Journal of the Department of Geography, Tourism and Hotel Management
55–1/2026

Original scientific article

INTRODUCTION AND EXTRAVERSION IN TRADITIONAL AND VIRTUAL TOURISM: A SYSTEMATIC LITERATURE REVIEW

Vladimir Karadzhov[1]

Received: May 4, 2026 | Revised: July 17, 2026 | Accepted: July 19, 2026

DOI: https://doi.org/10.5937/ZbDght2601072K

ABSTRACT

This study presents a systematic review of research on the psychological dimensions of traditional and virtual tourism, with a particular focus on the role of introversion and extroversion in shaping tourist preferences and experiential outcomes. Drawing on the existing literature, the review advances a conceptual contribution by positioning personality traits as mediating mechanisms between tourism modality (traditional versus virtual) and experiential satisfaction, and by framing hybrid tourism as a psychologically adaptive model. The analysis synthesizes studies that examine tourist motivations, preferences, and satisfaction across different tourism environments. The reviewed findings suggest that individuals with introverted personality orientations tend to prefer calm, low-intensity, and minimally interactive settings, which closely aligns with the experiential affordances of virtual tourism. In contrast, extroverted orientations are more commonly associated with preferences for traditional tourism experiences, characterized by social interaction and high levels of engagement. The review further highlights the growing relevance of virtual tourism, driven by advancements in virtual and augmented reality technologies, and its capacity to complement, rather than replace, traditional tourism through hybrid practices. By integrating psychological perspectives into tourism research, this study contributes to a deeper understanding of how individual differences influence tourism experiences, while also outlining the implications, limitations, and directions for future research.

Keywords: *Tourism psychology; introversion; extroversion; virtual tourism; traditional tourism; hybrid tourism; tourist behavior; systematic literature review.*

INTRODUCTION

Tourism is widely recognized as a multidimensional phenomenon shaped not only by economic, spatial, and cultural factors but also by psychological processes that influence motivation, perception, and satisfaction. While early tourism research primarily focused on destinations, infrastructure, and travel flows, subsequent studies have increasingly emphasized the role of individual differences in shaping tourist behavior and experience evaluations. Psychological characteristics such as motivation, personality traits, emotional responses, and subjective perceptions have therefore become central to understanding why tourists choose particular destinations, activities, and modes of travel, and how they evaluate and remember their travel experiences (Maslow, 1943; Pearce, 2005; Plog, 1974).

1 Department of Geography, Ecology and Environmental Protection, South-West University "Neofit Rilski", Ivan Mihaylov Str. 66, Blagoevgrad, Bulgaria; correspondence: karadzhov@swu.bg

In recent years, traditional tourism has demonstrated a strong capacity for recovery and adaptation, continuing to attract travelers through authentic physical experiences, cultural exchange, emotional engagement, and social interaction. Simultaneously, virtual tourism has emerged as an increasingly significant complementary form of tourism, enabled by rapid technological development and expanding access to digital platforms. Virtual tourism experiences, supported by virtual and augmented reality technologies, offer immersive representations of destinations and activities that provide flexible, low-cost, and accessible alternatives to physical travel (Guttentag, 2010; Tussyadiah et al., 2018; Wei, 2019).

The coexistence of traditional and virtual tourism has contributed to the development of more diversified tourism products, allowing travelers to combine physical and digital experiences according to their preferences, constraints, and motivations. Rather than replacing traditional tourism, virtual tourism increasingly functions as a complementary component, contributing to the emergence of hybrid tourism models that integrate digital and physical experiences within a single offering (Neuhofer et al., 2014).

Theoretical basis

In an increasingly competitive and fragmented tourism market, travel organizations and destination managers are under increasing pressure to develop more personalized and psychologically informed marketing and experience design strategies. Traditional segmentation approaches based solely on demographic or geographic criteria have proven insufficient for explaining variations in tourist behavior and satisfaction. Consequently, tourism research and practice have increasingly emphasized psychological characteristics, such as motivation patterns, personality traits, and emotional preferences, as key determinants of travel decision-making and experiential outcomes (Kozak, 2002; Pearce, 2005; Prayag & Ryan, 2012).

Several established psychological theories provide a robust framework for understanding tourism behavior and experience evaluations. Maslow's hierarchy of needs suggests that tourism consumption often fulfills higher-order psychological needs, including belonging, esteem, and self-actualization (Maslow, 1943). Complementarily, the Big Five personality model highlights the role of stable personality traits, particularly introversion and extroversion, in shaping preferences for social interaction, stimulation levels, and experiential intensity (McCrae & Costa, 1987).

From the perspective of technology-mediated tourism, the Technology Acceptance Model (TAM) explains how perceived usefulness and ease of use influence individuals' willingness to adopt virtual and augmented reality technologies (Davis, 1989; Venkatesh et al., 2003). Together, these theoretical perspectives emphasize that tourism experiences emerge from the interaction between psychological needs, personality traits, and technological affordances.

These theoretical foundations emphasize the importance of psychological factors in shaping the tourism experience. However, gaps remain in understanding how personality traits shape consumer preferences for traditional or virtual tourism.

Research Gap and Objectives of the Study

Despite the growing body of literature on tourism psychology, relatively few studies have systematically examined the role of personality traits in shaping preferences for both traditional and virtual tourism. Existing research has predominantly focused on these forms of tourism separately, with limited attention to their interrelationships. This study addresses this gap by conducting a systematic review of the literature to explore how personality traits—particularly introversion and extroversion—influence travel preferences and behaviors across traditional, virtual, and hybrid tourism contexts. By synthesizing existing knowledge, this study aims to deepen the understanding of the psychological dimensions of tourism and to provide a conceptual foundation for tailoring tourism experiences to diverse traveler profiles.

Addressing this gap is particularly important in a tourism environment characterized by accelerated digital transformation, evolving consumer expectations, and increasing interest in technology-mediated experiences. As digital technologies reshape the design, delivery, and consumption of tourism experiences, there is a growing need for theory-driven comparative research that integrates tourism psychology with

digital innovation and experience design. Therefore, examining traditional and virtual tourism simultaneously provides valuable insights into the psychological mechanisms underlying tourist behavior in contemporary tourism systems (Buhalis & Sinarta, 2019; Neuhofer et al., 2014).

Contribution of the Study

This study makes several theoretical and practical contributions to tourism literature. First, it advances tourism psychology by systematically synthesizing research on personality traits—specifically introversion and extroversion—across traditional, virtual and hybrid tourism contexts. By positioning personality traits as mediating mechanisms between tourism modality and experiential satisfaction, this study moves beyond descriptive accounts and offers a more analytically grounded understanding of tourist behavior than previous studies.

Second, this study integrates established psychological frameworks, including Maslow's hierarchy of needs, the Big Five personality model, and the TAM, into a unified conceptual perspective applicable to contemporary tourism environments. This integrative approach demonstrates how psychological needs, personality traits, and technology acceptance jointly shape tourism preferences in both physical and digitally mediated settings.

Third, the study conceptualizes hybrid tourism as a psychologically adaptive model that reconciles the strengths of traditional and virtual tourism. By illustrating how hybrid experiences can accommodate diverse personality profiles while supporting sustainability and accessibility objectives, this study contributes to ongoing debates on the future of tourism and experience design. From a managerial perspective, the findings provide actionable insights for destination managers, tourism service providers, and digital experience designers by emphasizing the importance of psychologically informed segmentation and personalization strategies.

LITERATURE REVIEW

The scientific literature on tourism psychology provides some basis for understanding the relationship between psychological factors and travel preferences, as well as consumer behavior during vacations. This section reviews the theoretical and empirical studies on this topic. They mainly examine the interaction between psychology and tourism, and in this case, they focus on both types of tourism: traditional and virtual. The research takes into account individual differences in the formation of travel choices. The following sections examine the psychological motivations behind traditional tourism, the emerging wave of popularity of virtual tourism, and the role of personality traits in the choice between these two options.

Psychology of Tourism – Theoretical Foundations

Tourism psychology explores how emotional, cognitive, and social factors influence the travel behavior.

Maslow's Hierarchy of Needs Theory (1943) provides a foundational framework for this topic, postulating that tourism satisfies higher-order needs such as self-actualization, belonging, and self-esteem. Similarly, self-determination theory (Deci & Ryan, 1985) emphasizes the role of intrinsic motivation in travel decisions, emphasizing autonomy, competence, and connectedness. These theories emphasize the psychological motives behind tourism but have rarely been applied to the emerging field of virtual tourism. The TAM (Davis, 1989) offers insights into how perceived usefulness and ease of use influence the acceptance of technologies used to enable virtual tourism, thus bridging the gap between psychology and technology.

Traditional Tourism: Psychological Drivers

Traditional tourism has long been studied through the lens of psychology, with research highlighting the role of emotions, motivations, and personality traits in shaping travel behavior. Kim et al. (2010) found that memorable tourism experiences are often driven by emotional engagement, such as joy, surprise, and

awe. Similarly, Reisinger and Mavondo (2005) demonstrated that perceptions of safety, accessibility, and cultural appeal influence destination choices. Personality traits, particularly introversion and extroversion, also play a key role. Introverts tend to prefer solitary, low-stimulation activities such as nature retreats or museum visits, while extroverts thrive in dynamic, socially engaging environments such as festivals or adventure sports (McCrae & Costa, 1987). These findings highlight the importance of psychological factors in traditional tourism, yet little research has explored how these factors translate to virtual tourism.

Virtual Tourism: Psychological Dynamics

Virtual tourism, enabled by advancements in VR and AR technologies, introduces new psychological dimensions to travel behaviors. Guttentag (2010) identified presence and immersion as key factors influencing user engagement in virtual environments. Yung and Khoo-Lattimore (2019) further emphasized the role of emotional and cognitive processes in virtual tourism, noting that users often experience emotional responses (e.g., excitement and curiosity) similar to those in traditional tourism.

However, the lack of physical sensory input, such as touch or taste, can limit the depth of satisfaction for some users (Riva et al., 2019). Virtual tourism also addresses psychological barriers to traditional travel, such as fear of unfamiliar environments or mobility constraints, making it an inclusive alternative for diverse traveler profiles.

Personality Traits and Tourism Behavior

Personality traits, particularly introversion and extroversion, profoundly impact tourism preferences and behaviors. Introverts, characterized by a preference for solitude and low-stimulation environments, are more likely to engage in virtual tourism or solitary travel activities, such as hiking or cultural exploration (Leung & Law, 2019). In contrast, extroverts, who thrive on social interactions and high-energy activities, prefer traditional tourism experiences such as group tours, festivals, and adventure sports (McCrae & Costa, 1987). These personality-driven preferences highlight the need for tailored tourism offerings that cater to diverse psychological profiles of tourists. However, existing research has largely focused on traditional tourism, with limited attention to the influence of personality traits on virtual tourism adoption and satisfaction.

Hybrid Tourism Models: Bridging Virtual and Physical Experiences

The convergence of traditional and virtual tourism has given rise to hybrid models that integrate immersive technologies with physical travel to enhance accessibility, sustainability, and personalization. These models leverage the strengths of both paradigms, addressing gaps in satisfaction and engagement identified in earlier research (Yung & Khoo-Lattimore, 2023). Hybrid tourism is increasingly recognized as a transformative approach to meet diverse psychological needs while mitigating challenges such as overtourism and environmental degradation.

Hybrid models align with global sustainability goals by reducing the ecological footprint of tourism. For instance, virtual previews of destinations (e.g., VR tours of Machu Picchu) allow travelers to "test" locations before committing to physical visits, minimizing unnecessary travel and overcrowding. Post-trip virtual extensions, such as augmented reality (AR) apps that overlay historical narratives onto physical sites, extend the lifecycle of travel experiences without additional resource consumption. Studies highlight that hybrid approaches can reduce carbon emissions by up to 30% in high-traffic destinations, as virtual components substitute for short-haul trips (Neuburger et al., 2023).

Hybrid tourism democratizes access by catering to individuals with physical, financial, or psychological barriers. For example, VR-enabled museum tours allow mobility-impaired users to explore inaccessible heritage sites, fulfilling self-actualization needs (Maslow, 1943). Similarly, low-cost AR-guided city walks provide budget-conscious travelers with enriched cultural experiences. Yung & Khoo-Lattimore (2023) emphasize that hybrid models foster inclusivity by offering "phygital" (physical + digital) options, such as real-time VR social hubs where homebound users interact with on-site travelers, bridging social isolation gaps.

These models cater to diverse personality traits of users. Introverts benefit from controlled virtual interactions (e.g., silent VR museum tours) before engaging in limited physical socialization, whereas extroverts enjoy gamified AR scavenger hunts that blend on-site exploration with digital challenges (Slater & Wilbur, 1997). The Technology Acceptance Model (TAM) explains this adaptability: perceived usefulness (e.g., personalized itineraries) and ease of use (e.g., intuitive apps) drive adoption across different temperaments (Davis, 1989).

Illustrative case studies in the literature suggest that virtual and hybrid cultural tourism initiatives may enhance perceived accessibility and experiential satisfaction, particularly for individuals who prefer low-intensity, individually mediated tourism experiences.

Despite their potential, hybrid models face hurdles, such as technological inequity and sensory dissonance. Future research should explore AI-driven personalization and multisensory VR (e.g., haptic feedback) to enhance immersion (Riva et al., 2019). By addressing these gaps, hybrid tourism can evolve into a mainstream and psychologically inclusive paradigm.

METHODOLOGY

This study adopts a systematic review approach to examine the psychological dimensions of traditional and virtual tourism, focusing on the role of personality traits in shaping travel preferences and behaviors. The methodology comprises two primary components: (1) a systematic literature review and (2) conceptual analysis. Below, we detail the processes and frameworks used for each component.

Systematic Review Process

The systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency and reproducibility. The process involved the following steps:

Database Selection: A comprehensive search was conducted across major academic databases, including Scopus, Web of Science, and Google Scholar. These databases were chosen for their extensive coverage of high-quality peer-reviewed articles in tourism, psychology, and technology.

Search Terms: The search strategy employed a combination of keywords related to tourism, psychology, and virtual reality. Key search terms included: “virtual tourism”, “VR travel”, “psychological factors in tourism”, “personality traits and travel behavior”, “traditional vs. virtual tourism”.

Boolean operators (AND, OR) were used to refine the search and ensure its relevance.

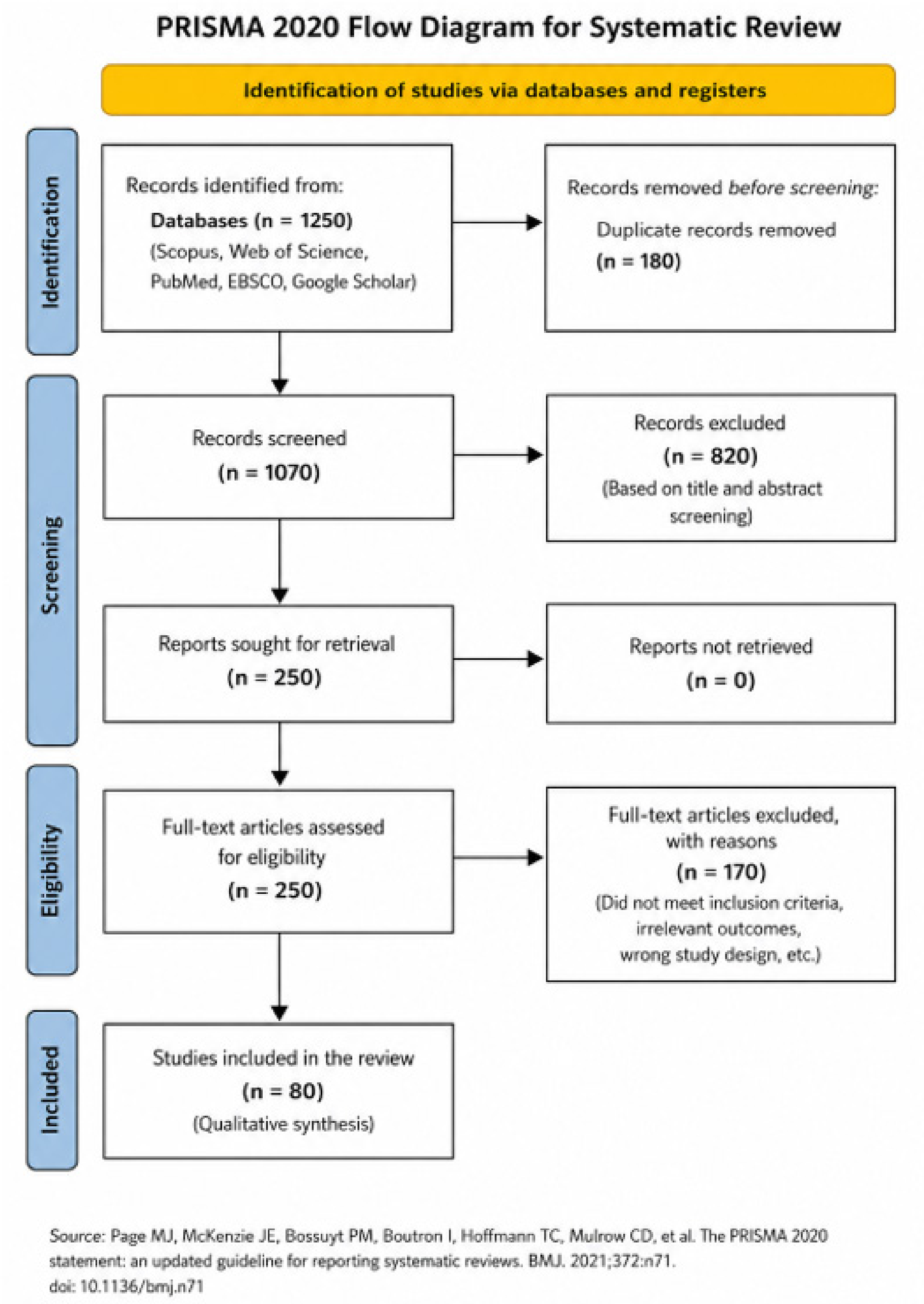

Fig. 1. PRISMA 2020 flow diagram illustrating the study selection process.

Source: Author's own work based on the PRISMA 2020 Statement (Page et al., 2021).

Inclusion and Exclusion Criteria: Articles were screened based on the following criteria:

Inclusion criteria: Studies published in English between 2014 and 2024; studies focusing on psychological factors in traditional or virtual tourism; studies discussing personality traits (e.g., introversion, extroversion).

Exclusion criteria: Studies outside the scope of psychology or tourism; non-peer-reviewed articles; and studies lacking empirical or theoretical relevance.

Screening and Selection criteria: The initial search yielded 1,250 articles. After removing duplicates and screening the titles and abstracts, 250 articles were selected for the full-text review. Following a detailed assessment, 80 articles met the inclusion criteria and were included in the final analysis (Figure 1).

Conceptual Analysis Framework

To analyze the selected literature, a conceptual analysis framework was developed based on key psychological and tourism theories. The framework included the following components:

Theoretical Foundations:

Maslow's Hierarchy of Needs: Used to analyze how tourism fulfills higher-order psychological needs (e.g., self-actualization and belonging).

Big Five Personality Traits: Applied to examine how introversion and extroversion influence travel preferences.

Technology Acceptance Model (TAM): Used to explore the adoption of virtual tourism technologies based on perceived usefulness and ease of use.

Analytical Approach:

Thematic Analysis: The literature was categorized into themes such as psychological drivers in traditional tourism, psychological dynamics in virtual tourism, and the role of personality traits.

Comparative Analysis: Differences and similarities between traditional and virtual tourism were analyzed, focusing on how psychological factors shape preferences and behaviors.

Data Synthesis

The findings from the systematic review were synthesized using a mixed-methods approach:

Quantitative Data: Statistical data from the selected studies (e.g., satisfaction rates and engagement levels) were summarized to provide a quantitative overview of key trends.

Case Studies: Real-world examples of virtual and traditional tourism experiences were analyzed to illustrate the psychological dynamics discussed in the literature.

Thematic Synthesis: Key themes were identified and organized into a coherent narrative, highlighting the interplay between psychology and tourism.

RESULTS AND DISCUSSION

The findings of this systematic review reinforce the central role of psychological factors in shaping tourism preferences and experiences while extending existing research by explicitly comparing traditional, virtual, and hybrid tourism through the lens of personality traits. By synthesizing evidence from multiple streams of tourism and psychology literature, this study provides a more integrated understanding of how introversion and extroversion influence experiential satisfaction, engagement patterns, and technology adoption in contemporary tourism contexts.

The Influence of Human Temperament on Tourism

Human temperament, particularly introversion and extroversion, has a profound effect on tourism behavior. Introverts often prefer tranquil, low-stimulation environments, making them more likely to engage in activities such as solo travel, nature retreats, and virtual tourism. Virtual tourism, in particular, caters to introverts' preference for solitude and minimal social interaction, allowing them to explore destinations from the comfort of their homes (Guttentag, 2010).

In contrast, extroverts thrive on social interactions and dynamic activities. Traditional tourism often appeals to extroverts through group tours, festivals, and high-energy experiences, such as adventure sports or nightlife. Extroverts are also more likely to seek destinations with vibrant social scenes and opportunities for cultural exchanges (McCrae & Costa, 1987). These personality-driven preferences underline the need for tailored tourism offerings to accommodate diverse tourist temperaments.

Psychological Dimensions of Virtual Tourism

Virtual tourism represents a growing area of interest, driven by advancements in immersive technologies such as virtual reality (VR) and augmented reality (AR). Psychological engagement in virtual tourism is shaped by factors such as presence, emotional immersion, and sensory stimulation (Slater & Wilbur, 1997). The ability of VR environments to simulate real-world experiences makes them particularly appealing to individuals seeking accessible and sustainable travel options (Yung & Khoo-Lattimore, 2023).

Virtual tourism also addresses the psychological barriers to traditional travel, such as fear of unfamiliar environments, mobility constraints, and financial limitations. Studies have shown that virtual experiences can evoke similar emotional responses to physical travel, including excitement, curiosity, and relaxation (Riva et al., 2019). However, the lack of physical sensory experiences, such as touch or taste, may limit the depth of satisfaction for some users (Guttentag, 2010).

Psychological factors are integral to understanding tourism behavior, whether in traditional or virtual contexts. Emotions, cognitive processes, and personality traits collectively shape how individuals choose destinations, plan activities, and engage in travel experiences. The rise of virtual tourism highlights the importance of psychological insights in designing inclusive, engaging, and sustainable travel options. Future research should continue to explore the interplay between psychology and tourism, particularly as technology evolves to bridge the gap between virtual and physical experiences.

Personality Traits and Their Impact on Tourism Behavior

This section explores the influence of personality traits, specifically introversion and extroversion, on tourism preferences and behavior (Figure 2). The conclusions are summarized in Figures 3 and 4, which highlight how these traits affect choices in both traditional and virtual tourism contexts.

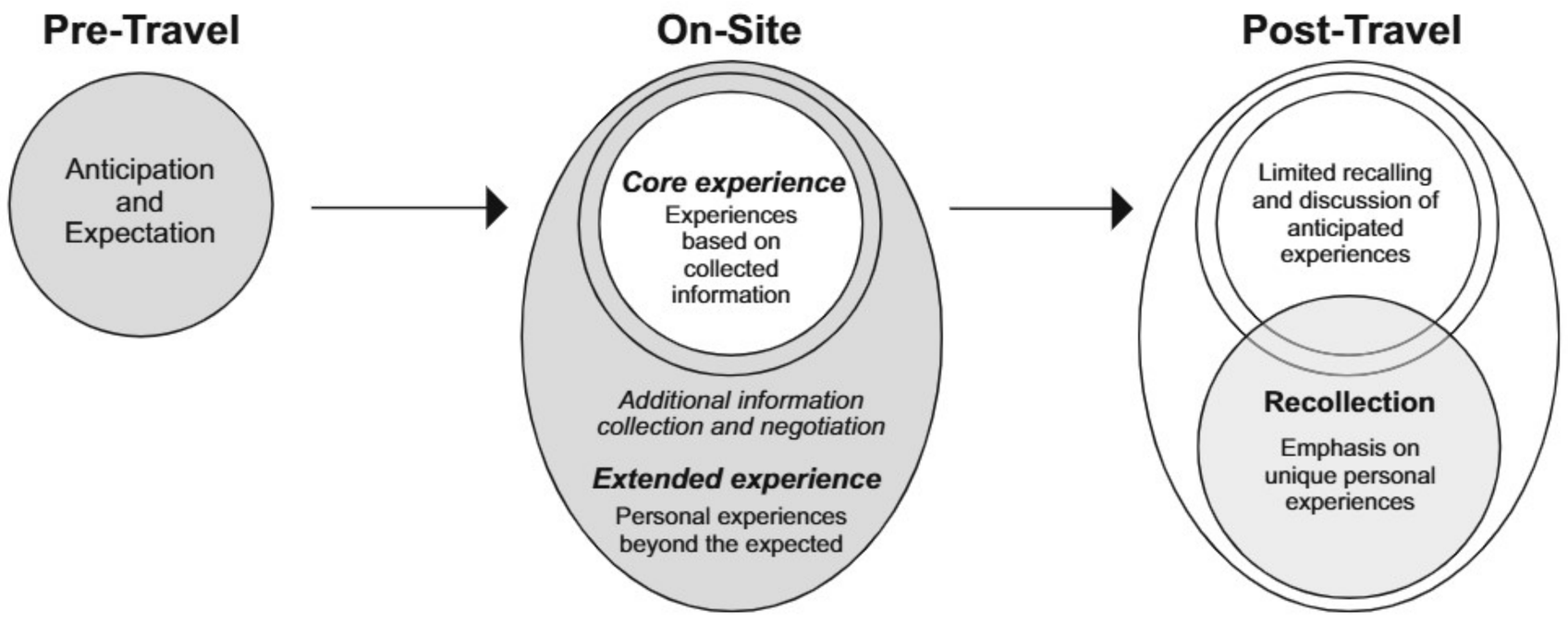

Fig. 2. Multiple stages of memorable tourism experiences. (Source: Park & Santos, 2017 via G. Soni et al., 2024)

Introverts in Tourism

The preference of introverted individuals for calm, low-stimulation environments identified in this review aligns with earlier findings on solitude-oriented travel and reflective-tourism experiences (McCrae & Costa, 1987; Leung & Law, 2019).

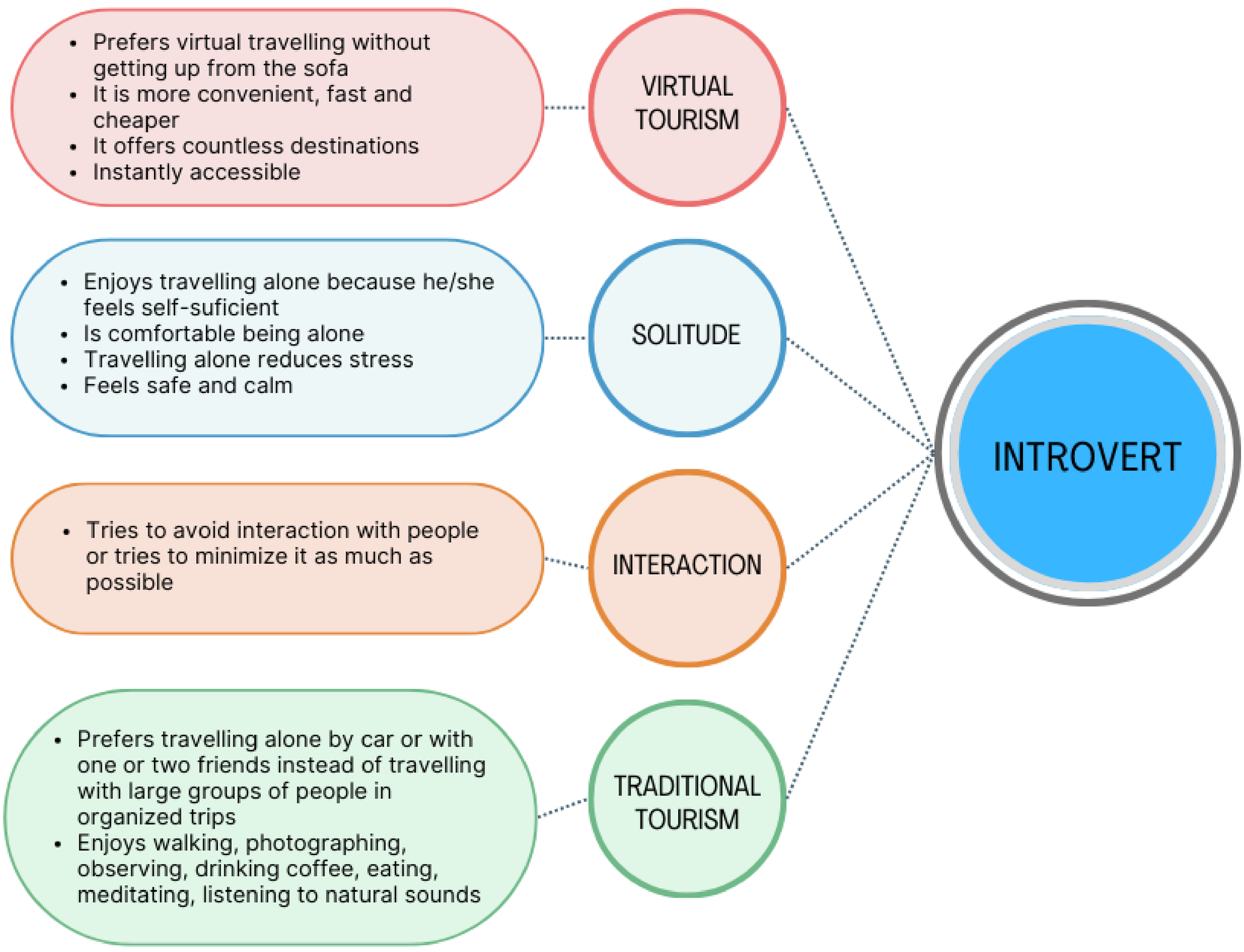

Fig. 3. Psychological Preferences of Introverts in Traditional and Virtual Tourism.

Source: ***Author's own work***

However, the present synthesis extends prior research by demonstrating that virtual tourism is not merely a substitute for physical travel but a particularly well-aligned modality for introverted tourists' psychological needs. In this sense, virtual tourism facilitates autonomy, control, and reduced social pressure, which closely correspond with introverts' motivational structures, as described in Maslow's hierarchy of needs and self-determination theory.

By explicitly linking introversion to higher satisfaction levels in virtual environments, this study advances tourism psychology beyond destination-based explanations and highlights the importance of psychological congruence between tourist personality and the tourism modality.

EXTROVERTS IN TOURISM

The findings regarding extroverted tourists are consistent with established research emphasizing the importance of social interaction, sensory stimulation, and group-based activities in travel satisfaction (Kim

et al., 2010; McCabe & Johnson, 2013). However, the review also reveals a structural limitation of current virtual tourism offerings in addressing extroverts' psychological needs. While virtual environments may provide novelty and convenience, they often lack the intensity of real-time social engagement and multi-sensory interactions that extroverted individuals seek.

This observation challenges the overly optimistic assumptions in parts of the virtual tourism literature that present digital experiences as universally substitutable for physical travel. Instead, the findings suggest that virtual tourism currently functions more effectively as a complementary experience for extroverts than as a primary mode of tourism consumption.

Satisfaction and Market Trends

The reviewed studies suggest that virtual tourism environments tend to align more closely with the experiential preferences commonly associated with introverted personality orientations, whereas traditional tourism settings appear more congruent with the social and interaction-intensive preferences often linked to extroversion.

Hatipoglu and Koc (2023) found that introverted customers place higher value on the tangibles dimension of service quality, such as physical facilities and equipment, whereas extroverted customers prioritize the empathy dimension, emphasizing personalized attention and care from service providers.

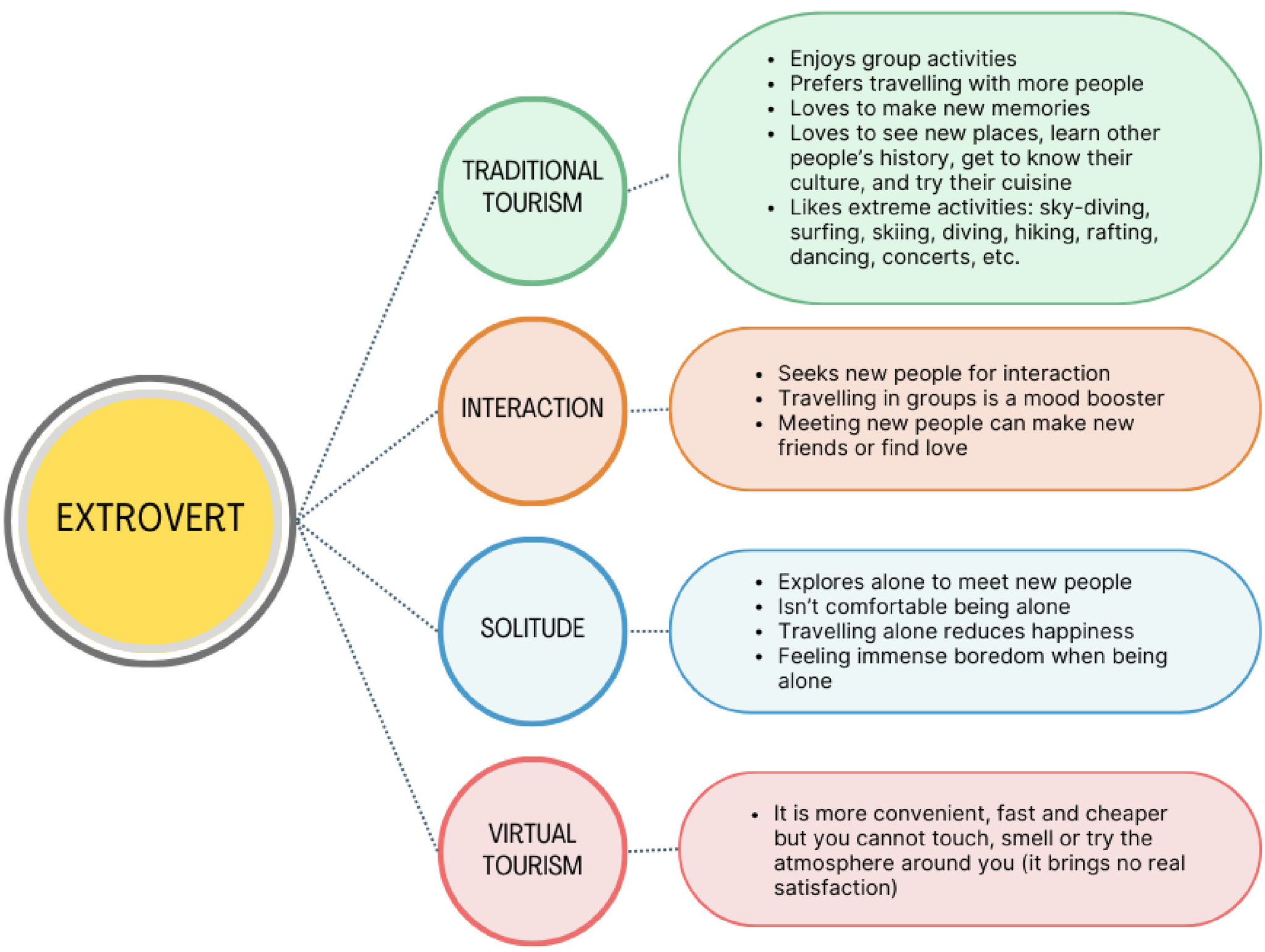

Fig. 4. Psychological Preferences of Extroverts in Traditional and Virtual Tourism.

Source: ***Author's work.***

These insights underscore the importance of considering personality dimensions in the design and marketing of tourism services to enhance customer satisfaction and engagement.

To provide a comprehensive overview, Table 1 compares the preferences of introverts and extroverts across various dimensions of tourism:

Table 1. Comparison of Tourism Preferences among Introverts and Extroverts.

Source: ***Author's own work***

Dimension	**Introverts**	**Extroverts**
Travel Companions	Solo or small groups	Larger groups or social gatherings
Preferred Activities	Nature retreats, museum visits	Festivals, adventure sports
Virtual Tourism Use	High satisfaction with immersive solitude	Lower satisfaction, prefer dynamic options
Sensory Engagement	Prioritize minimal stimulation	Seek full sensory immersion

SATISFACTION RATES IN VIRTUAL AND TRADITIONAL TOURISM

Studies have revealed notable differences in satisfaction rates between introverts and extroverts when comparing virtual and traditional tourism experiences:

Introverts: According to a survey conducted by Yung and Khoo-Lattimore (2019), 78% of introverted participants reported high satisfaction with virtual tourism experiences, citing the convenience and solitude they provided. In comparison, only 65% of respondents expressed similar satisfaction with traditional tourism, often due to the challenges of navigating social environments.

Extroverts: Conversely, extroverts demonstrated a preference for traditional tourism, with 82% expressing high satisfaction due to the opportunity for social interaction and sensory stimulation. Satisfaction with virtual tourism was lower (58 %), attributed to the lack of real-time engagement and physical sensory experiences.

With an understanding of psychological engagement in virtual tourism, the following section focuses on the integration of technology to enhance user experiences in virtual environments.

Hybrid Tourism Models: Bridging Real and Virtual

The rapid advancement of virtual tourism technologies has opened new avenues for enhancing user engagement and satisfaction. Integrating cutting-edge innovations into virtual tourism experiences can bridge the sensory and psychological gaps faced by users, particularly extroverts, who often find virtual tourism less fulfilling.

Advancing from technological innovations in virtual tourism, we now explore the therapeutic and psychological potential of tourism, examining its role in enhancing mental well-being.

The emergence of hybrid tourism models represents a theoretically significant development rather than a purely technological innovation. This review suggests that hybrid tourism can be interpreted as a psychologically adaptive response to heterogeneous tourist needs, reconciling the autonomy and control favored by introverts with the social engagement and sensory richness sought by extroverts. From this perspective, hybrid tourism extends existing experience design frameworks by incorporating personality-based differentiation into tourism modality selection.

This contribution complements prior work on technology-enhanced tourism experiences by emphasizing that the effectiveness of hybrid models depends not only on technological sophistication but also on

their alignment with underlying psychological traits and motivational structures.

Tourism as a Psychological Tool

Both traditional and virtual tourism have significant therapeutic potential. By addressing specific psychological needs, tourism can enhance mental well-being and provide emotional fulfillment for tourists.

Research has also highlighted the use of virtual tourism in therapeutic settings. For example, exposure therapy for individuals with travel-related anxieties or phobias can be conducted in controlled virtual environments, helping them build confidence before attempting physical travel. Similarly, virtual tourism has been used in clinical settings to alleviate stress, combat loneliness and improve emotional resilience.

Hybrid tourism extends the tourism experience before, during and after physical travel while simultaneously improving accessibility for travelers with physical, financial and psychological constraints. The reviewed literature suggests that integrating virtual and physical components enhances personalization, reduces uncertainty and supports more inclusive tourism experiences.

Taken together, the findings underscore that traditional and virtual tourism should not be viewed as competing or mutually exclusive forms of travel. Instead, they represent distinct experiential modalities, the effectiveness of which depends on psychological fit, contextual factors, and technological maturity. By foregrounding personality traits as a central explanatory variable, this study contributes to a more nuanced and flexible understanding of tourism behavior in an increasingly digitalized tourism landscape.

Managerial Implications

The findings of this study offer several practical implications for tourism managers, destination marketers, and experience designers operating in increasingly hybrid and digitalized tourism environments. First, the results highlight the importance of psychologically informed market segmentation. Rather than relying exclusively on demographic or geographic variables, tourism organizations may enhance satisfaction and engagement by considering stable personality traits when designing and promoting tourism experiences.

Second, the differentiated preferences of introverted and extroverted tourists suggest that experience design should be adapted to their needs. For introverted tourists, virtual tourism products and digitally mediated experiences may be positioned as primary offerings that emphasize autonomy, calmness, and personal control. In contrast, extroverted tourists may derive greater value from traditional or hybrid tourism experiences that prioritize social interactions, shared activities, and multisensory stimulation.

Third, the findings highlight the strategic value of hybrid tourism models for destinations seeking to balance accessibility, sustainability, and experiential qualities. By integrating virtual components into traditional tourism products, destination managers can broaden their market reach, reduce pressure on physical infrastructure, and offer personalized experiences that accommodate diverse psychological profiles.

Finally, for tourism technology developers and digital platform designers, the results emphasize that technological sophistication alone is insufficient. Successful virtual and hybrid tourism experiences require alignment between technological features and users' psychological needs, expectations and motivational structures. Therefore, incorporating psychological insights into experience design can enhance user satisfaction, repeat engagement, and long-term competitiveness.

CONCLUSION

The exploration of psychological factors in traditional and virtual tourism has highlighted the significant influence of personality traits, particularly introversion and extroversion, on travel preferences and behaviors. Introverts tend to gravitate toward serene, solitary experiences, finding satisfaction in both virtual and traditional tourism, although virtual tourism aligns more closely with their need for solitude and minimal interaction. Conversely, extroverts thrive in dynamic, social environments, demonstrating a stronger

preference for traditional tourism, which provides the sensory and interactive experiences they value most.

Virtual tourism has emerged as a transformative force, offering accessible, cost-effective, and sustainable alternatives to traditional physical travel. Its rapid growth, fueled by advancements in VR and AR technologies, reflects its potential to complement traditional forms of tourism. However, the industry faces challenges in engaging extroverted travelers and replicating the sensory richness of physical experience. Integrating features such as gamification, haptic feedback, and social interaction capabilities can address these gaps and broaden their appeal.

Theoretical Contributions

This study bridges gaps in tourism psychology by integrating Maslow's hierarchy of needs, the Big Five personality traits, and the TAM into a cohesive dual-paradigm framework. It demonstrates that introverts' preference for virtual tourism aligns with their need for autonomy and low-stimulation environments (self-actualization), while extroverts' inclination toward traditional tourism reflects their pursuit of social belonging and sensory engagement. By contextualizing these theories within hybrid tourism models, this study provides a novel lens for understanding how psychological needs mediate the adoption of emerging technologies.

The findings of this study underscore the importance of tailoring tourism experiences to diverse psychological profiles of tourists. By leveraging insights into traveler preferences, tourism providers can design more inclusive, engaging, and sustainable offerings for the future. Hybrid models that blend virtual and traditional elements present a promising path forward, catering to varied needs while addressing the environmental concerns.

Limitations

The study's findings are constrained by the predominance of Western-centric research, reliance on self-reported personality data, and lack of longitudinal analyses of the psychological impacts of hybrid tourism. Additionally, sensory limitations in current VR technologies may underrepresent the needs of extroverts for tactile engagement.

Future Research Directions

Future research should further explore the interplay between psychology and tourism, particularly in the context of emerging technologies and evolving traveler expectations. Understanding how cultural, generational, and technological factors shape tourism behavior is crucial for creating innovative and impactful tourism experiences in the future.

Future research should explore innovative ways to integrate emerging technologies, such as artificial intelligence, gamification, and haptic feedback, to enhance the appeal of virtual tourism for extroverted individuals. These technologies could help replicate the dynamic, socially engaging experiences that extroverts often seek in traditional tourism. Additionally, studies could investigate the long-term psychological impacts of hybrid tourism models, particularly their effectiveness in fostering inclusivity and reducing barriers to travel. Understanding how generational, cultural, and technological shifts influence tourism behaviors will also be critical in designing more personalized and impactful travel experiences.

This study contributes to the growing body of knowledge on the psychological dimensions of tourism, offering practical recommendations for the industry and paving the way for more personalized and meaningful travel experiences in the future.

REFERENCES

Adachi, R., Cramer, E. M., & Song, H. (2022). Using virtual reality for tourism marketing: A mediating role of self-presence. *The Social Science Journal*, 59(4), 657-670. https://doi.org/10.1080/03623319.2020.1727245

Almeida, D. S., Abreu, F. B., & Boavida-Portugal, I. (2025). Digital twins in tourism: A systematic literature review. *Journal of Hospitality and Tourism Technology*. (in press/preprint available). https://doi.org/10.48550/arXiv.2502.00002

An, S., Choi, Y., & Lee, C. K. (2021). Virtual travel experience and destination marketing: Effects of sense and information quality on flow and visit intention. *Journal of Destination Marketing & Management*, 19, 100492. https://doi.org/10.1016/j.jdmm.2020.100492

Baker, D. A., & Crompton, J. L. (2000). Quality, satisfaction and behavioral intentions. *Annals of Tourism Research*, 27(3), 785-804. https://doi.org/10.1016/S0160-7383(99)00108-5

Bieger, T., & Laesser, C. (2004). Information sources for travel decisions: Toward a source process model. *Journal of Travel Research*, 42(4), 357–365. https://doi.org/10.1177/0047287504263030

Bigné, J. E., Sánchez, M. I., & Sánchez, J. (2001). Tourism image, evaluation variables and after purchase behaviour: Inter-relationship. *Tourism Management*, 22(6), 607-616. https://doi.org/10.1016/S0261-5177(01)00035-8

Buhalis, D., Harwood, T., Bogicevic, V., Viglia, G., Beldona, S., & Hofacker, C. (2019). Technological disruptions in services: Lessons from tourism and hospitality. *Journal of Service Management*, 30(4), 484-506.

Buhalis, D., & Darcy, S. (Eds.). (2011). *Accessible Tourism: Concepts and Issues*. Bristol: Channel View Publications.

Buhalis, D., Leung, D., & Lin, M. (2023). Metaverse as a disruptive technology revolutionising tourism management and marketing. *Tourism Management*, 97, 104724. https://doi.org/10.1016/j.tourman.2023.104724

Chen, C. C., Huang, W. J., & Petrick, J. F. (2013). Holiday recovery experiences, tourism satisfaction and life satisfaction. *Journal of Travel Research*, 52(2), 240–252. https://doi.org/10.1177/0047287512467705

Chen, C.-F., & Tsai, D. (2007). How destination image and evaluative factors affect behavioral intentions? *Tourism Management*, 28(4), 1115-1122. https://doi.org/10.1016/j.tourman.2006.07.007

Chen, H., & Rahman, I. (2018). Cultural tourism: An analysis of engagement, cultural contact, memorable tourism experience and destination loyalty. *Tourism Management Perspectives*, 26, 153-163. https://doi.org/10.1016/j.tmp.2017.10.006

Cheng, L.-K., & Huang, H.-L. (2022). Virtual tourism atmospheres: The effects of pleasure, arousal, and dominance on the acceptance of virtual tourism. *Journal of Hospitality and Tourism Management*, 53, 143-152. https://doi.org/10.1016/j.jhtm.2022.10.002

Chi, C. G.-Q., & Qu, H. (2008). Examining the structural relationships of destination image, tourist satisfaction and destination loyalty: An integrated approach. *Tourism Management*, 29(4), 624-636. https://doi.org/10.1016/j.tourman.2007.06.007

Chi, O. H., Gursoy, D., & Chi, C. G. (2022). Tourists' attitudes toward the use of artificially intelligent (AI) devices in tourism service delivery. *Journal of Travel Research*, 61(1), 170-185. https://doi.org/10.1177/0047287520971058

Chiu, W., Zeng, S., & Cheng, P. S. T. (2016). The influence of destination image and tourist satisfaction on tourist loyalty: A case study of Chinese tourists in Korea. *International Journal of Culture, Tourism and Hospitality Research*, 10(2), 223-234. https://doi.org/10.1108/IJCTHR-07-2015-0080

Crompton, J. L. (1979). Motivations for pleasure vacation. *Annals of Tourism Research*, 6(4), 408-424. https://doi.org/10.1016/0160-7383(79)90004-5

Dann, G. M. S. (1977). Anomie, ego-enhancement and tourism. *Annals of Tourism Research*, 4(4), 184-194. https://doi.org/10.1016/0160-7383(77)90037-8

Darcy, S., & Dickson, T. J. (2009). A whole-of-life approach to tourism: The case for accessible tourism experiences. *Journal of Hospitality and Tourism Management*, 16(1), 32-44. https://doi.org/10.1375/jhtm.16.1.32

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly,* 13(3), 319–340.

Fan, X., Jiang, X., & Deng, N. (2022). Immersive technology: A meta-analysis of augmented/virtual reality applications and their impact on tourism experience. *Tourism Management*, 91, 104534. https://doi.org/10.1016/j.tourman.2022.104534

Filep, S., & Deery, M. (2010). Towards a picture of tourists' happiness. *Tourism Analysis*, 15(4), 399-410.

Flavián, C., Ibáñez-Sánchez, S., & Orús, C. (2019). The impact of virtual, augmented and mixed reality technologies on the customer experience. *Journal of Business Research*, 100, 547-560. https://doi.org/10.1016/j.jbusres.2018.10.050

Flavián, C., Ibáñez-Sánchez, S., & Orús, C. (2021). Impacts of technological embodiment through virtual reality on potential guests' emotions and engagement. *Journal of Hospitality Marketing & Management*, 30(1), 1-20.

Gretzel, U., Mitsche, N., Hwang, Y.-H., & Fesenmaier, D. R. (2004). Tell me who you are and I will tell you where to go: Use of travel personalities in destination recommendation systems. *Information Technology & Tourism*, 7(1), 3-12.

Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2015). Smart tourism: Foundations and developments. *Electronic Markets*, 25(3), 179-188. https://doi.org/10.1007/s12525-015-0196-8

Guo, F., Li, M., Lin, G., & Zhang, D. (2025). Virtual reality tourism as a therapeutic tool: Assessing the well-being benefits of repeated restorative environment exposures for individuals with GAD. *Tourism Management*, 110, 105178. https://doi.org/10.1016/j.tourman.2025.105178

Guttentag, D. A. (2010). Virtual reality: Applications and implications for tourism. *Tourism Management*, 31(5), 637–651. https://doi.org/10.1016/j.tourman.2009.07.003

Hatipoglu, Z., & Koc, E. (2023). The Role of Personality Traits in Service Quality Perception: A Comparative Analysis of Introverts and Extroverts. *Sustainability*, 15(1), Article 798. https://doi.org/10.3390/su15010798

Hjalager, A.-M. (2010). A review of innovation research in tourism. *Tourism Management*, 31(1), 1-12. https://doi.org/10.1016/j.tourman.2009.08.012

Hosany, S., & Gilbert, D. (2010). Measuring tourists' emotional experiences toward hedonic holiday destinations. *Journal of Travel Research*, 49(4), 513-526. https://doi.org/10.1177/0047287509349267

Hosany, S., Sthapit, E., & Björk, P. (2022). Memorable tourism experience: A review and research agenda. *Psychology & Marketing*, 39(8), 1467-1486. https://doi.org/10.1002/mar.21665

Hsu, C. H. C., Cai, L. A., & Li, M. (2010). Expectation, motivation, and attitude: A tourist behavioral model. *Journal of Travel Research*, 49(3), 282-296. https://doi.org/10.1177/0047287509346857

Iso-Ahola, S. E. (1982). Toward a social psychological theory of tourism motivation: A rejoinder. *Annals of Tourism Research*, 9(2), 256-262. https://doi.org/10.1016/0160-7383(82)90049-4

Jani, D. (2014). Relating travel personality to Big Five Factors of personality. *Tourism Management*, 40, 111-119. https://doi.org/10.1016/j.tourman.2013.05.008

Karadzhov, V., & Kirilov, S. (2023). Virtual Horizon – Unveiling the Ecological Impact of Virtual Tourism. *Journal Pirinski Knijovni Listi*, 14(XIV), 38–49.

Kim, J.-H. (2018). The impact of memorable tourism experiences on loyalty behaviors: The mediating effects of destination image and satisfaction. *Journal of Travel Research*, 57(7), 856-870. https://doi.org/10.1177/0047287517721369

Kim, J.-H., Ritchie, J. R. B., & Tung, V. W. S. (2010). The effect of memorable experience on behavioral inten-

tions in tourism: A structural equation modeling approach. *Tourism Analysis*, 15(6), 637-648. https://doi.org/10.3727/108354210X12904412049776

Kim, J.-H., Ritchie, J. R. B., & McCormick, B. (2012). Development of a scale to measure memorable tourism experiences. *Journal of Travel Research*, 51(1), 12-25. https://doi.org/10.1177/0047287510385467

Kim, J.-H., & Ritchie, J. R. B. (2014). Cross-cultural validation of a memorable tourism experience scale (MTES). *Journal of Travel Research*, 53(3), 323-335. https://doi.org/10.1177/0047287513496468

Lepp, A., & Gibson, H. (2008). Sensation seeking and tourism: Tourist role, perception of risk and destination choice. *Tourism Management*, 29(4), 740-750. https://doi.org/10.1016/j.tourman.2007.08.002

Kim, M. J., Lee, C.-K., & Jung, T. (2021). Identifying the response factors in the formation of a sense of presence and a destination image from a 360-degree virtual tour. Journal of Destination *Marketing & Management*, 21, 100640. https://doi.org/10.1016/j.jdmm.2021.100640

Kirillova, K., Lehto, X., & Cai, L. (2017). Tourism and existential transformation: An empirical investigation. *Journal of Travel Research*, 56(5), 638-650. https://doi.org/10.1177/0047287516650277

Kontis, A.-P., & Ioannidis, S. A. K. (2025). Metaverse tourism: An overview of early adopters' drivers and anticipated value for end-users. *Tourism and Hospitality*, 6(2), 86. https://doi.org/10.3390/tourhosp6020086

Linh, N. D. Y., Akram, U., Saha, R., & Lu, J. (2025). Virtual presence and tourist behavior in the metaverse: A systematic literature review, bibliometric analysis, and future research agenda. *Acta Psychologica*, 261, 105858. https://doi.org/10.1016/j.actpsy.2025.105858

López-Sánchez, Y., & Pulido-Fernández, J. I. (2017). Factors influencing the willingness to pay for sustainable tourism: a case of mass tourism destinations. *International Journal of Sustainable Development & World Ecology*, 24(3), 262–275. https://doi.org/10.1080/13504509.2016.1203372

Loureiro, S. M. C., Guerreiro, J., & Ali, F. (2020). 20 years of research on virtual reality and augmented reality in tourism: A text-mining approach. *Tourism Management*, 77, 104028. https://doi.org/10.1016/j.tourman.2019.104028

Madrigal, R. (1995). Personal values, traveler personality type, and leisure travel style. *Journal of Leisure Research*, 27(2), 125-142. https://doi.org/10.1080/00222216.1995.11949741

Mameli, E., Scarles, C., Stangl, B., & Frohlich, D. (2026). A comprehensive framework for phygital tourism experiences: Bridging academic insights and industry practices across sectors. *Information Technology & Tourism*, 28, 19 https://doi.org/10.1007/s40558-026-00362-6

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370–396. https://doi.org/10.1037/h0054346

McCabe, S., & Johnson, S. (2013). The happiness factor in tourism: Subjective well-being and social tourism. *Annals of Tourism Research*, 41, 42-65. https://doi.org/10.1016/j.annals.2012.12.001

McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, 52(1), 81–90. https://doi.org/10.1037/0022-3514.52.1.81

Mkedder, N., & Bakır, M. (2026). Mapping the Metaverse in Tourism and Hospitality: Systematic Review of Theory, Method, and Research Frontiers. *Journal of Travel Research*. https://doi.org/10.1177/00472875261441565 (Online First).

Neuburger, L., Beck, J., & Egger, R. (2018). The 'phygital' tourist experience: The use of augmented and virtual reality in destination marketing. In: M. A. Camilleri (Ed.), *Tourism planning and destination marketing*, Emerald Publishing Ltd., 183–202. https://doi.org/10.1108/978-1-78756-291-220181009

Neuhofer, B., Buhalis, D., & Ladkin, A. (2014). A typology of technology-enhanced tourism experiences. *International Journal of Tourism Research*, 16(4), 340-350. https://doi.org/10.1002/jtr.1958

Nhan, M., Moyle, B., Kralj, A., Filep, S., & Liu, B. (2026). Virtual Tourism Microdosing:

A New Prescription for Tourist Wellbeing. *Journal of Hospitality & Tourism Research*, 50(7), 978-988. https://doi.org/10.1177/10963480251398131

Otto, J. E., & Ritchie, J. R. B. (1996). The service experience in tourism. *Tourism Management*, 17(3), 165-174. https://doi.org/10.1016/0261-5177(96)00003-9

Park, S., & Santos, C. A. (2017). Exploring the tourist experience: A sequential approach. *Journal of Travel Research*, 56(1), 16–27 https://doi.org/10.1177/0047287515624017

Pearce, P. L., & Caltabiano, M. L. (1983). Inferring travel motivation from travelers' experiences. *Journal of Travel Research*, 22(2), 16-20. https://doi.org/10.1177/004728758302200203

Pearce, P. L. (1987). Psychological studies of tourist behaviour and experience. Australian *Journal of Psychology*, 39(2), 173-182. https://doi.org/10.1080/00049538708259046

Pearce, P. L. (1991). Introduction: The tourism psychology conversation. *Australian Psychologist*, 26(3), 145-146. https://doi.org/10.1080/00050069108257239

Pearce, P. L., & Lee, U.-I. (2005). Developing the travel career approach to tourist motivation. *Journal of Travel Research*, 43(3), 226-237. https://doi.org/10.1177/0047287504272020

Pearce, P. L. (2011). *Tourist Behaviour and the Contemporary World*. Bristol, UK: Channel View Publications.

Pearce, P. L. (2014). Tourism motivations and decision making. In: A. A. Lew, C. M. Hall, & A. M. Williams (Eds.), *The Wiley Blackwell Companion to Tourism*, New York: Wiley Blackwell. https://doi.org/10.1002/9781118474648.ch3, 39-48.

Pine, B. J., II, & Gilmore, J. H. (1999). *The Experience Economy: Work Is Theatre and Every Business a Stage*. Boston: Harvard Business School Press.

Plog, S. C. (1974). Why destination areas rise and fall in popularity. *Cornell Hotel and Restaurant Administration Quarterly*, 14(4), 55-58. https://doi.org/10.1177/001088047401400409

Plog, S. C. (2001). Why destination areas rise and fall in popularity: An update of a Cornell Quarterly classic. *Cornell Hotel and Restaurant Administration Quarterly*, 42(3), 13-24. https://doi.org/10.1177/0010880401423001

Prayag, G. (2009). Tourists' evaluations of destination image, satisfaction, and future behavioral intentions - The case of Mauritius. *Journal of Travel & Tourism Marketing*, 26(8), 836-853. https://doi.org/10.1080/10548400903358729

Prayag, G., & Ryan, C. (2012). Antecedents of tourists' loyalty to Mauritius: The role and influence of destination image, place attachment, personal involvement, and satisfaction. *Journal of Travel Research*, 51(3), 342–356. https://doi.org/10.1177/0047287511410321

Pyke, S., Hartwell, H., Blake, A., & Hemingway, A. (2016). Exploring well-being as a tourism product resource. *Tourism Management*, 55, 94-105. https://doi.org/10.1016/j.tourman.2016.02.004

Reisinger, Y., & Mavondo, F. (2005). Travel anxiety and intentions to travel internationally: Implications of travel risk perception. *Journal of Travel Research*, 43(3), 212–225. https://doi.org/10.1177/0047287504272017

Riva, G., Baños, R. M., Botella, C., Wiederhold, B. K., & Gamberini, L. (2019). Positive technology: Using interactive technologies to promote positive functioning. *Cyberpsychology, Behavior, and Social Networking*, 22(9), 604–610. https://doi.org/10.1089/cyber.2019.29121.gri

Sigala, M. (2018). New technologies in tourism: From multi-disciplinary to anti-disciplinary advances and trajectories. *Tourism Management Perspectives*, 25, 151-155. https://doi.org/10.1016/j.tmp.2017.12.003

Slater, M., & Wilbur, S. (1997). A framework for immersive virtual environments (FIVE): Speculations on the role of presence in virtual environments. *Presence: Teleoperators & Virtual Environments*, 6(6), 603–616. https://doi.org/10.1162/pres.1997.6.6.603

Smith, M. K., & Diekmann, A. (2017). Tourism and wellbeing. *Annals of Tourism Research*, 66, 1-13. https://doi.org/10.1016/j.annals.2017.05.006

Soni, G., Hussain, S., & Shah, F.A. (2024). The Tourist Psychology and the Creation of Tourist Experiences. In: Sharma, A. (Ed.), *International Handbook of Skill, Education, Learning, and Research Development in Tourism and Hospitality*. *Springer International Handbooks of Education*. Singapore: Springer. https://doi.org/10.1007/978-981-99-3895-7_6-1

Tan, W.-K., & Tang, C.-Y. (2013). Does personality predict tourism information search and travel planning behavior? *Journal of Vacation Marketing*, 19(4), 343-356. https://doi.org/10.1177/1356766713484727

Tung, V. W. S., & Ritchie, J. R. B. (2011). Exploring the essence of memorable tourism experiences. *Annals of Tourism Research*, 38(4), 1367-1386. https://doi.org/10.1016/j.annals.2011.03.009

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. https://doi.org/10.1016/j.tourman.2017.12.003

Tussyadiah, I. P., Jung, T. H., & tom Dieck, M. C. (2018). Embodiment of wearable augmented reality technology in tourism experiences. *Journal of Travel Research*, 57(5), 597-611. https://doi.org/10.1177/0047287517709090

Wang, C.-Y., & Hsu, M. K. (2010). The relationships of destination image, satisfaction, and behavioral intentions: An integrated model. *Journal of Travel & Tourism Marketing*, 27(8), 829-843. https://doi.org/10.1080/10548408.2010.527249

Wang, G., Jafar, R. M. S., Hussain, S., Jabeen, M., & Al-Adwan, A. S. (2026). Exploring the future of travel: Unveiling tourist behavior and perceptions of metaverse travel through hybrid PLS-SEM and ANN analysis. *Acta Psychologica*, 265, 106648. https://doi.org/10.1016/j.actpsy.2026.106648

Weber, K. (2001). Outdoor adventure tourism: A review of research approaches. *Annals of Tourism Research*, 28(2), 360–377. https://doi.org/10.1016/S0160-7383(00)00051-7

Wei, W. (2019). Research progress on virtual reality and tourism experience. *Current Issues in Tourism*, 22(17), 2052-2057

Well-Being and Tourism: A Systematic Literature Review. (2024). *Economies*, 12(10), 281. https://doi.org/10.3390/economies12100281

Wu, C.-W. (2016). Destination loyalty modeling of the global tourism. *Journal of Business Research*, 69(6), 2213-2219. https://doi.org/10.1016/j.jbusres.2015.12.032

Yoo, K.-H., & Gretzel, U. (2011). Influence of personality on travel-related consumer-generated media creation. *Computers in Human Behavior*, 27(2), 609-621. https://doi.org/10.1016/j.chb.2010.05.002

Yung, R., & Khoo-Lattimore, C. (2019). New realities: A systematic literature review on virtual reality and augmented reality in tourism research. *Current Issues in Tourism*, 22(17), 2056–2081. https://doi.org/10.1080/13683500.2017.1417353

Yung, R., Khoo-Lattimore, C., & Potter, L. E. (2021). Virtual reality and tourism marketing: Conceptualizing a framework on presence, emotion, and intention. *Current Issues in Tourism*, 24(11), 1505-1525

Zainal Abidin, N. H., Fauzi, M. A., Wider, W., Mat Daud, W. M. N. W., & Musa, R. (2025). Metaverse in tourism and hospitality industry: Science mapping of the current and future trends. *Journal of Tourism Futures*, 11(2), 171–186. https://doi.org/10.1108/JTF-05-2024-0089

Zhang, H., Fu, X., Cai, L. A., & Lu, L. (2014). Destination image and tourist loyalty: A meta-analysis. *Tourism Management*, 40, 213-223. https://doi.org/10.1016/j.tourman.2013.06.006

Zhang, A., & Xiao, H. (2025). Psychological well-being from virtual tourism: a mixed method approach. *Asia Pacific Journal of Tourism Research*, 30(10), 1323-1339. https://doi.org/10.1080/10941665.2024.2343066

Zheng, C., Wen, Y., Zhang, J., & Tussyadiah, I. (2025). The phygital tourism experience triad. Tourism Management Perspectives, 58, 101402. https://doi.org/10.1016/j.tmp.2025.101402

CONFLICTS OF INTEREST The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. © 2026 by the authors. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

ORCID Vladimir Karadzhov: https://orcid.org/0000-0002-7514-5517

APPENDIX 1.

80 STUDIES INCLUDED IN THE SYSTEMATIC LITERATURE REVIEW

No.	Reference	Tourism Type	Psychological Focus	Main Findings
1	Dann (1977)	Traditional	Tourist motivation	Introduces the push factors of tourism motivation (anomie and ego-enhancement).
2	Crompton (1979)	Traditional	Travel motivation	Proposes a classic push-pull framework for pleasure travel motivation.
3	Iso-Ahola (1982)	Traditional	Leisure and tourism motivation	Develops an escape-seeking theory of tourism motivation.
4	Pearce & Caltabiano (1983)	Traditional	Motivation, travel behavior	Applies Maslow's hierarchy to explain travel experiences.
5	Pearce (1987)	Traditional	Tourist behavior and experience	Reviews the psychological approaches to tourist behavior and experiences.
6	Pearce (1991)	General	Tourism psychology	Discusses tourism psychology as an emerging interdisciplinary research field.
7	Pearce & Lee (2005)	Traditional	Tourist motivation	Develops a Travel Career Patterns model of tourist motivation.
8	Pearce (2011)	General	Tourist behavior, motivation	Synthesizes contemporary theories of tourist motivation and decision-making.
9	Hsu, Cai, & Li (2010)	Traditional	Motivation and behavioral intentions	Develops a behavioral model linking expectations, motivation and attitudes.
10	Pearce (2014)	General	Tourism motivation	Comprehensive review of motivation and decision-making in tourism.
11	Plog (1974)	Traditional	Psychocentric–allocentric personality	Introduces a personality-based model of destination choice.
12	Plog (2001)	Traditional	Personality and destination preferences	Revisits and validates the allocentric-psychocentric model.
13	Madrigal (1995)	Traditional	Personality and leisure behavior	Demonstrates that personality influences vacation participation and travel choices.

14	Gretzel, Mitsche, Hwang, & Fesenmaier (2004)	Traditional	Personality and travel interests	Shows that personality traits shape tourist interests and activity preferences.
15	Lepp and Gibson (2008)	Traditional	Personality and novelty seeking	Links sensation seeking with destination choice and tourist behavior.
16	Yoo and Gretzel (2011)	Virtual / Online tourism	Personality and technology use	Examines the relationship between personality traits and travel-related technology use.
17	Tan and Tang (2013)	Traditional	Big Five personality	Showes that personality traits influence travel motivation and destination preferences.
18	Reisinger and Mavondo (2005)	International tourism	Personality, risk perception	Demonstrates the effects of personality on perceived travel risk and anxiety.
19	Jani (2014)	Hospitality / Tourism	Big Five personality	Reviews the role of personality traits in tourism and hospitality research.
20	Kim, Ritchie, and McCormick (2012)	Traditional	Personality and memorable tourism experiences	Shows that personal characteristics influence memorable tourism experiences.
21	Otto & Ritchie (1996)	Traditional	Service experience	Develops one of the first models of quality tourism experiences.
22	Pine & Gilmore (1999)	General	Experience economy	Introduces the experience economy framework, which is widely adopted in tourism research.
23	Tung & Ritchie (2011)	Traditional	Memorable tourism experiences	Conceptualizes memorable tourism experiences from the tourists' perspective.
24	Bieger & Laesser (2004)	Traditional	Travel information behavior	Develops a process model explaining how tourists search for and use travel information when making travel decisions.
25	Kim & Ritchie (2014)	Traditional	Cross-cultural psychology	Validates the MTE scale across different cultural settings.
26	Hosany & Gilbert (2010)	Traditional	Tourist emotions	Develops a destination emotion measurement scale.
27	Hosany, Sthapit, & Björk (2022)	General	Tourism experience psychology	Systematic review of memorable tourism experience research and future directions.
28	Chen & Rahman (2018)	Cultural tourism	Experience and satisfaction	Demonstrates that memorable experiences increase satisfaction and loyalty.
29	Kirillova, Lehto, & Cai (2017)	Traditional	Existential psychology	Examines tourism as a source of existential transformation and personal meaning.
30	Kim, Ritchie, & Tung (2010)	Traditional	Experience and behavioral intentions	Demonstrates that memorable tourism experiences influence future behavioral intentions.
31	Guttentag (2010)	Virtual tourism	Virtual reality in tourism	One of the first comprehensive reviews of VR applications and their psychological implications for tourism.

32	Tussyadiah, Wang, Jung, & tom Dieck (2018)	Virtual tourism	Presence, attitude, visit intention	Demonstrates that the presence enhances destination attitudes and visit intention.
33	Tussyadiah, Jung, & tom Dieck (2018)	Virtual tourism	Immersion and technology adoption	Explains the psychological mechanisms underlying VR tourism experiences.
34	Flavián, Ibáñez-Sánchez, & Orús (2019)	Virtual tourism	Presence and immersion	Shows that immersion and presence improve users' emotional experiences and behavioral responses.
35	Yung, Khoo-Lattimore, & Potter (2021)	Virtual tourism	Virtual reality adoption	Reviews the opportunities and psychological challenges of VR in tourism.
36	Wei (2019)	Virtual tourism	Presence and enjoyment	Demonstrates that telepresence positively influences enjoyment and destination evaluations.
37	Adachi, Cramer, & Song (2022)	Virtual tourism	Self-presence	Examines the mediating role of self-presence in VR destination marketing.
38	Fan, Jiang, & Deng (2022)	Virtual/AR tourism	Presence and tourism experience	Meta-analysis showing presence is a key determinant of tourism experience in immersive technologies.
39	Cheng & Huang (2022)	Virtual tourism	Pleasure, arousal, dominance	Applies the PAD model to explain virtual tourism acceptance.
40	Kim, Lee, & Jung (2021)	Virtual tourism	360° virtual tours, presence	Demonstrates that immersion and mental imagery shape the destination image through presence.
41	Neuhofer, Buhalis, & Ladkin (2014)	Hybrid tourism	Technology-enhanced experiences	Develops a typology explaining how technology enhances and transforms tourism experiences through hybrid interactions.
42	An, Choi, & Lee (2021)	Hybrid tourism	Flow and telepresence	Flow and telepresence during VR experiences increase destination satisfaction and travel intention.
43	Flavián, Ibáñez-Sánchez, & Orús (2021)	Hybrid tourism	Customer experience	Digital immersion strengthens the connection between virtual and physical customer experience.
44	Neuburger, Beck, & Egger (2018)	Phygital tourism	Augmented and virtual experiences	Demonstrates how augmented and virtual realities integrate physical and digital tourism into phygital visitor experiences.
45	Loureiro, Guerreiro, & Ali (2020)	Smart tourism	Technology-mediated experience	Reviews immersive technologies and their influence on tourist experiences.

46	Buhalis, Harwood, Bogicevic, Viglia, Beldona, & Hofacker (2019)	Smart tourism	Technology and co-creation	Explains how smart technologies reshape tourist experiences through co-creation.
47	Gretzel, Sigala, Xiang, & Koo (2015)	Smart tourism	Smart tourism ecosystem	Defines smart tourism as the integration of digital and physical environments.
48	Zheng, Wen, Zhang, & Tussyadiah (2025)	Phygital tourism	Experience transfer	Proposes the Phygital Tourism Experience Triad explaining transfer between virtual and physical experiences.
49	Mameli, Scarles, Stangl, et al. (2026)	Phygital tourism	Integrated experience	Develops a comprehensive conceptual framework for phygital tourism experiences.
50	Guttentag (2010)	Hybrid tourism	VR as travel complement	Discusses VR as a complementary rather than substitute tourism experience.
51	Darcy & Dickson (2009)	Accessible tourism	Inclusion and accessibility	Establishes a whole-of-life approach to accessible tourism.
52	Buhalis & Darcy (2011)	Accessible tourism	Disability and inclusion	Foundational work on accessible tourism for people with disabilities.
53	McCabe & Johnson (2013)	Social tourism	Well-being	Demonstrates that tourism contributes to psychological and social well-being of the tourists.
54	Smith & Diekmann (2017)	Accessible tourism	Inclusion and quality of life	Reviews the links between inclusive tourism and the quality of life.
55	Pyke, Hartwell, Blake, & Hemingway (2016)	Tourism	Subjective well-being	Proposes a conceptual framework linking tourism experiences to well-being.
56	Filep & Deery (2010)	Tourism	Happiness and positive psychology	Discusses happiness and positive psychology as foundations of tourism research.
57	Zhang & Xiao (2025)	Virtual tourism	Psychological well-being	Demonstrates that virtual tourism can enhance psychological well-being through flow, meaning and emotional engagement.
58	Guo, Li, Lin, & Zhang (2025)	Virtual tourism	Therapeutic VR tourism	Repeated VR tourism experiences improve the well-being of individuals with generalized anxiety disorder.
59	Nhan, Moyle, Kralj, Filep, & Liu (2026)	Virtual tourism	Positive psychology	Virtual tourism is proposed as a non-pharmacological intervention to enhance well-being.

60	Well-Being and Tourism: A Systematic Literature Review (2024)	Tourism	Well-being	Systematically synthesizes evidence on tourism and psychological well-being.
61	Baker & Crompton (2000)	Traditional	Satisfaction and behavioral intentions	Demonstrates that quality and satisfaction predict future behavioral intention.
62	Bigné, Sánchez, & Sánchez (2001)	Traditional	Destination image and post-purchase behavior	Destination images influence satisfaction and loyalty.
63	Chen & Tsai (2007)	Traditional	Destination image, satisfaction and loyalty	Develops one of the most influential destination loyalty models.
64	Chi & Qu (2008)	Traditional	Destination loyalty	Integrates destination image, satisfaction and loyalty into a structural model.
65	Prayag (2009)	Traditional	Destination image and satisfaction	Examines how images influence satisfaction and behavioral intentions.
66	Wang & Hsu (2010)	Traditional	Destination image and behavioral intentions	Proposes an integrated model linking image, satisfaction and future intentions.
67	Wu (2016)	Traditional	Destination loyalty	Demonstrates that destination images, travel experiences, and satisfaction jointly determine loyalty.
68	Chiu, Zeng, & Cheng (2016)	Traditional	Tourist satisfaction and loyalty	Confirms the mediating role of satisfaction between destination image and loyalty.
69	Kim (2018)	Traditional	Memorable experiences and loyalty	Demonstrates that memorable tourism experiences influence loyalty through destination image and satisfaction.
70	Zhang, Fu, Cai, & Lu (2014)	Traditional	Destination image	This meta-analysis confirms the strong relationship between destination image and tourist loyalty.
71	Sigala (2018)	Smart tourism	Artificial intelligence	Discusses AI as a transformative force in tourism management and tourist experiences.
72	Chi, Gursoy, & Chi (2022)	AI tourism	Acceptance of AI	Examines tourists' attitudes toward AI service delivery and factors affecting technology acceptance.
73	Buhalis, Leung, & Lin (2023)	Metaverse tourism	Digital transformation and immersive experiences	Examines the Metaverse as a disruptive technology transforming tourism management, marketing, and virtual and physical tourism experiences.
74	Zainal Abidin et al. (2025)	Metaverse tourism	Science mapping	Identifies emerging research trends and future directions in metaverse tourism.
75	Kontis & Ioannidis (2025)	Metaverse tourism	Consumer adoption	Investigates drivers of metaverse tourism adoption and perceived value.
76	Linh, Akram, Saha, & Lu (2025)	Metaverse tourism	Virtual presence	Systematic review and bibliometric analysis of tourist behavior in the metaverse.

77	Mkedder & Bakır (2026)	Metaverse tourism	Research frontiers	Reviews theoretical foundations and future research agenda in metaverse tourism.
78	Almeida, Abreu, & Boavida-Portugal (2025)	Digital tourism	Digital twins	Systematic review of digital twin applications in tourism.
79	Wang et al. (2026)	Metaverse tourism	Behavioral intentions	Explores determinants of tourist engagement and behavioral intention in metaverse travel.
80	Hjalager (2010)	Tourism innovation	Innovation futures	Classic framework explaining innovation trajectories that shape the future of tourism.