metaverse remains underdeveloped. Prior studies have typically examined social presence, flow, or technology acceptance in isolation, often within hypothetical or VR lab settings, limiting ecological validity. Addressing this gap, the current study adopts a multi-theoretical approach by integrating Social Presence Theory (Short et al. 1976), Flow Theory (Czikszentmihalyi 1990), and the Technology Acceptance Model (TAM) (Davis 1989) to explain how consumers' social experiences and psychological immersion within the metaverse influence their online buying and prosumption intentions. Specifically, this study aims to: (a) examine the impact of consumers' social presence in the metaverse on their propensity to buy online and intention to prosume through flow consciousness; (b) assess the moderated mediation effect of e-trust on the relationship between social presence and these behavioral outcomes via flow consciousness; and (c) investigate the moderating role of affinity for technology interaction on the link between flow consciousness and consumer behavior. The Zepeto app, a globally used avatar-based platform, was selected for empirical analysis, allowing the study to capture real-world interactions from a diverse digital population (Lee et al. 2023).

This study makes four key contributions to the literature on metaverse consumer behavior. First, this study offers a novel multi-theoretical framework to holistically combine social, psychological, and technological constructs into a unified model of consumer engagement within avatar-mediated environments, offering a richer explanation of metaverse behavior (Dwivedi et al. 2023; Herrando, Jiménez-Martínez, and Hoyos 2018; Herrando, Jimenez-Martinez, and Martin de Hoyos 2018; Hew et al. 2023). Second, existing research often treats flow as an experiential state, without distinguishing users' conscious awareness of flow. By testing the construct of flow consciousness (Chen et al. 2000; Thomson and Jaque 2023), this study clarifies its mediating role in virtual consumer behavior. Third, while e-trust is well-established in e-commerce, its moderating role in avatar-based environments is largely unexplored. This research fills that gap by showing how e-trust shapes the impact of social presence on

flow consciousness. Fourth, it advances TAM by incorporating users' affinity for technology interaction as a boundary condition that explains when flow consciousness leads to behavioral intentions. Finally, most prior studies rely on hypothetical scenarios or VR labs; this study grounds its insights in actual Zepeto users, enhancing ecological validity and offering practical implications for platform design, user engagement, and trust-building in the metaverse.

2 | Theoretical Foundation and Hypothesis Development

2.1 | Theoretical Foundation

This study adopts an integrated theoretical framework combining Social Presence Theory (Short et al. 1976), Flow Theory (Czikszentmihalyi 1990), and the TAM (Davis 1989) to holistically investigate consumer behavior in the metaverse. The study's objective drives this integrative approach to understand how psychological engagement and technological acceptance jointly shape online purchase intentions and prosumption behaviors in immersive virtual environments. Social Presence Theory provides a foundational lens to explore how users perceive others in computer-mediated environments. In the metaverse, where avatars and virtual spaces replicate physical co-presence, social presence becomes a critical determinant of interpersonal connection and interaction quality (Ghali et al. 2024). It fosters a sense of belonging and social connectedness, which is essential for encouraging active engagement and social interaction in virtual settings (Yas et al. 2024). Within this study, social presence is posited to directly enhance both online purchase intentions and consumers' willingness to engage in prosumption, the participatory co-creation and dissemination of content or products. To deepen the psychological dimension of user experience, Flow Theory complements Social Presence Theory by explaining how immersive experiences in the metaverse can trigger optimal states of engagement. Flow occurs when individuals are fully absorbed in an activity, leading to intrinsic motivation, enjoyment, and sustained attention (Czikszentmihalyi 1990). In virtual environments, high social presence helps create the preconditions for flow, as users feel connected, stimulated, and emotionally invested (Dwivedi et al. 2023). This study investigates flow consciousness as a mediating mechanism through which social presence translates into behavioral outcomes. Users who experience flow are more likely to act purposefully and creatively within the metaverse. While social presence and flow address affective and experiential dimensions, the TAM introduces the cognitive and evaluative factors influencing behavior (Davis 1989). Specifically, TAM explains how users' perceptions of the usefulness and ease of use of metaverse platforms condition their readiness to engage with these technologies. By incorporating TAM, the model acknowledges that the adoption of metaverse tools is not solely driven by emotion or immersion but also by users' rational assessments of technological value. This study posits that positive evaluations of metaverse technology enhance both social presence and flow, thereby indirectly driving behavioral outcomes. By synthesizing these three perspectives, the model reflects the complex interplay of technological acceptance, social dynamics, and immersive engagement that characterizes consumer behavior in the metaverse. This holistic integration allows for a more comprehensive understanding of how and why users transition from passive observers to active contributors and consumers in virtual environments (see Figure 1).

2.2 | Social Presence, Propensity to Buy Online, and Intention to Prosume

Presence is the perceived sense of being in a certain environment even while one is somewhere else (Hew et al. 2023). Mennecke

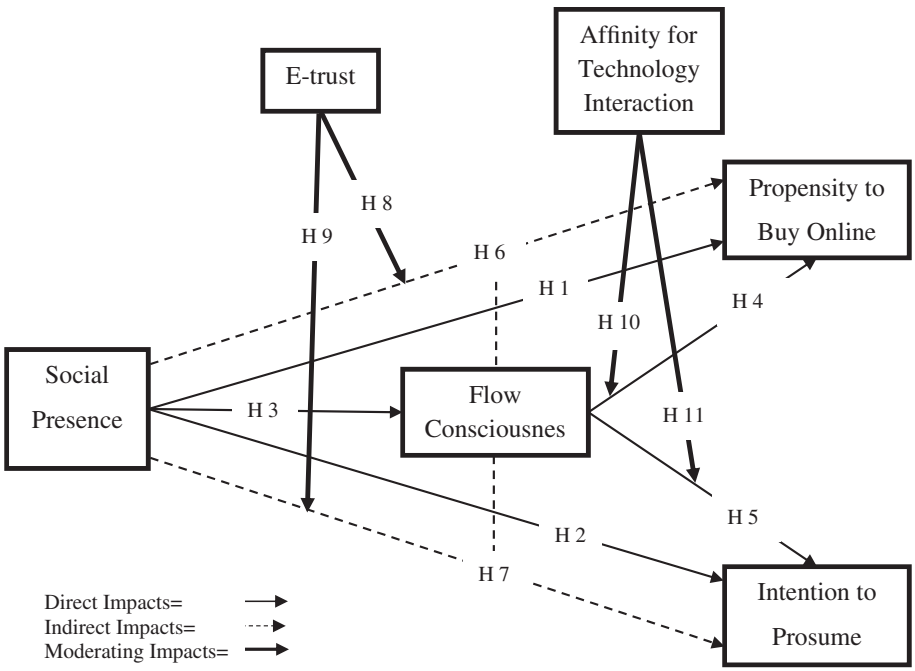

FIGURE 1 | Conceptual framework of the study.

et al. (2010) proposed the embodied social presence (ESP), which focuses on avatars as an underlying phenomenon of social interactions in virtual worlds. In the context of embodiment, the occurrence of specific acts of communication and interaction creates a sense of presence that is derivative of human cognition and similar to real-world interactions (Kim et al. 2024). Research has shown that the presence of other users in the virtual fitting room positively influences individuals' purchase intentions. For instance, Yin et al. (2023) investigated the influence of social presence on shoppers' purchase intentions when engaging in live-stream shopping, using the flow theory, and found significant results. The impact of social presence on virtual purchase intentions is well documented (Hassan et al. 2018), but its effect on individuals' buying propensity in the metaverse requires further exploration (Ghali et al. 2024). The metaverse offers a level of accessibility that is not possible in the physical world. Users can easily navigate through virtual stores and access products and services from anywhere in the world, increasing the potential business customer base (Hong and Cho 2023). Therefore, it is hypothesized that:

H1. *Social Presence has a significant and positive effect on the propensity to buy online.*

The feeling of being with other people in the virtual world enhances the overall experience and motivates individuals to actively participate and contribute to the metaverse community (Oh et al. 2023). Chatterjee et al. (2023) identified the factors influencing prosumers' inclination towards co-production and future participation while also examining the impact of digital media on the relationship between their behavioral intention for value co-creation and the resulting business benefits for organizations. The connection between social presence and intention to prosume is further supported by the idea that social presence fosters a sense of belongingness and social support within the community. When individuals perceive a supportive and interactive social environment, they are more motivated to actively participate and contribute to the collective goals and activities (Huang et al. 2023). Hence, it is hypothesized that;

H2. *Social presence has a significant and positive impact on intention to prosume.*

2.3 | Social Presence and Flow Consciousness

Interaction in a metaverse environment comprises interactivity, mobility, and immediacy, which promote a user's sense of remote presence (Zhang et al. 2023). According to Czikszentmihalyi (1990)'s theory of flow, individuals experience a state of optimal experience and engagement when they are fully immersed in an activity and deeply focused on the task at hand. Flow consciousness, an extension of this theory, emphasizes the heightened self-awareness and focused attention that individuals experience in a metaverse environment (Herrando, Jiménez-Martínez, and Hoyos 2018; Herrando, Jimenez-Martinez, and Martin de Hoyos 2018). The concept of immersion plays a significant role in understanding the relationship between social presence and flow consciousness. Immersion refers to users' engagement with a VR system that results in being in a flow state (Wang et al. 2023). In a metaverse environment, social presence enhances the feeling of immersion and facilitates the experience of flow consciousness. On platforms like Zepeto, the presence of social interactions and social presence can contribute to the conditions necessary for flow to occur (Yoon and Nam 2024). When users feel a strong sense of social presence and belongingness within the Zepeto community, it can create an environment that fosters flow experiences. According to the flow theory, individuals are more likely to enter a state of flow when they perceive a sense of presence (social presence) and have a perceived sense of control (perceived control) over their actions and the virtual environment (Marty-Dugas et al. 2023). Hence, we can hypothesize that:

H3. *Social Presence has a significant and positive effect on flow consciousness in the metaverse.*

2.4 | Flow Consciousness, Propensity to Buy Online, and Intention to Prosume

Research has shown that flow can profoundly impact users' perceptions, attitudes, and behaviors within the metaverse (Cha et al. 2024; Park et al. 2023). At the same time, Gómez-Diago (2010) reported that flow consciousness is pivotal in shaping users' purchasing behaviors and emotional responses within virtual environments. Additionally, the Flow theory offers valuable insights for enhancing engagement in the Metaverse. It presents new avenues for research in the field of consumer science, particularly in understanding consumers' shopping intentions in the Metaverse (Cao et al. 2024). When individuals experience a state of flow, they may not always be aware of what caused it, which can hinder their ability to repeat the experience (Park et al. 2023). By specifically analyzing flow consciousness, researchers can gain insights into how consumers perceive and understand their experiences in different contexts, such as in the metaverse. This understanding is essential for comprehending how consumers interact with virtual environments and make purchasing decisions, which can help businesses develop more effective marketing strategies. It further suggests that flow consciousness can be a significant factor in influencing online purchase intentions in the metaverse. Hence, it is hypothesized that;

H4. *Flow Consciousness has a significant and positive effect on the propensity to buy online in the metaverse.*

Research indicates that flow consciousness, a heightened state of self-awareness during flow, has a significant impact on consumer behaviors in the metaverse (Dwivedi et al. 2023). Prosumption, coined by Toffler (1980), blurs the lines between production and consumption, with individuals acting as both consumers and producers (Stoltenberg et al. 2024). This phenomenon is especially relevant in the metaverse, where users create and sell virtual goods, as seen in platforms like Zepeto (Lee et al. 2023). Sarkar and Sarkar (2022) found that advergames foster prosumer culture and enhance brand sacredness. Additionally, the theory of flow highlights the positive effect and intrinsic rewards associated with the state of flow. Building on this, it is valuable to explore how flow consciousness shapes prosumption intentions in the metaverse, where the intrinsic

rewards of flow can motivate continued prosumption activities. Hence, it is hypothesized that:

H5. *Flow Consciousness has a significant and positive effect on the intention to prosume in the metaverse.*

2.5 | Flow Consciousness as a Mediator

Flow consciousness, as a cognitive awareness during a flow state, is projected to mediate the relationship between social presence and online purchase propensity in the metaverse. When individuals experience heightened flow consciousness, they become more engaged and immersed in the virtual environment (Cao et al. 2024), enhancing their sense of presence and connectedness with others and influencing their intention to buy. Herrando, Jiménez-Martínez, and Hoyos (2018), Herrando, Jimenez-Martinez, and Martin de Hoyos (2018) found that flow consciousness mediates the impact of social stimuli on positive user responses in social e-commerce, enhancing trust and e-loyalty. In another study, Barta et al. (2021) investigated the mediating role of flow consciousness in consumers' post-purchase behaviors. They suggested that future studies should investigate flow consciousness in subsequent purchases. Hence, understanding the mediating role of flow consciousness is crucial for e-commerce companies in designing effective online platforms that cater to the needs and preferences of their target consumers. Therefore, it can be hypothesized that:

H6. *Flow consciousness mediates the relationship between social presence and propensity to buy online.*

Flow consciousness can also mediate between social presence and prosumption by influencing individuals' behaviors and experiences as they combine consumption and production activities. Individuals in a state of flow consciousness are more likely to be proactive and actively participate in the production and consumption process (Liu et al. 2023). This heightened consciousness can influence individuals' perceptions, attitudes, and behaviors in the metaverse (Ghali et al. 2024), ultimately impacting social presence and prosumption. Similarly, it is suggested that social presence enhances individuals' engagement and enjoyment in the virtual environment (Yoon and Nam 2024). The increased social presence, in turn, can further enhance the flow experience (Yin et al. 2023) and can reinforce the prosumption behavior. Hence, we can hypothesize that:

H7. *Flow Consciousness mediates the relationship between social presence and intention to prosume.*

2.6 | E-Trust as a Moderator

Trust has consistently been identified as a key determinant of online purchase intentions, affecting consumers' willingness to engage in e-commerce activities on virtual platforms (Anantharaman et al. 2023; Kumar et al. 2024). An established foundation in the literature underscores the importance of trust in the metaverse. Zhang et al. (2023) emphasized the significance of e-trust in influencing user behavior within the metaverse. They emphasized the need for ongoing investigation of trust within this evolving digital landscape, where the lines between the physical and virtual worlds are increasingly blurred. At the same time, Jeong and Kim (2023) used trust in the metaverse as an independent variable (IV) to investigate its impact on usage intention, utilizing the frameworks of Technology Readiness and the TAM. Bleize and Antheunis (2019) revealed that consumers who trust a website or virtual platform are more likely to engage in active intentions, such as making a purchase. Simultaneously, in the context of social commerce websites, users' trust responses are intricately linked to their experience of flow, a highly positive emotional state (Busalim et al. 2023). Trust is also projected to hold a significant influence over their intentions to prosume within the metaverse environment. Trust in this context implies confidence in the security of transactions, the reliability of digital assets, and the overall integrity of the virtual space (Zhang et al. 2023) High levels of e-trust encourage users to participate actively and engage in prosumption activities (Arıca et al. 2023). When users perceive a strong social presence in the metaverse, and trust the virtual community, the technology, and other users, they are more inclined to adopt it and indulge in positive behaviors (Jeong and Kim 2023). The current study adds to the existing body of knowledge while going beyond the simple direct impact of e-trust on consumers attitudes and behaviors. It assumes that online users' trust in Zepeto and its products as being reliable interacts with their sense of social presence and positively impacts their state of flow consciousness leading to their propensity to buy online and intentions to prosume. Hence, it is hypothesized that;

H8. *E-trust moderates the mediated relationship between social presence and propensity to buy online through flow consciousness such that when e-trust is high, the mediated relationship is strong.*

H9. *E-trust moderates the mediated relationship between social presence and intention to prosume through flow consciousness such that when e-trust is high, the mediated relationship is strong.*

2.7 | Affinity for Technology Interactions as a Moderator

When individuals experience flow while interacting with online platforms, they are more likely to make purchases due to the seamless and enjoyable experience (Park et al. 2023). However, this relationship is projected to be stronger among individuals with a high affinity for technology interaction. Individuals who are more comfortable and proficient with digital interfaces are more likely to enter a state of flow (Barta et al. 2021; Bint-e-Nawaz et al. 2024). Consequently, their positive experience is more likely to translate into a higher propensity to buy online. Research supports this, indicating that users who enjoy interacting with technology are more engaged and exhibit higher purchasing intentions when experiencing flow states online (Huang et al. 2023). Additionally, prosumer behavior, which involves both producing and consuming content, is increasingly prevalent in the digital age (Arman and Mark-Herbert 2024). Besides, research shows that individuals with a high affinity for technology are more adept at

using digital tools and platforms, facilitating deeper flow experiences (Sağkaya Güngör et al. 2024). These enhanced experiences, in turn, can heighten their intention to prosume. Hence, it is proposed that;

H10. *Affinity for technology interaction moderates the relationship between flow consciousness and propensity to buy online, such that when affinity for technology interaction is high, the relationship between flow consciousness and propensity to buy online is stronger.*

H11. *Affinity for technology interaction moderates the relationship between flow consciousness and intention to prosume such that when affinity for technology interaction is high, the relationship between flow consciousness and intention to prosume is stronger.*

2.8 | Moderated Moderated Mediation Hypotheses

The decisions in the human mind are made from clues in the external environment and also under the influence of many already built-in factors (preconceived notions) in the human brain (Shim et al. 2024; Younus 2025). The relationships between social presence and outcome variables are not simple. Both mediated relationships of social presence turn into a propensity to buy online and an intention to prosume through flow consciousness, which cannot occur in isolation. Other important factors can impact this causal-mediated relationship. First, if an online user trusts the platform in use, their unconscious mind will allow them to feel confident about being in a safe place concerning the interaction (Jeong and Kim 2023). This feeling will enable them to have a smooth experience. Thus, e-trust interacts with social presence, helping an online user to achieve a state of flow consciousness. At the same time, online users' comfort and understanding of technology will enable them to behave positively (Buhalis et al. 2023). This positive behavior can be the propensity to buy online and the intention to prosume (Shree et al. 2021). Therefore, at the second link, it is argued that while an online user is in a state of flow consciousness, their already inbuilt affinity with technology will help turn their flow consciousness state into a propensity to buy and an intention to prosume. Thus, initially, e-trust helps an online user develop an online buying propensity and intention to prosume through flow consciousness by strengthening the relationship between social presence and outcome variables via flow consciousness. And once in the state of flow consciousness, its interaction with an affinity for technology strengthens the relationship between flow consciousness and outcome variables. Thus, it is hypothesized that:

H12. *There is a significant indirect effect of social presence on the propensity to buy online through flow consciousness, moderated by e-trust on path 'a' and affinity for technology interaction on path 'b', such that when e-trust and affinity for technology interaction are high, the indirect relationship is stronger.*

H13. *There is a significant indirect effect of social presence on intention to prosume through flow consciousness, moderated by e-trust on path 'a' and affinity for technology interaction on path 'b', such that when e-trust and affinity for technology interaction are high, the indirect relationship is stronger.*

3 | Research Methodology

3.1 | Research Design and Platform Selection

The data of Zepeto users was gathered for this study using quantitative data analysis techniques. The deductive research approach was adopted, starting with a theoretical understanding of virtual social interactions and hypothesizing that certain factors influence user engagement on Zepeto https://www.scribbr.com/dissertation/methodology/ (Kim and Kim 2024). Zepeto was chosen as the case study for this research due to several key factors that make it an ideal platform for examining consumer behavior in the metaverse. It boasts a substantial user population, with approximately 300 million users since August 2018 (Yoon and Nam 2024). This large user base provides a diverse sample for studying the propensity to buy online and intention to prosume. Additionally, Zepeto's avatar character creation feature enables users to personalize their virtual identities, which can impact their engagement with virtual items and purchasing decisions (Lee et al. 2023). Furthermore, Zepeto's collaborations with various brands offer unique brand touchpoints and opportunities for users to interact with branded content and experiences. With over 116 companies selling virtual items and 45 creating branded virtual worlds (Wongkitrungrueng and Suprawan 2024), Zepeto provides an extensive ecosystem for investigating how social presence and flow consciousness influence users' propensity to buy online and their intention to prosume. Data were collected from Zepeto users residing worldwide from April to August 2023. For this purpose, a cross-sectional survey was used to develop a questionnaire on a Google Form. Following the guidelines by Paul (2024), this method was selected for its efficiency, cost-effectiveness, and ability to reach a diverse sample of Zepeto users. The study's questionnaire was created using scales that had already been developed, with some phrasing modifications made to better align with the context of Zepeto/Metaverse.

3.2 | Data Collection Procedure and Sampling

Zepeto users were contacted on Instagram. The reason behind choosing Instagram is the availability of active Zepeto communities where users can be reached and data can be collected (Lee et al. 2023). To ensure a distinct and well-organized approach, the current study utilized four dedicated Instagram accounts: *Krool_life, Berry_kenan_zpt, Lams_e_jana*, and *hira_mustafa_shah*. Approximately 20–25 Zepeto users per day were contacted through direct messages on Instagram, where personalized messages containing the Google Form link were sent, and recipients were invited to participate in the survey. The anonymity and confidentiality of the respondents were ensured. Participants were selected based on their engagement with Zepeto-related content on Instagram, such as following official Zepeto accounts, commenting on posts, or sharing their own Zepeto avatars and virtual interactions. This

targeted approach ensured that only active Zepeto users who were meaningfully involved with the platform were included. This selection criterion aligns with the methodological precedent set by Lee et al. (2023), who used Instagram-based behavioral engagement to identify authentic Zepeto users in their investigation of user motives and psychological correlates. To further enhance the robustness and representativeness of the sample, screening questions were incorporated into the survey, asking participants how often they accessed the Zepeto application over the past month and how much time they spent on it daily. These checks helped ensure that participants were not only active on Instagram but also consistently engaged with Zepeto itself, thereby increasing the relevance and reliability of their responses. Although a convenience sampling technique was used to reach Zepeto users due to practical constraints (Etikan et al. 2016), the inclusion of screening questions and platform-specific engagement criteria helped address potential self-selection bias (Paul 2024). It ensured that the sample was drawn from a pool of genuinely active users. This targeted recruitment strategy strengthens the external validity of the study by focusing on participants with high ecological relevance to the research context. The sample size determination was guided by the rule of 10, a widely recognized heuristic in survey research that ensures a robust sample for multivariate analysis (Wagner and Grimm 2023). Based on this rule, 440 responses were required; however, the final sample size consisted of 502 individuals who provided complete responses to the survey questionnaire. Participants in the sample came from a variety of countries and were diverse in terms of age and gender.

3.3 | Measures of the Study

A five-item scale was adapted from Makransky et al. (2017) to measure social presence. The sample item includes, "In Zepeto, I feel a sense of presence as if I am with another person." A two-item flow consciousness scale was adapted from Sicilia et al. (2005). The sample item includes "I experience being deeply involved in Zepeto." The prosumption intention scale includes nine items and was adapted from Sarkar and Sarkar (2022). The sample item includes, "I voluntarily co-create brand-related elements in Zepeto." The scale of propensity to buy online consists of three items and was adapted from Chen and Barnes (2007). The sample item includes the fact that "I am very likely to buy brands online in the near future." The three-item E-trust scale was adapted from Garbarino and Johnson (1999). The sample item includes "I trust what Zepeto says about its product." Finally, a nine-item scale of affinity for technology interaction was adapted from Franke et al. (2019). The sample item includes "I like to occupy myself in greater detail with technical systems." A five-point Likert scale from strongly disagree to strongly agree was employed to collect responses from the participants.

3.4 | Demographic Characteristics

The current study received responses from Zepeto users in 57 countries, with the majority coming from Indonesia (105), the Philippines (62), India (54), Malaysia (28), the USA (42), Brazil (32), and others (see Appendix A). Most respondents have been

TABLE 1 | Respondents' demographics ($N = 502$).

Profile	Characteristics	Frequency	Percentage
Age	18–25	181	36.1
	26–35	269	53.6
	36–45	42	8.4
	46 and Above	10	2.0
Gender	Male	76	15.1
	Female	399	79.5
	Other	27	5.4
Occupation	Self-employed	46	39.2
	Work full-time	56	11.2
	Work part-time	28	5.6
	Homemaker	10	2.0
	Student	335	36.7
	Unemployed	27	5.4
Duration of usage	Less than a month	17	3.4
	1–3 months	56	11.2
	3–6 months	49	9.8
	6 to 12 months	77	15.3
	More than a year	303	60.4

using Zepeto for over a year. Detailed demographic characteristics are presented in Table 1.

4 | Data Analysis and Results

To analyze the data gathered, this study used both descriptive and inferential statistics. Descriptive statistics are employed to provide a summary and presentation of the sample characteristics. SPSS was used for this purpose. The model fit was tested in AMOS. Additionally, inferential statistics were utilized to assess the study hypotheses and examine the relationships between variables. To investigate the role of flow consciousness as a mediator in the model, this study used the Preacher and Hayes (2004) technique. This widely recognized technique allows for the assessment of the indirect effects and significance of the mediating variable. Furthermore, the current study also utilized the Preacher and Hayes (2004) technique to investigate how e-trust and affinity affect the strength and direction of the causal relationships on the first and second links of the research model (Noor, Mansoor, and Shamim 2022).

To measure the reliability and validity of the constructs, this study has examined Cronbach's alpha (CA), Composite Reliability (CR), Average Variance Extracted (AVE), and Maximum Shared Variance (MSV). The factor loadings for the constructs ITP8, ITP9, ATI7, ATI8, and ATI9 were 0.47, 0.59, 0.64, 0.58, and 0.59, respectively, all of which were below the threshold criterion of 0.70 (Hair et al., Hair and Sarstedt 2021). Therefore, they were excluded from further analysis. The items with factor loadings of 0.65 and above were included in the analysis, based on AVEs above 0.50, and the CR and CA values exceeded the threshold value of 0.70 (Hair and Sarstedt 2021; Mansoor, Khan, et al. 2025). Also, MSV is less than AVEs (Fornell and Larcker 1981; Mansoor, Paul, et al. 2025), thereby validating the convergent and discriminant validity of each construct (see Table 2). To address potential common method bias (CMB), multiple diagnostic procedures were employed. Initially, Harman's single-factor test was conducted, wherein all measurement items were loaded into an unrotated exploratory factor analysis to assess whether a single factor would account for the majority of the variance. The results indicated that the first factor accounted for only 27% of the total variance, well below the recommended threshold of 50% (Mansoor, Jam, and Khan 2025; Noor, Mansoor, and Rabbani 2022; Podsakoff et al. 2012), suggesting that CMB is unlikely to be a major concern. Additionally, the full collinearity assessment method proposed by Kock and Lynn (2012) was applied using variance inflation factor (VIF) values. All VIFs were below the threshold of 3.3, further indicating that common method bias does not pose a significant threat to the validity of the study's findings.

Table 3 presents the correlations among the study constructs for each construct. All values are below 0.70, indicating no issues of multicollinearity.

AMOS was used to assess model fit indices and determine how well the proposed model aligns with the observed data. The model fit indices are shown in Table 4. As every index (χ^2/df = 2.68, TLI = 0.90, CFI = 0.91, NFI = 0.90, RMSEA = 0.06) falls close to the threshold, there is a moderate fit between the measurement model and the data (Hair and Sarstedt 2021; Paul and Bhukya 2021).

Before hypothesis testing, a one-way ANOVA was performed to identify potential control variables that could influence the causal relationships. It has been found that gender, time, and occupation were statistically significant constructs. As a result, these variables were included as control variables during the regression analysis.

4.1 | Hypothesis Testing

The current study employed Model 21 of PROCESS MACROS by Hayes. Table 5 presents the results of the direct hypotheses and interaction terms for moderator 1 (e-trust) and moderator 2 (affinity for technology interaction). Social presence had a significant and positive direct impact on the propensity to buy online ($\beta = 0.434$, LLCI = 0.325, ULCI = 0.543) and intention to prosume ($\beta = 0.126$, LLCI = 0.033, ULCI = 0.219). H1 and H2 are accepted with 25% and 19% variance in propensity to buy online and intention to prosume, respectively. The impact of social presence on flow consciousness is significant and positive ($\beta = 0.545$, LLCI = 0.45, ULCI = 0.62), supporting H3. It accounts for a 28% variance in flow consciousness caused by social presence. Flow consciousness also showed a significant and positive relationship with the propensity to buy online ($\beta = 0.128$, LLCI = 0.030, ULCI = 0.226) and with the intention to prosume ($\beta = 0.209$, LLCI = 0.124, ULCI = 0.293). Hence, H4 and H5 are also accepted.

Table 6 shows the results of mediation and moderated mediation. The mediation of flow consciousness between social presence and propensity to buy online was proved to be significant ($\beta = 0.091$, LLCI = 0.031, ULCI = 0.157); thus, H6 is supported. The mediation of flow consciousness between social presence and intention to prosume was also proved to be significant ($\beta = 0.140$, LLCI = 0.080, ULCI = 0.210); therefore, H7 is also supported. The results revealed partial mediation for both dependent variables. The conditional indirect effect of e-trust on the causal relationship between social presence and propensity to buy online through flow consciousness (while the values of affinity for technology interaction are fixed) is insignificant at low values (index = 0.001, BootSE = 0.010, LLCI = −0.019, ULCI = 0.022). In contrast, this indirect conditional effect is significant for medium (index = 0.018, BootSE = 0.009, LLCI = 0.002, ULCI = 0.036) and high values (index = 0.028, BootSE = 0.012, LLCI = 0.005, ULCI = 0.052). The conditional indirect effect of e-trust on the causal relationship between flow consciousness and intention to prosume through flow consciousness (while the values of affinity for technology interaction are fixed) is insignificant at low (index = 0.006, BootSE = 0.009, LLCI = −0.011, ULCI = 0.025). In contrast, it is significant for medium (index = 0.028, BootSE = 0.012, LLCI = 0.007, ULCI = 0.053) and high values (index = 0.041, BootSE = 0.016, LLCI = 0 0.010, ULCI = 0.073).

Table 7 shows the result of moderated mediation. The results of the bootstrapping analysis show that moderated mediation is

TABLE 2 | Factor loadings of all measures, reliability, and validity.

Construct and items	FL	CR	AVE	MSV
Social presence		0.84	0.52	0.43
SP1: In Zepeto, I feel a sense of presence, as if I am with another person.	0.71			
SP2: I feel that the people in Zepeto are conscious of my presence.	0.70			
SP3: In Zepeto, it seems like the people are conscious and alive to me.	0.78			
SP4: Sometimes, I feel like I am collaborating with another person directly in Zepeto.	0.73			
SP5: I feel like I am interacting with real people in Zepeto, not just a computer simulation.	0.68			
Flow consciousness		0.71	0.56	0.43
FC1: I experienced being deeply involved in Zepeto.	0.81			
FC2: It is a very intense sensation.	0.67			
Propensity to buy		0.89	0.71	0.30
PTB1: I am likely to buy brands online in the near future.	0.83			
PTB2: Given the chance, I intend to shop online.	0.86			
PTB3: I enjoy shopping online.	0.84			
Intention to prosume		0.90	0.57	0.34
ITP1: I voluntarily co-create brand-related elements in Zepeto.	0.690			
ITP2: I voluntarily test new offerings from Zepeto.	0.74			
ITP3: I am involved in the coproduction of brand elements for formal incentives given by Zepeto.	0.76			
ITP4: I test new offerings from Zepeto for formal incentives given by the brand.	0.76			
ITP5: I co-create value for Zepeto, for myself, and for other users.	0.79			
ITP6: I build interactive brand-related conversations among Zepeto fans.	0.80			
ITP7: I advocate Zepeto to others.	0.74			
E-Trust		0.83	0.62	0.41
ET1: I trust what Zepeto displays/says about its products.	0.73			
ET2: Zepeto is reliable.	0.89			
ET3: I trust the claims and promises Zepeto makes about its product.	0.72			
Affinity for technology interaction		0.85	0.50	0.34
ATI1: I like to occupy myself in greater detail with technical systems.	0.71			
ATI2: I like testing the functions of new technical systems.	0.65			
ATI3: I predominantly deal with technical systems because I have to.	0.66			
ATI4: When I have a new technical system in front of me, I try it out intensively.	0.73			
ATI5: I enjoy spending time becoming acquainted with a new technical system.	0.68			
ATI6: It is enough for me that a technical system works; I don't care how or why.	0.71			

Abbreviations: AVE, average variance extracted; CR, composite reliability; FL, factor loadings; MSV, maximum shared variance.

significant for the relationship between social presence and propensity to buy online through flow consciousness (index = 0.022, BootSE = 0.012, LLCI = 0.000, ULCI = 0.046). It is also significant for the relationship between social presence and intention to prosume through flow consciousness (index = 0.029, BootSE = 0.012, LLCI = 0.006, ULCI = 0.054). This index is calculated by multiplying the regression weight for the interaction 'a' path and the regression weight for the interaction 'b' path. This shows the significant indirect effect (mediation) that two moderators moderate.

TABLE 3 | Correlations.

Variable	SP	FC	PTB	ITP	ET	ATI
Social presence	**0.721**					
Flow consciousness	0.450**	**0.748**				
Propensity to buy online	0.469**	0.352**	**0.842**			
Intention to prosume	0.299**	0.359**	0.323**	**0.755**		
E-trust	0.214**	0.136**	0.195**	0.209**	**0.787**	
Affinity for technology interaction	0.298**	0.291**	0.339**	0.498**	0.153**	**0.707**

Note: Values in diagonals (mentioned in bold) are the square roots of AVEs of the constructs. Correlation is significant, $^{**}p < 0.01$.

TABLE 4 | Model fit indices.

Fit index	Measurement model	Recommended value
χ^2/df	2.68	≤3.000
TLI	0.90	≥0.900
CFI	0.91	≥0.900
IFI	0.91	≥0.900
NFI	0.90	≥0.900
RMSEA	0.06	≤0.070
RMR	0.05	≤0.080

5 | Discussion

The primary objective of this study was to investigate the relationships among social presence, flow consciousness, the propensity to buy online, and intention to prosume, as well as the moderating effects of e-trust and affinity for technology. The findings supported hypothesis H1, indicating that a higher social presence increases the likelihood of purchasing online and engaging in prosumer activities. This aligns with previous research highlighting the importance of social interactions in influencing consumer decisions (Kim et al. 2022). Also, Hassan et al. (2018) reported that social presence significantly affects trust and purchase intentions in online environments. The current study extends this understanding by quantifying the variance explained by social presence: 25% for the propensity to buy online and 19% for the intention to prosume. This demonstrates the substantial influence social presence has on consumer decision-making processes.

Hypothesis H3 was also supported, showing that social presence significantly enhances flow consciousness. It accounts for a 28% variance in flow consciousness caused by social presence. This finding is consistent with the work of Cha et al. (2024), who suggested that a compelling online experience characterized by high flow can enhance user engagement and satisfaction. Flow consciousness was found to have a positive impact on both the propensity to buy online and the intention to prosume. These results align with Thomson and Jaque (2023), who identified flow as a critical factor in facilitating online consumer behavior. The findings also supported the role of flow consciousness as a mediator in the relationship between social presence and consumer behavior. It reflects that flow, characterized by a state of deep engagement and enjoyment, transmits the benefits of social presence while encouraging users to spend more time and resources online, thereby increasing their likelihood of making purchases and participating in prosumer activities.

The moderating role of e-trust was examined through its interaction with social presence and flow consciousness. Hypotheses H8 and H9 considered the conditional moderated mediation of e-trust on the relationship between social presence and the propensity to buy online through flow consciousness. The findings indicated that the conditional indirect effect of e-trust was insignificant at low levels, both for propensity to buy and intention to prosume, but significant at medium levels, both for propensity to buy and intention to prosume and also significant at high levels, both for propensity to buy and intention to prosume. Previously, researchers have highlighted the importance of trust in developing e-loyalty among consumers (Zhang et al. 2023) and in enhancing usage intention through technology readiness and technology (Jeong and Kim 2023) in the metaverse. The current study extends the existing body of knowledge by suggesting that the interactive effect of social presence and e-trust amplifies the impact of flow consciousness on consumers' propensity to buy online and intentions to prosume. This further supports the notion that e-trust is a crucial factor in leveraging flow experiences to enhance prosumers' intentions.

Affinity for technology was also explored as a moderator in the relationships between flow consciousness and the two dependent variables. For the propensity to buy online, affinity for technology moderated the relationship, with significant effects observed at medium and high levels of affinity. This suggests that individuals with a higher affinity for technology are more likely to experience flow, which in turn increases their likelihood of making online purchases. The moderated effects of flow consciousness on intention to prosume followed a similar pattern, indicating that technology affinity enhances the impact of flow on prosumer behaviors. These findings align with prior research, such as that by Huang et al. (2023), which emphasizes the significance of technology readiness in adopting new digital behaviors. Finally, results demonstrated significant moderated moderated mediation for the propensity to buy online and for the intention to prosume. These findings

TABLE 5 | Results of direct hypotheses and interaction terms.

Hypotheses		β	p	LLCI	ULCI	R^2	R^2 change	VIF
H1	SP → PTB	0.434	0.000	0.325	0.543	0.254		1.23
H2	SP → ITP	0.126	0.008	0.033	0.219	0.191		1.54
H3	SP → FC	0.547	0.000	0.459	0.635	0.281		1.12
H4	FC → PTB	0.128	0.011	0.030	0.226			1.47
H5	FC → ITP	0.209	0.000	0.124	0.293			1.39
	Int_1 SP * ET	0.127	0.004	0.042	0.213		0.012	

H9: Conditional effects of the focal predictor (SP) at values of the moderator DV = FC

	ET	β	p	LLCI	ULCI
Low	−0.806	0.444	0.000	0.329	0.558
Medium	0.006	0.547	0.000	0.459	0.635
High	0.726	0.639	0.000	0.534	0.744
	Int_2 FC * ATI	0.171	0.008	0.045	0.296

H10: Conditional effects of the focal predictor (FC) at values of the moderator DV = PTB

	ATI	β	p	LLCI	ULCI	
Low	−0.697	0.009	0.903	−0.136	0.154	
Medium	0.081	0.142	0.004	0.046	0.238	
High	0.526	0.218	0.000	0.113	0.323	
	Int_3 FC * ATI	0.233	0.000	0.126	0.340	0.011

H11: Conditional effects of the focal predictor (FC) at values of the moderator DV = ITP

	ATI	β	p	LLCI	ULCI	
Low	−0.697	0.046	0.464	−0.078	0.170	
Medium	0.081	0.228	0.000	0.145	0.311	
High	0.526	0.332	0.000	0.240	0.423	0.030

Abbreviations: ATI, affinity for technology interaction; ET, E-trust; FC, flow consciousness; ITP, intention to prosume; PTB, propensity to buy online; SP, social presence.

highlight the complex nature of consumer behavior in online environments, where multiple factors converge to influence outcomes. The significant results of these hypotheses suggest that both e-trust and technological affinity play critical roles in enhancing the effects of social presence and flow consciousness on consumer behaviors.

5.1 | Theoretical Implications

This study makes several key theoretical contributions by integrating Social Presence Theory, Flow Theory, and the TAM to explore consumer behavior in the metaverse. Prior research has often applied these theories in isolation or in conventional digital contexts such as e-commerce or gaming (Basit et al. 2025; Hassan et al. 2018; Katsamba 2025; Mennecke et al. 2010), but their intersection within immersive, avatar-driven environments remains underexplored. By synthesizing these frameworks, this study offers a more holistic understanding of how social, psychological, and technological factors jointly shape consumer engagement and behavior in metaverse platforms like Zepeto. First, the study extends Social Presence Theory by demonstrating that the sense of being with others in a virtual space significantly influences users' propensity to buy online and intention to prosume. While earlier work has emphasized social presence in traditional online shopping and gaming (Hassan et al. 2018; Lowry et al. 2012), this research positions it as a foundational mechanism in immersive, avatar-based environments. The findings underscore that heightened social presence can foster trust, emotional involvement, and consumer participation in co-creation behaviors. Second, the study advances Flow Theory by introducing and operationalizing flow consciousness, the metacognitive awareness of being in a flow state—as a distinct mediator of consumer behavior. Previous studies have largely treated flow as a passive experiential state (Cha et al. 2024; Marty-Dugas et al. 2023), but this study shows that conscious engagement in flow significantly enhances behavioral outcomes such as online purchasing and prosumption intention. This contributes to the literature by adding depth to flow-related constructs and highlighting the cognitive dimensions of immersive digital experiences.

TABLE 6 | Results of mediation and moderated mediation.

Hypotheses		β	p	LLCI	ULCI	R^2
H6	SP → FC → PTB	0.091	0.000	0.031	0.157	0.219
H7	SP → FC → ITP	0.140	0.000	0.080	0.210	0.089
H8: Conditional moderated mediation of E-trust between SP and PTB through FC						
	Affinity	**Index**	**BootSE**	**LLCI**	**ULCI**	
Low	−0.697	0.001	0.010	−0.019	0.022	
Medium	0.081	0.018	0.009	0.002	0.036	
High	0.526	0.028	0.012	0.005	0.052	
H9: Conditional moderated mediation of E-trust between SP and ITP through FC						
	Affinity	**Index**	**BootSE**	**LLCI**	**ULCI**	
Low	−0.697	0.006	0.009	−0.011	0.025	
Medium	0.081	0.028	0.012	0.007	0.053	
High	0.526	0.041	0.016	0.010	0.073	

Abbreviations: ATI, affinity for technology interaction; ET, E-trust; FC, flow consciousness; ITP, intention to prosume; PTB, propensity to buy online; SP, social presence.

TABLE 7 | Results of moderated moderated mediation.

Hypotheses	Index	BootSE	LLCI	ULCI
H12 (DV = PTB)	0.022	0.012	0.000	0.046
H13 (DV = ITP)	0.029	0.012	0.006	0.054

Abbreviations: ITP, intention to prosume; PTB, propensity to buy online.

Third, this research enriches TAM by linking perceived usefulness and ease of use in the metaverse to social presence and flow consciousness. While TAM traditionally focuses on intention to adopt technology (Dwivedi et al. 2023), our findings reveal that its core constructs also influence experiential engagement, thus bridging utilitarian acceptance with affective and social immersion. This triangulation of TAM with Social Presence and Flow Theory provides a robust theoretical scaffold for understanding behavioral intentions in metaverse environments. Moreover, the study contributes novel insights through the investigation of two key moderating variables: e-trust and affinity for technology interaction. Although trust has long been acknowledged in digital commerce (Ebrahim 2020), its moderating effect on the social presence–flow consciousness relationship within avatar-based settings has remained largely unexamined (Kar and Varsha 2023; Shwedeh et al. 2024). This study highlights e-trust as a boundary condition that amplifies the influence of social dynamics on immersive engagement and behavioral responses. Similarly, affinity for technology interaction emerges as a critical individual-difference factor, showing that users who are more enthusiastic and comfortable with digital tools experience heightened flow consciousness, which in turn boosts their propensity to buy and prosumption intention. This adds complexity and personalization to traditional models of consumer behavior in digital spaces. Together, these theoretical implications emphasize that effective consumer engagement in the metaverse requires not only functional system design but also psychological immersion and trust-rich social interactions. By anchoring its analysis in a real-world metaverse platform, this study moves beyond abstract theorizing to deliver grounded insights that extend foundational models into the next frontier of digital consumer behavior.

5.2 | Practical Implications

This study offers actionable insights for developers, marketers, and policymakers operating within the metaverse. First, our findings on social presence and flow consciousness provide a blueprint for enhancing user immersion and interactivity. Virtual platform developers, such as those at Zepeto, Meta, or Roblox, can use these insights to design environments that stimulate social bonding, such as by integrating real-time avatar expressions, spatial audio, or co-creation spaces that mirror real-world social cues. These features not only deepen engagement but also increase users' propensity to buy and co-create content. Second, the moderating role of e-trust highlights the importance of platform credibility and safety. Developers should prioritize secure transaction systems, transparent data practices, and visible trust signals (e.g., verified identities and community ratings) to build confidence in virtual commerce. Trust-enhancing design choices, like user support bots, safety prompts, and customizable privacy settings, can lower psychological barriers to both purchases and prosumption behaviors. Third, technology affinity plays a vital role in shaping user behavior. Simplifying user interfaces, offering onboarding tutorials, and ensuring accessibility across devices can significantly improve adoption, especially among less tech-savvy users. Platform designers should also offer adaptive experiences catering to novice and expert users to widen appeal. From a strategic marketing perspective, the study's demographic analysis enables developers and brand managers to tailor experiences to specific user segments. For example, younger users may respond better to gamified interactions and influencer integrations, whereas older or professional users may value educational or utility-based virtual offerings.

Segment-specific insights allow for more effective targeting, community building, and product personalization.

Importantly, businesses should leverage the study's implications to foster a prosumer ecosystem, encouraging users to consume, create, and collaborate. This can be achieved by offering content creation tools, incentivizing user-generated content, and recognizing contributions through virtual rewards or social capital systems. Such approaches promote deeper emotional investment, brand evangelism, and long-term user retention. From a policy perspective, the study underscores the need for regulatory frameworks that balance innovation with user protection. Policymakers should collaborate with platforms to develop guidelines for digital trust, user safety, and equitable access in the metaverse. This includes promoting digital literacy programs, ensuring transparency in AI-driven interactions, and safeguarding younger or vulnerable users. For managers and virtual brand strategists, these insights point toward a hybrid model of user experience, where emotional engagement (via social presence), transactional trust, and technological ease-of-use converge. Investing in cross-functional teams that bring together UX designers, behavioral scientists, and community moderators can help organizations create holistic metaverse strategies grounded in consumer psychology.

5.3 | Limitations and Future Research Directions

This study focused on Zepeto as a representative metaverse platform, which may limit the generalizability of findings to other virtual environments with distinct user demographics or interaction dynamics. Future research could explore how AR-based metaverse experiences influence consumer behavior differently from fully virtual platforms like Zepeto, particularly in terms of spatial engagement and sensory immersion. The rapidly evolving nature of metaverse technologies poses a challenge in capturing real-time user behavior. Longitudinal studies and real-time analytics could offer more dynamic insights. Furthermore, future research should investigate the impact of metaverse governance and regulatory frameworks on shaping consumer trust, platform adoption, and virtual economic activity. A key limitation of this study lies in the use of sampling via Instagram, which may introduce self-selection bias and limit generalizability. Future research should adopt probability-based or stratified sampling across multiple platforms or offline contexts to enhance representativeness and external validity. The construct of flow consciousness was measured using two-item scales, which may limit construct reliability. Future studies could develop a multidimensional scale that captures elements such as challenge-skill balance, time distortion, and absorption for more robust measurement. Moreover, the sample skewed toward younger, tech-savvy users (ages 18–35) on Zepeto. Future studies should include older participants and users from diverse metaverse platforms to better capture cross-platform and generational variations in consumer behavior. Lastly, COVID-19 has resulted in structural changes in many sectors (Nayal et al. 2022). For example, the pandemic has changed consumer behavior (Arya et al. 2022; Chakraborty and Paul 2023; Chopdar et al. 2022; Purohit et al. 2022). Following prior studies (Basu et al. 2022; Kajol et al. 2022), we believe that there are opportunities for developing new and novel theories, scales, methods, and paradigms to carry out research studies in the post-pandemic era to analyze the new processes, patterns, and problems in the metaverse landscape.

6 | Conclusion

This study examined the intricate relationship between social presence, flow consciousness, e-trust, and affinity for technology interaction in influencing online consumers' propensity to buy and intention to prosume within the metaverse, utilizing Zepeto as the focal platform. Grounded in Social Presence Theory, Flow Theory, and the TAM, the findings offer robust empirical support for the positive role of immersive and interactive virtual experiences in driving digital consumer behavior. Social presence significantly influenced users' propensity to purchase and participate in prosumption, with flow consciousness mediating these relationships. This highlights the importance of creating socially rich and immersive digital environments to foster deeper user engagement. The study further established e-trust as a critical moderator in reinforcing the relationship between social presence and flow consciousness, while affinity for technology strengthened the impact of flow consciousness on behavioral outcomes. These results underscore that trust and technological comfort are essential facilitators of meaningful user interaction in the metaverse. Moreover, the confirmed moderated moderated mediation model reveals how trust and affinity jointly amplify the psychological mechanisms through which social stimuli lead to actionable consumer behaviors. The practical implications extend to metaverse developers, marketers, and policymakers seeking to build inclusive, secure, and engaging virtual ecosystems. Designing for trust, interactivity, and personalization emerges as key to encouraging online purchases and prosumption in immersive platforms. Theoretically, the research bridges cognitive and technological models, contributing to a nuanced understanding of virtual consumer dynamics. This study serves as a foundational step toward understanding and optimizing consumer engagement and co-creation in the rapidly expanding digital metaverse landscape.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

References

Alagarsamy, S., S. Mehrolia, and J. Paul. 2024. "Masstige Scale: An Alternative to Measure Brand Equity." *International Journal of Consumer Studies* 48, no. 1: e12873.

Alzoubi, H. M., C. L. Tan, M. El Khatib, et al. 2025. "Smart Government Initiatives: Transforming Global Supply Chains Through Digital Change." *International Review of Management and Marketing* 15, no. 3: 209–217.

Anantharaman, R., S. Prashar, and T. S. Vijay. 2023. "Uncovering the Role of Consumer Trust and Bandwagon Effect Influencing Purchase

Intention: An Empirical Investigation in Social Commerce Platforms." *Journal of Strategic Marketing* 31, no. 6: 1199–1219.

Arıca, R., B. Kodas, C. Cobanoglu, M. O. Parvez, V. Ongsakul, and V. Della Corte. 2023. "The Role of Trust in Tourists' Motivation to Participate in Co-Creation." *Tourism Review* 78, no. 4: 1182–1202.

Arman, S. M., and C. Mark-Herbert. 2024. "Ethical Consumption: A Review and Research Agenda." *International Journal of Consumer Studies* 48, no. 5: e13079.

Arya, V., J. Paul, and D. Sethi. 2022. "Like It or Not! Brand Communication on Social Networking Sites Triggers Consumer-Based Brand Equity." *International Journal of Consumer Studies* 46, no. 4: 1381–1398.

Barta, S., C. Flavián, and R. Gurrea. 2021. "Managing Consumer Experience and Online Flow: Differences in Handheld Devices vs PCs." *Technology in Society* 64: 101525.

Barta, S., R. Gurrea, and C. Flavián. 2023. "The Double Side of Flow in Regret and Product Returns: Maximizers Versus Satisficers." *International Journal of Information Management* 71: 102648.

Basit, A., K. U. D. A. Shah, M. Kashif, K. Ali, and S. Akhtar. 2025. "The Impact of Social Networking Sites on Teenagers' Behavior and Their Influence on Pakistani Culture." *Journal of Management Practices Humanities and Social Sciences* 9, no. 2: 12–22.

Basu, R., J. Paul, and K. Singh. 2022. "Visual Merchandising and Store Atmospherics: An Integrated Review and Future Research Directions." *Journal of Business Research* 151: 397–408.

Bint-e-Nawaz, A., A. Bibi, and S. Bibi. 2024. "The Synergy of Emotional Intelligence and Resilience in Shaping Adult Life Satisfaction." *International Journal of Business and Economic Affairs* 9, no. 3: 42–47.

Bleize, D. N., and M. L. Antheunis. 2019. "Factors Influencing Purchase Intent in Virtual Worlds: A Review of the Literature." *Journal of Marketing Communications* 25, no. 4: 403–420.

Buhalis, D., D. Leung, and M. Lin. 2023. "Metaverse as a Disruptive Technology Revolutionising Tourism Management and Marketing." *Tourism Management* 97: 104724.

Busalim, A., L. D. Hollebeek, and T. Lynn. 2023. "The Effect of Social Commerce Attributes on Customer Engagement: An Empirical Investigation." *Internet Research* 34: 187–214.

Cao, Y., X. Qu, and X. Chen. 2024. "Metaverse Application, Flow Experience, and Gen-Zers' Participation Intention of Intangible Cultural Heritage Communication." *Data Science and Management* 7, no. 2: 144–153.

Cha, S. S., C. Y. Kim, and Y. Tang. 2024. "Gamification in the Metaverse: Affordance, Perceived Value, Flow State, and Engagement." *International Journal of Tourism Research* 26, no. 2: e2635.

Chakraborty, D., and J. Paul. 2023. "Healthcare Apps' Purchase Intention: A Consumption Values Perspective." *Technovation* 120: 102481.

Chatterjee, S., M. Mariani, and S. F. Wamba. 2023. "Prosumers' Intention to Co-Create Business Value and the Moderating Role of Digital Media Usage." *Journal of Business Research* 163: 113920.

Chen, H., R. T. Wigand, and M. Nilan. 2000. "Exploring Web Users' Optimal Flow Experiences." *Information Technology & People* 13, no. 4: 263–281.

Chen, Y. H., and S. Barnes. 2007. "Initial Trust and Online Buyer Behaviour." *Industrial Management & Data Systems* 107, no. 1: 21–36.

Chopdar, P. K., J. Paul, and J. Prodanova. 2022. "Mobile Shoppers' Response to Covid-19 Phobia, Pessimism and Smartphone Addiction: Does Social Influence Matter?" *Technological Forecasting and Social Change* 174: 121249.

Czikszentmihalyi, M. 1990. *Flow: The Psychology of Optimal Experience*. Harper & Row.

Davis, F. D. 1989. "Technology Acceptance Model: TAM." In *Information Seeking Behavior and Technology Adoption*, edited by M. N. Al-Suqri and A. S. Al-Aufi, 205–219. University of Michigan.

Dwivedi, Y. K., L. Hughes, Y. Wang, et al. 2023. "Metaverse Marketing: How the Metaverse Will Shape the Future of Consumer Research and Practice." *Psychology & Marketing* 40, no. 4: 750–776.

Ebrahim, R. S. 2020. "The Role of Trust in Understanding the Impact of Social Media Marketing on Brand Equity and Brand Loyalty." *Journal of Relationship Marketing* 19, no. 4: 287–308.

Etikan, I., S. A. Musa, and R. S. Alkassim. 2016. "Comparison of Convenience Sampling and Purposive Sampling." *American Journal of Theoretical and Applied Statistics* 5, no. 1: 1–4.

Fornell, C., and D. F. Larcker. 1981. "Structural Equation Models With Unobservable Variables and Measurement Error: Algebra and Statistics." *Journal of Marketing Research* 18, no. 3: 382–388. https://doi.org/10.1177/002224378101800104.

Franke, T., C. Attig, and D. Wessel. 2019. "A Personal Resource for Technology Interaction: Development and Validation of the Affinity for Technology Interaction (ATI) Scale." *International Journal of Human-Computer Interaction* 35, no. 6: 456–467.

Garbarino, E., and M. S. Johnson. 1999. "The Different Roles of Satisfaction, Trust, and Commitment in Customer Relationships." *Journal of Marketing* 63, no. 2: 70–87.

Ghali, Z., R. A. Rather, and I. Khan. 2024. "Investigating Metaverse Marketing-Enabled Consumers' Social Presence, Attachment, Engagement and (Re) Visit Intentions." *Journal of Retailing and Consumer Services* 77: 103671.

Gilal, F. G., J. Paul, A. Thomas, L. Zarantonello, and R. G. Gilal. 2023. "Brand Passion: A Systematic Review and Future Research Agenda." *Journal of Brand Management* 30, no. 6: 490–515. https://doi.org/10.1057/s41262-023-00324-x.

Gómez-Diago, G. 2010. "Brainflowing, Virtual/Physical Space and the Flow of Communication: An Explanatory Approach to the Metaverse Through a Tool Designed for Brainstorming." *Metaverse Creativity* 1, no. 1: 51–67.

Hair, J. F., and M. Sarstedt. 2021. "Explanation Plus Prediction—The Logical Focus of Project Management Research." *Project Management Journal* 52, no. 4: 319–322.

Hassan, M., Z. Iqbal, and B. Khanum. 2018. "The Role of Trust and Social Presence in Social Commerce Purchase Intention." *Pakistan Journal of Commerce and Social Sciences (PJCSS)* 12, no. 1: 111–135.

Herrando, C., J. Jiménez-Martínez, and M. J. M.-D. Hoyos. 2018. "The State of Flow in Social Commerce: The Importance of Flow Consciousness." *International Journal of Electronic Marketing and Retailing* 9, no. 4: 320–343.

Herrando, C., J. Jimenez-Martinez, and M. J. Martin de Hoyos. 2018. "Surfing or Flowing? How to Retain e-Customers on the Internet." *Spanish Journal of Marketing-Esic* 22, no. 1: 2–21.

Hew, K. F., W. Huang, J. Du, and C. Jia. 2023. "Using Chatbots to Support Student Goal Setting and Social Presence in Fully Online Activities: Learner Engagement and Perceptions." *Journal of Computing in Higher Education* 35, no. 1: 40–68.

Hong, D., and C.-H. Cho. 2023. "Usage Motivations and User Categorizations of Metaverse: Their Impacts on Offline Activities." *International Journal of Human-Computer Interaction* 40, no. 18: 1–5349.

Huang, Y., Y. Xie, and J. Ye. 2023. "The Effect of the Physical Versus Mental Presence of a High-Powered Person on Consumers' Healthy Food Choices." *Journal of Consumer Behaviour* 22, no. 3: 632–645.

Jeong, S.-H., and H.-K. Kim. 2023. "Effect of Trust in Metaverse on Usage Intention Through Technology Readiness and Technology Acceptance Model." *Tehnicki Vjesnik* 30, no. 3: 837–845.

Kajol, K., R. Singh, and J. Paul. 2022. "Adoption of Digital Financial Transactions: A Review of Literature and Future Research Agenda." *Technological Forecasting and Social Change* 184: 121991.

Kar, A. K., and P. Varsha. 2023. *Unravelling the Techno-Functional Building Blocks of Metaverse Ecosystems–A Review and Research Agenda*. Vol. 3, 100176. Elsevier.

Katsamba, D. 2025. "Digital Readiness and Big Data Analytics: Moderating Roles in Achieving Social Sustainability Through AI-CRM and Competitive Advantage." *Journal of Management Practices, Humanities and Social Sciences* 9, no. 1: 1–18.

Kim, H., K. K. F. So, and J. Wirtz. 2022. "Service Robots: Applying Social Exchange Theory to Better Understand Human–Robot Interactions." *Tourism Management* 92: 104537.

Kim, M., H. J. Oh, J. H. Choi, and Y. Jung. 2024. "Decoding Millennials and Generation Z Consumers' Brand Behaviors in the Metaverse: The Relationships Among Avatar Identification, Self-Presence, and Psychological Dynamics." *Journal of Consumer Behaviour* 24: 44–57. https://doi.org/10.1002/cb.2405.

Kim, Y., and B. Kim. 2024. "How Do the News Media, Academia, and the Public View the Metaverse? Evidence From South Korea." *Technological Forecasting and Social Change* 198: 122980.

Kock, N., and G. Lynn. 2012. "Lateral Collinearity and Misleading Results in Variance-Based SEM: An Illustration and Recommendations." *Journal of the Association for Information Systems* 13, no. 7: 546–580.

Kumar, R., V. Jain, J. K. Eastman, and A. Ambika. 2024. "The Components of Perceived Quality and Their Influence on Online Re-Purchase Intention." *Journal of Consumer Marketing* 42: 38–55. https://doi.org/10.1108/JCM-04-2024-6798.

Lee, E.-J., W. Lee, and I. Bae. 2023. "What Is the Draw of the Metaverse? Personality Correlates of Zepeto Use Motives and Their Associations With Psychological Well-Being." *Cyberpsychology, Behavior, and Social Networking* 26, no. 3: 161–168.

Liu, W., H. Lu, P. Li, D. van der Linden, and A. B. Bakker. 2023. "Antecedents and Outcomes of Work-Related Flow: A Meta-Analysis." *Journal of Vocational Behavior* 144: 103891.

Lowry, P. B., J. Gaskin, N. Twyman, B. Hammer, and T. Roberts. 2012. "Taking 'Fun and Games' Seriously: Proposing the Hedonic-Motivation System Adoption Model (HMSAM)." *Journal of the Association for Information Systems* 14, no. 11: 617–671.

Makransky, G., L. Lilleholt, and A. Aaby. 2017. "Development and Validation of the Multimodal Presence Scale for Virtual Reality Environments: A Confirmatory Factor Analysis and Item Response Theory Approach." *Computers in Human Behavior* 72: 276–285.

Mansoor, M., F. A. Jam, and T. I. Khan. 2025. "Fostering Eco-Friendly Behaviors in Hospitality: Engaging Customers Through Green Practices, Social Influence, and Personal Dynamics." *International Journal of Contemporary Hospitality Management* 37: 1804–1826.

Mansoor, M., T. I. Khan, F. A. Jam, and M. Alasmari. 2025. "From Donations to Devotion: How Cause-Related Marketing Frames Drive Brand Evangelism Through Cognitive and Social Pathways in Hospitality." *International Journal of Contemporary Hospitality Management*. https://doi.org/10.1108/IJCHM-02-2025-0233.

Mansoor, M., J. Paul, T. I. Khan, R. Abukhait, and D. Hussain. 2025. "Customer Evangelists: Elevating Hospitality Through Digital Competence, Brand Image, and Corporate Social Responsibility." *International Journal of Hospitality Management* 126: 104085.

Marty-Dugas, J., A. C. Smith, and D. Smilek. 2023. "Focus on Your Breath: Can Mindfulness Facilitate the Experience of Flow?" *Psychology of Consciousness: Theory, Research and Practice* 10, no. 3: 254–280.

Mennecke, B. E., J. L. Triplett, L. M. Hassall, and Z. J. Conde. 2010. "Embodied Social Presence Theory." 2010 43rd Hawaii International Conference on System Sciences.

Moriuchi, E., and S. Murdy. 2024. "The Role of Robots in the Service Industry: Factors Affecting Human-Robot Interactions." *International Journal of Hospitality Management* 118: 103682. https://doi.org/10.1016/j.ijhm.2023.103682.

Nayal, P., N. Pandey, and J. Paul. 2022. "Covid-19 Pandemic and Consumer-Employee-Organization Wellbeing: A Dynamic Capability Theory Approach." *Journal of Consumer Affairs* 56, no. 1: 359–390.

Noor, U., M. Mansoor, and S. Rabbani. 2022. "Brand Hate and Retaliation in Muslim Consumers: Does Offensive Advertising Matter?" *Journal of Islamic Marketing* 13, no. 6: 1395–1413.

Noor, U., M. Mansoor, and A. Shamim. 2022. "Customers Create Customers!–Assessing the Role of Perceived Personalization, Online Advertising Engagement and Online Users' Modes in Generating Positive e-WOM." *Asia-Pacific Journal of Business Administration* 16, no. 2: 392–409.

Oh, H. J., J. Kim, J. J. Chang, N. Park, and S. Lee. 2023. "Social Benefits of Living in the Metaverse: The Relationships Among Social Presence, Supportive Interaction, Social Self-Efficacy, and Feelings of Loneliness." *Computers in Human Behavior* 139: 107498.

Park, Y., E. Ko, and B. Do. 2023. "The Perceived Value of Digital Fashion Product and Purchase Intention: The Mediating Role of the Flow Experience in Metaverse Platforms." *Asia Pacific Journal of Marketing and Logistics* 35, no. 11: 2645–2665.

Paul, J. 2024. "Publishing in Premier Journals With High Impact Factor and Q1 Journals: Dos and Don'ts." *International Journal of Consumer Studies* 48, no. 3: e13049.

Paul, J., and R. Bhukya. 2021. "Forty-Five Years of International Journal of Consumer Studies: A Bibliometric Review and Directions for Future Research." *International Journal of Consumer Studies* 45, no. 5: 937–963.

Paul, J., A. Ueno, and C. Dennis. 2023. "ChatGPT and Consumers: Benefits, Pitfalls and Future Research Agenda." *International Journal of Consumer Studies* 47: 1213–1225.

Paul, J., A. Ueno, C. Dennis, et al. 2024. "Digital Transformation: A Multidisciplinary Perspective and Future Research Agenda." *International Journal of Consumer Studies* 48, no. 2: e13015.

Podsakoff, P. M., S. B. MacKenzie, and N. P. Podsakoff. 2012. "Sources of Method Bias in Social Science Research and Recommendations on How to Control It." *Annual Review of Psychology* 63, no. 1: 539–569.

Preacher, K. J., and A. F. Hayes. 2004. "SPSS and SAS Procedures for Estimating Indirect Effects in Simple Mediation Models." *Behavior Research Methods, Instruments, & Computers* 36: 717–731.

Purohit, S., R. Arora, and J. Paul. 2022. "The Bright Side of Online Consumer Behavior: Continuance Intention for Mobile Payments." *Journal of Consumer Behaviour* 21, no. 3: 523–542.

Sadiq, M., M. Adil, and J. Paul. 2021. "Does Social Influence Turn Pessimistic Consumers Green?" *Business Strategy and the Environment* 30: 2937–2950. https://doi.org/10.1002/bse.2780.

Sağkaya Güngör, A., T. Ozansoy Çadırcı, Ş. G. Köse, and E. Özer Çizer. 2024. "Consumer Responses Toward Smart Technology: A Systematic Review, Synthesis, and Future Research Agenda." *International Journal of Consumer Studies* 48, no. 3: e13048.

Sarkar, J. G., and A. Sarkar. 2022. "Prosumption Through Advergames: Leveraging on Advergame Format and Reward Elements to Create a Sacred Brand." *European Journal of Marketing* 56, no. 10: 2649–2676.

Shafqat, A., and A. Zeeshan. 2025. "Digitalization Training Development Trust and Sustainable Performance: How Ethical Leaders Can Change the Game." *Journal of Management Practices, Humanities and Social Sciences* 9, no. 1: 19–35.

Sharma, N., R. Payal, and J. Paul. 2025. "Hello! How Can I Help You? Role of Technology Appetite on AI Adoption in the Post-Pandemic Era." *R&D Management*. https://doi.org/10.1111/radm.12771.

Shen, L., Y. Zhu, C. Li, and S. H. H. Shah. 2023. "How Users' Perceived Prosumption Activities Influence Co-Creation Experiences and Co-Creation Intentions?" *Kybernetes* 52, no. 4: 1223–1244.

Shim, H., E. S. Kim, K. T. Oh, C.-K. Shi, and J. Ahn. 2024. "Diving Into a Heritage Metaverse: Learning From End User-Driven Experiences and Perspectives to Enhance Virtual Heritage Interpretation." *Proceedings of the ACM on Human-Computer Interaction* 8, no. CSCW1: 1–28.

Short, J., E. Williams, and B. Christie. 1976. *The Social Psychology of Telecommunications*. Wiley.

Shree, D., R. K. Singh, J. Paul, A. Hao, and S. Xu. 2021. "Digital Platforms for Business-To-Business Markets: A Systematic Review and Future Research Agenda." *Journal of Business Research* 137: 354–365.

Shwedeh, F., M. Nour, and I. Akour. 2024. "Optimizing Augmented Reality Adoption in Higher Education: A Comprehensive Analysis of Factors Impacting Data Management Efficiency." *Journal of Infrastructure, Policy and Development* 8, no. 9: 6232.

Sicilia, M., S. Ruiz, and J. L. Munuera. 2005. "Effects of Interactivity in a Web Site: The Moderating Effect of Need for Cognition." *Journal of Advertising* 34, no. 3: 31–44.

Stoltenberg, L., P. Krenz, and T. Redlich. 2024. "Prosuming for a Sustainable Future? Effects of Different Forms of Participatory Value Creation With Respect to Sustainability." *Discover Sustainability* 5, no. 1: 100.

Thomson, P., and S. V. Jaque. 2023. "Creativity and Flow: Not a Simple Relationship." *Journal of Creative Behavior* 57, no. 3: 397–408.

Toffler, A. 1980. *The Third Wave /Alvin Toffler*, 544. Morrow.

Upadhyay, A. K., and K. Khandelwal. 2022. "Metaverse: The Future of Immersive Training." *Strategic HR Review* 21, no. 3: 83–86.

Wagner, R., and M. S. Grimm. 2023. "Empirical Validation of the 10-Times Rule for SEM." In *State of the Art in Partial Least Squares Structural Equation Modeling (PLS-SEM) Methodological Extensions and Applications in the Social Sciences and Beyond*, 3–7. Springer.

Wang, Y. Y., T. H. Weng, I. F. Tsai, J. Y. Kao, and Y. S. Chang. 2023. "Effects of Virtual Reality on Creativity Performance and Perceived Immersion: A Study of Brain Waves." *British Journal of Educational Technology* 54, no. 2: 581–602.

Wongkitrungrueng, A., and L. Suprawan. 2024. "Metaverse Meets Branding: Examining Consumer Responses to Immersive Brand Experiences." *International Journal of Human-Computer Interaction* 40, no. 11: 2905–2924.

Yas, N., W. Dafri, H. Yas, and F. Shwedeh. 2024. "Effect of e-Learning on Servicing Education in Dubai." In *Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the Classroom*, 623–639. Springer.

Yin, J., Y. Huang, and Z. Ma. 2023. "Explore the Feeling of Presence and Purchase Intention in Livestream Shopping: A Flow-Based Model." *Journal of Theoretical and Applied Electronic Commerce Research* 18, no. 1: 237–256.

Yoon, S., and Y. Nam. 2024. "Metaverse Engagement and Korea Travel Intentions: Understanding Affordances, Presence, and Place Attachment Among Brazilian ZEPETO Users." *Journal of Destination Marketing & Management* 31: 100865.

Younus, S. 2025. "Linking Sustainable Business Strategies to Firm Performance: A Cross-Functional Model of Marketing, Finance, and Innovation." *International Journal of Business and Economic Affairs* 10, no. 3: 1–19.

Zhang, L., M. A. Anjum, and Y. Wang. 2023. "The Impact of Trust-Building Mechanisms on Purchase Intention Towards Metaverse Shopping: The Moderating Role of Age." *International Journal of Human-Computer Interaction* 40: 1–19.

Appendix A

Countries Involved in the Study ($n = 57$)

	Country	Frequency	Percentage
1	Afghanistan	2	0.3
2	Algeria	4	0.8
3	Argentina	1	0.2
4	Australia	8	1.6
5	Austria	3	0.6
6	Bahamas	1	0.2
7.	Bangladesh	6	1.2
8.	Belgium	2	0.4
9	Brazil	32	6.4
10	Brunei	2	0.4
11	Cambodia	4	0.8
12	Canada	7	1.4
13	China	3	0.6
14	Colombia	2	0.4
15	Costa Rica	2	0.4
16	Dominican Republic	1	0.2
17	Egypt	2	0.4
18	El Salvador	1	0.2
19	France	5	1
20	Greece	2	0.4
21	Haiti	2	0.4
22	India	54	10.8
23	Indonesia	105	20.9
24	Iraq	4	0.8
25	Ireland	3	0.6
26	Italy	4	0.8
27	Jamaica	2	0.4
28	Japan	5	1
29	Jordan	2	0.4
30	Kazakhstan	1	0.2
31	Malaysia	28	5.6
32	Mexico	10	2
33	Morocco	4	0.8
34	Netherlands	1	0.2
35	New Zealand	1	0.2
36	Nigeria	3	0.6
37	Pakistan	4	0.8
38	Panama	2	0.4

	Country	Frequency	Percentage
39	Philippines	62	12.4
40	Portugal	2	0.4
41	Romania	3	0.6
42	Singapore	4	0.8
43	South Africa	3	0.6
44	South Korea	6	1.2
45	Spain	5	1.0
46	Sweden	2	0.4
47	Taiwan	1	0.2
48	Thailand	14	2.8
49	Trinidad and Tobago	5	1
50	Tunisia	4	0.6
51	Turkey	6	1.2
52	United Arab Emirates (UAE)	2	0.4
53	United Kingdom (UK)	10	2.0
54	United States of America (USA)	42	8.4
55	Uzbekistan	1	0.2
56	Venezuela	1	0.2
57	Vietnam	6	1.2
	Total	502	100.0