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Virtual Journeys, Real Benefits: Understanding the Nexus Between Innovativeness, VR Travel, and Quality of Life

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Keywords:
Innovativeness, VR travel experience, Quality of life, Fully immersive VR, Prolific.

Abstract.
This study investigates the relationships among virtual reality (VR) traveler innovativeness, VR travel experience, and perceived quality of life. Drawing on online survey data from [A1.1][A1.2]544 respondents recruited via Prolific, confirmatory factor analysis was conducted to establish construct reliability and validity, followed by structural equation modeling to test the hypothesized relationships. The results show that innovativeness significantly enhances VR travel experience, which in turn positively affects perceived quality of life, supporting an indirect, experience-based mechanism. At the dimensional level, novelty seeking and hedonic experience seeking emerge as the primary drivers of innovativeness, while esthetics and entertainment contribute most strongly to VR travel experience, with escapism playing a comparatively weaker role. These findings advance the understanding of VR tourism by identifying innovativeness as a key antecedent of experiential outcomes and highlighting VR travel as a meaningful leisure activity that can promote well-being beyond physical tourism contexts. Practically, the results suggest that VR travel developers and marketers should tailor experiences to innovative users by emphasizing novelty and hedonic engagement, promote quality-of-life benefits as a key value proposition, and strengthen immersive features to enhance user engagement and overall experience quality.

Kata Kunci:
Inovativitas, pengalaman wisata VR, kualitas hidup, VR yang sepenuhnya imersif, produktif.

Abstrak.
*Studi ini mengkaji hubungan antara inovativitas wisatawan dalam konteks *virtual reality* (VR), pengalaman perjalanan VR, dan persepsi kualitas hidup. Dengan menggunakan data survei daring dari 544 responden yang direkrut melalui Prolific, analisis faktor konfirmatori dilakukan untuk menetapkan reliabilitas dan validitas konstruk, diikuti oleh pemodelan persamaan struktural untuk menguji hubungan yang dihipotesiskan. Hasil penelitian menunjukkan bahwa inovativitas secara signifikan meningkatkan pengalaman perjalanan VR, yang pada gilirannya berdampak positif terhadap persepsi kualitas hidup, sehingga mendukung mekanisme tidak langsung yang berbasis pada pengalaman. Pada tingkat dimensi, pencarian kebaruan (novelty seeking) dan pencarian pengalaman hedonis muncul sebagai pendorong utama inovativitas, sementara aspek estetika dan hiburan memberikan kontribusi terkuat terhadap pengalaman perjalanan VR, dengan peran *escapism* (pelarian dari rutinitas) yang relatif lebih lemah. Temuan ini memperkaya pemahaman tentang pariwisata VR dengan mengidentifikasi inovativitas sebagai anteseden kunci dari hasil yang bersifat pengalaman (*experiential outcomes*) serta menyoroti perjalanan VR sebagai aktivitas rekreasi bermakna yang dapat meningkatkan kesejahteraan di luar konteks pariwisata fisik. Secara praktis, hasil penelitian menyarankan agar pengembang dan pemasar perjalanan VR merancang pengalaman yang sesuai bagi pengguna yang inovatif dengan menekankan kebaruan dan keterlibatan hedonis, mempromosikan manfaat kualitas hidup sebagai proposisi nilai utama, serta memperkuat fitur imersif guna meningkatkan keterlibatan pengguna dan kualitas pengalaman secara keseluruhan.*

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1. Introduction

Virtual reality (VR) stands as one of the most transformative technological advancements of the late 20th century (Hobson & Williams, 1995), with its momentum accelerating rapidly in the 21st. As technological capabilities continue to progress, the VR industry is emerging as a significant driver of growth within the global economy. Projections indicate that global VR revenues are expected to increase substantially, rising from USD 16.67 billion in 2022 to USD 227.34 billion by 2029, with a compound annual growth rate of 45.2% (Fortune Business Insights, 2022). Within the tourism and hospitality industry, VR innovation has begun to transform key areas such as destination marketing, destination management, and cultural heritage preservation (Williams & Hobson, 1995; Guttentag, 2010; Buhalis et al., 2022). Beck et al. (2019) identified three key categories of VR experiences in tourism: non-immersive, semi-immersive, and fully immersive. Among these, fully immersive VR delivers the highest level of sensory engagement and already commands a third of the VR market (Fortune Business Insights, 2022). With its continued technical refinement and increasing ability to replicate real-world travel, fully immersive VR has attracted a growing user base and is anticipated to remain the dominant format. Consequently, this study focuses specifically on fully immersive VR travel experiences.

Given the growing influence of VR on the tourism industry, scholars have increasingly turned their attention to understanding its implications for travel experiences. Much of the existing literature has examined the factors that shape VR tourism experiences. Drawing on the dynamic drivers framework of tourist experiences (Chen et al., 2018), three primary categories, personal, environmental, and interactive drivers, are identified as influential in the creation of tourism experiences. However, within the VR tourism context, prior studies have predominantly focused on the environmental and interactive drivers that shape VR travel experiences. Huang et al. (2021) examined the effect of VR travel duration on children's flow experience, demonstrating that temporal design features can significantly influence experiential outcomes. Similarly, Liu and Huang (2023) investigated how variations in VR video stimuli affect users' flow states and overall satisfaction, while Zhu et al. (2023) explored how the quantity and dynamism of virtual social elements shape user experiences. Extending this line of inquiry, Yuan and Hong (2024) analyzed the role of sense of presence in VR travel, finding that presence enhances flow experience and subsequently influences behavioral intentions.

Despite offering valuable insights, these studies pay relatively limited attention to how individual psychological characteristics—such as personal dispositions, cognitive traits, and technology-related orientations—influence experiential outcomes (Ren et al., 2024). This gap is especially critical given that VR travel is deeply embedded in advanced information and communication technologies, where user engagement depends not only on the system environment but also on users' readiness to adopt and interact with innovative technologies. Among these personal drivers, individual innovativeness may play a pivotal role in shaping how travelers engage with, interpret, and evaluate VR-based tourism experiences. Therefore, incorporating travelers' innovativeness into VR tourism research is essential for advancing a more holistic theoretical framework that moves beyond environmental and interactive determinants to account for the foundational role of individual psychological differences.

Moreover, drawing on bottom-up spillover theory (Neal et al., 1999), tourism scholarship has long explored the relationship between travel experiences and tourists' overall quality of life, emphasizing the psychological and social benefits derived from tourism participation. Empirical evidence supports the positive impact of tourism on tourists' overall quality of life across diverse contexts, including social tourism (McCabe et al., 2010), community-based events and festivals (Jepson et al., 2019), wellness tourism (Luo et al., 2018), and water-based tourism (Campón-Cerro et al., 2020). However, the extent to which VR tourism can generate comparable outcomes remains underexplored. Given the increasing availability relative to physical tourism and their advanced immersive capabilities, it is

important to examine their potential to deliver similar psychological and social benefits to a broader and more diverse audience. While prior studies have investigated VR travel experiences within specific populations, such as employees in organizational settings (Leung &Huang, 2023) or older adults (Fiocco et al., 2021), there remains a paucity of research addressing the general public's engagement with and response to VR tourism.

To address these gaps, the present study examines how travelers' individual innovativeness shapes their fully immersive VR travel experience and, in turn, influences their perceived quality of life. By centering on fully immersive VR—the format positioned to dominate the market—this study advances VR tourism research beyond environmental and interactive-based explanations and integrates a critical personal psychological driver into the experiential framework. In doing so, it contributes empirical evidence on how individual differences condition engagement with immersive digital environments and clarifies the downstream implications for tourists' quality of life. From a practical standpoint, identifying the role of innovativeness can inform the development of more adaptive, user-centered VR experiences, while illuminating the potential of immersive technologies to extend tourism-related quality-of-life benefits to a broader population. Collectively, this research deepens theoretical understanding of VR-mediated tourism experiences and offers meaningful insights for stakeholders seeking to leverage immersive technologies to enhance traveler quality of life.

2. Literature Review

This study builds on three interrelated streams of literature: virtual reality (VR) tourism experiences, individual psychological drivers of technology-enabled experiences, and the relationship between tourism experiences and quality of life (QoL). Although prior studies have examined these domains independently, limited attention has been given to how they intersect within immersive VR travel contexts. The following review develops a cohesive theoretical foundation linking individual innovativeness to VR experiential formation and, ultimately, to quality-of-life outcomes.

2.1. Virtual Reality (VR) Travel Experience

The origins of immersive VR travel can be traced to the invention of Sensorama, a pioneering mechanical device that simulated a fully immersive experience, including a motorcycle ride through multisensory input (Lum et al., 2020). Over the past several decades, immersive VR travel has evolved substantially, driven by continuous technological innovation. Fully immersive experiences are readily accessible to consumers through compact head-mounted displays, significantly lowering barriers to participation. The COVID-19 pandemic further accelerated interest in VR travel, as global travel restrictions heightened demand for alternative tourism experiences (Talwar et al., 2022). This context catalyzed a surge in scholarly and industry engagement, positioning immersive VR travel as a promising avenue for both leisure and research innovation.

A growing body of research has examined the factors influencing VR travel experiences. Kelling et al. (2017) investigated how the context of VR usage affects user experience and found that users preferred private settings, not only due to distractions in semi-public environments but also because of the social and cultural anxieties they experienced. Huang et al. (2021) studied the impact of video duration on children's VR travel experiences, revealing that longer VR videos elicited lower arousal, higher respiratory rates, and reduced enjoyment compared to shorter ones. Suhartanto et al. (2021) examined the roles of VR system quality and content quality in shaping satisfaction and loyalty among Muslim tourists, finding that while content quality directly influenced tourist loyalty, both system and content quality significantly affected user satisfaction. Melo et al. (2022) highlighted the importance of multisensory VR setups in fostering a sense of physical presence, which, in turn, enhanced positive

emotions and consumer behavior toward tourism products and services. Similarly, Liu and Huang (2023) demonstrated that the level of VR video stimulation significantly affects users' flow experiences. Zhu et al. (2023) explored the influence of virtual social elements and found that both the quantity (e.g., multiple vs. few) and dynamism (e.g., dynamic vs. static) of these elements positively shape users' social perceptions and mental imagery. Collectively, these studies provide valuable insights into environmental and interactive drivers that shape VR travel experiences.

Drawing on the dynamic drivers framework (Chen et al., 2018), tourism experiences emerge from the interplay of personal, environmental, and interactive drivers. Yet, within the VR tourism context, empirical attention has been disproportionately directed toward environmental and interactive factors, with comparatively limited examination of personal psychological drivers. In particular, individual dispositions and cognitive traits—such as personal innovativeness—may critically influence how users engage with, interpret, and evaluate immersive VR travel experiences. Given that VR travel is embedded in advanced information and communication technologies, users' openness to innovation and willingness to experiment with new technologies may fundamentally shape experiential outcomes. By overlooking these personal-level determinants, existing research provides an incomplete account of VR travel experience formation. To address this gap, the present study investigates the role of individual innovativeness in shaping fully immersive VR travel experiences. By integrating a key personal psychological driver into the experiential framework, this research moves beyond predominantly environmental and interaction-centered explanations and offers a more comprehensive understanding of how VR travel experiences are constructed.

2.2. Innovativeness and Tourist Experiences

The concept of innovativeness originates from diffusion of innovations theory, which emphasizes individuals' varying willingness to adopt new ideas, products, or technologies (Ostlund, 1974). Within tourism and hospitality research, innovativeness has been extensively examined across both supply and demand perspectives. On the supply side, studies have explored how organizational innovativeness influences service delivery, competitiveness, and technological implementation (Ding et al., 2022; Ruiz-Palomino et al., 2019).

On the demand side, research has consistently demonstrated that consumer innovativeness plays a central role in shaping technology-related tourism behaviors. Prior studies show that personal innovativeness significantly increases tourists' intentions to purchase travel services online and strengthens the effects of perceived usefulness and ease of use on that intention (Hateftabar, 2022). Highly innovative individuals are more responsive to technological advantages and less dependent on social influence or facilitating conditions when adopting online tourism purchasing. Similarly, San Martín and Herrero (2012) found that performance expectancy, effort expectancy, and innovativeness positively influence online booking intention in rural tourism, while social influence and facilitating conditions do not. Importantly, innovativeness moderates the relationship between perceived usefulness and booking intention, amplifying the effect among more innovative users.

Beyond purchase intention, innovativeness also shapes broader digital engagement behaviors. Couture et al. (2015) demonstrated that highly innovative tourists visit tourism websites more frequently, engage more deeply with content (e.g., downloading brochures), make online purchases more often, and generate higher purchase volumes. Innovative consumers also exhibit more active online communication behaviors, such as chatting and emailing, indicating cooperative engagement with firms. Extending beyond transactional contexts, Shin et al. (2021) found that innovativeness positively influences satisfaction with smart tourism technology and indirectly increases behavioral

intentions. More innovative travelers are more receptive to smart tourism tools and derive greater value from technology-enabled experiences across different cultural contexts.

Innovativeness has also been examined from a diffusion perspective. Ganglmair-Wooliscroft and Wooliscroft (2016) applied diffusion of innovation theory to explain how ethical tourism behaviors spread within social systems, demonstrating that innovativeness accelerates adoption by positioning early adopters and opinion leaders as catalysts who normalize new practices among broader tourist populations. Furthermore, several studies conceptualize innovativeness as a moderating variable. Wang et al. (2017) showed that travelers with higher innovativeness translate perceived quality of technology-enabled services into satisfaction and future behavioral intentions more strongly, with variations across cultural contexts. Similarly, Jung et al. (2015) found that in augmented reality (AR) tourism applications, personal innovativeness moderates the effects of system and content quality on satisfaction: system quality is more influential for highly innovative users, whereas content quality matters more for low-innovativeness users.

Taken together, the literature consistently positions innovativeness as a critical determinant of technology adoption, online purchasing, digital engagement, satisfaction formation, and diffusion processes in tourism. However, most prior studies conceptualize innovativeness primarily as an antecedent of behavioral intention, satisfaction, or adoption outcomes within technology-mediated services. Relatively little attention has been given to how innovativeness shapes the experiential quality of tourism itself—particularly in fully immersive virtual reality (VR) travel contexts.

This gap is theoretically important for several reasons. First, immersive VR travel differs fundamentally from traditional online booking platforms or smart tourism tools. It involves multisensory immersion, presence, embodied interaction, and affective engagement, which extend beyond utilitarian technology adoption. Second, innovativeness may influence not only whether individuals adopt VR technology, but also how deeply they immerse themselves, cognitively engage with the environment, and derive meaning from the experience. More innovative travelers may display greater openness to novelty, lower technological anxiety, and higher exploratory motivation, thereby enhancing their immersive and affective responses. Third, understanding innovativeness at the experiential level moves the literature beyond adoption models (e.g., UTAUT, TAM) toward an integrated perspective that connects individual traits with experiential outcomes. Therefore, examining innovativeness as a direct driver of VR travel experience advances tourism theory by shifting the focus from technology acceptance to experiential formation within immersive digital environments.

H1: The innovativeness of VR travelers positively influences their VR travel experience.

2.3. Tourist Experiences and Quality of Life

Research on quality of life (QoL) within the tourism and hospitality domain finds its roots in the Social Indicators Movement (Berbekova & Uysal, 2021). Within this framework, scholars have examined the QoL implications of tourism for multiple stakeholders, including residents (Su et al., 2022, 2023), employees (Hayat & Afshari, 2022), and tourists themselves (Zheng et al., 2022). Among these streams, increasing attention has been directed toward understanding tourism experience as a meaningful contributor to tourists' own quality of life.

Conceptually, Richards (1999) framed vacations as structurally mediated experiential resources that enhance QoL through psychological restoration, identity construction, and social interaction, positioning tourism as a life-enriching domain rather than merely discretionary leisure. Empirical evidence supports this proposition. Dolnicar et al. (2012) demonstrate that vacations constitute a

distinct and meaningful contributor to QoL, although their importance varies depending on individuals' life circumstances and priorities, underscoring the subjective and heterogeneous nature of tourism's role in life quality. Extending this line of inquiry across demographic groups, Eusébio and Carneiro (2014) show that tourism enhances youth tourists' QoL primarily through psychological and social mechanisms, while Kim et al. (2015) find that satisfying tourism experiences significantly improve elderly tourists' leisure life satisfaction and overall QoL. Together, these findings reinforce the view that tourism experiences function as important determinants of perceived life quality across the life course.

Building on this foundation, research has increasingly examined how specific experiential attributes shape QoL outcomes. Lee et al. (2018) reveal that emotional, novelty, and ecological value in hiking tourism strengthen engagement and connection with nature, thereby enhancing QoL. Jepson et al. (2019) demonstrate that community festivals generate shared memorable experiences that foster "thick sociality" and family bonding, contributing to long-term family QoL. Luo et al. (2018) show that wellness tourism enhances QoL indirectly through increased leisure satisfaction, which spills over into non-leisure domains such as work and family life. Likewise, Campón-Cerro et al. (2020) find that emotionally rich water-based tourism experiences elevate life satisfaction, which subsequently enhances broader QoL perceptions. Importantly, tourism's benefits are not limited to mainstream travelers: McCabe et al. (2010) provide evidence that supported holiday participation among low-income families improves emotional well-being and perceived QoL, suggesting tourism can function as a psychosocial intervention. However, most existing studies focus on physical, in-person tourism experiences.

The COVID-19 pandemic highlighted the need to reconsider how tourism-related experiences can contribute to quality of life in contexts where physical travel is constrained. Scholars have increasingly called for examining virtual tourism as a complement—or potential substitute—for traditional travel (Losada et al., 2021; Talwar et al., 2022). Emerging evidence suggests that virtual reality (VR) tourism may replicate some psychological benefits associated with physical travel. For example, Fiocco et al. (2021) report that VR tourism reduced anxiety and fatigue among older adults in long-term care facilities, with sustained exposure leading to increased social engagement and improved QoL. Ortet et al. (2022) similarly find that VR tourism enhances older adults' well-being and independence, particularly through physical and mental rehabilitation pathways. Extending beyond older populations, Leung and Huang (2023) show that exposure to virtual natural environments mitigates negative emotional spillover among hotel employees, reducing negative mood effects and turnover intentions. These findings suggest that VR tourism may reproduce key emotional and restorative benefits identified in physical tourism research (Jepson et al., 2019; Campón-Cerro et al., 2020).

Nevertheless, existing VR tourism research has largely focused on specific groups, such as older adults in care settings or employees within organizational contexts. Consequently, limited empirical attention has been devoted to understanding how VR travel experiences influence quality of life among the broader population. To address this gap, the present study extends the tourism-QoL literature into the virtual domain by examining whether VR travel experiences contribute to perceived quality of life within a more diverse and general sample.

H2: VR travel experiences positively influence individuals' perceived quality of life.

3. Methodology

This study employed a quantitative research design to examine the relationships among traveler innovativeness, VR travel experience, and quality of life. A structured online survey was developed

to collect data from individuals with prior VR travel experience. The following sections describe the sampling procedure, measurement instruments, and data analysis strategy.

3.1. Sampling and Data Collection

The survey was meticulously designed on the Qualtrics XM platform, incorporating three screening questions and an embedded code system. Data collection was conducted through the Prolific online platform, chosen for its proven effectiveness in obtaining high-quality data, as substantiated by Balaji et al. (2019) and Talwar et al. (2022). The participant cohort was carefully selected according to stringent inclusion criteria: individuals had to be at least 18 years old, reside in the United States, possess English language proficiency, and have had virtual reality travel experiences within the preceding year. If participants fail to meet any of these requirements, the survey will terminate automatically, and they will receive a basic incentive. Upon passing the screening questions and completing the study in its entirety, participants will receive an embedding code along with an additional incentive. To ensure data integrity, stringent measures were employed to prevent duplicate submissions and to screen for response completeness. Of the initial 576 survey participants, incomplete responses were systematically excluded, resulting in a final sample of 544 valid and usable cases for analysis.

3.2. Questionnaire and Measurement

A questionnaire containing three sections was designed as the instrument to gather data. The first section collected the demographic information of respondents, such as gender, educational level, employment status, household income, and age. The second section measured VR travel characteristics using multiple-choice questions, including the frequency and duration of VR travel experience (e.g., "How often do you use VR for travel/ tourism related activities in a week?"), preferred VR travel destinations (e.g., "Which kind of tourism destination would you prefer to experience through a VR headset?"), and the number and types of destinations explored during the most recent VR travel (e.g., "Which type of destination do you choose in your latest VR tour?").

The final section encompassed an assessment of participants' innovativeness, VR travel experiences, and quality of life. Innovativeness was evaluated using a modified version of the scale developed by Wang et al. (2018), which comprises four dimensions: novelty seeking (NS), reflecting a desire to try new products (e.g., "I am eager to try new products on the market"); vigilance (VIG), defined as careful evaluation before adoption (e.g., "I make careful decisions about what I want to buy"); hedonic experience seeking (HES), capturing the pursuit of enjoyment derived from new experiences (e.g., "I am happier when acquiring new products"); and social distinctiveness (SD), representing the desire to stand out through innovation (e.g., "I enjoy using new products that make me a visionary leader").

VR travel experience was measured using an adapted version of the four-dimensional experience framework developed by Oh et al. (2007), with minor modifications to fit the VR context. The scale captures entertainment (Ent), reflecting passive enjoyment of activities (e.g., "Activities are amusing"); education (Edu), indicating active learning and knowledge enhancement (e.g., "The experience makes me more knowledgeable"); esthetics (Esth), representing sensory immersion and environmental appreciation (e.g., "I feel a sense of harmony"); and escapism (Esc), denoting active immersion and temporary detachment from everyday reality (e.g., "I feel I play a different character there").

Quality of life was assessed using a revised version of the scale developed by Kim et al. (2015), adapted to the VR travel context (e.g., "So far, I get the important things I want in life"). All items

were measured on a seven-point Likert-type scale ranging from strongly disagree to strongly agree. Figure 1 presents a visual depiction of the proposed research model.

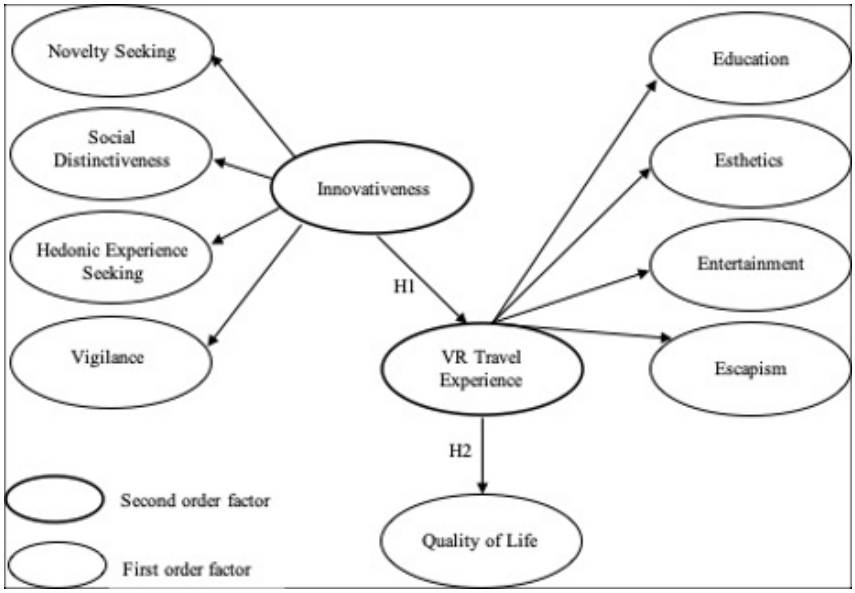

Figure 1. Proposed Research Model.

To ensure content reliability, the questionnaire underwent a review and revision process involving tourism researchers. The instrument was pilot-tested on 32 participants. From the pilot test, the Cronbach's alpha for the three research variables (innovativeness, VR travel experience, and quality of life) was 0.84, 0.91, and 0.82, respectively, indicating the scales' reliability was adequate.

3.3. Data Analysis

This study employed Structural Equation Modeling (SEM) with maximum likelihood estimation to assess the hypothesized relationships among latent variables. The exogenous construct, traveler innovativeness, was measured using 12 observed indicators. The endogenous constructs included 16 indicators representing dimensions of the VR travel experience and 6 indicators assessing perceived quality of life, yielding a total of 22 observed variables. Before conducting the SEM analysis, a confirmatory factor analysis (CFA) was conducted to validate the measurement model. This preliminary step was essential for evaluating the constructs' internal consistency, convergent and discriminant validity, and the overall model fit. The CFA results provided a solid empirical foundation for proceeding with the structural model estimation.

4. Results

4.1. Profile of Respondents

The demographic characteristics and VR travel features of the sample are presented in Table 1. The majority of respondents were male (60.8%), employed full-time (59.6%), between the ages of 18 and 42 (83.2%), and had attained a bachelor's or higher level of education (69%). 57% of participants reported a household income over $60,000. Furthermore, a substantial (90.3%) proportion of the respondents had accumulated over a week of experience with VR travel. A majority of participants

(94.2%) reported engaging in VR travel fewer than seven times per week, with 88.9% of users allocating less than one hour to each travel session. Moreover, a significant proportion (88%) indicated that they typically visit fewer than three destinations during each VR travel experience. In terms of preferred VR travel destinations, natural locations emerged as the most popular choice, with cultural and historical destinations securing the second position. In their most recent virtual travel, 85.3% of respondents expressed a preference for exploring destinations they had not previously visited in person, and 45.8% reported engaging in VR travel primarily for relaxation purposes.

Table 1. Sample Demographics and VR Travel Characteristics (N = 544).

Demographic features		**%**	**VR travel features**		**%**
Gender	Male	60.8	How long have you been using VR headset for travel/ tourism related activities?	Less than 1 week	9.7
	Female	39.2		1 week - 1 month	16.2
Employment Status	Working full-time	59.6		1 month - 6 months	29.8
	Working Part-time	15.8		6 months - 1 year	20.4
	Unemployed	9.0		More than 1 year	23.9
	Student	10.1	How often do you use VR for travel/ tourism related activities in a week?	1 time	56.3
	Retired	1.5		2-7 times	37.9
	Military	0.2		8-14 times	3.7
	Homemaker	3.9		15-21 times	1.1
Age	18-26	31.8		More than 22 times	1.1
	27-42	51.4	How long do you use VR for travel/ tourism related activities at a time?	Less than 30 minutes	42.8
	43-58	14.5		30 minutes - 1 hour	46.1
	59-68	2.2		1 hour - 3 hours	9.2
	69-77	0.2		More than 3 hours	1.8
	Older than 77	0	How many destinations do you experience at a time in VR tour?	1	41.7
Education Level	Less than high school	0.4		2-3	46.3
	High school diploma/GED	27.8		4-6	8.5
	Associate degree	13.8		More than 6	3.5
	Bachelor	43.2	Which kind of tourism destination would you prefer to experience through a VR headset?	Natural destination	48.3
	Master	11.4		Cultural and Historical destination	28.3
	PhD	0.6		Art gallery	4.6
	Others	2.9		Theme Park	8.6
Household Income ($)	Less than 20,000	9.4		Fictitious destination	10.1
	20,000-39,999	16.0	Which type of destination do you choose in your latest VR tour?	The destinations I went before.	9.6
	40,000-59,999	17.6		The destinations I never go before.	85.3
	60,000-79,999	14.7		The destinations that do not exist.	5.1
	80,000-99,999	13.4	What is your purpose of your latest VR tour?	Learning	25.4
	100,000-119,999	8.1		Relaxation	45.8
	More than 120,000	20.8		Novelty seeking	27.2
				Others	1.7

4.2. Measurement Model

A Confirmatory factor analysis was conducted to evaluate the measurement model consisting of a second-order innovativeness construct, a second-order VR travel experience construct, and a first-order quality of life construct. The model demonstrated acceptable fit to the data, $\chi^2(516) = 1737.25$, $p < .001$, CFI = .91, TLI = .90, and RMSEA = .066. All first-order item loadings (Table 3) were significant and generally satisfactory. At the second-order level (Table 2), innovativeness was reflected by novelty seeking ($\beta = .88$), vigilance ($\beta = .59$), hedonic experience seeking ($\beta = .96$), and social

distinctiveness (β = .56). VR travel experience was reflected by education (β = .72), esthetics (β = .96), entertainment (β = .92), and escapism (β = .53).

The results of the analysis suggest that the measurement model is adequate based on several criteria. As presented in Table 2 and Table 3, Factor loadings, which represent the correlations between observed indicators and their underlying latent variables, have all surpassed the minimum threshold of 0.5 (Lin et al., 2020; Kim, Lee, & Jung, 2020). This suggests that the indicators are appropriate measures of their respective constructs and that the model captures a substantial amount of the variance in the observed variables. The composite reliability (CR) values exceeding the 0.7 cutoff point (Tussyadiah et al., 2018; Wei et al., 2023) indicate high internal consistency, meaning that the indicators of each latent variable consistently represent the construct across different measurements within the dataset. The Average Variance Extracted (AVE) values exceeding 0.5 for all constructs affirm that a majority of the variance in the indicators is accounted for by their association with the latent variables, reinforcing the case for convergent validity (Scarpi & Raggiotto, 2023). This implies that the latent variables within the model are well-defined by their indicators.

Moreover, the square root of the AVE score for each latent variable was greater than its correlation scores with other variables (Table 4 and Table 5), so the criteria for discriminant validity have been met (Alyahya & McLean, 2022), indicating that each construct is distinct and captures phenomena not represented by the other latent variables in the model. This is crucial for ensuring that the model is not conflating different constructs and that each construct contributes unique explanatory power.

Finally, the goodness-of-fit indices, comparative fit index (CFI) and Tucker-Lewis index (TLI), exceeding the 0.9 threshold (Su & Swanson, 2017; Jacobsen et al., 2019), and the root mean square error of approximation (RMSEA) being well below the maximum value of 0.09 (Tussyadiah et al., 2018), collectively suggest that the model fits the observed data well. This means that the hypothesized relationships among the constructs are consistent with the patterns found in the empirical data. In summary, the model is statistically sound and reliable for interpreting the underlying phenomena being studied.

Table 2. Summarized Results of Second-Order Measurement Model (N=544)

Constructs	FL	CR	AVE
Innovativeness		0.87	0.57
Novelty Seeking	0.88		
Vigilance	0.59		
Hedonic Experience Seeking	0.96		
Social Distinctiveness	0.56		
VR Travel Experience		0.88	0.60
Education	0.72		
Esthetics	0.96		
Entertainment	0.92		
Escapism	0.53		

Note: FL = factor loadings ; CR = composite reliability; AVE = average variance extracted.

Table 3. Summarized results of first-order measurement model (N = 544).

Constructs and Measurement Items	FL	CR	AVE
Novelty seeking (NS)		0.89	0.74
I am eager to try new products on the market. (Innov_1)	0.83		
I am curious about trying products that I have never used. (Innov_2)	0.91		
I enjoy trying unusual products. (Innov_3)	0.83		
Vigilance (Vig)		0.83	0.62
I do extensive research before acquiring new products. (Innov_4)	0.78		
I make careful decisions about what I want to buy. (Innov_5)	0.81		
I cross-validate the product information advertised. (Innov_6)	0.77		
Hedonic experience seeking (HES)		0.87	0.69
I am happier when acquiring new products. (Innov_7)	0.75		
I am excited to use a new product. (Innov_8)	0.88		
I have a sense of enjoyment whenever using new products. (Innov_9)	0.85		
Social distinctiveness (SD)		0.89	0.74
I enjoy using new products that make me a visionary leader. (Innov_10)	0.75		
I prefer to try new products with which I can stand out among my friends. (Innov_11)	0.93		
I like to own a new product that distinguishes me from others. (Innov_12)	0.89		
Education (Edu)		0.90	0.70
The experience makes me more knowledgeable. (VRT_1)	0.87		
I learn a lot. (VRT_2)	0.90		
It boosts my curiosity to learn new things. (VRT_3)	0.75		
It is an amazing learning experience. (VRT_4)	0.82		
Esthetics (Esth)		0.88	0.64
I feel a sense of harmony. (VRT_5)	0.68		
Being there is very pleasant. (VRT_6)	0.84		
The setting is very attractive. (VRT_7)	0.84		
The setting looks amazing. (VRT_8)	0.83		
Entertainment (Ent)		0.87	0.62
Activities are amusing. (VRT_9)	0.74		
Activities are captivating. (VRT_10)	0.85		
Activities are relaxing. (VRT_11)	0.77		
Activities are vibrant. (VRT_12)	0.78		
Escapism (Esc)		0.87	0.64
I feel I play a different character there. (VRT_13)	0.77		
I feel I am living in a different time or place. (VRT_14)	0.81		
The experience there let me imagine being someone else. (VRT_15)	0.87		
I completely escape from reality. (VRT_16)	0.74		
Quality of life (QoL)		0.88	0.56
Overall, I feel happy about the VR travel. (QoL_1)	0.61		
My satisfaction with life in general increases shortly after the VR travel. (QoL_2)	0.75		
So far, I get the important things I want in life. (QoL_3)	0.59		
Although I have my ups and downs, in general, I feel good about my life shortly after the VR travel. (QoL_4)	0.85		
Overall, my experience with the VR travel is memorable, having enriched my quality of life. (QoL_5)	0.80		
After the VR travel, I feel that I lead a meaningful and fulfilling life. (QoL_6)	0.83		

Note: FL = factor loadings ; CR = composite reliability; AVE = average variance extracted.

Table 4. First-Order Discriminant Validity

Construct	NS	Vig	HES	SD	Edu	Esth	Ent	Esc	QoL
NS	**0.86**								
Vig	0.48	**0.79**							
HES	0.67	0.45	**0.83**						
SD	0.60	0.42	0.69	**0.86**					
Edu	0.40	0.35	0.48	0.45	**0.84**				
Esth	0.42	0.30	0.50	0.46	0.68	**0.80**			
Ent	0.45	0.33	0.52	0.49	0.70	0.72	**0.79**		
Esc	0.38	0.29	0.47	0.44	0.66	0.69	0.71	**0.80**	
QoL	0.30	0.25	0.38	0.35	0.58	0.60	0.62	0.59	**0.75**

Table 5. Second-Order Discriminant Validity

Construct	Innovativeness	VRT Experience	Quality of Life
Innovativeness	**0.76**		
VRT Experience	0.63	**0,78**	
Quality of Life	0.43	0.66	**0.75**

4.3. Structural Model

Following the assessment of univariate normality, skewness and kurtosis values were found to fall within the strict acceptable thresholds (|skewness| < 1; |kurtosis| < 3), indicating no severe violations of normality assumptions (King et al., 2018). With normality confirmed, the structural equation modeling (SEM) was estimated to examine the relationships among innovativeness, VR travel experience, and quality of life. The model demonstrated acceptable fit to the data, $\chi^2(517) = 1742.43$, CFI = .91, TLI = .90, and RMSEA = .066.

The results (Table 6) indicated that innovativeness had a significant positive effect on VR travel experience ($\beta = .72$, $p < .001$). This suggests that individuals with higher levels of innovativeness are more likely to perceive and report enhanced VR travel experiences. In turn, VR travel experience had a significant positive effect on quality of life ($\beta = .67$, $p < .001$). It indicates that VR travel experiences can significantly contribute to users' quality of life, thereby emphasizing the value of VR travel not just as a leisure activity but also as a component of lifestyle that can improve one's overall quality of life.

Table 6. Results of Structural Equation Model

Path	Coefficient	P-Value
H1: Innovativeness VR travel experience	.72	***
H2: VR travel experience quality of life	.67	***

5. Conclusion

This study demonstrates that VR travel can enhance users' quality of life among the general population, extending prior research that has largely focused on specific groups such as older adults and employees. More importantly, the findings indicate that individual innovativeness significantly shapes VR travel experiences, which in turn drive improvements in perceived quality of life. Rather than exerting a direct influence, innovativeness operates indirectly through experiential pathways, highlighting the importance of user characteristics in shaping the effectiveness of VR tourism.

The results indicate that innovativeness is a strong predictor of VR travel experience, supporting prior research that highlights its role in technology adoption and engagement (e.g., Hateftabar, 2022; Shin et al., 2021). However, unlike previous studies that primarily position innovativeness as an antecedent of behavioral intention or technology acceptance, this study extends its role to the experiential domain. Specifically, the findings suggest that more innovative individuals are not only more willing to adopt VR technologies but are also more likely to engage deeply with immersive environments and derive more positive experiential outcomes. This distinction is important because it shifts the focus from "whether users adopt VR" to "how users experience VR," thereby advancing the literature toward an experiential perspective.

Consistent with the tourism and quality-of-life literature, the findings confirm that VR travel experience significantly contributes to users' perceived quality of life. This result aligns with prior studies demonstrating the well-being benefits of tourism experiences (e.g., Kim et al., 2015; Jepson et al., 2019), while extending these benefits into virtual contexts. Unlike earlier VR studies that focused on specific populations such as older adults (Fiocco et al., 2021) or employees (Leung & Huang, 2023), the present study provides evidence that these positive effects generalize to a broader population. This suggests that VR travel can function as a scalable and accessible alternative to physical tourism in promoting psychological well-being.

At the dimensional level, the findings reveal that hedonic experience seeking and novelty seeking are the strongest contributors to innovativeness, while social distinctiveness exhibits relatively weaker influence. This contrasts with Wang et al. (2018), who identified vigilance as the least influential dimension in the context of physical travel. One possible explanation for this discrepancy lies in the differing nature of virtual versus physical tourism environments. In VR contexts, social signaling and differentiation may be less salient due to the individualized and less publicly visible nature of the experience, thereby reducing the importance of social distinctiveness.

Similarly, within the VR travel experience construct, esthetics and entertainment emerged as the most influential dimensions, whereas escapism demonstrated the weakest contribution. This finding partially diverges from prior tourism literature, where escapism is often a central experiential component (Oh et al., 2007). A plausible explanation is that the relatively short duration and limited frequency of VR usage reported by participants may constrain the depth of immersion required to fully experience escapism. This highlights an important boundary condition for VR tourism: while immersive technologies have the potential to facilitate escapism, actual experiential outcomes depend heavily on usage intensity and design quality.

From a theoretical perspective, this study contributes significantly to the theoretical framework surrounding virtual reality tourism. Specifically, it establishes that the innovative mindset of VR travelers positively influences their overall VR travel experience. This discovery broadens our understanding of the role of innovativeness within the context of VR tourism, even when utilizing diverse measures of innovativeness (Rejón-Guardia et al., 2020; Kim, Lee & Preis, 2020; Özekici & Küçükergin, 2023). Rejón-Guardia et al. (2020) have already highlighted the crucial role of personal innovativeness as a key determinant of VR attitude and use intention. Similarly, Özekici and Küçükergin (2023) conceptualized innovativeness as a dimension of technology readiness that predicts both the perceived ease of use and perceived usefulness of virtual reality. Additionally, Kim, Lee, and Preis (2020) identified a robust moderating effect between subjective wellbeing and behavioral intention, particularly in individuals exhibiting high levels of innovativeness. While previous studies have primarily focused on the stage of VR use intention, our study extends the impact of innovativeness to the VR travel experience itself. This expansion in scope enhances our comprehension of the multifaceted role that innovativeness plays in shaping the immersive and transformative aspects of virtual tourism.

This study further establishes that the VR travel experience has a positive impact on the quality of life for VR travelers. It extends the existing body of knowledge by demonstrating the broad benefits of VR travel, which transcend specific demographics and reach the general population. Previous research has highlighted the advantages of VR travel for older adults (Fiocco et al., 2021; Ortet et al., 2022) and hospitality employees (Leung & Huang, 2023); our study extends these benefits to a broader audience. In essence, this research highlights the transformative potential of VR travel, not only in enhancing the quality of life for individuals across various demographics, but also in replicating and expanding upon the positive outcomes traditionally associated with physical travel.

From a practical perspective, the findings of this study hold significant implications for developers and designers of virtual reality travel applications, offering valuable insights that can shape strategic approaches. Firstly, VR travel application marketers should center their efforts on targeting consumers with elevated levels of innovativeness. It is crucial for marketers to proactively distinguish and cater to these innovative users by recognizing specific traits, such as novelty-seeking and hedonic experience-seeking. The results highlight the importance of differentiating between these two types of innovative users within the VR travel setting, underscoring the need for targeted marketing strategies.

Additionally, the study establishes a compelling connection between VR travel and the enhancement of users' quality of life. This revelation opens avenues for leveraging this positive impact as a strategic marketing tool. Operators can position the potential improvement in users' quality of life as a key selling point, thereby creating a compelling marketing strategy to attract a broader user base in the future. This aligns with the growing interest in technologies that not only provide entertainment but also contribute positively to users' overall wellbeing.

Moreover, the study revealed that escapism made the least contribution to the overall VR travel experience. This observation may be attributed to the limited frequency and short duration of VR travel usage, resulting in diminished immersion. Consequently, designers of VR travel applications could enhance user engagement by prioritizing the creation of products that facilitate a more immersive escape experience. This might involve incorporating additional social elements (Zhu et al., 2023) and gamification elements (Wei et al., 2023) to incentivize users to spend more time engaging with VR travel. Addressing these aspects could significantly contribute to increasing the overall appeal of VR travel experiences.

Although this study offers both practical and theoretical contributions, several limitations should be acknowledged. First, the data were collected exclusively from participants in the United States, which may limit the generalizability of the findings to other cultural or geographical contexts. Future research should aim to replicate this study across more diverse populations to enhance the external validity of the proposed model. Second, the analysis revealed that the social distinctiveness dimension exhibited relatively low predictive power for innovativeness, and escapism showed similarly weak predictive strength within the VR travel experience construct. Further studies are needed to cross-validate and refine the measurement model. In particular, it is important to investigate why social distinctiveness plays a less influential role in VR travel contexts. Additionally, the dimensions and intensity of engagement necessary to evoke a sense of escapism in VR travel experiences warrant deeper examination. Addressing these areas will provide a more comprehensive understanding of the complex mechanisms underlying VR tourism experiences.

Declaration of Interest

The authors report there are no competing interests to declare.

References

Alyahya, M., & McLean, G. (2022). Examining tourism consumers' attitudes and the role of sensory information in virtual reality experiences of a tourist destination. *Journal of Travel Research*, *61*(7), 1666-1681.

Balaji, M. S., Jiang, Y., & Jha, S. (2019). Green hotel adoption: A personal choice or social pressure? *International Journal of Contemporary Hospitality Management*, *31*(8), 3287-305.

Beck, J., Rainoldi, M., & Egger, R. (2019). Virtual reality in tourism: A state-of-the-art review. *Tourism Review*, *74*(3), 586-612.

Berbekova, A., & Uysal, M. (2021). Wellbeing and quality of life in tourism. In *Tourist health, safety and wellbeing in the new normal* (pp. 243-268). Springer Singapore.

Buhalis, D., Lin, M. S., & Leung, D. (2022). Metaverse as a driver for customer experience and value co-creation: Implications for hospitality and tourism management and marketing. *International Journal of Contemporary Hospitality Management*, *35*(2), 701-716.

Campón-Cerro, A. M., Di-Clemente, E., Hernández-Mogollón, J. M., & Folgado-Fernández, J. A. (2020). Healthy water-based tourism experiences: Their contribution to quality of life, satisfaction and loyalty. *International Journal of Environmental Research and Public Health*, *17*(6), 1961.

Chen, J. S., Prebensen, N. K., & Uysal, M. S. (2018). Dynamic drivers of tourist experiences. In *Creating experience value in tourism* (pp. 11-20). CAB International.

Couture, A., Arcand, M., Sénécal, S., & Ouellet, J. F. (2015). The influence of tourism innovativeness on online consumer behavior. *Journal of Travel Research*, *54*(1), 66-79.

Ding, L., Jiang, C., & Qu, H. (2022). Generation Z domestic food tourists' experienced restaurant innovativeness toward destination cognitive food image and revisit intention. *International Journal of Contemporary Hospitality Management*, *34*(11), 4157-4177.

Dolnicar, S., Yanamandram, V., & Cliff, K. (2012). The contribution of vacations to quality of life. *Annals of tourism research*, *39*(1), 59-83.

Eusébio, C., & Carneiro, M. J. (2014). The impact of tourism on quality of life: A segmentation analysis of the youth market. *Tourism Analysis*, *19*(6), 741-757.

Fiocco, A. J., Millett, G., D'Amico, D., Krieger, L., Sivashankar, Y., Lee, S. H., & Lachman, R. (2021). Virtual tourism for older adults living in residential care: A mixed-methods study. *PLoS ONE*, *16*(5), e0250761.

Fortune Business Insights. (2022, May). *Virtual reality market size, share & trends*. Retrieved March 7, 2023, from https://www.fortunebusinessinsights.com/industry-reports/virtual-reality-market-101378.

Ganglmair-Wooliscroft, A., & Wooliscroft, B. (2016). Diffusion of innovation: The case of ethical tourism behavior. *Journal of Business Research*, *69*(8), 2711–2720.

Guttentag, D. A. (2010). Virtual reality: Applications and implications for tourism. *Tourism Management*, *31*(5), 637-651.

Hateftabar, F. (2022). Analyzing the adoption of online tourism purchases: Effects of perceived tourism value and personal innovativeness. *Current Issues in Tourism*, *25*, 1-17.

Hayat, A., & Afshari, L. (2022). CSR and employee wellbeing in hospitality industry: A mediation model of job satisfaction and affective commitment. *Journal of Hospitality and Tourism Management*, *51*, 387-396.

Hobson, J. S. P., & Williams, A. P. (1995). Virtual reality: A new horizon for the tourism industry. *Journal of Vacation Marketing*, *1*(2), 124-135.

Huang, X., Liu, C., LIU, C., Wei, Z., & Y. Leung, X. (2021). How children experience virtual reality travel: a psycho-physiological study based on flow theory. *Journal of Hospitality and Tourism Technology*, *12*(4), 777-790.

Huang, X., Liu, C., Wei, Z., & Leung, X. (2021). How children experience virtual reality travel: A psycho-physiological study based on flow theory. *Journal of Hospitality and Tourism Technology*, *12*(4), 777-790.

Jacobsen, J. K. S., Iversen, N. M., & Hem, L. E. (2019). Hotspot crowding and over-tourism: Antecedents of destination attractiveness. *Annals of tourism research*, *76*, 53-66.

Jepson, A., Stadler, R., & Spencer, N. (2019). Making positive family memories together and improving quality-of-life through thick sociality and bonding at local community festivals and events. *Tourism Management*, *75*, 34-50.

Jung, T., Chung, N., & Leue, M. C. (2015). The determinants of recommendations to use augmented reality technologies: The case of a Korean theme park. *Tourism Management*, *49*, 75-86.

Kelling, C., Väätäjä, H., & Kauhanen, O. (2017, November). Impact of device, context of use, and content on viewing experience of 360-degree tourism video. In *Proceedings of the 16th International Conference on Mobile and Ubiquitous Multimedia* (pp. 211-222). Association for Computing Machinery.

Kim, H., Woo, E., & Uysal, M. (2015). Tourism experience and quality of life among elderly tourists. *Tourism Management*, *46*, 465-476.

Kim, M. J., Lee, C. K., & Jung, T. (2020). Exploring consumer behavior in virtual reality tourism using an extended stimulus-organism-response model. *Journal of Travel Research*, *59*(1), 69-89.

Kim, M. J., Lee, C. K., & Preis, M. W. (2020). The impact of innovation and gratification on authentic experience, subjective wellbeing, and behavioral intention in tourism virtual reality: The moderating role of technology readiness. *Telematics and Informatics*, *49*, 101349.

King, B. M., Rosopa, P. J., & Minium, E. W. (2018). *Statistical reasoning in the behavioral sciences*. John Wiley & Sons.

Lee, S. A., Manthiou, A., Chiang, L., & Tang, L. R. (2018). An assessment of value dimensions in hiking tourism: Pathways toward Quality of life. *International Journal of Tourism Research*, *20*(2), 236-246.

Leung, X. Y., & Huang, X. (2023). How virtual reality moderates daily negative mood spillover among hotel frontline employees: A within-person field experiment. *Tourism Management*, *95*, 104680.

Lin, L. P. L., Huang, S. C. L., & Ho, Y. C. (2020). Could virtual reality effectively market slow travel in a heritage destination? *Tourism Management*, *78*, 104027.

Liu, C., & Huang, X. (2023). Does the selection of virtual reality video matter? A laboratory experimental study of the influences of arousal. *Journal of Hospitality and Tourism Management*, *54*, 152-165.

Losada, N., Jorge, F., Teixeira, M. S., Melo, M., & Bessa, M. (2021). Could virtual reality substitute the 'real' experience? Evidence from a UNESCO World Heritage Site in Northern Portugal. In *Advances in Tourism, Technology and Systems: Selected Papers from ICOTTS20, Volume 2* (pp. 153-161). Springer Singapore.

Lum, H. C., Elliott, L. J., Aqlan, F., & Zhao, R. (2020, December). Virtual reality: History, applications, and challenges for human factors research. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (Vol. 64, No. 1, pp. 1263-1268). SAGE Publications.

Luo, Y., Lanlung, C., Kim, E., Tang, L. R., & Song, S. M. (2018). Towards quality of life: The effects of the wellness tourism experience. *Journal of Travel & Tourism Marketing*, *35*(4), 410-424.

McCabe, S., Joldersma, T., & Li, C. (2010). Understanding the benefits of social tourism: Linking participation to subjective wellbeing and quality of life. *International Journal of Tourism Research*, *12*(6), 761-773.

Melo, M., Coelho, H., Gonçalves, G., Losada, N., Jorge, F., Teixeira, M. S., & Bessa, M. (2022). Immersive multisensory virtual reality technologies for virtual tourism: A study of the user's sense of presence, satisfaction, emotions, and attitudes. *Multimedia Systems*, *28*(3), 1027-1037.

Neal, J.D., Sirgy, M.J. & Uysal, M. (1999), The role of satisfaction with leisure travel/tourism services and experience in satisfaction with leisure life and overall life. *Journal of Business Research*, *44*(3), 153-163.

Oh, H., Fiore, A. M., & Jeoung, M. (2007). Measuring experience economy concepts: Tourism applications. *Journal of Travel Research*, *46*(2), 119-132.

Ortet, C. P., Veloso, A. I., & Vale Costa, L. (2022). Cycling through 360 virtual reality tourism for senior citizens: Empirical analysis of an assistive technology. *Sensors*, *22*(16), 61-69.

Ostlund, L. E. (1974). Perceived innovation attributes as predictors of innovativeness. *Journal of Consumer Research*, *1*(2), 23-29.

Özekici, Y. K., & Küçükergin, K. G. (2023). The role of COVID-19 anxiety and social contact within technology readiness and acceptance model for virtual reality. *Journal of Vacation Marketing*, *29*(4), 498-521.

Rejón-Guardia, F., García-Sastre, M. A., Orfila-Sintes, F., & Garau-Vadell, J. B. (2020). Virtual reality in tourism: Centennials acceptance. *Tourism Analysis*, *25*(2-3), 335-344.

Ren, R., Chen, J. & Ramos, W. (2024). Innovativeness, virtual reality travel experience, and quality of life. *Proceedings of the 29th Annual Graduate Education and Graduate Student Research Conference in Hospitality and Tourism*, 134.

Richards, G. (1999). Vacations and the quality of life: Patterns and structures. *Journal of Business Research*, *44*(3), 189-198.

Ruiz-Palomino, P., Hernández-Perlines, F., Jiménez-Estévez, P., & Gutiérrez-Broncano, S. (2019). CEO servant leadership and firm innovativeness in hotels: A multiple mediation model of encouragement of participation and employees' voice. *International Journal of Contemporary Hospitality Management*, *31*(4), 1647-1665.

San Martín, H., & Herrero, Á. (2012). Influence of the user's psychological factors on the online purchase intention in rural tourism: Integrating innovativeness to the UTAUT framework. *Tourism Management*, *33*(2), 341-350.

Scarpi, D., & Raggiotto, F. (2023). A construal level view of contemporary heritage tourism. *Tourism Management*, *94*, 104648.

Shin, H., Jeong, M., & Cho, M. H. (2021). The impact of smart tourism technology and domestic travelers' technology readiness on their satisfaction and behavioral intention: A cross-country comparison. *International Journal of Tourism Research*, *23*(5), 726-742.

Su, L., & Swanson, S. R. (2017). The effect of destination social responsibility on tourist environmentally responsible behavior: Compared analysis of first-time and repeat tourists. *Tourism management*, *60*, 308-321.

Su, L., Tang, B., & Nawijn, J. (2023). How destination social responsibility shapes resident emotional solidarity and quality of life: Moderating roles of disclosure tone and visual messaging. *Journal of Travel Research*, *62*(1), 105-120.

Su, L., Yang, X., & Swanson, S. R. (2022). The impact of spatial-temporal variation on tourist destination resident Quality of life. *Tourism Management*, *93*, 104572.

Suhartanto, D., Andrianto, T., Wibisono, N., & Sutrisno, R. (2021, July). Virtual reality in halal tourism: The role of system quality and content quality. In *2021 IEEE International Conference on Industry 4.0, Artificial Intelligence, and Communications Technology (IAICT)* (pp. 138-142). IEEE.

Talwar, S., Kaur, P., Nunkoo, R., & Dhir, A. (2022). Digitalization and sustainability: Virtual reality tourism in a post-pandemic world. *Journal of Sustainable Tourism*, *30*, 1-28.

Tussyadiah, I. P., Wang, D., Jung, T. H., & Tom Dieck, M. C. (2018). Virtual reality, presence, and attitude change: Empirical evidence from tourism. *Tourism Management*, *66*, 140-154.

Wang, W., Cole, S. T., & Chen, J. S. (2018). Tourist innovation in air travel. *Journal of Travel Research*, *57*(2), 164-177.

Wang, Y., So, K. K. F., & Sparks, B. A. (2017). Technology readiness and customer satisfaction with travel technologies: A cross-country investigation. *Journal of Travel Research*, *56*(5), 563-577.

Wei, Z., Zhang, J., Huang, X., & Qiu, H. (2023). Can gamification improve the virtual reality tourism experience? Analyzing the mediating role of tourism fatigue. *Tourism Management*, *96*, 104715.

Williams, A. P., & Hobson, J. S. P. (1995). Virtual reality and tourism: Fact or fantasy? *Tourism Management*, *16*(6), 423-427.

Yuan, A., & Hong, J. (2024). Impacts of virtual reality on tourism experience and behavioral intentions: moderating role of novelty seeking. *Journal of Hospitality & Tourism Research*, *48*(6), 1067-1080.

Zheng, J., Liang, S., Ma, J., Liu, G., & Wu, Y. (2022). Can tourism enhance Chinese subjective wellbeing? *Annals of Tourism Research*, *93*, 103372.

Zhu, J., Jiang, Y., Jiang, Y., Wang, Y., & Yang, Q. (2023). The effectiveness of social elements in virtual reality tourism: A mental imagery perspective. *Journal of Hospitality and Tourism Management*, *56*, 135-146.