HAL open science

Ethical marketing framework for metaverse simulated experiences of tourism (SET): An exploration of consumers' aspirations and fears

Christine Petr, Paul Caudan

To cite this version:

Christine Petr, Paul Caudan. Ethical marketing framework for metaverse simulated experiences of tourism (SET): An exploration of consumers' aspirations and fears. Journal of retailing and consumer services, 2024, 79, pp.103785. 10.1016/j.jretconser.2024.103785 . hal-04554364

HAL Id: hal-04554364

https://hal.science/hal-04554364v1

Submitted on 22 Apr 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Journal of Retailing and Consumer Services 79 (2024) 103785

Contents lists available at ScienceDirect

Journal of Retailing and Consumer Services

journal homepage: www.elsevier.com/locate/jretconser

Ethical marketing framework for metaverse simulated experiences of tourism (SET): An exploration of consumers' aspirations and fears

Christine Petr *, Paul Caudan

Université Bretagne Sud, Rue André Lwoff, 56000, Vannes, France

ARTICLE INFO

Handling Editor: Prof. H. Timmermans

Keywords:
Metaverse
Tourism
Marketing
Virtual tourism
Virtual reality
Simulated experience
Consumer
Ethics

ABSTRACT

Contrary to existing literature that underlines metaverse opportunities for adapting tourism management and tourism marketing, our study aims at understanding customers' perspective on tourism metaverse, as potential virtual tourists. This helps answer two questions: (1) what are customers' expectations, *i.e.* which offers and offers should be designed? (2) how should these offers be ethically marketed?

To investigate how consumers imagine metaverse simulated tourism experiences (MVSET), we employed a qualitative research methodology using interviews with 24 regular travelers. Thematic analysis was employed to analyze the interview transcripts.

Findings reveal five categories of expectations: reproduction, customisation, immersion, emancipation, and disillusionment avoidance. Discussion focuses on ethical issues regarding the experience modulation requests and the possible negative consequences of MVSET consumption and its regular usages.

1. Introduction

For tourism, hospitality and leisure industries, professionals and scholars consider the on-going metaverse era as the most decisive technological disruption of the 21st century. The development of the metaverse will represent such a revolutionary step that marketers and managers will have to completely rethink their practices (Buhalis et al., 2023; Ioannidis and Kontis, 2023; Özdemir Uçgun & Şahin, 2023).

Despite the extensive attention of scholars and practitioners about virtual reality and metaverse in tourism, very limited empirical evidence exists regarding how these technological improvements are experienced or expected by consumers in tourism contexts (Chen et al., 2023; Lin et al., 2020). Numerous recent articles are conceptual and analyses consist in systematic and bibliometric investigations of scholars' works.

Complementary to existing literature that underlines metaverse opportunities for adapting tourism management and tourism marketing, we decided to focus on the understanding of alternative tourism experiences that could be proposed through virtual worlds. What should they look like to fulfill customers' aspirations, dreams or even fantasies? What would customers like to experience? The objectives are to outline customers representations of virtual tourism, at a time when metaverse and its consequences over the tourism sector are emerging, but still in their infancy stage.

To do so, the present research allows understanding customers' perspective on metaverse as an autonomous tourism world. This study adopted a qualitative research approach using in-depth interviews to explore the factors influencing consumers' intentions to adapt metaverse for tourism purposes. We conducted twenty-four interviews with French participants who are regular domestic and international tourists. Thematic analysis was employed to analyze the transcripts.

Dealing with participants' expectations from such virtual tourism offers, their pull and push factors to experiment this new alternative way of doing tourism, we contribute to answering two questions: which simulated tourism offers should be designed and how should they be marketed ethically?

2. Literature review

2.1. The emergence and focus on metaverse simulated experience of tourisme (MV-SET)

When we found ourselves confined during the pandemic crisis, we all realized the usefulness of virtual presence through connectivity for work and the interest of technological solutions for leisure. They both enable us to be virtually present elsewhere for work or fun, while remaining physically at home. For many uses (work meetings, lectures, and classes,

* Corresponding author.
E-mail addresses: christine.petr@univ-ubs.fr (C. Petr), paul.caudan@univ-ubs.fr (P. Caudan).

https://doi.org/10.1016/j.jretconser.2024.103785
Received 24 February 2024; Accepted 25 February 2024
Available online 16 April 2024
0969-6989/© 2024 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).

collaborative tasks, virtual partying, family meeting, etc.), most of us then began to experiment telepresence, *i.e.* the psychological state in which a user feels subjectively immersed in a mediated environment (Tussyadiah et al., 2018).

In a period when recreational home amenities are not a priority (Petr, 2021), imposed virtual experiences during lock-down made people worldwide learn how to spend time in digitally created spaces (Rahmanov et al., 2021). These initial and generalized experiences made populations concretely understand what the terms virtual, augmented and mixed realities encompass.

Virtual tourism refers to "the use of a computer-generated 3D environment – called a 'virtual environment' (VE) – that one can navigate and possibly interact with, resulting in real-time simulation of one or more of the user's five senses" (Guttentag, 2010) to live tourism-like experiences. These practices pre-exist Covid-19, but at that time they were mainly experimented by specialists, especially in engineering and medical fields (Rubio-Escuderos et al., 2021; Zheng et al., 1998). Although virtual tourism is partly a technical substitute for physical tourism, it is also a complementary tourism practice as researchers observe that post-covid revenge tourism, defined as "tourists traveling more to make up for the time lost" (Wassler and Fan, 2021), is both physical and virtual. In fact, virtual tourism is even a catalyst of physical travel practices (Buhalis et al., 2023).

As we were enforced to stay at home, virtual connectivity offered alternative solutions to "normal" visits, *i.e.* physical trips and tours, and allowed us to go on "visiting" exhibitions or heritage sites, "discovering" large territories and specific places, "attending" events, all these in slippers from our sofa. Also known as armchair travel (Chua et al., 2023), these practices appeared systematized and experimented by millions of citizens in the world, even at low levels, as soon as they had a smartphone and connectivity (Gössling and Schweiggart, 2022).

The anticipated transformations of the future travel industry following this widespread use of virtual and mixed reality services and the development of metaverse virtual world technology are manifold. Among the transformations that are most regularly cited and studied are: 1) the enhancement, multiplication and reshaping of traditional tourist experiences (de Lurdes Calisto and Sarkar, 2024; Giang Barrera and Shah, 2023); 2) responses to destination communication and competitiveness challenges (Sambhanthan and Good, 2013; Chen et al., 2023); 3) provision of new venues and marketing opportunities for current tourists and targeted segments (Ioannidis and Kontis, 2023b); 4) concrete opportunities for the inclusion of disabled or elderly consumers (Kim et al., 2019; Radanliev et al., 2023); 5) ubiquitous and cheap solutions for financial and temporal people with financial, time, professional or family constraints (Kim et al., 2023; Schiopu et al., 2022); and 6) being an alternative means of responding to the challenges of the environmental costs of travel and to problems of over-visiting (Kouroupi and Metaxas, 2023; O'Regan et al., 2022). More generally, touring in metaverse environments allows promoting sustainability of tourism practices (Buhalis et al., 2023; Go and Kang, 2023; Lin et al., 2020; Lyu et al., 2023; Monaco and Sacchi, 2023), especially when the expected practices are over environmentally unfriendly (Kim et al., 2024).

2.2. Virtual reality (VR) experiences in tourism

Here, we detail what tourism experiences have in common with other VR experiences, and what is specific.

2.2.1. From realism to immersion: the key to enter the virtual world

Virtual experiences involve a step-by-step process. For the individual to enter the experience, he or she must feel immersed in the proposed environment and be able to interact with this environment, which he or she will find coherent (Hudson et al., 2019). But the first step is to achieve a sufficient level of realism to condition the consumer's immersion. It is the prerequisite for consumers to accept to enter the virtual, *i.e.* to temporarily suspend disbelief, to move from a real, tangible environment to a virtual, transformable environment (plastic or liquid environment).

When companies use the metaverse to simulate the experience of consuming their products and observing consumer behavior (Giang Barrera and Shah, 2023), they need to offer a faithful simulated environment. In fact if the collection conditions do not simulate reality, none of the conclusions drawn from the observations will be exploitable for application to real-world behavior.

In tourism, notably by enhancing their existing degree of realism, metaverse technologies foster the emergence of a new level of immersive experiences (Koo et al., 2022). Going beyond 2D technologies (video, audio) with the new dimensions offered by the metaverse (e.g. interactive environments) enhance tourists' immersion in cultural visits (Zhou and Yan, 2023). More generally, by faithfully reproducing the intended destination, potential tourists can "pre-travel", forming realistic expectations and reducing the risk of disappointment (Koo et al., 2022).

In this quest for realism, visuals play a decisive role. Firstly, because there is a pleasure in visualizing a sophisticated technical elaboration (Baek et al., 2023). Secondly, because a photorealistic rendering guarantees a sufficiently realistic whole. Globally, it is the realism of each virtual element, such as a realistic design (Le et al., 2023) and the emotional response of interactions (Wang et al., 2023). That contributes to the overall impression of realism and to favorable evaluations of this environment (confidence, satisfaction). Ultimately, a virtuous circle is established: the more realistic the environment, the more consumers accept the virtual, the more likely they are to be won over by immersion.

2.2.2. From immersion to telepresence, sometimes flow: a virtuous circle

When immersion is sufficient, the user feels subjectively "present" in the virtual environment. A state of "telepresence" (Tussyadiah et al., 2018) is reached when the user is so immersed in the proposed universe that it affects his or her emotions and body as if it was the original atmosphere (Goulding, 2023).

In the most successful situations, telepresence can lead to a state of flow (Csikszentmihalyi, 1990), which is a high level of immersion characterized by cognitive absorption, time distortion and a sense of joy. Depending on the degree of telepresence experienced, the experience of flow will have a greater or lesser impact on levels of well-being and behavior (Kim et al., 2023). And the stronger the telepresence, for example through a realistic avatar, the better the experience (Kim et al., 2023).

In the context of virtual tourism, telepresence is a key dimension (Adachi et al., 2020). As demonstrated by Chua and his colleagues (Chua et al., 2023), the experience of flow reinforces the feeling of authenticity of the virtual journey. And here too, there is a virtuous circle for the manager of destinations and tourism brands, since the more the user is in the flow of the experience, the more immersed they are, and the more satisfying the experience will ultimately be judged to be.

Given the effects on experience satisfaction (Csikszentmihalyi, 1990) and consumer involvement in the product (Serravalle et al., 2023), flow and telepresence are the emotional states to be achieved in the conception and design of virtual tourism experiences.

2.2.3. Immersion flip side: limits and negative affects

While immersion is a state that generates positive emotions, however it can lead to negative effects in the context of virtual experiences.

First of all, being immersed in a technical environment and constantly subjected to numerous stimuli can lead to information overload and even exhaustion, as has been well studied in the context of social networks (Pang and Ruan, 2023). By transposing this risk to the virtual tourism experience, we can assume that too much exposure and too realistic a simulation could cause the user to move from a state of immersion to a state of 'submersion', or even 'drowning' if it becomes impossible to mentally extract the user from their virtual reality.

Secondly, excessive use of these technologies can have a negative

impact on behavior (stress, fatigue, fear of missing out, anxiety, etc.) and can worsen day by day, as is the case with social networks (Sharma et al., 2023). Worse still, the generalisation of virtual experiences, by infiltrating all aspects of our daily lives, can create addictions in the same way as our smartphones (Gong et al., 2023).

Finally, immersion is a necessary but not sufficient condition for consumer satisfaction. However immersive the experience, its memorability can vary from one consumer to another. Firstly, because memorability depends on the user's sense of self (Hosany et al., 2022; Roggeveen and Rosengren, 2022; Prentice et al., 2022, cited by Moliner et al., 2023). Secondly, because the memorability of a positive experience can be negative: certain personality profiles are sensitive to post-vacation sadness (Wang et al., 2021).

3. Method

Considering the observations of Vespestad and Clancy (2021), we decided to use content analysis as a sole method. The guidelines and open-questions allowed to elicit broader discourses. It focused the participant's consideration on their expectations regarding the experience of doing tourism through virtual technology.

The opening of the interview gives information about the research purpose, contact information, disclaimer about consent to participate in the study, possibility of quitting at any point and that the study is fully anonymous. The interview allows participants to imagine experiencing whatever they can fantasize, going to whichever places they want on earth or in space, and traveling to whichever epoch they desire. The interview was divided into topics: what tourism experiences they dream of; which concrete expectations they have (content type, features, realism level, minimum quality); which consumption practices and conditions they consider. Finally, participants had to answer short questions to summarize their profile (see Appendix1).

4. Results: expectations, ideal and fears of disillusionment

The content analysis of the interviews conducted on expectations and fears regarding simulated tourism experiences in metaverse are synthesized through 5 main themes (Table 1).

4.1. Reproduction

As far as the nature of the experience is concerned, participants would like virtual tourism experiences to simulate the real world (Table 2). They have no intention of discovering fictitious worlds. **The imagined simulation environment is a copy of the real world they want to be able to reach, according to the technical myth of teleportation**. This virtualized reality corresponds to a copy of places (countries, cities, landscapes) where the aim is to reproduce familiar activities (travel, visits, sports, leisure). The primary objective is to explore sites and spaces as they exist. Since these places already exist, the justification for virtual simulation is that access to them is unlikely, if not impossible: they are considered inaccessible. **In short, the desired experience is the virtual experience of a realistic but inaccessible reality.**

When it comes to the diversity of experiential simulations, participants want abundance and plurality. In concrete terms, this means physical repair, but also mental restoration, well-being, thrills, travel therapies, emotional cures and varied escapes. They therefore envisage a portfolio of relaxation, escape and emotional offerings that should be able to fulfill all their needs and aspirations. Finally, **these idealized experiences are often tinged with utilitarianism**, as they aim to respond to possible imbalances (e.g., recovering from fatigue, getting away from monotony, treating oneself to what one can't afford, etc.).

Table 1
Summary of themes and subthemes - relating to the experience of tourism metaverse.

Themes	Subthemes
Reproduction	A copy of the real world
	A range of real-like experiences
Immersion	Good enough simulation for good enough immersion state
	Immersion state preservation (continuity and persistence issue)
	Progressivity (in, "immersion", and out, "emersion")
Customisation	Sensorial downgrade
	Space & Time
	Social density
Emancipation	Emancipation from standard of living
	Safety level
	Escapism
Disillusionment avoidance	Experiential disappointment
	Disenchantment with "normal" life

Table 2
Theme of reproduction.

Subtheme	Verbatim
A copy of the real world	"[The world] *is full of riches, no need to create a new one*" - Interview 21
A range of real-like experiences	"*You can visit anything and everything, just as you would in the real world*" - Interview 13

4.2. Immersion

The realism of the simulation is the main requirement of participants (Table 3). It results from **the combination of sensory realism** (mobilization of the 5 senses, quality of rendering) and **contextual realism** built around the fidelity and coherence of the reproduced environment, the richness and relevance of its content, and maximum and logical interaction possibilities. This perceived realism is **described as a vector and guarantee of perceived authenticity, therefore a guarantee to enter the state of immersion**. In line with the literature, the perceived realism of MV-SET is described as the gateway to the state of immersion, which is characterized by the certainty of being elsewhere, the preservation of distractions external to the experience, the fluidity of the experience, the place of the present moment, the loss of the notion of time and the feeling of emotions. In view of the *verbatim*, the state of immersion can also be linked to the concepts of telepresence and flow.

However, the participants find it very **complex to create and maintain the optimal state of immersion**. Specifically, they mention the lack of progressive entry into the simulation, and they are concerned about the length of habituation required to establish the state of immersion.

At the same time, they **fear the lack of preparation for the experience** (anticipation of the event that arouses desire). Finally, and more

Table 3
Theme of immersion.

Subtheme	Verbatim
Good enough simulation for good enough immersion state	"*It has to be almost real. Sounds, smell, touch. Everything has to be there*" - Interview 06 "*Feel the wind, be a little scared but not too scared*" - Interview 12
Immersion state preservation (continuity and persistence issue)	"*I [must not] have a moment when I say to myself 'well, what I'm going through is not true'*" - Interview 19
Progressivity (in, "immersion", and out, "emersion")	"*- You mean you really need to have that feeling of a little euphoria when you set off on a plane and really create these 'emotions'?* *- That's it, yeah*" - Interview 20 "*You're carried away in an imaginary world*" - Interview 22

generally, they emphasize the complexity of simulation to achieve an impression of realism. In this respect, they say that an inadequate level of realism would take them out of this state of immersion, giving rise to **an uncontrolled emersion process, whether premature or involuntary**. In addition, they explain that the need for balance between too little realism and immersion is non-existent, but that too much realism and strong sensations (or negative emotions) would make them leave the experience to preserve themselves.

This need for an optimal, continuous and persistent state of immersion is shared by all, as well as the focus on technical incidents (slowdown, bug, equipment), and on the external sensory distraction likely to extract the individual from his state of immersion.

4.3. Customisation

As shown in Table 4, participants want to be able **to control the level of immersion**, by controlling the degrees of realism of the experience. **Unpleasant sensations should be limited** (uncomfortable temperatures, hunger, weight of equipment, etc.), **safety can be guaranteed**, and **social density** modulated at will (being alone or immersed in the middle of a crowd).

4.4. Emancipation

With virtual tourism, participants gain emancipation (Table 5). They want to escape their daily lives and emancipate themselves from their condition, whether material (limited budget, little free time), physical (disability) or social (family or professional constraints). Virtual tourism would enable them to **experience the inaccessible** (backstage at a show, a trip to the moon), the **humanly infeasible** (going in the heart of the abyss, volcanoes) or the **impossible** without constraints of space and time (time travel, teleportation) (see Table 6).

4.5. Fear of disillusionment

Even if immersion is achieved, participants fear a double disillusionment.

On the one hand, **disappointment with the experience itself**: realism is not a guarantee of satisfaction. The sensations and emotions of the experience, while realistic, may not correspond to the consumer's expectations: just as in real tourism, satisfaction is not automatic.

On the other hand, **disillusionment refers to the consequences of the experience on real life**, namely the post-experience sadness of the return to reality (vacation blues), and possibly the disenchantment with reality compared to the wonderful, protective experiences of the virtual. This disillusionment could prompt users to consume more and more virtual tourism to compensate for this malaise, **leading to dependency, or even addiction,** which could threaten users' health and daily lives (physical deterioration, mental dissociation, social isolation, disinterest in family and professional life).

Table 4
Theme of customisation.

Subtheme	Verbatim
Sensorial downgrade	*"The more there is, the better the experience. But it shouldn't be too extreme either. I can imagine myself climbing Everest, and if the temperature is -20°C, I don't think it would be very pleasant"* - Interview 22
Safety level	*"I want to take risks, but without taking risks. In other words, I'm at home, in my living room. And I think those are the two deepest feelings. To feel free, to be able to travel and to be able to do everything without risk"* - Interview 09
Social density	*"If it's not crowded, I think I'll enjoy (…) make the most of the moment, you don't often get a beach for yourself"* - Interview 22

Table 5
Theme of emancipation.

Subtheme	Verbatim
Emancipation from standard of living	*"Well, it allows you, eventually, to wander around a city or a country that you know you'll never be able to visit or go to, because it's too far away, too expensive (…) it allows you, at home without moving, to visit and see monuments, rivers, volcanoes"* - Interview 13
Space & Time	*"I'd like to be able to teleport myself around the world (…) One day be in Tahiti and be able to swim with the dolphins and scuba dive, and the next day be in Japan and be able to look at the different monuments"* - Interview 07
Escapism	*"To escape, to discover something else, to stop thinking about everyday life and discover the world"* - Interview 07

Table 6
Theme of Fear of disillusionment.

Subtheme	Verbatim
Experiential disappointment	*"If it's like Antarctica, it's empty. It's always the same thing, the same landscape over hundreds of thousands of kilometers"* - Interview 24
Disenchantment with "normal" life	*"You're totally cut off from the world, from the real world"* - Interview 19
	"You mustn't overdo it [virtual tourism], *because then you'll go back to reality. If you stay too long, you can adapt and find it's no good when you get back"* - Interview 24

5. Discussion: what marketing priorities to frame and to develop ethics of tourism metaverse experiences?

Here, we discuss the expectations for defining the tourism experience imagined in the metaverse, elaborating on the vigilance points identified by the discourses.

5.1. Accompany and modulate the experience: from ideal requests to ethical questions

Here we answer the question: "What type of experience should be offered, and what precautions should be taken to address the concerns of future users of tourism experiences in metaverse universes?

Not surprisingly, t**he question of immersion appears central.** However, in the context of tourism experience simulations, immersion is a more complex technical requirement to implement: it has to be tailored to the individual's needs, and must be an accompanied immersion.

First and foremost, we are talking about **immersion that is good enough** to guarantee the expected quality of experience based on at-the-moment motivations. There is no absolute value in the definition of expected immersion. It must be possible to modulate this level of immersion prior to the experience or, ideally, during it. It must be adapted to the physical capacities and characteristics of the individual (more or less sensitive to motion sickness and simulations) and to the duration of the immersive experience.

Secondly, **the entry and the exit of the immersive experience** must be thought through by the experience designer. Beyond the risk of breaking the immersive state, possibly due to technical or connectivity bugs and incidents considered unacceptable and problematic to experience, many participants **fear a brutal dive as well as an "emersion" lacking in progressiveness**. They say they would like to be accompanied gradually into a gentle immersion. Through its preparatory aspect for the experience to come, this accompaniment could function as an amplifier of emotions and the quality of the overall virtual experience. As far as the return to reality is concerned, people imagine and wish to be gently brought back to their everyday life and their usual

environment. They want to avoid suffering a violent shock from the confrontation between their everyday life and the ideal virtual spaces they would have frequented: their real life would risk appearing all the more disappointing and banal to them because the experience they would have lived through would have been exceptional and fantastic.

Finally, the **need for experience modularity** that concerns immersion appears in all developments related to customisation expectations. Individuals aspire to be able **to control sensory levels,** to choose the spaces and times they wish to teleport virtually. They also expect to be able **to control the level of social density**. So, unlike the envision of promoters of the metaverse as a space for social relations, where you will discover who will be simultaneously present, and where it's possible to discover and meet other individuals who visit the same virtual places at the same time as you, individuals would like to be able to have a slider limiting the number of avatars who would be present at the same time as them in these environments. In technical terms, this would mean **being able to determine avatar visibility levels, with discrete, private or public modes**.

From the point of view of **managing virtual social relationships**, this means that we could allow individuals present in the virtual environment to be or not to be in co-presence of other avatars by authorizing some social links and by forbidding others. Would this lead to social discrimination based on the dispatching of avatars according to specific and selected criteria ? On the one hand, this would imply that research into the virtual experience of tourism has to **define and specify these criteria for selecting avatars authorized for co-presence**. Which criteria would be used ? Gender, social category, group composition, expression of motivations, interest in the object visited or the place frequented ? **Are they acceptable**? These aspirations to the possibility of choosing between possible simultaneous sociabilities are not without ethical questions. Indeed, being able to make a selection of the types of virtual communities we can rub shoulders with requires us to question the values and beneficial effects underlying usual confrontation with social and cultural diversity during tourism practices. The desire to maintain comfortable relationships during virtual experiences is understandable, but how **can destinations and operators meet these needs without being accused of racism or discrimination**? This is a point to be explored in terms of the humanist values of **sharing the simultaneous sociabilities of tourism experiences, whether virtual or physical.**

5.2. Accompany regular usages: deontological practices to help consumers facing post-experience sadness and addiction risks

Consumers aspire to wander around with all their senses in virtual environments that should be, above all, faithful and realistic reproductions of real and existing environments, so that they are not disappointing simulacra (Baudrillard, 1981). Although the idea of encrypting in programmed software enchantment is counterintuitive with the characteristics of enchantment in tourism experiences (Lovel and Griffin, 2022), consumers consider that MV-SET **should be extraordinary and enchanting** to be worth a try. In their point of view**,** enchanting is synonymous with sublime offers and **unsettling dimensions in view of their personal normal living conditions**.

Because of these expectations of fabulous experiences, people are **afraid of suffering an unpleasant return to reality** after they experience them**.** First, consumers anticipate experiencing the **same negative emotions associated with post-vacation sadness and nostalgia**, those moments when we feel "vacation-blues", "post-trip blues" or "post-holiday blues". Since Immersive tourism experiences are anticipated to mimic real holidays, there is also a quest for happiness and self-accomplishment that might end to temporary sadness at the very moment it finishes. This ambivalence of negative impacts of looking for happiness is conceptualized by psychologists (Gruber et al., 2011). Second, by comparisons with the nostalgia about their "normal" vacation, they tell themselves that leaving these "ideally" incredible environments will be that much harder. They are afraid that the better the immersive experience, the harder the fall. Third and at a more abstract level, there is an **anxiety of becoming disenchanted by one's normal life** in case of regular consumption of such fantastic and ideal experiences.

Taking care of these negative emotional states is important because **even if the experience is virtual, it is real for the user** (Chirico and Gaggioli, 2019; Jordan, 1999). Emotions are not significantly different as they are elicited by virtual or natural conditions (Chirico and Gaggioli, 2019). Therefore, it is important to consider the "during" and "post-virtual" emotional states of the virtual environment users. Marketing should **think about possible deleterious effects of simulated tourism experiences**. By analogy with the doctor who prescribes an anti-inflammatory (the remedy), a gastric protector (the prevention of the remedy's deleterious effects) and give the instruction to take the medicine with meals (the remedy's administration recommendations), marketing the immersive tourism experience must follow the same responsible principles of the general well-being of its user. Consequently, offering metaverse simulated tourism experiences should ideally include the core product: a high-quality immersive experience (the remedy of unrealisable experiences within normal life), as well as support services to make users more **aware of the post-experience blues** in terms of level, duration, frequency and probability (the prevention of the remedy's deleterious effects), and **usages instructions and restrictions of access** to metaverse (the remedy's administration recommendations). Even ideally, some psychologists' support and **caring-centers and hotlines** that might be available to **help vulnerable consumers** (nostalgic profiles) and those experiencing too uncomfortable sadness (curation processes to remedy deleterious effects).

To end, it is important to consider the possibility of addiction to MV-SET. In fact, **the "post-event blues" refers to PAB-type phenomena** (post-adrenaline blues or depression). Having been over-stimulated, the body and mind experience a drop in adrenaline production, which is felt both physically and emotionally. Based on that, parallels can be drawn with the craving phases of a substance addict who experiences physical pain associated with the onset of withdrawal, as well as emotional and psychological difficulties (irritability, feelings of vulnerability, etc.). In the field of fiction and series consumption, this phenomenon has been studied and measured under the terminology of "post-series depression" (PSD) by Kottasz et al. (2019) who **highlighted connections with addictive behavior** from fans of a show. Research on social media and other digital displays and video games regularly pointed out that their systematic usage has negative effects on users' health and wellbeing. In order to **prevent the metaverse post-MV-SET depression and to treat and reduce the painful MV-SET-craving,** marketing responsible are encouraged to engage collaborations with researchers (health, addiction, media, tourism, and consumer behavior specialists) so that they can co-conceive and test universe offers with **the least possible negative impact on the well-being** of their future users.

6. Conclusion

Our research focused on the metaverse offers that will provide simulations of tourism experiences (MV-SET). We discuss questions about the marketing of these experiences, highlighting the need for positioning and ethical guarantees. As we have explained, this ethical scrutiny and the recommendations we make concern, on the one hand, the construction of offers and the behavioral possibilities offered by technological solutions, and, on the other hand, the strategies for accompanying the use of these experiences by considering, as soon as they are proposed on the market, how to manage the addictive effects and post-experience sadness that this type of immersive experience can generate in users.

This research obviously has its limitations, particularly in terms of sample size. It would be desirable to begin by replicating this study in other cultural contexts. Also, it would be interesting to complete the

analysis by taking into account the characteristics of the interviewees, both to push qualitative interpretation further and to carry out quantitative tests. The abundant literature available on the phenomena of addiction to social networks and video games makes it possible to propose variables likely to explain the fear expressed at the idea of becoming addicted to this type of virtual consumption. Complementary sociological analyses would provide a complementary reading of our initial conclusions, and guide the recommendations suggested here in terms of ethical principles and preventive actions to ensure that virtual tourism offers are indeed constructive experiences for the individual, and enhance the value of the tourist destinations and universes thus reproduced and offered for consumption in the metaverse.

CRediT authorship contribution statement

Christine Petr: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Paul Caudan:** Conceptualization, Data curation, Formal analysis, Investigation, Resources, Writing – review & editing.

Declaration of competing interest

We declare having no conflict of interest.

Data availability

Data will be made available on request.

Appendix 1. Characteristics of the interviewees

Interview Reference number	Gender	Age	Level of Digital Use	Video game practice	Tourism Practices	Main MV-SET fears (#)
Interview 01	2	57	b	Never	c	a, c
Interview 02	1	23	b	Regularly	c	a,b,c
Interview 03	1	22	b	Never	c	b
Interview 04	2	50	c	Occasionally	b	a,b,c
Interview 05	2	49	c	Never	b	b
Interview 06	1	23	a	Never	b	b,c
Interview 07	2	26	C	Regularly	c	a
Interview 08	1	22	b	Regularly	0	a
Interview 09	2	21	b	Never	c	a
Interview 10	1	28	b	Occasionally	c	a
Interview 11	1	22	b	Rarely	c	d
Interview 12	2	24	b	Never	c	a
Interview 13	1	59	b	Never	b	a, b
Interview 14	2	53	b	Never	b	a
Interview 15	1	22	b	Regularly	d	b
Interview 16	1	22	b	Rarely	c	c
Interview 17	2	46	c	Never	c	c
Interview 18	1	23	b	Rarely	b	a
Interview 19	1	22	b	Occasionally	c	c
Interview 20	2	22	b	Rarely	c	c
Interview 21	1	22	C	Rarely	c	b
Interview 22	1	22	b	Regularly	c	c
Interview 23	1	17	b	Regularly	c	b
Interview 24	2	16	a	Regularly	b	a

Legend.
* Level of Digital Use for leisure: a = very heavy digital user (+5 h/day of DSM and digital use (excluding TV and movies on the internet but including videogames); b = medium digital user (from 2.01 to 5 h/day); c = low user (from 30mn to 2 h/day); d = very low user (−30mn/day).
* Tourism practices: a = more than 5 vacations/year; b = 3to4 vacations/year; c = 1 to 2 vacations/year; d = doesn't go on vacation away from home (in recent years, study period, etc.).
* Main MV-SET fears: a = physical: addictions, health, etc.; b = social (end of human relationships, harassment deported to the virtual world etc.; c = psychological (loss of bearings, disappointment with "normal" life, etc.).
(#): post-interview codification mad by the analysts.

References

Adachi, R., Cramer, E.M., Song, H., 2020. Using virtual reality for tourism marketing: a mediating role of self-presence. Soc. Sci. J. 59 (4), 657–670. https://doi.org/10.1080/03623319.2020.1727245.

Baek, E., Huang, Z., Lee, S.S., 2023. Visual complexity = hedonic? Effects of visually complex packages on consumer perceptions and evaluations of products. J. Retailing Consum. Serv. 74, 103435 https://doi.org/10.1016/j.jretconser.2023.103435.

Baudrillard, J., 1981. Simulacre et simulation. Galilée, Paris.

Buhalis, D., Leung, D., Lin, M., 2023. Metaverse as a disruptive technology revolutionizing tourism management and marketing. Tourism Manag. 97, 104724 https://doi.org/10.1016/j.tourman.2023.104724.

Chen, S., Chan, I.C.C., Xu, S., Law, R., Zhang, M., 2023. Metaverse in tourism: drivers and hindrances from stakeholders' perspective. J. Trav. Tourism Market. 40, 169–184. https://doi.org/10.1080/10548408.2023.2227872.

Chirico, A., Gaggioli, A., 2019. When virtual feels real: comparing emotional responses and presence in virtual and natural environments. Cyberpsychol., Behav. Soc. Netw. 22 (3), 220–226. https://doi.org/10.1089/cyber.2018.0393.

Chua, B.-L., Kim, S. Sam, Hailu, T.B., Yu, J., Moon, H., Han, H., 2023. Emerging armchair travel: Investigation of authentic armchair travel experiences and their effect on armchair travel stickiness. J. Trav. Tourism Market. 40, 203–220. https://doi.org/10.1080/10548408.2023.2236652.

Lawrence A. Beck (1992) Csikszentmihalyi, Mihaly, 1990. Flow: the psychology of optimal experience. J. Leisure Res. 24 (1), 93–94. https://doi.org/10.1080/00222216.1992.11969876.

de Lurdes Calisto, M., Sarkar, S., 2024. A systematic review of virtual reality in tourism and hospitality: the known and the paths to follow, 2024 Int. J. Hospit. Manag. 116, 103623. https://doi.org/10.1016/j.ijhm.2023.103623. ISSN 0278-4319.

Giang Barrera, K., Shah, D., 2023. Marketing in the Metaverse: conceptual understanding, framework, and research agenda. J. Bus. Res. 155, 113420 https://doi.org/10.1016/j.jbusres.2022.113420.

Go, H., Kang, M., 2023. Metaverse tourism for sustainable tourism development: tourism agenda 2030. Tourism Rev. 78 (2), 381–394. https://doi.org/10.1108/TR-02-2022-0102.

Gong, Y., Schroeder, A., Plaisance, P.L., 2023. Digital detox tourism: an Ellulian critique. Ann. Tourism Res. 103, 103646 https://doi.org/10.1016/j.annals.2023.103646.

Gössling, S., Schweiggart, N., 2022. Two years of COVID-19 and tourism: what we learned, and what we should have learned. J. Sustain. Tourism 30 (4), 915–931.
Goulding, C., 2023. Atmosphere" - the what? The where? And the how?: Launching the annals of tourism research curated collection on atmosphere 2023. Ann. Tourism Res. 101, 103591. https://doi.org/10.1016/j.annals.2023.103591.
Gruber, J., Mauss, I.B., Tamir, M., 2011. A dark side of happiness? How, when, and why happiness is not always good. Perspect. Psychol. Sci. 6 (3), 222–233. https://doi.org/10.1177/1745691611406927.
Guttentag, D.A., 2010. Virtual reality: applications and implications for tourism. Tourism Manag. 31 (5), 637–651. https://doi.org/10.1016/j.tourman.2009.07.003. ISSN 0261-5177.
Hosany, S., Sthapit, E., Björk, P., 2022. Memorable tourism experience: a review and research agenda. Psychol. Market. 39 (8), 1467–1486.
Hudson, S., Matson-Barkat, S., Pallamin, N., Jegou, G., 2019. With or without you? Interaction and immersion in a virtual reality experience. Journal of Business Research 100 (C), 459–468.
Ioannidis, S., Kontis, A.P., 2023a. Metaverse for tourists and tourism destinations. Inf. Technol. Tourism 25, 483–506. https://doi.org/10.1007/s40558-023-00271-y.
Ioannidis, S., Kontis, A., 2023b. The 4 epochs of the metaverse. J. Metaverse 3, 152–165. https://doi.org/10.57019/jmv.1294970.
Jordan, T., 1999. (pbk. Convergence: the international journal of research into new media technologies. Cyberpower: The Culture and Politics of Cyberspace and the Internet 6, 123–125. https://doi.org/10.1177/135485650000600210. London: Routledge, 248pp. ISBN 0 415 17077 X (hbk), 0 415 17078 8.
Kim, O., Pang, Y., Kim, J.H., 2019. The effectiveness of virtual reality for people with mild cognitive impairment or dementia: a meta-analysis. BMC Psychiatr. 19 (8), 219. https://doi.org/10.1186/s12888-019-2180-x.
Kim, D.Y., Lee, H.K., Chung, K., 2023. Avatar-mediated experience in the metaverse: the impact of avatar realism on user-avatar relationship. J. Retailing Consum. Serv. 73, 103382 https://doi.org/10.1016/j.jretconser.2023.103382.
Kim, H. (Lina, Kim, S.-E., Park, K., Tennessee, S., 2023. Exploring the role of flow experience and telepresence in virtual reality (VR) concerts. J. Trav. Tourism Market. 40, 568–582. https://doi.org/10.1080/10548408.2023.2276437.
Kim, M.J., Hall, C.M., Kwon, O., Sohn, K., 2024. Space tourism: value-attitude-behavior theory, artificial intelligence, and sustainability. J. Retailing Consum. Serv. 77, 103654 https://doi.org/10.1016/j.jretconser.2023.103654.
Koo, C., Kwon, J., Chung, N., Kim, J., 2022. Metaverse tourism: conceptual framework and research propositions. Curr. Issues Tourism 26, 1–7. https://doi.org/10.1080/13683500.2022.2122781.
Kottasz, R., Bennett, R., Randell, T., 2019. Post-series depression: scale development and validation. Arts Market 9 (2), 132–151. https://doi.org/10.1108/AAM-02-2019-0009.
Kouroupi, N., Metaxas, T., 2023. Can the metaverse and its associated digital tools and technologies provide an opportunity for destinations to address the vulnerability of overtourism? Tourism and Hospitality 4 (2), 355–373.
Le, H.T.P.M., Park, J., Lee, S., 2023. Emotion and trust in virtual service assistant design for effective service recovery. J. Retailing Consum. Serv. 74, 103368 https://doi.org/10.1016/j.jretconser.2023.103368.
Lin, L., Huang, S., Ho, Y., 2020. Could virtual reality effectively market slow travel in a heritage destination? Tourism Manag. 78 https://doi.org/10.1016/j.tourman.2019.104027.
Lovell, J., Griffin, H., 2022. Unfamiliar light: the production of enchantment. Ann. Tourism Res. 92, 103328 https://doi.org/10.1016/j.annals.2021.103328.
Lyu, C., Jiang, Y., Balaji, M.S., 2023. Travelers' psychological ownership: a systematic review and future research agenda. J. Trav. Res., 00472875231151395
Moliner, M., Monferrer Tirado, D., Guillén, M., Vidal-Meliá, L., 2023. Memorable customer experiences and autobiographical memories: from service experience to word of mouth. J. Retailing Consum. Serv. 72, 103290 https://doi.org/10.1016/j.jretconser.2023.103290.
Monaco, S., Sacchi, G., 2023. Traveling the metaverse: potential benefits and main challenges for tourism sectors and research applications. Sustainability 15 (4), 3348.
Özdemir Uçgun, G., Şahin, S.Z., 2023. How does Metaverse affect the tourism industry? Current practices and future forecasts. Curr. Issues Tourism 1–15.
O'Regan, M., Salazar, N.B., Choe, J., Buhalis, D., 2022. Unpacking overtourism as a discursive formation through interdiscursivity. Tourism Rev. 77 (1), 54–71.
Pang, H., Ruan, Y., 2023. Determining influences of information irrelevance, information overload and communication overload on WeChat discontinuance intention: the moderating role of exhaustion. J. Retailing Consum. Serv. 72, 103289 https://doi.org/10.1016/j.jretconser.2023.103289.
Petr, C., 2021. Facing sanitary limitations, the new recreation values of "home, sweet home". In: Tourism Post-Covid 19: Coping, Negotiating, Leading Change. Tourism Research Center, Edition, pp. 43–59.
Prentice, C., Dominique-Ferreira, S., Ferreira, A., Wang, X.A., 2022. The role of memorable experience and emotional intelligence in senior customer loyalty to geriatric hotels. J. Retailing Consum. Serv. 64, 102788.
Radanliev, P., De Roure, D., Novitzky, P., Sluganovic, I., 2023. Accessibility and inclusiveness of new information and communication technologies for disabled users and content creators in the Metaverse. Disabil. Rehabil. Assist. Technol. 1–15.
Rahmanov, F., Mursalov, M., Rosokhata, A., 2021. Consumer behavior in digital era: impact of COVID 19. Marketing and Manag. Innov. 5, 243–251.
Roggeveen, A.L., Rosengren, S., 2022. From customer experience to human experience: uses of systematized and non-systematized knowledge. J. Retailing Consum. Serv. 67, 102967.
Rubio-Escuderos, L., García-Andreu, H., Michopoulou, E., Buhalis, D., 2021. Perspectives on experiences of tourists with disabilities: implications for their daily lives and for the tourist industry. Tour. Recreat. Res. 1–15.
Sambhanthan, A., Good, A., 2013. Enhancing Tourism Destination Accessibility in Developing Countries through Virtual Worlds arXiv preprint arXiv:1306.1630.
Schiopu, A.F., Hornoiu, R.I., Padurean, A.M., Nica, A.M., 2022. Constrained and virtually traveling? Exploring the effect of travel constraints on intention to use virtual reality in tourism. Technol. Soc. 71, 102091.
Serravalle, F., Vanheems, R., Viassone, M., 2023. Does product involvement drive consumer flow state in the AR environment? A study on behavioural responses. J. Retailing Consum. Serv. 72, 103279 https://doi.org/10.1016/j.jretconser.2023.103279.
Sharma, M., Kaushal, D., Joshi, S., 2023. Adverse effect of social media on generation Z user's behavior: government information support as a moderating variable. J. Retailing Consum. Serv. 72, 103256 https://doi.org/10.1016/j.jretconser.2023.103256.
Tussyadiah, I., Dan, W., Jung, T., Tom Dieck Claudia, M., 2018. Virtual reality, presence, and attitude change: empirical evidence from tourism. Tourism Manag. 66, 140–154. https://doi.org/10.1016/j.tourman.2017.12.003.
Vespestad, M.K., Clancy, A., 2021. Exploring the use of content analysis methodology in consumer research. J. Retailing Consum. Serv. 59, 102427 https://doi.org/10.1016/j.jretconser.2020.102427.
Wang, P., Wang, R., Tian, M., Sun, Y., Ma, J., Tu, Y., Yan, Y., 2021. The pathways from type A personality to physical and mental health amid COVID-19: a multiple-group path model of frontline anti-epidemic medical staff and ordinary people. Int. J. Environ. Res. Publ. Health 18 (4). https://doi.org/10.3390/2Fijerph18041874.
Wang, C., Li, Y., Fu, W., Jin, J., 2023. Whether to trust chatbots: applying the event-related approach to understand consumers' emotional experiences in interactions with chatbots in e-commerce. J. Retailing Consum. Serv. 73, 103325 https://doi.org/10.1016/j.jretconser.2023.103325.
Wassler, P., Fan, X.F.D., 2021. A tale of four futures: tourism academia and COVID-19. Tourism Manag. Perspect. 38, 100818 https://doi.org/10.1016/j.tmp.2021.100818. ISSN 2211-9736.
Zheng, J.M., Chan, K.W., Gibson, I., 1998. Virtual reality. Ieee Potentials 17 (2), 20–23.
Zhou, Mengyuan, Yan, Yixuan, 2023. The research on the application of metaverse in the cultural and tourism industry. Adv. Econ., Manag. Political Sci. 47, 109–113. https://doi.org/10.54254/2754-1169/47/20230379.