



Explaining Recommendation Intention in Metaverse Tourism through Continuance and Discontinuance: Evidence from Chinese Generation Z

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ABSTRACT

This study develops a post-use framework to explain recommendation intention in metaverse tourism among Chinese Gen Z users. Grounded in dual-factor theory and supported by strategic experiential modules and perceived risk theory, the framework conceptualizes continuance intention and discontinuance intention as two distinct post-use routes that shape recommendation intention. SEM results show that continuance intention positively influences recommendation intention, whereas discontinuance intention negatively influences it. Perceived social value, perceived hedonic value, and perceived aesthetic value significantly strengthen continuance intention. Perceived psychological risk and perceived privacy risk significantly increase discontinuance intention, whereas perceived performance risk is not significant. The findings suggest that recommendation intention in emerging virtual destination environments and related service platforms is shaped by two coexisting post-use routes, with implications for platform design and user retention.

Keywords: Metaverse Tourism, Dual-Factor Theory, Continuance Intention, Discontinuance Intention, Recommendation Intention

JEL Classifications: M31; Z33; D91

1. INTRODUCTION

Metaverse tourism has quickly moved from a conceptual novelty to a serious topic in tourism research (Buhalis et al., 2023). As metaverse-enabled tourism experiences gain momentum, their capacity to reshape how destinations are encountered and interpreted has become increasingly difficult to ignore (Buhalis et al., 2023; Dwivedi et al., 2022). Among the user groups relevant to metaverse tourism, Chinese Generation Z (Gen Z) deserves particular attention because of its strong exposure to immersive media and its position within China's evolving metaverse landscape. What makes this line of research especially compelling is that the metaverse is not simply another digital channel. It combines virtual space, avatar-based participation, real-time interaction, and immersive experience in ways that may alter how tourism is imagined and evaluated (Shin and Kang,

2024; Yoon and Nam, 2024). Yet this promise also raises a basic question for tourism research: after the initial experience, what makes metaverse tourism remain appealing for some users while prompting more cautious responses from others?

That question becomes more important after initial use. At that stage, one possible response is continuance intention (CI), or users' willingness to continue or repeat the experience (Chakraborty et al., 2024). Another is discontinuance intention (DI), or their willingness to reduce, stop, or withdraw from it (Jia and Nkoulou Mvondo, 2025). These two responses should not be reduced to simple opposites, because users may simultaneously perceive reasons to continue and reasons to withdraw. A further response is recommendation intention (RI), which captures whether users are willing to recommend the metaverse tourism experience to others after use (Mandal et al., 2024). In other words, the value

of metaverse tourism depends not only on whether it attracts initial trials, but also on whether it sustains participation, triggers withdrawal tendencies, or encourages recommendations.

Recent research has developed along two connected but uneven paths. One path highlights the favorable side of metaverse tourism by emphasizing experiential benefits and engagement-related mechanisms, including value perceptions, telepresence, immersion, social presence, attachment, and travel-related outcomes (Mandal et al., 2024; Shin and Kang, 2024; Yoon and Nam, 2024). The other path turns attention to the inhibiting side of metaverse experience. Here, the literature increasingly points to privacy concerns, security issues, psychological burden, and other barriers that may weaken continued participation (Jia and Nkoulou Mvondo, 2025; Laiz-Ibáñez et al., 2025).

A clearer explanation is still needed, however, of how favorable and unfavorable evaluations jointly shape users' post-use responses in metaverse tourism. This issue is especially salient for Chinese Gen Z, a cohort likely to encounter both the experiential appeal and the perceived risks of metaverse tourism more directly than many other user groups. Most metaverse tourism and metaverse-use studies still concentrate on immersive benefits and behavioral intentions, whereas the darker side remains less developed in the literature (Jia and Nkoulou Mvondo, 2025; Shin and Kang, 2024). This limitation is particularly visible in the treatment of CI and DI. Existing metaverse studies have tended to focus either on CI or on DI, rather than modeling both together (Chakraborty et al., 2024; Jia and Nkoulou Mvondo, 2025; Roh et al., 2024). Existing research has also paid limited attention to how these post-use responses extend to RI, although recent work has begun to consider recommendation-related outcomes in Gen Z-oriented metaverse contexts (Mandal et al., 2024).

To address these gaps, this study develops a post-use framework to explain how positive and negative evaluations shape Chinese Gen Z users' responses to metaverse tourism. Drawing on dual-factor theory (DFT) as the overarching framework, the study uses strategic experiential modules (SEMs) to inform the enabling side of the model and perceived risk theory (PRT) to explain the inhibiting side. Accordingly, perceived social value, perceived hedonic value, and perceived aesthetic value are positioned as enabling factors, whereas perceived privacy risk, perceived performance risk, and perceived psychological risk are positioned as inhibiting factors (Jia and Nkoulou Mvondo, 2025; Laiz-Ibáñez et al., 2025; Petr and Caudan, 2024; Shin and Kang, 2024). On this basis, the study examines how these enabling and inhibiting factors influence CI and DI, and how both intentions relate to RI.

This study extends metaverse tourism research in three main respects. First, it positions RI within a post-use framework rather than treating it as a simple extension of general evaluation. Second, framed by DFT, it conceptualizes CI and DI as distinct but coexisting post-use routes in metaverse tourism. Third, it clarifies how experiential values and perceived risks, informed by SEMs and PRT respectively, populate the enabling and inhibiting sides of the model. In practical terms, the study also offers insight for destination marketers and metaverse tourism platform operators

seeking to support continued engagement while reducing withdrawal tendencies.

2. THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1. Dual-Factor Theory

Dual-factor theory (DFT) provides the overarching theoretical foundation for this study because it explains behavioral responses through two distinct sets of antecedents rather than through a single evaluative continuum (Talwar et al., 2021; Voini et al., 2024). The fundamental rationale is derived from Herzberg's assertion that motivators and demotivators are distinct components that function autonomously (Herzberg et al., 1959). Applied more broadly, this perspective suggests that positive outcomes do not arise simply from removing negative conditions, and negative outcomes cannot be explained only by the absence of positive ones (Cenfetelli, 2004). Favorable and unfavorable evaluations may therefore coexist and exert different effects on subsequent judgments and intentions (Talwar et al., 2021). This makes DFT particularly suitable for contexts in which attraction and hesitation may emerge at the same time.

This perspective fits metaverse tourism well. Post-use judgment in this context is unlikely to fall along a simple positive-to-negative line (Petr and Caudan, 2024; Singh et al., 2025). Users may simultaneously perceive reasons to continue and reasons to withdraw (Nadeem et al., 2025). DFT therefore provides a clear basis for treating CI and DI as two distinct post-experience pathways that ultimately shape RI.

2.2. Continuance Intention and Discontinuance Intention

Continuance intention (CI) refers to users' willingness to continue, repeat, or maintain metaverse tourism experiences after prior use (Jeyaraj et al., 2023). Discontinuance intention (DI) refers to their inclination to reduce, stop, or withdraw from such experiences after prior use (Altrichter and Benoit, 2025). The latter does not mean simple non-use or failure to adopt. It reflects a withdrawal-oriented judgment formed after actual experience (Altrichter and Benoit, 2025; Platzer et al., 2025). These two responses are often treated as opposite ends of a single line. However, in post-experience settings, such a treatment is overly simplified (Wang et al., 2024). In this study, CI and DI are treated as the proximal outcomes of the positive and negative post-experience routes, respectively. The factors that support continued participation are not necessarily the same as those that trigger withdrawal (Wang et al., 2024). In metaverse tourism, users evaluate not only whether an experience should be sustained but also whether it remains worth maintaining over time.

2.3. Recommendation Intention

Recommendation intention (RI) refers to users' willingness, based on their own metaverse tourism experience, to recommend metaverse tourism experiences to others (Kang et al., 2024; Moliner-Tena et al., 2023). As a downstream outcome, it goes beyond users' own decision to remain involved or withdraw

and reflects whether their experience-based evaluation is further expressed as outward endorsement (Kang et al., 2024).

If users are willing to continue metaverse tourism experiences, the result usually suggests that they perceive such experiences as sufficiently valuable to sustain further involvement. When an experience is appraised in this way, users are more likely to form favorable word-of-mouth intentions and encourage others to try it (Moliner-Tena et al., 2023). CI may therefore extend beyond personal retention and translate into recommendation intention. By contrast, if users develop an inclination to reduce or stop metaverse tourism experiences, such behavior suggests that certain concerns or perceived drawbacks have become salient enough to weaken their willingness to remain involved (Jia and Nkoulou Mvondo, 2025). Once such withdrawal-oriented judgment emerges, users are generally less likely to stand behind the experience through positive recommendation (Ma et al., 2025). DI is therefore expected to reduce RI toward metaverse tourism experiences. Accordingly, the following hypotheses are proposed:

- H₁. Metaverse tourism continuance intention has a positive effect on recommendation intention.
- H₂. Metaverse tourism discontinuance intention has a negative effect on recommendation intention.

2.4. Strategic Experiential Modules and Enablers

Metaverse tourism is better understood as an experience setting than as a purely functional usage context (Buhalis et al., 2023). After use, users judge not only whether the system works but also whether the experience is worth returning to (Roh et al., 2024). This makes an experiential lens necessary for explaining CI in metaverse tourism. Strategic experiential modules (SEMs) offer such a lens by viewing experience as more than a single overall impression (Zha et al., 2023). Instead, SEMs suggest that experience is formed through different modules that shape how users respond to an environment. This logic is useful for identifying the experiential values most likely to support CI in metaverse tourism.

SEMs comprise five modules: Sense, feel, think, act, and relate (Schmitt, 1999). In this study, however, SEMs are used as a selection logic rather than fully operationalized as five parallel constructs. The retained enablers should remain close to the core features of metaverse tourism. They should also align with post-use judgment. Finally, they should be distinct enough to avoid unnecessary overlap. On this basis, the study retains perceived social value, perceived hedonic value, and perceived aesthetic value. These three enablers correspond most closely to relate, feel, and sense, respectively (Batat, 2024; Kumari et al., 2024; Schmitt, 1999). By contrast, think is more closely tied to information seeking and cognitive processing, whereas act is more closely tied to embodied expression and self-presentation (Chakraborty et al., 2024; Dwivedi et al., 2024). Both may matter in broader experiential research, but they are less central to the evaluative intentions examined here.

Perceived social value (PSV) refers to users' judgment that metaverse tourism helps them connect with others and share the experience with them. It reflects the relate-oriented value

of the experience (Ghali et al., 2024). This value is especially important in metaverse tourism because users often encounter others through avatars, shared activities, and real-time feedback. When metaverse tourism experiences are perceived as socially valuable, users may become more inclined to revisit them and maintain their engagement (Ghali et al., 2024). Accordingly, the following hypothesis is proposed:

- H₃. Perceived social value has a positive effect on metaverse tourism continuance intention.

Perceived hedonic value (PHV) refers to users' judgment that metaverse tourism is enjoyable and emotionally rewarding (Kumari et al., 2024). It reflects the feel-based affective value of the experience. This value fits metaverse tourism well because enjoyment is one of its main attractions. Higher PHV may strengthen users' willingness to continue participating in metaverse tourism over time (Chakraborty et al., 2024). Accordingly, the following hypothesis is proposed:

- H₄. Perceived hedonic value has a positive effect on metaverse tourism continuance intention.

Perceived aesthetic value (PAV) refers to users' judgment of the visual and sensory appeal of the metaverse tourism environment (Batat, 2024). It reflects the sense-based aesthetic value of the experience. This value is particularly important in metaverse tourism because the experience relies heavily on immersive scenes and environmental cues. The aesthetic appeal of the metaverse tourism environment may also contribute to sustaining user engagement over time (Kumari et al., 2024). Accordingly, the following hypothesis is proposed:

- H₅. Perceived aesthetic value has a positive effect on metaverse tourism continuance intention.

2.5. Perceived Risk Theory and Inhibitors

Metaverse tourism does not generate only experiential value. It also brings a range of dark-side concerns. Explaining why users continue is therefore not enough. It is also necessary to explain why they may begin to withdraw. Perceived risk theory (PRT) offers a suitable lens for this purpose (Gupta et al., 2024; Jia and Nkoulou Mvondo, 2025). The theory suggests that users evaluate an experience not only in terms of expected benefits but also in terms of possible loss, uncertainty, and negative consequences (Liu and Mair, 2023). In metaverse tourism, such perceptions can weaken users' willingness to remain involved and can encourage DI.

PRT can be extended to multiple risk dimensions, including financial, time, social, privacy, performance, and psychological risk (Leong and Koay, 2023; Lu and Shi, 2024). The present study does not seek to exhaust all of them. Instead, it retains the risk dimensions that are most salient in metaverse tourism, most closely related to withdrawal judgments, and sufficiently distinct within the model. This strategy leads to three inhibitors: Perceived privacy risk, perceived performance risk, and perceived psychological risk. Together, they capture data-related vulnerability, technical uncertainty, and mental burden in metaverse tourism (Jia and Nkoulou Mvondo, 2025; Singh et al., 2025). By contrast, financial risk and time risk are more closely related to general cost considerations (Zhao and Khaliq, 2024), whereas social risk

is more closely associated with interpersonal and reputation-related concerns (Sohn, 2024) and may reduce the conceptual separation of the social pathway in the present model. Accordingly, financial, time, and social risk appear less central to withdrawal judgments in metaverse tourism than privacy, performance, and psychological risk.

Perceived privacy risk (PPRR) concerns the possibility that personal information and interaction-related data in metaverse tourism may not remain secure (Pizam et al., 2024). It includes worry about exposure, misuse, or unauthorized access to identity-related records and behavioral traces (Dwivedi et al., 2022). This issue is especially salient in metaverse tourism because data collection is often richer and more continuous than in conventional digital platforms, including biometric and behavioral data capture (Dwivedi et al., 2022). As privacy concerns become stronger, continued participation may feel less safe and less acceptable (Kim et al., 2023). Users are therefore more likely to reduce or stop their involvement. Accordingly, the following hypothesis is proposed:
H₆. Perceived privacy risk has a positive effect on metaverse tourism discontinuance intention.

A different but related concern is perceived performance risk (PPER). This refers to the possibility that metaverse tourism may fail to function as expected (Pizam et al., 2024). It may involve lag, instability, poor compatibility, interaction failure, or weak immersive delivery (Gupta et al., 2024; Nadeem et al., 2025). In metaverse tourism, technical performance is part of the experience itself. When performance becomes unreliable, the experience is directly disrupted (Roh et al., 2024). Users are then more likely to scale back or discontinue use. Accordingly, the following hypothesis is proposed:
H₇. Perceived performance risk has a positive effect on metaverse tourism discontinuance intention.

Perceived psychological risk (PPSR) centers on the mental burden that metaverse tourism may impose on users (Pizam et al., 2024). It refers to the possibility that the experience may generate stress, fatigue, discomfort, anxiety, or related forms of psychological strain (Jia and Nkoulou Mvondo, 2025; Nadeem et al., 2025).

This issue has become increasingly relevant in metaverse tourism because highly immersive experiences may also bring emotional and cognitive costs (Petr and Caudan, 2024; Jia and Nkoulou Mvondo, 2025). Once these costs become salient, users are more likely to form a withdrawal-oriented judgment about the experience (Jia and Nkoulou Mvondo, 2025). This effect should increase DI toward metaverse tourism. Accordingly, the following hypothesis is proposed:

H₈. Perceived psychological risk has a positive effect on metaverse tourism discontinuance intention.

The hypotheses are depicted in the following research model (Figure 1).

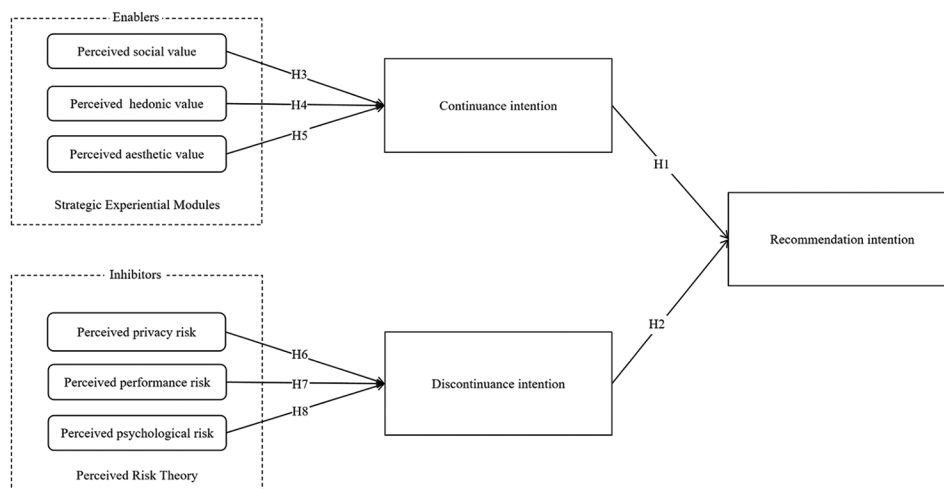
3. RESEARCH METHODS

3.1. Questionnaire Development

The questionnaire consisted of two parts. The first part collected respondents' demographic and usage information, whereas the second part measured the nine constructs in the proposed model, including perceived value-related constructs, perceived risk-related constructs, CI, DI, and RI. All measurement items were adapted from validated studies and were slightly reworded to fit the metaverse tourism context. All items were assessed on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The final measurement items and their sources are provided in Appendix.

The initial questionnaire was reviewed by the research team and academic experts familiar with metaverse tourism to enhance wording precision and contextual appropriateness, consistent with prior survey development work in which questionnaire items were refined through expert consultation and iterative pretesting for clarity and cogency (Curlin et al., 2007; Jagsi et al., 2005). It was subsequently pilot-tested with 30 participants, who were excluded from the final sample, to evaluate item comprehensibility and the overall flow of the survey (O'Connor and Johanson, 2000). Based on the pilot feedback, minor refinements were made before the formal administration. This pilot test process helped improve item

Figure 1: Research model



clarity and contextual fit and reduced the likelihood of response ambiguity.

3.2. Sample and Data Collection

The target respondents were Chinese Gen Z users with prior metaverse tourism experience. This group was selected because the study examines post-use responses to metaverse tourism, all of which presuppose prior use rather than 1st-time exposure (Mishra et al., 2023; Sun and Jeyaraj, 2013). China provides an appropriate empirical context for this study because the research is explicitly situated in the Chinese metaverse tourism setting, where Gen Z users are generally more accustomed to digital platform engagement, app-based self-service, and immersive technology-mediated experiences (Buhalis et al., 2023; Fu et al., 2024; Zou et al., 2023). Accordingly, purposive sampling was adopted to ensure that only qualified respondents were included in the study. Screening questions were placed at the beginning of the questionnaire to confirm whether respondents were aged 18-29 and whether they had prior metaverse tourism experience. Only those who satisfied both criteria were allowed to proceed to the formal survey. Before participation, respondents were informed of the purpose of the study and assured that participation was voluntary, anonymous, and confidential, and that the data would be used solely for academic research purposes.

A total of 500 responses were obtained via the Sojump survey platform, with respondents recruited through Chinese online communities and social media channels relevant to metaverse tourism participation. After data collection, the submitted responses were carefully screened and cleaned before formal analysis. Responses were excluded if they were incomplete, failed to satisfy the screening requirements, or contained inconsistent answers to the screening and usage questions. Following this data-cleaning process, 412 valid questionnaires were retained for the subsequent analysis. Table 1 presents the demographic profile of the valid respondents.

Table 1: Respondent profile (n=412)

Respondent characteristics	Category	Frequency	Percentage
Age	18-20	179	43.45
	21-23	135	32.77
	24-26	50	12.14
	27-29	48	11.65
Gender	Female	197	47.82
	Male	204	49.51
	Non-binary/third gender	11	2.67
Educational level	High school or below	83	20.15
	Bachelor's degree	244	59.22
	Master's degree	65	15.78
	Doctoral degree/doctoral study	20	4.85
Frequency of metaverse tourism use	Less than once a month	106	25.73
	1-3 times a month	127	30.83
	Once a week	78	18.93
	Several times a week	101	24.51
Length of metaverse tourism use	<3 months	128	31.07
	3-6 months	102	24.76
	6 months-1 year	95	23.06
	More than 1 year	87	21.12

3.3. Statistical Methods

SPSS 27 and AMOS 28 were used for data analysis. SPSS was employed for data cleaning, descriptive statistics, and preliminary reliability analysis, whereas AMOS was used to conduct confirmatory factor analysis (CFA) and structural equation modeling (SEM). The measurement model was first assessed through CFA in terms of standardized factor loadings, internal consistency reliability, convergent validity, and discriminant validity, using composite reliability (CR), average variance extracted (AVE), and the Fornell-Larcker criterion as supporting diagnostics (Fornell and Larcker, 1981; Kline, 2016). Model fit was evaluated using commonly reported goodness-of-fit indices, including χ^2/df , CFI, TLI, RMSEA, and SRMR (Hu and Bentler, 1999; Kline, 2016). After the adequacy of the measurement model was confirmed, SEM was used to test the structural model and the hypothesized relationships among the constructs. The structural model was evaluated on the basis of path coefficients and overall model fit. To further examine the indirect transmission mechanisms from value- and risk-related antecedents to RI through CI and DI, indirect effects were assessed using a bias-corrected bootstrap procedure with 5,000 resamples and a 95% confidence interval (CI). In addition, because all variables were collected through a single self-reported questionnaire, common method bias (CMB) was also considered, as such designs are susceptible to method-related bias. Beyond the procedural remedies, Harman's single-factor test and a common latent factor (CLF) approach were applied as additional statistical checks (Fuller et al., 2016; Kock et al., 2021).

4. RESULTS

4.1. Preliminary Diagnostics and Common Method Bias

The data did not exhibit severe non-normality, with skewness ranging from -0.250 to 0.473 and kurtosis ranging from -1.096 to -0.749 across the constructs, well within conservative guidelines commonly used to flag severe non-normality (Kline, 2016). Because all variables were collected through a single self-reported questionnaire, potential CMB was assessed using both Harman's single-factor test and a CLF approach, which are widely used *post hoc* diagnostics in same-source survey research (Fuller et al., 2016; Podsakoff et al., 2012). Harman's single-factor test showed that the first unrotated factor explained 21.07% of the total variance, which was well below the conventional 50% benchmark often used to indicate a serious common method variance concern (Fuller et al., 2016). In addition, a CLF was added to the measurement model as a more stringent diagnostic of shared method effects (Podsakoff et al., 2012). After the CLF was added, the average absolute change in standardized factor loadings was 0.080, and all 31 items showed differences of no more than 0.20 (Podsakoff et al., 2012). These results suggest that CMB is unlikely to materially affect the interpretation of the findings.

4.2. Measurement Model Assessment

A CFA was performed to evaluate the measurement model comprising the nine latent constructs. The results indicated an excellent model fit ($\chi^2 = 416.91$, $df = 398$, $\chi^2/df = 1.048$,

CFI = 0.997, TLI = 0.996, RMSEA = 0.011, SRMR = 0.030), according to conventional SEM fit benchmarks (Hu and Bentler, 1999; Kline, 2016). Table 2 shows that all standardized factor loadings ranged from 0.726 to 0.875 and exceeded the commonly recommended level for reflective indicators. The results also supported internal consistency reliability, with Cronbach's α values between 0.788 and 0.858, CR values between 0.809 and 0.886, indicating satisfactory reliability. Convergent validity was likewise established, as all AVE values ranged from 0.585 to 0.685 and exceeded the threshold of 0.50 (Fornell and Larcker, 1981). As reported in Table 3, discriminant validity was supported using the Fornell-Larcker criterion, as the square roots of AVE for all constructs were greater than the corresponding absolute latent inter-construct correlations. This indicates that each construct

shared more variance with its own indicators than with other constructs (Fornell and Larcker, 1981).

4.3. Structural Model Assessment and Hypothesis Testing

After establishing the adequacy of the measurement model, the structural model was estimated to test the hypothesized relationships. The structural model also showed an excellent fit to the data, with $\chi^2 = 432.11$, $df = 411$, $\chi^2/df = 1.051$, CFI = 0.997, TLI = 0.996, RMSEA = 0.011, and SRMR = 0.035, according to commonly used SEM model-fit guidelines (Hu and Bentler, 1999; Kline, 2016). As shown in Table 4, CI exerted a significant positive effect on RI ($\beta = 0.545$, $P < 0.001$), whereas DI had a significant negative effect on RI ($\beta = -0.190$, $P < 0.001$), supporting H_1 and

Table 2: Test results of internal reliability and convergent validity

Construct	Item	Factor loadings	Cronbach's α	CR	AVE
Perceived social value (Choi et al., 2023)	PSV1	0.839	0.858	0.880	0.647
	PSV2	0.801			
	PSV3	0.774			
	PSV4	0.803			
Perceived aesthetic value (Cai et al., 2025)	PAV1	0.793	0.815	0.843	0.641
	PAV2	0.816			
	PAV3	0.793			
Perceived hedonic value (Shamim et al., 2025)	PHV1	0.798	0.799	0.836	0.629
	PHV2	0.793			
	PHV3	0.789			
Perceived privacy risk (Bao et al., 2025)	PPRR1	0.809	0.824	0.885	0.659
	PPRR2	0.826			
	PPRR3	0.819			
	PPRR4	0.792			
Perceived performance risk (Kumar et al., 2025)	PPER1	0.726	0.788	0.809	0.585
	PPER2	0.820			
	PPER3	0.746			
Perceived psychological risk (Bao et al., 2025)	PPSR1	0.765	0.813	0.850	0.654
	PPSR2	0.875			
	PPSR3	0.782			
Continuance intention (Dwivedi et al., 2024)	CI1	0.767	0.825	0.886	0.609
	CI2	0.765			
	CI3	0.803			
	CI4	0.785			
	CI5	0.780			
Discontinuance intention (Jia and Nkoulou Mvondo, 2025)	DI1	0.779	0.801	0.816	0.596
	DI2	0.777			
	DI3	0.760			
Recommendation intention (Jung et al., 2015)	RI1	0.823	0.843	0.867	0.685
	RI2	0.839			
	RI3	0.821			

Table 3: Means, standard deviations, correlations, and discriminant validity

Construct	Mean	SD	1	2	3	4	5	6	7	8	9
1. PSV	3.081	1.107	0.805	0.311	0.360	0.595	0.036	0.015	0.054	-0.040	0.308
2. PAV	3.134	1.117	0.311	0.801	0.210	0.423	0.047	0.060	0.069	-0.009	0.197
3. PHV	2.988	1.108	0.360	0.210	0.793	0.449	0.070	0.056	0.028	0.014	0.210
4. CI	3.278	1.073	0.595	0.423	0.449	0.780	0.005	0.028	-0.014	0.014	0.546
5. PPRR	2.551	1.071	0.036	0.047	0.070	0.005	0.812	0.363	0.332	0.546	-0.127
6. PPER	2.613	1.042	0.015	0.060	0.056	0.028	0.363	0.765	0.223	0.265	-0.024
7. PPSR	2.512	1.109	0.054	0.069	0.028	-0.014	0.332	0.223	0.809	0.325	-0.196
8. DI	2.573	1.080	-0.040	-0.009	0.014	0.014	0.546	0.265	0.325	0.772	-0.173
9. RI	3.138	1.123	0.308	0.197	0.210	0.546	-0.127	-0.024	-0.196	-0.173	0.828

Diagonal elements in bold represent the square roots of AVE. Off-diagonal elements are latent inter-construct correlations estimated from the CFA model. PSV: Perceived social value, PAV: Perceived aesthetic value, PHV: Perceived hedonic value, CI: Continuance intention, PPRR: Perceived privacy risk, PPER: Perceived performance risk, PPSR: Perceived psychological risk, DI: Discontinuance intention, RI: Recommendation intention

Table 4: Structural path results and hypothesis testing

Hypothesis	Path	β	S.E.	C.R.	P-value	Result
H ₁	CI→RI	0.545	0.058	9.616	<0.001	Supported
H ₂	DI→RI	-0.190	0.052	-3.674	<0.001	Supported
H ₃	PSV→CI	0.434	0.052	7.878	<0.001	Supported
H ₄	PHV→CI	0.241	0.049	4.656	<0.001	Supported
H ₅	PAV→CI	0.233	0.050	4.655	<0.001	Supported
H ₆	PPRR→DI	0.473	0.062	7.465	<0.001	Supported
H ₇	PPER→DI	0.057	0.067	0.968	0.333	Not supported
H ₈	PPSR→DI	0.162	0.059	2.859	0.004	Supported

β : Standardized path coefficient, S.E.: Standard error, C.R.: Critical ratio, PSV: Perceived social value, PAV: Perceived aesthetic value, PHV: Perceived hedonic value, CI: Continuance intention, PPRR: Perceived privacy risk, PPER: Perceived performance risk, PPSR: Perceived psychological risk, DI: Discontinuance intention, RI: Recommendation intention

H₂. With regard to the enablers, PSV had the strongest positive effect on CI ($\beta = 0.434$, $P < 0.001$), followed by PHV ($\beta = 0.241$, $P < 0.001$) and PAV ($\beta = 0.233$, $P < 0.001$), thus supporting H₃, H₄, and H₅, respectively. Regarding the inhibitors, PPRR had the strongest positive effect on DI ($\beta = 0.473$, $P < 0.001$), PPSR also had a significant positive effect ($\beta = 0.162$, $P = 0.004$), whereas PPER did not significantly affect DI ($\beta = 0.057$, $P = 0.333$). Therefore, H₆ and H₈ were supported, but H₇ was not supported.

4.4. Indirect Effects Analysis

To further examine the transmission mechanisms underlying RI, indirect effects were assessed using a bias-corrected bootstrap procedure with 5,000 resamples and 95% CI (Hayes and Scharkow, 2013; Preacher and Hayes, 2008). An indirect effect was considered significant when the 95% CI did not include zero (Zhao et al., 2010). As shown in Table 5, all three enablers exerted significant positive indirect effects on RI through CI. Specifically, PSV showed the strongest indirect effect ($\beta = 0.237$, 95% BC CI [0.182, 0.291]), followed by PHV ($\beta = 0.131$, 95% BC CI [0.085, 0.177]) and PAV ($\beta = 0.127$, 95% BC CI [0.084, 0.172]). Regarding the inhibitors, PPRR had a significant negative indirect effect on RI through DI ($\beta = -0.090$, 95% BC CI [-0.135, -0.049]), and PPSR also showed a significant negative indirect effect ($\beta = -0.031$, 95% BC CI [-0.056, -0.012]). By contrast, the indirect effect of PPER on RI through DI was not significant, as its 95% BC CI included zero ($\beta = -0.011$, 95% BC CI [-0.032, 0.008]).

5. DISCUSSION

This study suggests that continuance in metaverse tourism depends more on users' post-use judgment of the experience than on a simple favorable reaction to prior use. Among Chinese Gen Z users, perceived social value shows the strongest link with CI. This suggests that metaverse tourism is not treated only as private destination consumption. Its appeal may become more durable when the experience can be shared, recognized, and carried into peer interaction (Yoo et al., 2023). Perceived hedonic value supports continuance in a different way. At the post-use stage, enjoyment indicates that metaverse tourism can still generate emotional reward beyond initial novelty (Fares et al., 2025; Roh et al., 2024). Perceived aesthetic value likewise extends beyond visual appeal. In metaverse tourism, the environment is part of the experience itself. When it feels coherent, vivid, and pleasant to stay in, users are more likely to regard metaverse tourism as worth revisiting (Buhalis et al., 2023; Kumari et al., 2024; Rahman et al., 2025). This pattern is also consistent with the SEMs-informed

Table 5: Bootstrapped indirect effects on recommendation intention

Path	β	Boot SE	BC 95% CI	
			Lower	Upper
PSV→CI→RI	0.237	0.028	0.182	0.291
PAV→CI→RI	0.127	0.022	0.084	0.172
PHV→CI→RI	0.131	0.023	0.085	0.177
PPRR→DI→RI	-0.090	0.022	-0.135	-0.049
PPER→DI→RI	-0.011	0.010	-0.032	0.008
PPSR→DI→RI	-0.031	0.011	-0.056	-0.012

β : Standardized indirect effect, Boot SE: Bootstrap standard error, BC 95% CI: Bias-corrected 95% confidence interval, PSV: Perceived social value, PAV: Perceived aesthetic value, PHV: Perceived hedonic value, CI: Continuance intention, PPRR: Perceived privacy risk, PPER: Perceived performance risk, PPSR: Perceived psychological risk, DI: Discontinuance intention, RI: Recommendation intention

framing of the enabling side, suggesting that continuance at the post-use stage is shaped mainly by relational, affective, and sensory experience cues.

The discontinuance path follows a different pattern. DI does not appear to arise from imperfection alone. It becomes more likely when continued participation in metaverse tourism starts to feel exposed or mentally difficult to sustain. Perceived privacy risk may reflect this shift by indicating that continued use is increasingly understood as exposed or traceable. Once participation feels too visible or too traceable, metaverse tourism is no longer seen as harmless digital leisure (Gupta et al., 2024). Perceived psychological risk points to another source of withdrawal. Immersive tourism experiences may begin to require emotional control, attentional effort, or self-monitoring (Flavián et al., 2024; Wei et al., 2023). When such burden becomes salient, discontinuance may serve as a way of preserving mental comfort, which is consistent with evidence that losses in psychological well-being and self-esteem significantly increase DI in metaverse settings (Jia and Nkoulou Mvondo, 2025). By contrast, perceived performance risk was not supported. In this sample, technical problems seem to have been read as temporary limits of an evolving platform rather than as sufficient reasons to stop using metaverse tourism altogether (Dwivedi et al., 2022; Yoo et al., 2023). For Chinese Gen Z users, lag or instability may still be frustrating, but they appear less decisive than privacy-related exposure or psychological strain in shaping whether continued participation remains acceptable. From a PRT perspective, this pattern suggests that risk salience is differentiated in the post-use judgment, with privacy risk and psychological risk operating as clearer withdrawal cues than performance risk in this context.

The pattern is more consistent with DFT than with a single evaluative continuum. CI and DI do not represent opposite ends of the same judgment. Instead, they reflect different evaluations: Whether metaverse tourism remains worth returning to and whether staying has become harder to accept. This may help explain why the two routes can coexist. RI is where this internal tension becomes visible. Recommending metaverse tourism is not the same as continuing to use it. It requires users to turn a private evaluation into a public position, and in immersive digital environments such recommendation behavior is better understood as a form of consumer-generated communication (Kübler and Hennig-Thurau, 2025). More broadly, recent evidence also suggests that positive word-of-mouth intention and actual behavior are related but not identical outcomes (Kim et al., 2024). This also helps explain why CI has the stronger effect on RI. Users are more likely to recommend metaverse tourism when they already see it as worth returning to themselves. DI also reduces recommendation, but more weakly, because private hesitation does not always become open discouragement. The indirect effects follow the same logic. Value and risk perceptions do not appear to translate directly into recommendation. They are first translated into a more stable post-use response about whether metaverse tourism should be maintained or kept at a distance.

6. CONCLUSION AND IMPLICATIONS

6.1. Theoretical Implications

This study offers three theoretical contributions. First, it clarifies the theoretical position of RI in metaverse tourism. Rather than treating recommendation intention as a direct extension of general evaluation, this study positions it as a post-use outcome shaped by post-use judgment (Hsieh, 2020). The contribution, therefore, lies in specifying how post-use routes are translated into recommendation intention. This implies that recommendation intention in metaverse tourism should be theorized as an outcome of route-specific evaluative persistence rather than as a simple residual effect of satisfaction or overall attitude (Basu et al., 2024).

Second, this study advances DFT by extending it from general technology adoption-rejection settings to post-use response formation in metaverse tourism. Prior dual-factor research has emphasized that enabling and inhibiting forces are not simple opposites, but asymmetrical and potentially coexisting drivers with different antecedents and consequent effects. Building on this logic, the present study shows that users' post-use responses in metaverse tourism are not organized around a single evaluative continuum; instead, they unfold through two route-specific judgments. The theoretical contribution, therefore, lies not merely in separating CI and DI, but in specifying a post-use dual-route architecture in which favorable and unfavorable evaluations remain concurrently operative and are translated into different downstream outcomes in the metaverse tourism setting.

Third, this study sharpens the theoretical scope of SEMs and PRT by clarifying that their relevance in metaverse tourism is not general but route-specific. Rather than functioning as parallel background lenses across the full post-use framework, the two

theories explain different forms of evaluative formation. SEMs provide a more precise account of the enabling route because that route is organized mainly through relational, affective, and sensory appraisal. PRT, in contrast, provides a more precise account of the inhibiting route because discontinuance-related judgment is not generated by a single negative residue, but by differentiated perceptions of risk. In this respect, the study delimits the explanatory jurisdiction of each theory within the broader post-use framework. The contribution therefore lies in repositioning SEMs and PRT as differentiated route theories nested within a broader DFT explanation of post-use behavior.

6.2. Practical Implications

The findings of this study provide practical guidance for destination marketers, metaverse tourism platform operators, and experience designers seeking to improve the long-term viability of metaverse tourism. First, destination marketers should place greater emphasis on strengthening continuance intention at the post-use stage rather than focusing only on attracting initial trial. At the same time, they should also pay attention to reducing discontinuance intention, because users' willingness to withdraw from the experience can weaken both revisit potential and recommendation likelihood. Their efforts should not stop at novelty creation or 1st-time participation. More attention should be directed to whether users continue to regard the experience as worth returning to and worth recommending after actual use, while also monitoring signals that may trigger withdrawal or disengagement.

Second, metaverse tourism experience designers should translate the enabling route into concrete experience design. Metaverse tourism should be developed less as solitary virtual sightseeing and more as a socially shareable experience. Metaverse tourism can be made more socially engaging through features such as co-presence, group exploration, avatar-based interaction, and guided group tours. Shared missions, live events, community badges, and co-created destination activities may further encourage users to stay engaged over time. At the same time, the experience should remain enjoyable and visually coherent beyond the initial encounter through stronger narrative flow, interactive enjoyment, environmental vividness, and interface consistency. The practical task is to make the experience easier to share, more pleasant to revisit, and more sustainable in repeated use.

Third, metaverse tourism platform operators should treat the inhibiting route as a governance issue rather than only a technical issue. Metaverse tourism platforms should adopt privacy-by-design practices to reduce users' privacy concerns. In particular, they should provide transparent consent procedures, clear explanations of data use, stronger protection of behavioral and interaction-related data, and greater user control over identity visibility. Psychological burden should also be reduced during continued participation. Practical measures include avoiding excessive sensory density, limiting unnecessary notifications, and offering functions such as pause reminders, low-stimulation modes, and easier exit options. Technical quality should still be maintained as a basic condition of use, but retention is more likely to depend on whether users feel adequately protected and comfortable during continued participation.

6.3. Limitations and Future Research

This study extends prior research by developing and empirically validating a dual-path post-use framework in metaverse tourism. Specifically, it distinguishes continuance intention from discontinuance intention and integrates SEMs and PRT to explain how enabling and inhibiting evaluations are translated into recommendation intention through two coexisting post-use routes. Despite these contributions, several limitations should be noted. First, the findings should be interpreted within the specific context of Chinese Gen Z users who already had metaverse tourism experience. While this context is well suited to examining post-use judgment, the results may not fully generalize to other age groups, non-users, 1st-time users, or different cultural settings. Second, the present model necessarily focused on a limited set of experiential enablers and perceived risks in order to preserve conceptual clarity. As a result, some other potentially relevant factors, such as authenticity, trust, and narrative engagement, were not included in the current framework. Third, recommendation intention was specified as the focal downstream outcome of continuance intention and discontinuance intention. Although this choice is theoretically meaningful, it offers a relatively bounded view of post-use responses in metaverse tourism.

Future research may extend this line of inquiry in several directions. Comparative studies across countries, generations, and levels of prior metaverse tourism experience would help determine whether the relative strength of the continuance and discontinuance routes remains stable across contexts. Future studies may also expand the present framework by examining additional antecedents, mediating mechanisms, and moderating conditions that further clarify when enabling or inhibiting evaluations become more salient. In addition, subsequent research could move beyond recommendation intention to examine a broader range of post-use outcomes, such as repeated use, willingness to pay, offline destination visit intention, and loyalty across different metaverse tourism contexts.

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