

Exploring the Impact of Perceived Usefulness and Enjoyment to Enhance Intention to Use and Satisfaction Among Metaverse Travellers

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Abstract

This study explored metaverse travelers focusing on the platform of Worderverse Indonesia to enhance the intention to use and satisfaction. First, this study verifies the influence of metaverse travellers' perceived usefulness on metaverse travellers' intention to use and satisfaction. Moreover, it investigates the impact of the metaverse travellers' perceived enjoyment on metaverse travellers' intention to use and satisfaction. Finally, this framework explores the influence of metaverse travellers' intention to use on metaverse travellers' satisfaction. Employing a simple random sampling method, the sample of this study includes 183 metaverse travellers who use the platform Wondersverse Indonesia. This study analysed the data employing confirmatory factor analysis and structural equation modelling via Amos program. The results showed that metaverse travellers' perceived usefulness positively and significantly impacts metaverse travellers' intention to use and satisfaction. Similarly, metaverse travellers' perceived enjoyment positively and substantially affects metaverse travelers's intention to use and satisfaction. Finally, metaverse travellers' intention to use positively and significantly affects metaverse travellers' satisfaction. The research findings afford significant understandings into management implications for enhancing metaverse platforms like Wondersverse Indonesia. Orientation: This study explored metaverse travelers focusing on the platform of Worderverse Indonesia to enhance the intention to use and satisfaction.

Keywords: *Perceived Usefulness, Perceived Enjoyment, Experience, Satisfaction, Metaverse Travellers.*

Introduction

The rapid expansion of the Metaverse, with its market expected to rise to \$800 billion in the year 2024 up from \$47 billion in 2020 (Chakraborty et al., 2024), presents significant opportunities for the travel sector. Buhalis et al. (2023) highlight how it enables virtual travel, shopping, and events, enhancing destination marketing and reaching broader audiences. Moreover, Agnihotri et al. (2024) emphasize that the Metaverse fosters collaboration among tourism stakeholders, allowing for the co-creation of personalized travel experiences, while Kaplan and Haenlein (2024) assert it is revolutionizing how travelers plan and engage with destinations.

Existing studies have identified the determinant elements affecting the adoption of Metaverse platforms such as Wu and Yu (2024) stress the significance of attitude and intrinsic motivation in increasing user engagement, while Liu and Park (2024) point to the consequences of subjective norms and perceived behavioural control. However, the majority of the prior studies centres on the positive aspects of Metaverse tourism, often neglecting the potential challenges users may encounter (Al-Emran & Devenci, 2024). The complexities of negative user experiences in the Metaverse remain largely unexplored (Gupta et al., 2024).

The concept of the dark draws attention to negative experiences in the Metaverse, such as cyberbullying, privacy risks, and harmful social interactions, but has been insufficiently researched (Singh et al., 2024). While interest in metaverse tourism grows, the influence of these negative elements on user satisfaction remains largely unexamined (Calderón-Fajardo et al., 2024). Furthermore, inconsistencies in previous studies, like those of Mandal et al. (2024) and Alshurafat et al. (2024), regarding the influence of perceived usefulness show that some users view it as a key factor, while others do not. These contradictions highlight the need for more research into how different factors and contexts shape user experiences and satisfaction with the Metaverse.

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This research aims to bridge gaps by investigating the factors that drive and hinder user intentions and satisfaction with metaverse platforms, with a focus on the emerging WonderVerse Indonesia. In this empirical study on this platform, we analyze key motivators like perceived usefulness and enjoyment (Azhar et al., 2024; Milanesi et al., 2024) to predict metaverse travellers' intention to use and satisfaction. This approach offers valuable insights into WonderVerse Indonesia's adoption and role in virtual tourism.

This study aims to enrich the dialogue on metaverse adoption and assess its long-term viability in virtual tourism (Singh et al., 2024). The research focuses on answering 1) how metaverse travellers' perceived usefulness affects metaverse travellers' intentions to use and satisfaction, 2) how metaverse travellers' perceived enjoyment positively influences metaverse travellers' intentions to use and satisfaction, 3) how metaverse travellers' intention to use positively impacts metaverse travellers' satisfaction.

This study clarifies the concept of the technological acceptance model (TAM) implemented in the area of metaverse travellers and provides empirical insights from emerging economies like Indonesia. As developing countries increasingly leverage metaverse technology to boost economic growth and enhance tourism, our research highlights the adoption trends and obstacles faced in this rapidly evolving environment. These findings offer valuable guidance for local policymakers, tourism operators, and technology developers.

Literature Review and Hypotheses Development

The Concept of Technological Acceptance Model (TAM)

The thought of TAM helps predict user behaviour in adopting new technologies and has gained relevance in the metaverse (Mandal et al., 2024; Wu & Yu, 2024). In immersive virtual environments like WonderVerse Indonesia, TAM focuses on two crucial elements including perceived ease of use and perceived usefulness. Perceived ease of use is related to users navigating the virtual space easily, while perceived usefulness measures how much the metaverse enhances their activities (Davis, 1989). As users find the metaverse travellers' perceived usefulness, their likelihood of adoption increases, making TAM vital for developers and marketers to enhance user satisfaction. TAM has expanded to include perceived enjoyment, a key factor in the metaverse where entertainment and social interaction are central (Jafar & Ahmad, 2024). When users find the metaverse enjoyable, involving and prefer to occupy their time in these virtual environments, boosting adoption rates.

The Impact of Perceived Usefulness on Metaverse Travellers' Intention To Use and Satisfaction

Perceived usefulness represents the belief that utilizing a particular technology will significantly enhance users' experiences or meet their specific needs. In the context of WonderVerse Indonesia, virtual tourists, or people who explore destinations through digital platforms, are more likely to want to keep using these platforms if they believe the platform offers significant benefits. These benefits could include immersive experiences that make them feel like they are really at the destination, useful travel information that helps them plan, or the ability to visit more places than they could physically (Milanesi et al., 2024). Moreover, Wu and Yu (2024) emphasize that virtual tourism platforms offering immersive, informative, and interactive experiences boost user engagement and influence real-life travel decisions. These platforms help travelers preview destinations, increasing their likelihood to visit. From this, this study presents the following hypothesis:

Hypothesis 1 (H1): *Perceived usefulness impacts positively on metaverse travellers' intention to use.*

Azhar et al. (2024) explore how virtual tourism provides unique advantages, especially in contexts where physical travel is restricted or less accessible. The study emphasizes the role of immersive experiences and the availability of valuable information as key factors that enhance users' engagement with virtual tourism platforms. By offering realistic and informative virtual tours, the platforms allow travelers to explore destinations in an engaging way, possibly raising their intent to come to those places physically in the future. Moreover, Choi et al. (2023) stated that the functional value offered by the platform, through its various

features, not only meets the users' expectations but also plays an essential role in influencing their overall perception of satisfaction with the virtual travel experience. As such, the perceived usefulness of WonderVerse Indonesia becomes a significant factor that drives both user engagement and positive evaluations of the platform, ultimately leading to greater satisfaction, consequently, this framework offers the following hypothesis.

Hypothesis 2 (H2): *Perceived usefulness positively impacts Metaverse travellers' satisfaction.*

Perceived enjoyment denotes the grade that users observe a particular technology as being enjoyable, pleasant, and entertaining to use (Jafar & Ahmad, 2024). In the case of WonderVerse Indonesia, if virtual tourists derive a significant sense of enjoyment and pleasure from their interactions with the platform—whether through its immersive features, engaging content, or the seamless nature of its virtual experiences—their likelihood of returning to the platform and using it more frequently increases substantially (Mandal et al., 2024). The sense of enjoyment acts as a powerful intrinsic motivator, supporting users to not only use the extra time travelling the platform's offerings but also to engage more deeply with its functionalities, which in turn enhances their overall level of satisfaction with the platform. This heightened sense of satisfaction, driven by enjoyment, can further reinforce their intention to endure travelling the platform over time, as they associate their optimistic emotions with the WonderVerse experience (Azhar et al., 2024), hence this study purposes the subsequent hypothesis.

Hypothesis 3 (H3): *Perceived enjoyment positively impacts metaverse travellers' intention to use.*

Perceived enjoyment reflects the extent to which users find a technology both enjoyable and entertaining, significantly contributing to their overall experience (Jafar & Ahmad, 2024). In the case of WonderVerse Indonesia, when virtual tourists experience a high degree of pleasure and enjoyment while interacting with the platform—whether through its engaging and immersive features or the smooth flow of virtual experiences—they are more likely to feel satisfied with their use of the platform (Mandal et al., 2024). Enjoyment serves as a critical motivator, supporting travellers to use their extra time on the platform and fully engage with its features, which enhances their overall satisfaction (Azhar et al., 2024), consequently, this work suggests the subsequent hypothesis.

Hypothesis 4 (H4): *Perceived enjoyment positively impacts metaverse travellers' satisfaction.*

The intention to use WonderVerse Indonesia performs an essential part in determining virtual travellers' overall satisfaction through the platform. When users possess a strong intention to engage with WonderVerse, they are more inclined to thoroughly explore its diverse features as well as engross themselves in the virtual atmosphere it offers, thus enhancing their overall experience (Alshurafat et al., 2024; Mandal et al., 2024). This deeper level of engagement allows users to make the most of the platform's functionalities, leading to a richer and more fulfilling experience. As a result, when WonderVerse successfully meets their expectations and delivers the desired levels of enjoyment and engagement, users are more likely to experience higher satisfaction. Therefore, a strong intention to use the platform not only drives user interaction but also contributes directly to increased satisfaction among virtual tourists (Milanesi et al., 2024; Nam et al., 2024). Constructed from this argument, this work suggests a subsequent hypothesis.

Hypothesis 5 (H5): *The intention to use positively influences metaverse travellers' satisfaction.*

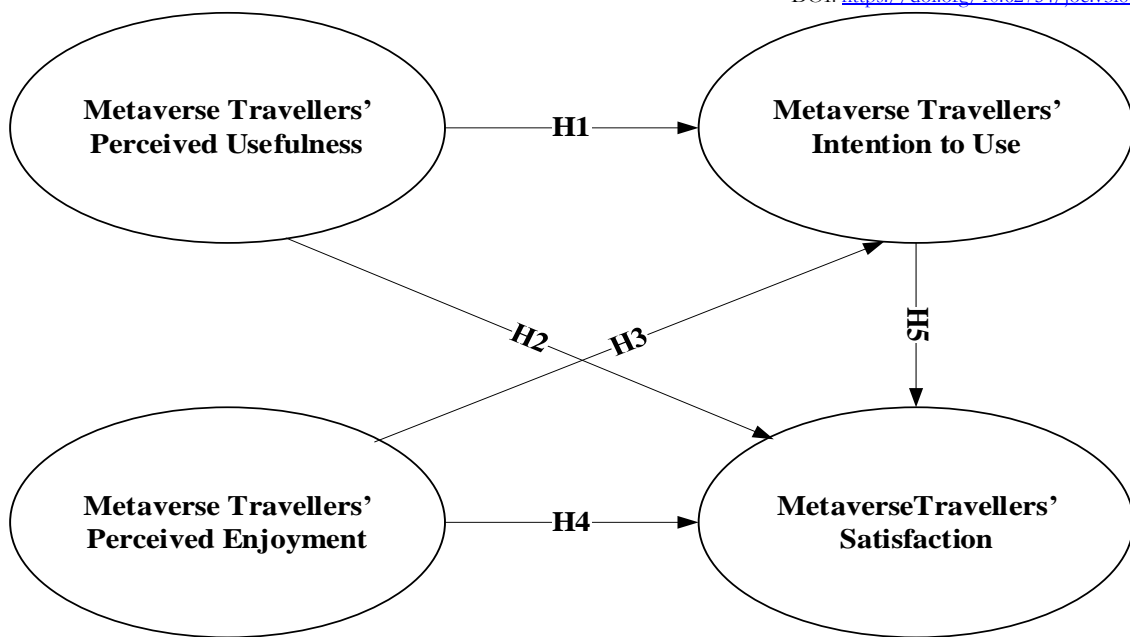


Figure 1. A Purpose Model of Metaverse Travellers

Research Methodology

Technics of Collecting Data

This research involved the participants from virtual travellers who interacted with WonderVerse Indonesia, using simple random sampling, data was collected through a Google Forms survey distributed via Facebook and WhatsApp. Totally 183 selected questionnaires has been screened and continued to the analysis process. All items for each construct had Cronbach's alpha values exceeding .70, demonstrating strong reliability and validity. The Cronbach's alpha values varied between .776 and .860.

Measurement Instruments

This study employed a measurement scale adapted from earlier research across diverse contexts, all of which demonstrated high levels of validity and reliability. Specifically, the scale for measuring the perceived usefulness and perceived enjoyment of metaverse travellers was derived from the seminal work of Wu and Yu (2024). Similarly, the items used to assess the metaverse travellers' intention to use were derived from the recent research by Wu and Yu (2024). Finally, the construct of metaverse travellers' satisfaction was adopted from the framework developed by Nam et al. (2024).

Results

Respondents' Demographics Description

This work outlines the socio-demographic characteristics of the participants, covering sex, age group, education, marital condition, and household income. Female respondents make up the majority at 56.3%, while male participants account for 43.7%. Most respondents fall within the 20-30 age range, representing 54.1%, followed by those under 20 years old at 25.7%, and 10.4% in the 31-40 age range. Single respondents dominate the survey, making up 78.1%, with married respondents comprising only 21.9%. Most respondents have an undergraduate educational background (55.2%) and report a household income of less than IDR 3,000,000 (79.8%).

Measurement Model

The measurement model's analysis used Anderson and Gerbing's (1988) two-step method, which includes confirmatory factor analysis (CFA) and structural equation modeling (SEM). The CFA was used to assess the measurement model, estimating the reliability and validity of the constructs. Subsequently, the analysis employed SEM to validate the hypotheses concerning the relations among the constructs. The results indicated that the measurement model demonstrated a satisfied model, through $\chi^2 / (df = 48) = 2.114$ ($p < .001$), with the value of good fit index (GFI) of .957, comparative fit index (CFI) of .981, incremental fit index (IFI) of .981, Tucker-Lewis index (TLI) of .971, normed fit index (NFI) of .964, and a root mean square error of approximation (RMSEA) of .057. All the values including CFI, GFI, IFI, and TLI exceeded .90, indicating excellent model fit, while RMSEA and Standardized RMR (.0314) values were below the .08 threshold, as recommended by Hu and Bentler (1998).

Reflective scales were used to assess the psychometric properties of each factor based on the CFA evaluation (Anderson & Gerbing, 1988; Bagozzi & Yi, 1988). Furthermore, the value of composite reliability (CR) surpassed .70 and the average variance extracted (AVE) exceeding .50 confirmed the convergent validity of the constructs (Hair et al., 2010). The analysis of CFA results showed the value of CR ranging from .761 to .873 and AVE values between .516 and .695. Table 1 displays the values of factor loadings, CR, and AVE, confirming the model's convergent validity.

Table 1. Results of the Confirmatory Factor Analysis (CFA)

Construct	Factor loading	Error Variance	Composite reliability (CR)	Average variance extracted (AVE)
Metaverse Travelers' Perceived Usefulness				
MU1	.782	.392	.870	.690
MU2	.858	.267		
MU3	.851	.279		
MU4	.852	.280		
Metaverse Travelers Perceived Enjoyment				
ME1	.815	.338	.873	.695
ME2	.867	.251		
ME3	.820	.330		
ME4	.821	.331		
Metaverse Intention to Use				
MI1	.814	.340	.853	.659
MI2	.777	.399		
MI3	.845	.289		
Metaverse Travelers Satisfaction				
MS1	.714	.493	.761	.516
MS2	.780	.394		
MS3	.656	.572		

Note: $\chi^2 = 99.317$; $\chi^2 / (df = 48) = 2.114$ ($p < .001$); RMSEA = .057; NFI = .964; RFI = .949; IFI = .981; TLI = .971; CFI = .981; RMR = .032; GFI = .957; AGFI = .928; PGFI = .577; SRMR = .0314, and PNFI = .687.

In terms of demonstrating discriminant validity, Fornell and Larcker (1981) anticipated that the square root of the average variance extracted (AVE) for every construct requirement surpasses the correlation coefficients between that construct and every other construct in the research model. This guideline indicates that, for every construct, the AVE square root ought to surpass its relationships with others, signifying that the construct is more strongly associated with its own indicators than with any other construct. The results

confirmed that the AVE square root for every construct surpassed the relationships among constructs, thus verifying that the framework exhibits sufficient discriminant validity. The detailed correlation matrix reflecting this discriminant validity is provided in Table 2.

Table 2. Discriminant Validity Correlation Matrix

Construct	MU	ME	MI	MS
MU	.831			
ME	.649	.834		
MI	.459	.651	.812	
MS	.631	.605	.668	.718

Note: MU = Metaverse Travellers' Perceived Usefulness; ME = Metaverse Travellers' Perceived Enjoyment; MI = Metaverse Travellers' Intention to Use; MS = Metaverse Travellers' Satisfaction.

Structural Model

Following Anderson and Gerbing's (1988) approach, the subsequent procedure analysis of the structural model was to validate the purposing hypotheses. The findings indicated a χ^2 value of 99.315; χ^2/df (df = 48) = 2.110, ($p < .001$), with a root mean square error of approximation (RMSEA) of .058. Additional model fit indices showed good results, including a good fit index (GFI) of .955, a normed fit index (NFI) of .962, an incremental fit index (IFI) of .979, a Tucker-Lewis index (TLI) of .970, and a comparative fit index (CFI) of .978. Following the recommendations of Hu and Bentler (1998), values for the CFI, IFI, TLI, and NFI near 1.00 and above .90 indicated an acceptable model fit. Moreover, the value of RMSEA, falling in the array from .04 to .08, demonstrated a good fit, whereas the Standardized RMR (SRMR) of .0313 further supported an adequate model fit.

The hypothesis validation concentrated on the aspects affecting metaverse travellers' intention to use and customer satisfaction. The analysis revealed that metaverse travellers perceived usefulness had significant effect on metaverse travellers' intention to use (Hypothesis 1) and metaverse travellers' satisfaction (Hypothesis 2). Similarly, metaverse travellers' perceived enjoyment had significant positive effects on metaverse travellers' intention to use (Hypothesis 3) and satisfaction (Hypothesis 4). Finally, metaverse travellers' intention to use was shown to have a significant effect on metaverse travellers' satisfaction (Hypothesis 5). Table 5 provides a detailed summary of the hypothesis testing results.

Table 3. Validation of the Hypotheses

Hypothesis	Relationship	Estimate	S.E.	C.R	Result
H1	MU → MI	.753***	.054	14.096	Supported
H2	MU → MS	.644***	.089	6.994	Supported
H3	ME → MI	.358***	.069	5.246	Supported
H4	ME → MS	.768***	.102	7.564	Supported
H5	MI → MS	.544***	.074	7.397	Supported

Note: *** $p \leq .001$

MU = Metaverse Travellers' Perceived of Usefulness; ME = Metaverse Travellers' Enjoyment; MI = Metaverse Travellers' Intention to Use; MS = Metaverse Travellers' Satisfaction.

Discussion and Conclusion

This study confirms that metaverse travellers' perceived usefulness and perceived enjoyment successfully enhance metaverse travellers' intention to use the Wonder Verse Indonesia tourism platform. Similarly, metaverse travellers' perceived usefulness and perceived enjoyment fruitfully affect metaverse travellers'

intention to use and their satisfaction. Finally, this study found that metaverse travellers' intention to use influences the satisfaction of metaverse travellers.

The result reported that perceived usefulness impacts metaverse travelers' intention to use WonderVerse Indonesia agrees with prior studies that highlight the importance of perceived usefulness in driving user acceptance of recent technologies (Azhar et al., 2024; Milanesi et al., 2024; Wu & Yu, 2024). When users perceive that the platform enhances their virtual travel experiences—offering immersive and valuable content—they are more likely to engage with it, indicating that functional benefits remain a critical motivator for usage. This finding suggests that developers should continue to improve the platform's utility by providing comprehensive features that meet users' practical needs.

Similarly, the findings confirm that perceived usefulness positively impacts satisfaction prove that users who perceive WonderVerse Indonesia as useful tend to feel more satisfied with their experiences on the platform (Azhar et al., 2024; Milanesi et al., 2024; Wu & Yu, 2024; Choi et al., 2023). This highlights the importance of delivering practical value to ensure user satisfaction. The platform's ability to fulfill users' expectations and meet their travel-related needs through immersive and informative content plays a critical role in forming positive evaluations.

The results also supported the hypotheses which posited that perceived enjoyment significantly influences both intention to use and satisfaction. Users who derive enjoyment from their interactions with WonderVerse Indonesia—whether through its engaging content or seamless immersive experiences—are more prone to both adopt the platform and feel satisfied with it (Jafar & Ahmad, 2024; Mandal et al., 2024; Azhar et al., 2024). Enjoyment acts as a powerful intrinsic motivator, motivating users to use extra time on the platform and enhancing their overall experience. This suggests that platform developers should focus on creating enjoyable and entertaining features that enrich the user experience, such as gamification and social interaction.

The final finding of this study, which reveals that intention to use positively influences satisfaction, offers valuable insight into user behavior within the context of platforms like WonderVerse Indonesia. It clarifies that users with a strong intention to engage with the platform tend to explore its features more deeply, which in turn leads to higher satisfaction (Alshurafat et al., 2024; Mandal et al., 2024; Milanesi et al., 2024; Nam et al., 2024). This deeper engagement allows users to derive greater value from the platform, confirming that intention to use is a critical driver of user satisfaction.

The study findings align closely with the theory of the technological acceptance model (TAM), which postulates perceived usefulness and perceived enjoyments are essential elements of users' purchasing intentions and, ultimately, their actual use of technology (Davis, 1989). In the setting of WonderVerse Indonesia, the study confirms that perceived usefulness and enjoyment show an important role in determining users' intention to use the platform and their overall satisfaction, expanding on TAM's foundational concepts by incorporating perceived enjoyment as a critical factor in the metaverse.

Managerial Implication

The research findings afford significant understandings into management implications for enhancing metaverse platforms like Wondersverse Indonesia. First, the substantial influence of perceived usefulness on both intention to use and satisfaction suggests that platform managers should prioritize developing features that deliver practical value to users. This can include user-friendly navigation, real-time virtual assistance, and interactive tools that enhance the travel experience. Promoting these functional benefits through targeted marketing campaigns can help potential travelers understand the platform's value, enhancing their likelihood of using it.

Additionally, the findings highlights the prominence of perceived enjoyment in supporting user involvement and satisfaction. Managers had better concentrate on generating immersive and enjoyable feels by incorporating gamification, interactive social features, and virtual entertainment that enhance user enjoyment. Regular updates with fresh content and innovative features can keep users excited and engaged.

Moreover, since the intention to use directly impacts satisfaction, offering rewards or loyalty programs for frequent users can further enhance satisfaction, building a loyal customer base and fostering long-term retention.

Limitations and Suggestions for Upcoming Study

The work addresses several limitations that open avenues for forthcoming research. Initially, the relatively small sample amount of 183 respondents makes the findings cannot be generalized. Broadening the scope of the sample with a more varied group of metaverse travelers from various platforms and areas would improve the robustness and appropriateness of the results. Additionally, the focus on the Wondersverse Indonesia platform means that the findings may not fully capture user behavior on other metaverse platforms, which might have different features or user experiences. Future studies could broaden their scope to examine multiple platforms and account for regional or cultural variations.

Moreover, this study primarily focused on perceived usefulness, perceived enjoyment, and intention to use, leaving out other potential factors such as social influence, perceived risk, or ease of use. Upcoming studies ought to incorporate the factors to afford a comprehensive thought of what drives user satisfaction and engagement. Longitudinal studies that verify user behavior and satisfaction over time would also offer deeper insights into how these perceptions evolve with extended platform use. Finally, exploring the moderating impacts of demographic factors such as age, digital literacy, and cultural background could reveal additional nuances in how different groups of users interact with metaverse platforms.

Acknowledgements

The authors revealed receiving the subsequent monetary funding for the study, writing, and publishing of the manuscript from the Directorate General of Higher Education, Research and Technology, Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia through the PFR scheme for the fiscal year 2024. The writers highly appreciate this financial support.

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