



User Discourse and Travel Desire in Game-Based VR Travel Experiences

Oyun Tabanlı VR Seyahat Deneyimlerinde Kullanıcı
Söylemi ve Seyahat İsteği

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ABSTRACT

In game-based VR travel experiences, what kind of mental journey do users take before traveling to a destination, and to what extent does this journey shape their travel intentions? This paper seeks to answer this question by analyzing 7,372 public user reviews from Steam for VRChat, BRINK Traveler, and Blueplanet VR Explore. Comments were processed using Python-based Natural Language Processing techniques and then semi-automatically coded on a 0-3 scale in terms of VR design features (stimulus), immersion/sense of presence (organism), and expressed travel intention (reaction) based on the Stimulus-Organism-Response (S-O-R) model. LDA topic modeling and interpretive netnography were additionally applied to VRChat. The findings suggest that in BRINK Traveler, and especially Blueplanet VR Explore, immersive experiential narratives emerge, reinforcing destination image and travel intention. In contrast, discourse related to VRChat emphasizes social escape and digital belonging rather than physical travel.

Keywords: Game-Based Virtual Reality (VR), User Discourse, Natural Language Processing (NLP), Immersive Experience, Social VR.



OYUN TABANLI VR SEYAHAT DENEYİMLERİNDE KULLANICI SÖYLEMİ VE SEYAHAT İSTEĞİ

ÖZ

Oyun tabanlı VR seyahat deneyimlerinde kullanıcılar, bir destinasyona gitmeden önce nasıl bir zihinsel yolculuğa çıkıyor ve bu yolculuk gerçek seyahat isteğini ne ölçüde etkiliyor? Bu makale, Steam'deki VRChat, BRINK Traveler ve Blueplanet VR Explore uygulamalarına ait 7.372 herkese açık kullanıcı yorumunu inceleyerek bu soruya yanıt aramaktadır. Yorumlar Python tabanlı Doğal Dil İşleme teknikleriyle işlenmiş, ardından Stimulus–Organism–Response (S–O–R) modeli temelinde VR tasarım özellikleri (uyarıcı), sürükleyicilik/varlık hissi (organizma) ve ifade edilen seyahat niyeti (tepki) açısından 0–3 aralığında yarı otomatik olarak kodlanmıştır. VRChat için ek olarak LDA konu modellemesi ve yorumlayıcı netnografi uygulanmıştır. Bulgular, BRINK Traveler ve özellikle Blueplanet VR Explore'da sürükleyici deneyim anlatılarının güçlenen destinasyon imajı ve gerçek ziyaret niyetiyle birlikte ortaya çıktığını; VRChat söyleminin ise fiziksel seyahatten çok sosyal kaçış ve dijital aidiyete işaret ettiğini göstermektedir.

Anahtar Kelimeler: Oyun Tabanlı Sanal Gerçeklik (VR), Kullanıcı Söylemi, Doğal Dil İşleme (NLP), Sürükleyici Deneyim, Sosyal VR.

INTRODUCTION

As one of the most dynamic and rapidly changing sectors of the global economy, the tourism industry has undergone a substantial transformation in recent years, driven by digitalization and interactive media technologies. As one of the most visible tools of this transformation, game-based Virtual Reality (VR) applications are reshaping the way destinations are promoted and the experiences and decision-making processes of potential tourists (Pratisto et al., 2022; Shang, 2022, p. 3). Applications such as VRChat, BRINK Traveler, and Blueplanet VR Explore, which are offered on online gaming platforms such as Steam, offer fully immersive virtual previews of destinations that are socially, aesthetically, and culturally rich, thereby occupying a hybrid position at the intersection of entertainment and travel planning. These virtual experiences allow users to form cognitive and emotional bonds by interacting with a destination before physically visiting it, and can meaningfully shape travel intentions (Morrison et al., 2024, p. 361).

These three applications provide an important sample set that embodies the study's "game-based" emphasis. VRChat interweaves classic tourism content with game mechanics and social gaming culture through avatar representations, user-created worlds, role-play communities, and task-like activities based on social interaction. BRINK Traveler and Blueplanet VR Explore, on the other hand, offer gamified 360° destination tours with sequential viewpoints highlighting destination scenery, guided experiential pathways that encourage users to follow specific routes, moments of discovery that create a sense of achievement, and interactive interfaces. In this way, users become not just "tourists watching a place" but players who actively navigate, decide, and explore the virtual space, transforming the VR experience into a hybrid platform for both entertainment and travel planning.

In the literature, the potential of VR technology to increase emotional attachment, strengthen perceived destination image, and positively influence travel intentions is frequently emphasized (Kieanwatana & Vongvit, 2024). However, most existing studies measure these effects primarily through experimental designs and quantitative surveys, leaving secondary how users articulate their VR experiences in their own words, how they reframe perceived risk, and the discursive strategies through which they legitimize acceptance of the technology. Steam reviews of game-based VR travel apps, on the other hand, serve as a naturally generated data source that sheds light on how these experiences are articulated in everyday language, which elements are perceived as immersive, and how VR experiences are associated with travel intention.

In this context, examining how VR technology transforms tourists' decision-making processes and risk perceptions, as reflected in user narratives about game-based VR travel experiences, helps fill an important gap. More specifically,

while existing studies model the S-O-R stimulus primarily through visual-aesthetic quality and TAM dimensions, the role of game mechanics including avatar interaction, goal structures, progression systems, and reward logic in shaping tourism-related decision-making has not been systematically examined. This study addresses that gap by operationalising the S-O-R stimulus component through a game mechanics lens. In particular, comparing a social interaction-oriented environment such as VRChat with more guided, aesthetically intensive experiences such as BRINK Traveler and Blueplanet VR Explore in terms of travel intention, destination image, and VR as a travel decision-support tool provides a more layered understanding of the role of game-based VR applications in tourism.

The primary purpose of this study is to analyze the effects of game-based VR travel applications on tourists through naturally occurring user reviews on the Steam platform. Using a qualitative approach, the present study systematically examines the design features of the VR environment, users' immersive reactions including sense of presence and emotional engagement and their association with travel intention. The findings are expected to generate strategic insights for tourism businesses and destination marketing organizations to use game-based VR applications as more effective promotional and experience design tools, thereby demonstrating that VR is not only a technological innovation but also a powerful marketing and decision-support tool centered on user discourse and experience. This study makes three main contributions. First, comparing the S-O-R model with social VR and destination-oriented VR travel experiences within the same framework shows that immersive experiences do not always translate linearly into travel intention; depending on the application context, they may function as a travel incentive or as a form of social substitution. Second, the computational-netnographic approach, grounded in Steam comments, offers a new methodological alternative to empirical and survey-based studies in the VR tourism literature, drawing on natural user discourse. Third, it offers concrete strategic implications for game-based VR design for tourism stakeholders by addressing the dimensions of game-based VR travel applications, such as social escape, digital belonging, and destination image, through the examples of VRChat, BRINK Traveler, and Blueplanet VR Explore.

Scope and Limitations of the Study

The study aims to examine how dimensions such as aesthetic quality, interactivity, sense of presence, and immersion affect users' travel intention, destination image, and perceived risk in destination experiences offered by fully immersive VR systems. The dataset consists of large-scale user discourse (Steam comments) from VRChat, a social VR-based travel and exploration experience. BRINK Traveler and Blueplanet VR Explore, with fewer comments, are treated as supporting cases to illustrate how specific themes emerge across different types of game-based VR travel

experiences. This choice was made to increase ecological validity by examining large-scale, naturally occurring user discourse and to identify both similar and divergent patterns across different forms of VR travel within a comparative framework.

This approach comes with some limitations. First, the analyzed data consists of users who voluntarily comment on online platforms and have the necessary VR hardware, which may lead to an overrepresentation of a more tech-savvy user group with relatively high levels of access to hardware. Second, the subjective and spontaneous nature of user discourse means that variables such as the intensity of the experience, perceived risk, or trust in the technology are not always expressed directly and systematically, leading to interpretive limitations in coding, categorization, and generalization of comments. Thirdly, although a large-scale dataset was obtained for VRChat, the lower number of comments on BRINK Traveler and Blueplanet VR Explore suggests that the findings for these two applications should be interpreted in an exploratory, qualitative manner rather than quantitatively. Finally, because the study was limited to specific games, a single platform (Steam), and mostly English-language reviews, direct generalization of the results to all VR tourism practices and tourism segments should be approached with caution.

Research Questions

RQ1: How do users' accounts of the VR experience shape their intention to travel?

RQ2: How do users' emotional responses to the VR experience reflect their perceptions of destination image after the VR experience?

RQ3: How do users' discourses about the prior experience with VR change perceived risk and influence trust in the technology?

RQ4: How are users' discourses on their intentions to use VR as a travel planning tool explained by their views on the perceived usefulness and ease of use of the technology?

Theoretical Framework

The Stimulus-Organism-Response (S-O-R) model, developed in environmental psychology, provides an important framework for explaining how environmental stimuli affect individuals' internal states (organization) and how these internal states, in turn, lead to behavioral responses (Morrison et al., 2024, p. 355). This model provides a robust analytical framework for understanding the effects of experiences created with virtual reality technologies on tourist behavior, especially in the context of tourism (Morrison et al., 2024, p. 359). Applications of VR in tou-

rism can strongly influence consumer behavior by offering previews of real-world experiences, enriching those experiences, or even serving as a complement to the physical trip (Baker et al., 2023). This process may heighten travel intention by sharpening mental imagery and generating hedonic anticipation (Skard et al., 2021). The theoretical basis of this study is accordingly grounded in the S-O-R model, which traces how sensory inputs from VR shape users' cognitive and emotional states and how those states translate into travel-related behavioral responses (Skard et al., 2021).

In the context of game-based VR travel experiences, the stimulus component of the S-O-R model encompasses not only visual-aesthetic qualities but also game mechanics. Free roaming, exploration-oriented map structure, avatar customization options, task/quest logic, achievement systems, multiplayer interactions, and instant feedback (e.g., user interface markers, audio alerts, achievement messages) are considered as design sub-dimensions of the stimulus (S) component in this study. The organism (O) component focuses on the internal states that these gamified stimuli produce in the user, such as immersion, sense of presence, escape, emotional intensity, and trust in the technology. In contrast, the response (R) component is extended to encompass both the intention to visit the physical destination and the player's tendency to view the VR environment as a social escape, a sense of digital belonging, or a substitute for travel. In this way, the conceptual bridge between game design and tourism-related decision-making is established through the S-O-R framework.

In addition to the S-O-R model, the technology acceptance literature provides a strong theoretical foundation for this study. Perceived utility, ease of use, and entertainment are frequently used to explain intention to use VR for travel planning. In this study, although TAM variables are not included in a structural model, statements about perceived usefulness and ease of use in user discourses are interpreted as the cognitive dimension of the organism component of the S-O-R model. Together, the S-O-R and technology acceptance frameworks are used in a complementary way to explain game-based VR travel experiences.

Literature Review

The literature review is structured around game-based VR travel applications. In this framework, primarily based on Stimulus-Organism-Response (S-O-R) theory, the ways in which virtual reality environments (stimulus) shape users' cognitive and emotional states (organism) and ultimate behavioural intentions (response) are discussed (Manca et al., 2021; Morrison et al., 2024, p. 358). In this framework, VR is understood not merely as a presentation medium but as a holistic stimulus that transforms users' internal experiences and influences their travel decisions.

VR technology is increasingly recognised in the tourism and hospitality sector as a transformative force that substantially reshapes destination marketing, consumer behaviour, and travel intentions (González-Rodríguez et al., 2020; Séraphin et al, 2016). Research shows that VR creates more interactive and fully immersive experiences for tourists (Banerjee et al., 2023; Beck et al., 2019), generating stronger positive emotions and vivid images of the destination (Griffin et al., 2017; Adachi et al., 2022). These cognitive and affective processes increase travel intentions towards the destination (Sukmana & Kim, 2024) by strengthening mental images and happiness expectations (Skard et al., 2021), thereby forming the bridge between emotional response and behavioural intention within the S-O-R framework. The “pre-experiencing” offered by VR also reduces perceived risk for tourists before booking (Jerez-Jerez & Foroudi, 2024) and supports decision-making.

In the technology adoption dimension, the Technology Acceptance Model (TAM) and similar frameworks are frequently used to explain behavioural intention to use VR in travel planning. In these studies, factors such as perceived utility, interest, entertainment, and immersion have been shown to strongly influence the intention to use VR (Disztinger, Schlögl, & Groth, 2017; Yersüren, 2022). These studies suggest that VR functions not only as a promotional tool but also as an innovative approach that enhances the quality of tourists’ experience and directs destination marketing towards technology-based strategies (Rudnik, 2023).

Within this general framework, it is stated that 360-degree virtual tours have been met with growing demand and heightened travel intentions, especially in destination marketing, as they offer a “try before you go” experience (Liu et al., 2024). Empirical studies in tourism have consistently shown that the use of VR is associated with higher travel intention in general (Skard et al., 2021), suggesting that VR-based destination previews elicit more positive evaluations and stronger behavioural intentions than traditional 2D media and websites. This effect is driven by the increased levels of presence and telepresence that users experience during the experience (Anaya-Sánchez et al., 2024; Bigne & Maturana, 2023; Hoang et al., 2023; Yung et al., 2021).

These general findings are further deepened by a smaller number of studies focusing on game-based or game-like VR travel experiences. Yung (2021) illustrates the potential of VR in tourism marketing in a mixed-methods study of computer-generated, synthetic VR environments used to promote cruise tourism. The study considers presence, immersion, and engagement as key experiential dimensions; in particular, emotional immersion, defined by users’ perceived control and agency, is closely related to positive affect and increased visit intention. The findings suggest that such interactive VR environments transform emotions and intentions towards cruise tourism more strongly than still images and video (Yung, 2021).

However, much of the existing literature primarily focuses on VR technology as a destination preview tool, leaving the specific effects of game mechanics, social gaming practices, and gamified interactions on travel intentions secondary. While interactivity, televisuality, and user control are often emphasized, elements specific to game design, such as goal structures, progression systems, reward mechanics, avatar representations, and social interaction between players, are not systematically modeled. This study aims to address this gap by reconceptualizing the stimulus component of the S-O-R model through a game mechanics lens and examining immersive tourism applications, specifically VRChat, BRINK Traveler, and Blueplanet VR Explore, as illustrative cases.

Hoang et al. (2023) test a similar mechanism by comparing VR headsets and 2D displays for a destination in Vietnam in the context of nature-based sustainable tourism. The experimental study with 512 participants shows that VR tours elicit higher televisuality and perceived enjoyment than 2D presentations, thereby strengthening both the desire to use VR in the future and the intention to visit the destination in real life. The authors emphasize that VR is a promotional tool that supports sustainable travel intentions, not a substitute for physical travel, thus positioning VR as a powerful but “complementary” stimulus in the S-O-R model (Hoang et al., 2023).

Bigné and Maturana (2023) examine whether VR triggers behavioural outcomes, such as visitation and package tour bookings, in the context of urban and leisure travel. In a laboratory experiment in a hotel setting, Oculus VR goggles were compared to a traditional web-based 2D platform; a stronger sense of presence and more positive attitude change was observed in the VR condition, which was found to increase visit and booking intentions. However, in the structural model, the relationships among certain psychological variables were stronger in the website condition, suggesting that the presence-intention chain may operate differently across media types and that VR is not “automatically superior” in all dimensions of the persuasion process (Bigné & Maturana, 2023).

Anaya-Sánchez et al. (2024) examine the concept of immersion in more detail by comparing high-immersion Google Earth VR with lower-immersion 360° video conditions for urban destinations such as Singapore and Paris. In the experiment conducted with Meta Quest 2 titles, the sense of presence was conceptualized as physical presence, self-presence, and sensory experience, and manipulation controls confirmed significant differences in immersion across VR formats. The structural model reported significant pathways from sense of presence to customer experience to visit intention; destination image also had an additional positive effect on intention. The study identifies VR sickness (cybersickness) as a technical moderator that weakens the presence-experience relationship, especially at low

immersion levels, suggesting that high-immersion VR experiences can partially mitigate this adverse effect (Anaya-Sánchez et al., 2024).

Taken together, these four studies converge on a sequential mechanism that suggests that immersive VR technology increases the level of presence and televisuality, which translates into higher travel intentions by strengthening emotional responses, feelings of pleasure, and overall customer experience (Anaya-Sánchez et al., 2024; Bigné & Maturana, 2023; Hoang et al., 2023; Yung, 2021). Especially in fully interactive VR environments, engagement and perceived agency stand out as the main determinants of presence, and the superiority of immersive VR over 360° video or 2D interfaces is explained through interaction design and user control rather than photorealistic visualization (Yung, 2021). The fact that VR can better convey experiences that are difficult to preview with traditional media in closed/most-inclusive products such as cruises and all-inclusive resorts (Yung, 2021), and that similar advantages are observed in nature-based, sustainable destinations (Hoang et al., 2023), suggests that contextual factors can also strengthen this mechanism. In contrast, individual factors such as sociodemographic characteristics and destination familiarity were not identified as significant moderators by Anaya-Sánchez et al. (2024), suggesting that the asset-experience-intention chain operates relatively consistently across user profiles.

Methodology

In this study, a qualitative research design combining interpretive netnography and Natural Language Processing (NLP) techniques was adopted to examine user-generated reviews of game-based virtual reality (VR) travel applications. The thematic patterns obtained were interpreted within the framework of the Stimulus-Organism-Response (S-O-R) model; the characteristics of the VR environment were considered as “stimulus”, users’ accounts of immersion, sense of presence, and emotional response were categorised as “organismic state”, and expressions of travel intention, destination image, and perceived risk were considered as “reaction” components. The research stages are briefly summarized in Figure 1. It should be noted that the netnographic component of this study is limited to the contextual reading and interpretive coding of publicly available user reviews; it does not encompass extended participant observation or community immersion as prescribed in classical netnographic methodology (Kozinets, 2010). The approach is therefore best characterised as a computational-interpretive discourse analysis informed by netnographic sensibilities.

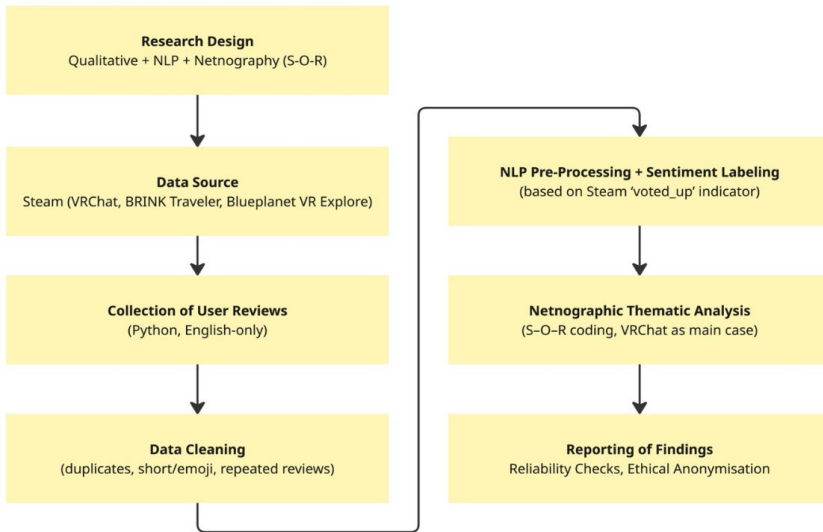


Figure 1. Research process combining NLP-based processing of Steam user reviews with S-O-R-guided netnographic analysis.

The Steam platform, which contains users' post-experience reviews of game-based VR travel experiences, was chosen as the data source. Reviews were collected between January and March 2024 using the Steamreviews library (v0.8.0). Prior to cleaning, the raw dataset comprised 9,841 reviews (VRChat: 9,012; BRINK Traveler: 412; Blueplanet VR Explore: 417). Public user reviews were extracted from the Steam pages of the VRChat, BRINK Traveler, and Blueplanet VR Explore applications; only English-language reviews were included in the study. The collected raw data were first subjected to data cleaning and pre-processing stages. In this context, repetitive comments, empty or single-character comments, emoji-only or otherwise meaningless comments, and duplicate comments from the same user for the same game were removed from the dataset, and a comment pool consisting of unique texts for each application was created. The cleaned dataset was structured as a large-scale text set for VRChat, along with two smaller but thematically rich auxiliary case sets for BRINK Traveler and Blueplanet VR Explore.

During data preprocessing, the comment texts were prepared for NLP analysis. For this purpose, the texts were converted to lower case, punctuation marks and URLs were removed, stopwords without meaning were removed, words were reduced to their base forms using lemmatization (SpaCy en_core_web_sm v3.5; stemming was tested but discarded as it produced excessive conflation of domain-spe-

cific terms), and token lists were created for each comment (De Paoli, 2024). The “voted_up” indicator provided by the Steam platform was converted into “positive” and “negative” emotion labels to use as a rough marker of the overall emotional valence of the comments; this information was used as a contextual variable during thematic analysis to understand which types of experience narratives emerged with positive or negative travel intentions. To make sense of the large-scale text structure, descriptive NLP outputs were generated that showed word frequencies, co-occurrence relations, and key phrase patterns.

To calculate scores based on the S-O-R model, three separate lists of keywords and phrases were created in line with the relevant literature and pilot readings. For the stimulus (S), expressions describing the visual-aesthetic and spatial qualities of the VR environment (e.g., *view, scenery, environment, graphics, location, place*), for the organism (O), expressions reflecting narratives of immersion, sense of presence, escape, and emotional intensity (e.g., *immersive, presence, feel like, escape, and emotional intensity*) were used. *Immersive, presence, feel like being there, escape, relaxing, emotional*), and for the reaction (R), we focused on statements expressing desire to visit the destination in real life, destination image formation, and intention to use VR as a travel planning tool (e.g. *visit in real life, go there, book a trip, travel, added to my bucket list*). Each comment was coded with an S_score, O_score, and R_score on a 0-3 scale according to the use of these statements in context (0 = no reference to the relevant dimension; 1 = indirect or singular reference; 2 = unambiguous statement; 3 = strong, repeated emphasis). The coding process was semi-automatic: first, a preliminary keyword-based labelling was performed using a Python script (NLTK v3.8.1); then the researcher read the full sample and made contextual corrections (Gupta et al., 2017). To assess reliability, a randomly selected sub-sample of 200 reviews (100 VRChat, 50 BRINK Traveler, 50 Blueplanet VR Explore) was independently coded by a second researcher. Inter-coder agreement was calculated using Cohen’s Kappa (κ), yielding $\kappa = 0.76$ for S-scores, $\kappa = 0.74$ for O-scores, and $\kappa = 0.71$ for R-scores, indicating substantial agreement (Landis & Koch, 1977). Discrepancies were resolved through discussion. Annotated coding examples are provided in Appendix A. The S_mean, O_mean, and R_mean values reported on a practice-by-practice basis reflect the average of these scores across all comments for each game.

Latent Dirichlet Allocation (LDA) topic modeling was applied to VRChat comments to examine the discursive structure of the texts more systematically. The analysis was conducted in Python using the *Gensim library* (v4.3.2); topic solutions from $K = 4$ to $K = 12$ were systematically tested. The $K = 8$ solution was selected based on the highest coherence score ($c_v = 0.512$) combined with thematic interpretability. Solutions with $K < 8$ produced overly broad themes; $K > 8$ yielded fragmented clusters. Based on a combination of topic coherence and researcher interpretability. Due to the relatively low number of comments for BRINK Traveler

and Blueplanet VR Explore, the topic structures for these two applications were examined only at an exploratory level; the primary discourse analysis of the study was carried out using the LDA results for VRChat and its netnographic reading.

In the interpretive analysis phase, the texts selected in line with the netnographic approach were evaluated using both automatically generated thematic clues and the researcher's detailed reading and coding. The coding scheme was developed by taking into account the main components of the S-O-R model; expressions regarding the visual-aesthetic and interactive features of the VR environment were categorized as "stimulus"; immersion, sense of presence, emotional intensity and escape narratives were categorized as "organismic"; the desire to travel for real, discourses on whether the VR experience is a substitute for physical travel, evaluations of the destination image, and perceived risk or trust were categorized as "response". At the same time, VRChat comments were analyzed in depth as the main case; BRINK Traveler and Blueplanet VR Explore comments were evaluated in the second stage to make themes related to aesthetic intensity, cultural content, and exploration-oriented experiences more visible for comparison.

A key structural limitation of this study is the substantial size disparity across the three datasets: VRChat ($n = 7,229$), BRINK Traveler ($n = 102$), and Blueplanet VR Explore ($n = 41$). Direct numerical comparison of S-O-R mean scores should therefore be interpreted with caution. The scores for BRINK Traveler and Blueplanet VR Explore are best understood as exploratory, discourse-based indicators rather than statistically robust estimates, and their findings are framed as illustrative and tentative throughout. Due to the qualitative nature of the study, the contextual meanings and thematic intensities of the patterns were emphasized in interpreting the findings rather than in statistical generalizations. In contrast, the number of comments, positive/negative evaluation ratios, and the relative frequency of specific theme labels were reported descriptively to support the strength of the patterns. The coding scheme was reviewed iteratively throughout the process; themes were checked for consistency by comparing them with the theoretical expectations in the S-O-R model. Since all data used in the study consisted of publicly available user comments, no additional participant consent was required; however, usernames and potentially personally identifying statements were anonymized or indirectly expressed in the analysis to comply with ethical principles.

FINDINGS

Comment Profile and General Sentiment Breakdown

Before presenting the findings, it is important to reiterate that all results are based on publicly available user reviews collected from Steam. The analysis is interpretive and exploratory in nature; findings reflect discursive patterns in user-generated text rather than statistically generalizable behavioural outcomes. Comparisons between applications should be read as indicative rather than definitive, given the dataset size imbalance discussed above. The vast majority of the 7,372 unique comments analyzed in the study were evaluations of VRChat. As seen in Tables 1 and 7,229 reviews were collected for VRChat (Social), of which approximately two-thirds (67.9%) had positive sentiment and one-third (32.1%) had negative sentiment. Although the number of comments for BRINK Traveler (Aesthetic) and Blueplanet VR Explore (Cultural) is relatively limited, the favorable rates are notably high in both applications (89.2% and 87.8%). This pattern suggests that in the context of social VR, the experience is positioned as both attractive and controversial/controversial at the same time. In contrast, a more homogeneous positive experience is perceived in aesthetic and cultural VR travel apps.

Comment lengths also support this distinction. The notably higher average character and word counts for BRINK Traveler and, especially, Blueplanet VR Explore compared to VRChat suggest that these two apps offer more intense, scene-by-scene experiences that are “worth telling” to users. In contrast, VRChat comments are shorter, casual, and often quick assessments of the platform’s social nature.

Table 1. Comment Profile and Basic Descriptive Statistics by Practices

Application	Total Comments (n)	Positive (n)	Negative (n)	Average Character Length	Average Word Count	Positive Rate (%)	Negative Rate (%)
BRINK Traveler (Aesthetic)	102	91	11	481,2	42,8	89,2	10,8
Blueplanet VR Explore (Cultural)	41	36	5	765,8	68,3	87,8	12,2
VRChat (Social)	7.229	4.907	2.322	178,9	16,8	67,9	32,1

S-O-R Scores: Differentiation between Ambient Design and Travel Intention

Scores based on the S-O-R model make the structural differences of game-based VR travel experiences more systematically visible (Table 2). Stimulus (S_{mean}) scores were 1.76 for Blueplanet VR Explore and 0.86 for BRINK Traveler, while VRChat scores were as low as 0.17. This finding suggests that applications with a

strong aesthetic composition, prominent spatial scene design, and “destination-oriented” content lead to much more intense references to design elements in user discourse.

Organism (O_mean) scores also show similar differentiation. Blueplanet VR Explore (0.71) and BRINK Traveler (0.45) stand out as apps in which experiential expressions such as immersion, sense of presence, admiration, and emotional intensity are more frequently mentioned in user comments than in VRChat (0.30). This pattern indicates that culturally and aesthetically “targeted” VR travel experiences produce a more holistic sensory-emotional response.

One of the most critical differences emerges in Response (R_mean) scores. R_mean values of 0.63 for Blueplanet VR Explore and 0.30 for BRINK Traveler indicate that the VR experience is more frequently associated with statements such as the desire to visit the real destination, destination image formation, and intention to use VR as a travel planning tool. In VRChat, the R_mean value is negligible at 0.02. This pattern suggests that social VR platforms are oriented primarily around socialisation, escapism, and identity expression. In contrast, aesthetic and cultural VR travel applications are more directly linked to physical travel intentions.

Table 2. Comparison of S-O-R Scores According to Interventions (Mean Values)

Application	S_mean (Stimulus)	O_mean (Organism)	R_mean (Response)
BRINK Traveler (Aesthetic)	0,86	0,45	0,30
Blueplanet VR Explore (Cultural)	1,76	0,71	0,63
VRChat (Social)	0,17	0,30	0,02

LDA Topic Models: The Discursive Divergence between Social VR and Travel VR

LDA topic analysis was used to parse the discursive structure specifically concentrated within VRChat comments (Table 3). The resulting eight topics produce thematic clusters that illustrate how social VR is perceived and made sense of by players. The first group of topics (Topics 0, 2, 4, and 5), centered around words such as “world, avatar, community, friend, people, fun”, positions VRChat as a social “world” and community space rather than a game. For users, avatar design, meeting new people, friendships, and everyday interactions are central to the experience.

In contrast, clusters such as Topic 6 reflect tense debates around technical infrastructure, developer decisions, and anti-cheat policies, with terms such as “mod,

eac, anticheat, devs, update”. This discourse suggests that social VR is a space that generates not only positive social engagement but also intense criticism and frustration with platform policies.

Location- and scene-focused discourses are particularly concentrated in Topic 7 (“location, scene, place, around, look, app”) and show a stronger intersection with spatial-experience narratives in applications such as BRINK/Blueplanet. This suggests that travel-oriented VR applications produce a narrative that overlaps with the more classical tourism language on the axis of “location”, “scene”, and “view”.

Table 3. LDA Topic Models: Major Keywords and Thematic Commentary for Each Topic

Subject No	Major Keywords	Short Thematic Commentary
0	VRChat, world, avatar, user, platform, social, player, experience, community, content, game, many, hate, place, create	Discussion of VRChat as a social platform/“world”, community, and content-driven discourse
1	game, avatar, cannot, even, do not, like, play, still, review, thing, need, vrchat, actually, time, want	Playability, avatars, technical/ergonomic issues, and satisfaction/dissatisfaction
2	game, people, fun, like, lot, anime, friendly, good, cool, avatar, weird, world, really, girl, got	The discourse of everyday experience is built around entertainment, people, and avatars
3	game, play, hour, do not, get, played, would, got, life, ever, fucking, shit, like, best, edit	Playtime, intense play, and emotional narratives mixed with praise and harsh criticism
4	game, friend, fun, people, great, good, new, play, make, meet, let, time, really, way, world	Friendship, meeting new people, socializing, and playing together
5	game, people, like, time, friend, dont, world, get, year, make, find, vrchat, one, ive, thing	Long-term usage, friendship, “world” exploration, and time spent on the platform
6	game, mod, eac, community, devs, update, anticheat, people, easy, vrchat, do not, vrc, feature, anti, cheat	Mods, anti-cheat (EAC), developer policies, and tension with the community
7	location, like, would, experience, also, well, get, one, time, work, scene, around, place, look, app	Spatial/aesthetic VR experience discourse centered on location, scene, place, and appearance

Netnographic Examples: The Fine Line Between Wanderlust and Escape

When the S-O-R scores and topic models are read alongside the netnographic comments, two distinct functions of the game-based VR experience become apparent. The VRChat comments in Table 4A with R_score ≥ 1 associate social VR with travel on a metaphorical level, primarily referring to “traveling between worlds”, “short experiences that feel like a trip”, or visiting multiple “worlds”. However, in these comments, there is often no explicit intention to visit a physical destination; travel is more a metaphor for moving between virtual worlds. This distinction calls for a careful separation of two types of travel discourse: (1) virtual mobility language in VRChat (R_score = 1), reflecting movement between virtual spaces rather than physical destination intention; and (2) explicit travel intention in Blueplanet VR Explore and BRINK Traveler (R_score ≥ 2), directly referencing real-world destinations and travel planning. This distinction is maintained throughout the analysis.

The comments in Table 4B with O_score ≥ 2 and R_score = 0 indicate that VRChat functions as a powerful social escape and substitution space. The statement “extremely lonely and need friends” suggests that social VR serves as a space that compensates for loneliness and isolation in the physical world. The emphasis on “this is not a game, it is a social platform” shows that the platform has shifted from being seen as a game to a communication and community medium. References to RP communities and subcultural networks discovered on Twitch also indicate that the VR experience produces a continuous, identity-based “virtual spatial belonging” that replaces physical travel.

When these two groups of comments are read together, it becomes clear that game-based VR travel experiences function not only as tools that reinforce intention towards physical destinations, but also as digital environments that fulfill social needs, accommodate identity experiences, and, in some cases, partially substitute for real travel.

Table 4 A. Selected VRChat Reviews with High Travel Intention (R_score ≥ 1)

Application	Sample comment (abbreviated)	S_score	O_score	R_score
VRChat (Social)	First day. Travel between worlds to find myself..”	0	0	1
VRChat (Social)	“The half hour felt like a trip.”	0	0	1
VRChat (Social)	“Many different worlds to visit within the game, lots of places...”	0	0	1
VRChat (Social)	“YES, easier than talking IRL XD.”	0	0	1

Table 4 B. Selected VRChat Comments Containing Escape / Social Platform Discourse (O_score ≥ 2, R_score = 0)

Application	Sample Comment (abbreviated)	S_score	O_score	R_score
VRChat (Social)	“Amazing if you are extremely lonely and need friends.”	0	2	0
VRChat (Social)	“Okay, this is not a game, it is a social platform...”	0	2	0
VRChat (Social)	“Because of an RP community I found through Twitch... decided to get a VR...”	0	7	0
VRChat (Social)	“This game is amazing and very social, good to meet new people...”	0	2	0

DISCUSSION

In the context of the four research questions of the study, the findings can be summarized as follows: (1) for RQ1, user discourses are more directly linked to travel intentions in destination-oriented VR applications; (2) for RQ2, emotional responses and experience quality perceptions appear to be accompanied by a strong destination image narrative, especially in Blueplanet VR Explore; (3) For RQ3, perceived risk reduction and increased trust were prominent in guided and aesthetic VR experiences, whereas in social VR, the risk/trust discourse was shaped more around community norms and platform policies; (4) For RQ4, expressions of intention to use VR as a travel planning tool emerged predominantly in destination VR applications, whereas in the context of social VR, the technology was legitimized more through social interaction and identity performance.

This study examined user-generated discourse about game-based VR travel applications on Steam and analyzed these discourses within the framework of the S-O-R model. The findings are broadly consistent with prior work on VR’s role in “enhancing destination image” and “increasing travel intentions”. However, rather than confirming these as causal outcomes, the present analysis reveals them as discourse-level tendencies that vary substantially by application type. The data point to a clear divergence between social VR and destination-oriented VR experiences.

First, the comment profile and sentiment distribution (Table 1) indicate that the social VR context is more emotionally polarized. Despite the predominance of positive comments about VRChat, there is also a significant proportion of negative ones. In contrast, comments on BRINK Traveler and Blueplanet VR Explore are both fewer in number and largely positive in sentiment, suggesting that VR travel experiences focused on aesthetic and cultural content are perceived as more homogeneous and ‘seamless’. In addition, the longer, more detailed comments in these two applications suggest that users tend to describe places, landscapes, and

cultural content scene by scene, thereby associating these experiences more with mental imagery of travel.

The S-O-R scores (Table 2) support this qualitative distinction more systematically. Blueplanet VR Explore and BRINK Traveler have higher values than VRChat at both stimulus (S_mean) and organism (O_mean) levels. This pattern suggests that visual-aesthetic quality, spatial composition, and scene organization strongly trigger users' experiences of immersion, sense of presence, and emotional intensity in destination-oriented VR applications. The most striking difference emerges in the response component (R_mean): For Blueplanet VR Explore and BRINK Traveler, the statements that correlate with travel intention, destination image formation, or intention to use VR as a travel planning tool are significant, whereas the R_mean value for VRChat is almost zero, suggesting that the social VR experience is not directly linked to the intention to visit a real destination. These patterns offer a tentative response to the study's central question — "Is VR a travel incentive or a social substitute?" suggesting substitution in the context of social VR and incentivisation in the context of destination-oriented VR.

From the perspective of game and VR designers, the findings also illuminate the relationship between game design features and travel intention. In destination-oriented VR experiences, lightweight task structures that support exploration routes (e.g., "completing" certain scenic spots, finding cultural objects), short, segmented scenes, micro-feedback at the end of scenes, and a sense of accomplishment are all found to reinforce travel intentions. In the context of social VR, destination-themed events, time-limited "in-game events" such as festivals or exhibitions, quest chains references to specific destinations, and in-game rewards linked to real-world travel opportunities (e.g., discount coupons, virtual guidance experiences) may help build connections between social escapism and travel intention. In this way, destination-oriented VR applications have the potential to evolve beyond passive viewing experiences into interactive design tools that support real-world touristic mobility through purposeful game design.

The LDA topic models (Table 3) provide an explanatory framework for understanding the nature of VRChat discourses. While some topics (0, 2, 4, and 5) point to a narrative of social experience woven around avatars, friendship, community, entertainment, and "world" exploration, other topics (especially topic 6) make visible tensions around developer decisions, mods, anti-cheat systems, and platform policies. Together, these topics portray social VR as both a space of intense community engagement and belonging, and a contested arena shaped by platform norms, rules, and power dynamics. In contrast, topic structures dominated by location, scene, and place-oriented words overlap with the more classical "touristic" discourse found in destination VR applications, thereby strengthening the link between aesthetic/cultural VR experiences and the language of tourism.

The netnographic examples (Tables 4A and 4B) elaborate these quantitative and semi-quantitative patterns through concrete user discourses. Comments with $R_score \geq 1$ often refer to the VR experience as a kind of travel, often with metaphors such as “traveling between worlds”, “feeling like a trip”, or multiple “world” visits. However, this travel often refers to movement between virtual spaces rather than a destination in the physical world. In contrast, comments with high O_score and $R_score = 0$ describe VRChat as a space of escape from loneliness, social needs, and identity performance. The emphasis on “it is not a game, it is a social platform” suggests that social VR is moving away from the classical “destination pre-experience” function in the tourism context; instead, it serves as a continuous, space-independent digital socializing space.

Overall, this study makes a twofold contribution by applying the S-O-R model to game-based VR travel experiences. On the one hand, it adds a computational-netnographic approach, based on naturally generated user discourse, to the largely empirical, survey-based study of VR tourism. On the other hand, it suggests that immersive VR experiences do not always translate directly into travel; depending on the context, they can serve different functions, such as social substitution, escape, and digital belonging. This finding extends the role of VR in tourism beyond a mere “promotional tool”. It offers a more nuanced understanding of the complex relationships between digital and physical spaces.

CONCLUSION AND RECOMMENDATIONS

The results point to three main points. First, aesthetic and culture-driven VR travel apps (BRINK Traveler and Blueplanet VR Explore in particular) produce visually and emotionally intense experiences that are directly associated with destinations in users’ minds and contribute to stronger destination image and higher travel intention. Second, although the social VR platform VRChat produces intense immersion and emotional intensity, this intensity is often woven around social bonding, escape, and identity performance, and does not often translate into an intention to visit a specific destination in the physical world. Third, the relationships between VR experiences and perceived risk, trust, and technology acceptance vary across applications, with destination-oriented VR characterized by experience quality and utility, and social VR by community dynamics and platform politics.

For the tourism industry and practitioners, these findings offer several concrete recommendations:

Destination marketing organizations and tourism businesses should invest in high-quality visual design, spatial coherence, and scene composition when designing VR content. In particular, experiences that emphasize cultural elements, spatial atmosphere, and landscape details have the potential to strengthen destination image and increase travel intention.

The VR experience should be supported by short scenarios, guided discovery routes, and interactive elements that allow the user to emotionally connect with the destination, rather than being constructed as a promotional “promotional video”.

Although social VR platforms do not directly trigger travel intention, the present findings suggest they may serve as a complementary channel for early-stage destination awareness-building through destination-themed events, virtual tours, and cultural programming. Whether such awareness translates into long-term destination loyalty cannot be determined from cross-sectional discourse data alone and would require longitudinal investigation. Especially for young, tech-savvy user groups, such social VR activities can help establish an emotional connection with the destination early on.

It is also important to acknowledge the inherent limitations of cross-sectional, platform-specific discourse data: the study captures user perceptions at the moment of review writing and cannot establish causal relationships, track longitudinal behavioural change, or represent users who do not write reviews. Finally, since the study is based on discursive data, the relationships between S-O-R components can be discussed at a correlational level; experimental or longitudinal designs are needed to establish causal relationships.

In terms of future research, an important step would be to extend this study with more diverse datasets, including comments from different platforms (e.g., Meta, PlayStation VR) and in different languages. By combining netnographic text analysis with survey and experimental designs, the relationships between immersion, sense of presence, perceived risk, and travel intention can be tested more thoroughly. It is also worth exploring the effects of destination-themed events organized on social VR platforms on users’ medium- and long-term travel plans, destination loyalty, and perceptions of sustainable tourism. Such studies will move the role of VR technology in tourism beyond short-term promotional tools to a more holistic framework for understanding the complex webs of experiences between digital and physical spaces.

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