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Virtual reality and mental imagery towards travel inspiration and visit intention

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Abstract

The study examines the relationship between virtual reality (VR)-facilitated mental imagery and travellers' intention to visit a destination. A serial mediation process through travel inspiration (inspired-by and inspired-to) is proposed as a psychological mechanism able to explain the positive relationship of elaboration and quality of mental imagery with visit intentions. VR users were recruited through Prolific Academic. The findings demonstrate that VR-facilitated elaboration of mental imagery increases travel inspiration and consequently visit intention. However, the importance of mental imagery quality is much lower. The paper contributes to the literature of pre-travel VR experience by exploring the role of travel inspiration.

KEYWORDS

destination marketing, elaboration of mental imagery, quality of mental imagery, travel inspiration, virtual reality, visit intention

1 | INTRODUCTION

Virtual reality (VR) is one of the most important aspects of the technological momentum influencing the tourism sector (Cham et al., 2024); especially during the pre-purchase phase of the traveller's journey (Alyahya & McLean, 2022; McLean & Barhorst, 2022). The importance of VR has been increasing due to metaverse and its potential impacts on tourism strategy and the transformation of human behaviour (Buhalis, Leung, & Lin, 2023; Zhong et al., 2024; Zhu et al., 2023). According to Constantin et al. (2023) metaverse presents a \$20 billion opportunity and VR is an important technology in this context. Similarly, the COVID-19 pandemic put more emphasis on the prospective phase of the travel journey, leading tourists to extensively daydream and mentally visualise tourism destinations (Bae & Chang, 2021; Loureiro et al., 2022). In the context of social distancing, the use of VR and VR tours has been extensively increased to achieve a triple-digit growth (Talwar et al., 2023; Yung et al., 2021). Although VR and metaverse cannot substitute in-person travel, they can enhance some

of the marketing activities, especially in the pre-purchase phase (Choi & Kim, 2017).

Tourism-related VR experiences stimulate tourists' interest, create a positive attitude towards a destination and overall influence travel decision-making and visit intention (Alyahya & McLean, 2022). The role of mental imagery has been explored in the VR literature as a potential mediator (see Table 1) between VR experiences and positive travel intentions (e.g., McLean & Barhorst, 2022). Various studies on mental imagery and its dimensions (i.e., elaboration and quality/vividness) have found that mental imagery increases the sense of presence and immersion, emotional reactions and behavioural intentions towards destinations (Alyahya & McLean, 2022; Bogicevic et al., 2019; Cheng & Huang, 2022; Flavián et al., 2021; Kim et al., 2020; Lee et al., 2020; McLean & Barhorst, 2022; Skard et al., 2021; Zhu et al., 2022). Overall, VR practice in the pre-purchase phase, increases travellers' urge to experience the destination and relevant activities in person (Kang, 2020; Morrison et al., 2024).

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TABLE 1 Previous research on the linkages between virtual reality and variables used in the proposed model (mental imagery, emotions and travel inspiration).

Authors	Method	Main findings	Comparison against the proposed model (contribution)
Alyahya & McLean, 2022	Experiments	Different levels of sensory information in VR experiences result in significant differences with regard to the developed mental imagery, sense of presence, attitudes towards the destination and visit intentions.	The proposed model examines travel inspiration that is not investigated in the research of Alyahya and McLean (2022).
Bogicevic et al., 2019	Experiment	VR preview induces higher elaboration of mental imagery about the experience and a stronger sense of presence compared to both the 360° preview and images preview, thereby translating into enhanced brand experience. The quality of mental imagery does not increase the sense of presence.	The proposed model examines travel inspiration that is not investigated in the research of Bogicevic et al. (2019).
Cheng & Huang, 2022	Survey	Ubiquity, telepresence, vividness, interactivity and background music–environment congruency of virtual tourism atmospheres influence pleasure, arousal and dominance. These emotions influence WOM and continuous usage intention.	The proposed model encompasses both aspects of mental imagery (elaboration and vividness) and investigates the critical role of travel inspiration that is not examined in the research of Cheng and Huang (2022).
Lee et al., 2020	Survey	Content quality, system quality and vividness positively influence customers' attitudes and telepresence, leading to their positive behavioural intention to visit the destination.	The proposed model encompasses both aspects of mental imagery (elaboration and vividness) and investigates the critical role of travel inspiration that is not examined in the research of Lee et al. (2020).
McLean & Barhorst, 2022	Experiment and Survey	In the pre-purchase phase, the mental imagery influences immersion in an experience, with the last leading to learning and visiting intention. In the post-purchase phase, mental imagery leads to higher satisfaction with actual experience and revisit intention.	The proposed model examines travel inspiration that is not investigated in the research of McLean and Barhorst (2022).
Skard et al., 2021	Experiment	VR exposure increases mental imagery and happiness, which in turn increases travel intention and purchasing decisions. VR effects on consumer choice are moderated by previous experience with the destination.	The proposed model examines travel inspiration that is not investigated in the research of Skard et al. (2021).
Zhu et al., 2023	Survey	Mental imagery and vividness positively predict tourist telepresence and satisfaction; telepresence positively predicts satisfaction and intention during non-immersive VR experiences.	The proposed model examines travel inspiration that is not investigated in the research of Zhu et al. (2023).

Although the importance of mental imagery is well demonstrated in the literature, there is a lack of research on the role of travel inspiration in this context. In the pre-purchase stage, travel inspiration is an important part in the prospective dreaming phase, when tourists are digging into travel ideas (Beck et al., 2019). Inspiration is the temporal motivational stage that facilitates the transition from the reception of new ideas to personally pursuing a consumption objective (Böttger et al., 2017). It acts as a shortcut in the process of decision making by stimulating motivation to share with others and realise these travel ideas (Cheng et al., 2020; Dai et al., 2022; Xie et al., 2022). However, only anecdotal arguments exist in the literature that VR-facilitated inspiration is critical during the pre-purchase day-dreaming travel stage (Beck et al., 2019; Dai et al., 2022).

The role of VR has been underestimated in the literature (Yang et al., 2023). To fill this gap, the study empirically investigates whether and how VR-facilitated mental imagery leads to travel inspiration and visit intention to a destination. The conceptual model reflects the rich body of mental imagery literature (Lee & Gretzel, 2012; Loureiro et al., 2022) and the transmission model of inspiration (Thrash et al., 2014; Thrash & Elliot, 2003). The unexpected discovery of new ideas (inspired by) about travelling to a destination while using VR, urges users to pursue new travel goals (inspired-to) (Dai et al., 2022; Khoi et al., 2020; Yang et al., 2023).

The present research examines whether the number and the quality of mental images created in prospective travellers' minds—while they experience a VR activity of a destination leads to increased

intentions to visit it. The study questions whether the VR-facilitated mental imagery and visit intention relationship, is affected by travel inspiration (considering its integrative components, inspired-by and inspire-to). The paper investigates further the inspiration concept (Böttger et al., 2017), in the tourism context. It highlights the notion of travel inspiration by shedding light on the role of mental imagery as a processing mechanism, explaining VR-related outcomes (Beck et al., 2019; Skard et al., 2021).

2 | THEORETICAL BACKGROUND

2.1 | The role of mental imagery and virtual reality in travel decision making

Mental imagery has been defined as a mode of information processing by which non-verbal and sensory information is represented in working memory, in the form of mental images (MacInnis & Price, 1987). It is a 'mental activity that visualises a concept or relationship' (Lutz & Lutz, 1978, p. 611). Mental imagery comprises different attributes such as elaboration and quality (Walters et al., 2007). Elaboration is the quantity of mental images an individual creates while processing information and the extent of an individual's involvement in the fantasy imagery (Bogicevic et al., 2019). The quality of imagery is similar to the concept of 'vividness' and represents how vibrant, intense, clear and sharp mental images are (Walters et al., 2007). Mental imagery could be considered as a quasi-perceptual experience and is critical in the pre-purchase stage (Rodríguez-Ardura & Martínez-López, 2014). Previous studies demonstrated that mental imagery positively affects individual feelings, attitudes and behavioural intentions (Lee et al., 2020; Skard et al., 2021; Yoo & Kim, 2014).

Fan et al. (2022) argued that VR creates more immersive experiences leading to a greater sense of presence, thereby generating a strong mental imagery of the destination. Similarly, Skard et al. (2021) posited that telepresence increases mental imagery. Other studies have found that VR-facilitated mental imagery—or vividness in particular—increases immersion and presence (Alyahya & McLean, 2022; Bogicevic et al., 2019; Lee et al., 2020; McLean & Barhorst, 2022; Zhu et al., 2023). VR is significantly more effective than traditional media in evoking positive emotional responses (Cheng & Huang, 2022; Flavián et al., 2021; Kim et al., 2020; Yung et al., 2021). Overall, immersion, presence, VR-facilitated mental imagery and positive emotions lead to psychological and behavioural engagement towards the destination (Alyahya & McLean, 2022; Bogicevic et al., 2019; Cheng & Huang, 2022; Flavián et al., 2021; Lee et al., 2020; McLean & Barhorst, 2022; Skard et al., 2021; Tussiyadiah et al., 2018; Yung et al., 2021). Although, there is a proliferation of studies related to VR in the tourism context (Beck et al., 2019; Cham et al., 2024; Loureiro et al., 2020; Morrison et al., 2024; Yung et al., 2021; Yung & Khoo-Lattimore, 2019), there is a paucity of research regarding the mediating role of travel inspiration in the inter-relationships between VR-facilitated mental imagery and its effects (see Table 1).

2.2 | Customer inspiration

Literature on customer inspiration has largely contributed to the comprehension of travel inspiration. Accordingly, Böttger et al. (2017, p. 117) defined customer inspiration as 'a customer's temporary motivational state that facilitates the transition from the reception of a marketing-induced idea to the intrinsic pursuit of a consumption-related goal'. To dispel theoretical misconceptions and provide valuable insight into the field of inspiration, Thrash et al. (2014) postulated that inspiration involves emotion (i.e., it is not an emotion per se), unveils the transition from the mundane towards the extraordinary or transcendent and can be approached as a state (i.e., evoked by external stimuli) or as a trait (related to the frequency and power of inspiration). This study adopts the view of inspiration as a state.

To achieve the research aim, the paper embodies the transmission model of inspiration positing that when individuals gain awareness of new or better possibilities, they feel compelled to bring these new ideas or visions into fruition (Thrash & Elliot, 2003). According to Thrash and Elliot (2004), there are two main states of inspiration: the activation/psychological and the intention/behavioural state. They argued that the activation state of inspiration (inspiration-by) is characterised by epistemic transcendence and evocation, two complementary notions (Thrash & Elliot, 2003). Transcendence occurs when individuals become aware of new or better possibilities and evocation signifies that individuals do not attribute to themselves responsibility for becoming inspired—at least not full or direct responsibility (Thrash et al., 2014). In line with Böttger et al. (2017), the activation state pertains to the inspiration-by component (psychological), whereas the second one refers to the inspiration-to component (behavioural), a terminology adopted hereafter.

Following the latest stream of tourism research, place attachment and openness to experience have been found to exert positive influence on tourist inspiration (Khoi et al., 2020). Destination characteristics such as attractiveness, uniqueness and creative atmosphere also increase tourists' inspiration (He et al., 2023; Tsaur et al., 2022; Wei et al., 2023; Xue et al., 2022). In the hospitality context, Kwon and Boger (2021) showed that customer inspiration may act as a mediator between brand experience and pro-environmental intention. Additionally, tourist inspiration is affected by goal congruence (Liu et al., 2022) and has a positive relationship with delight and transcendence (Khoi et al., 2021), engagement (He et al., 2023), WOM and travel intention (Cheng et al., 2020). However, there is little research investigating the role of VR as a way to stimulate travel inspiration when one is at home, that is, pre-purchase daydreaming or in case of restrictions to travel, any travel constraints and so on (Morrison et al., 2024).

3 | CONCEPTUAL MODEL AND RESEARCH HYPOTHESES

3.1 | Overview of the conceptual model

The 'pre-purchase daydreaming' takes place when consumers transfer themselves to an imaginary scenario with stories and mental images

of using a product or a service (Bogicevic et al., 2019). Mental imagery processing can be the main source of information in travel and tourism, and a way to enhance anticipation and pre-experience of what might happen in the future (Skard et al., 2021). Tourism destinations encourage tourists to vividly imagine destinations and formulate solid expectations by offering quasi-trial experiences (brochures, videos, VR) to support travel decision-making processes (Lee & Gretzel, 2012). VR is an interactive 3D digital-generated medium that facilitates decision-making by providing a 'try-before-you-buy' experience (Bogicevic et al., 2019; Fan et al., 2022; Flavián et al., 2021; Morrison et al., 2024).

This study empirically investigates a conceptual model framing how VR-facilitated mental imagery affects the intention to visit a destination. A serial mediation process through 'travel inspired-by' and 'travel inspired-to' is proposed as a psychological mechanism that can explain the positive effect of mental imagery on visit intentions. Although inspiration inherently plays the mediator role (Arghashi, 2022; Thrash et al., 2010; Xie et al., 2022), no similar studies are looking into the way mental imagery engenders visit intention through tourist inspiration. The proposed model is based on the rich media theory (Daft & Lengel, 1986) and the transmission model of inspiration (Thrash et al., 2014; Thrash & Elliot, 2003). Thus, it is argued that inspiration motivates the transmission of destination qualities, as experienced and transformed into mental images while using the destinations' VR. The proposed conceptual model is depicted in Figure 1.

Inspiration facilitates the transcendence of constraints, leading individuals closer to the actualisation of new inspiring ideas (Thrash & Elliot, 2003). According to Thrash and Elliot (2004), inspiration is linked to better or new possibilities revealed by the intrinsic value of an evocative object (e.g., a tourism destination). A new possibility to experience a tourism destination may be offered with the use of VR technology. VR increases the perception of presence, absorption and immersion enabling not only the generation but also the transformation of visual experiences (Cham et al., 2024; Heller et al., 2019). Compared to static images, VR offers rich media features and several communication cues (Kandaurova & Lee, 2019; Yang et al., 2023). According to media richness theory, richer mediums of communication lead to a better understanding of the message and lower ambiguity (Daft & Lengel, 1986).

In a similar vein, VR has rich media features, which facilitate the development of high elaboration and quality of mental imagery. VR-facilitated mental imagery increases the user's imagination of a consumption situation, enabling the reception of new ideas (Böttger et al., 2017; Heller et al., 2019). This is critical because it offloads a substantial part of cognitive tasks, involved in decision-making (Petrova & Cialdini, 2008), although some 'perspiration' (effort) is important especially in the creative process (Oleynick et al., 2014). Mental imagery processing involves more active product evaluation, increasing an individual's ability to perceive more differences regarding this destination (Lee & Gretzel, 2012). Overall, someone who visually simulates the use of an offering is more confident about the higher value of this offer. This leads to self-generated persuasion and a greater belief that the formed attitude is correct (Lee & Gretzel, 2012). Receptive engagement with the stimuli is an important antecedent of inspiration, since an individual's inspiration is possible when someone has been absorbed by, fascinated by, and focused on one thing (Thrash & Elliot, 2004).

Following this line of reasoning, the elaboration and the quality of mental imagery stemming from the destination's VR experience may trigger travel inspiration. Hence, the first hypothesis is articulated as follows:

H1. Mental imagery—(a) elaboration and (b) quality—has a positive relationship with inspired-by.

Although previous research reveals some negative consequences of VR on visiting intentions (Deng et al., 2019; Jia et al., 2021), most of the studies unveil causal effects between VR stimuli and intention to visit a destination (e.g., Ying et al., 2022), where the positive role of mental imagery has been highlighted. These findings go in tandem with various studies in travel and tourism that demonstrate the potential of mental imagery to increase the immersion in experience as well as the sense of presence, which both positively influence visit intentions (Alyahya & McLean, 2022; McLean & Barhorst, 2022). A close-up view and review of the literature highlights the significance of mediating factors in the investigation of these relationships. Vividness of VR imagery leads to visit intention, considering the mediating effect of telepresence and attitude towards the VR (Lee et al., 2020). Skard et al. (2021) suggested that VR-facilitated mental imagery should

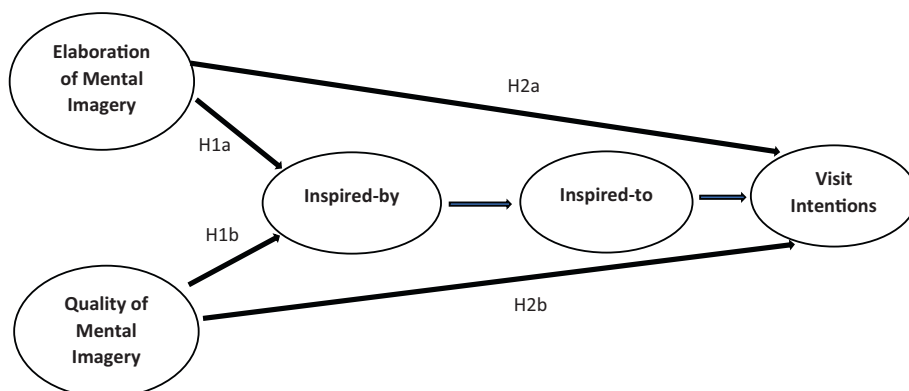


FIGURE 1 Conceptual model.

influence purchase and behavioural intentions, through the mediation of predicted happiness. Beyond the importance of the mediating factors already discussed, the mediation role of inspiration has been neglected in the tourism research field.

Travellers exposed to VR create numerous and vivid mental images of lower ambiguity, something that can be explained by the richness of that medium (Daft & Lengel, 1986), increasing their inspiration. Following the transmission model of inspiration, individuals gain awareness of new or better possibilities, they feel compelled to bring these new ideas or visions to fruition (Thrash & Elliot, 2003). Because the inspiration-by and the inspiration-to components are causally linked (Böttger et al., 2017), the authors seriously consider the serial process of inspired-by and inspired-to. To validate this line of thought, the current research effort scrutinised the positive relationship between the two stages of inspiration, as presented in other studies as well (Liu et al., 2022; Wei et al., 2023; Xue et al., 2022). Thus, prospective travellers feel higher behavioural inspiration (inspired-to) and consequently, one way to experience more the destination is by visiting it. Based on the above, the second hypothesis is stated as shown below:

H2. Mental imagery—(a) elaboration and (b) quality—has a positive effect on visit intentions, through the serial process of inspired-by and inspired-to.

4 | METHODOLOGY

To empirically test the conceptual model, the study has been based on a quantitative research design adopting positivism research philosophy (Ryan, 2000). The research team employed an online survey, using a structured questionnaire and a non-probabilistic convenience sample, similar to other studies investigating VR and tourist reactions (Atzeni et al., 2022). The selection of a cross-sectional survey can be justified in light of the primary research objective to test the veracity of the proposed theoretical effects. Thus, the use of a convenience sample and cross-sectional surveys may suffice (Hulland et al., 2018). According to Thrash et al. (2014, p. 505) 'it is impossible to manipulate inspiration experimentally, because inspiration is a response and not a stimulus'.

4.1 | Data collection

A two-stage survey was designed to recruit participants through Prolific Academic (www.prolific.ac). Prolific offers several strengths for research, namely: it explicitly informs participants that they are recruited for participation in academic research, it has good recruitment standards and is reasonably priced (Peer et al., 2017). Several studies in tourism used Prolific to recruit participants (e.g., Assiouras et al., 2023; Kim et al., 2023; Talwar et al., 2023). A purposive sampling method was utilised to select owners of a VR Head-Mounted Display (HDM) device and they should have already used it within the

last 3 months to experience a VR activity of a destination. The first stage was the qualifying stage. Prolific Academic panel members, who were UK citizens over 18 years old and employed, were invited to participate in a short survey answering questions about the ownership and the use of technology devices. Sampling in Prolific was ceased when data collection reached 350 completed surveys with HDM-owners qualifying our criterion. The participants were invited to the follow-up second-stage by completing the main questionnaire of the study. After data screening following relevant guidelines (Arndt et al., 2022), 23 participants were rejected because; they filled the survey too rapidly or too slow; or they failed the two attention check questions already included (e.g., please answer five for this item); or because of the straight-lining problem. The data included no outliers or missing responses. The final sample consisted of 327 questionnaires used for data analysis. The sample was deemed adequate taking the necessary conditions for structural equation modelling into consideration, that is, samples higher than 200 and a ratio of 5–10 respondents per item as well as G*Power (Hair et al., 2017). The results through a parameter effect size of 0.15, 5% significance level, and power of 0.95 show that the minimum sample size for this study would be 129.

4.2 | Measures

All measures were adapted from existing scales in the relevant literature. The measurements of elaboration of mental imagery and quality of mental imagery are similar to the studies of Walters et al. (2007) and Bogicevic et al. (2019), the latter being already in the context VR context. Additionally, customer inspiration scales were borrowed from Böttger et al. (2017), given that it is already developed in the marketing context and successfully applied in existing studies of tourism (Liu et al., 2022; Wei et al., 2023). The construct of visit intention was also operationalised using the scale from previous studies (Rasoolimanesh et al., 2021; Zenker et al., 2019).

4.3 | Study sample characteristics

The sample was almost evenly distributed by gender (55.7% male, 43.1% female and the rest non-binary or prefer to self-describe). In terms of age, the respondents' profile can be described as follows: 16.8% between 18 and 24 years old, 37.9% between 25 and 34 years old, 25.1% between 35 and 44 years old, 15% between 45 and 54 years old, 4.3% between 55 and 64 years old and the rest was 65 years old or above. The majority of the respondents (71.3%) work full-time, whilst 12.4% were part-timers and 7.6% were students.

4.4 | Analysis plan

The estimation of measurement as well as the structural parameters in the empirical model was done by using partial least squares (PLS),

specifically Smart PLS version 4 PLS-SEM. PLS is most appropriate when the focus is on prediction and theory development, assumptions of multivariate normality cannot be made and the sample is small (Hair et al., 2017).

5 | RESULTS

5.1 | Measurement model

To detect common method bias, Harman's single-factor test was performed (Podsakoff et al., 2003). In the exploratory factor analysis, all the items loaded onto one factor; the unique unrotated factor explained 41.05% of the data variance, which is lower than the threshold of 50%. Moreover, all inner model's VIF values were below 3.3, which is an indication that the model is not influenced by common method bias (Kock, 2015).

According to Hair et al. (2017), the assessment of reflective measurement models includes composite reliability, to estimate internal consistency and average variance extracted (AVE) to evaluate convergent validity. The assessment of reflective measurement models also considered discriminant validity using the Fornell-Larcker criterion, cross-loadings and especially the heterotrait-monotrait (HTMT) ratio of correlations. Internal consistency was established given that the composite scale reliability of the constructs exceeded the recommended cut-off value of 0.70 (Hair et al., 2017). All measures had loadings very close and higher than 0.70, which suggests sufficient levels of indicator reliability (see Table 2). The AVE ranged from 0.518 to 0.847, exceeding the cut-off value of 0.50. Therefore, the measurement model has adequate convergent validity.

The analysis of the cross-loadings confirmed that none exceeded the indicators' outer loadings. Overall, the square roots of the AVEs for the reflective constructs were all higher than the correlations of these constructs with other latent variables in the path model, thus indicating all constructs are valid measures of unique concepts (see Table 3). The HTMT of the correlations was assessed. All HTMT values were well below the threshold of 0.90 as prescribed by Henseler et al. (2015). Moreover, the bootstrap confidence interval results of the HTMT interference (see Table 4) did not include the value of 1 (Hair et al., 2017). Thus, discriminant validity has also been established.

The measurement model assessment substantiates that all the construct measures are reliable and valid. Based on these findings, the results of the structural model were assessed next, focusing on the hypothesised relationships between the constructs.

5.2 | Structural model

All VIF values were clearly below the threshold of 5 (Hair et al., 2017), therefore, collinearity among the predictor constructs was not a critical issue in the structural model. Moreover, the R^2 values of the endogenous latent variables were examined, following the suggested

rules of thumb (Hair et al., 2017)—the R^2 values of visit intention (0.218), inspired-by (0.606) and inspired-to (0.418).

In accordance with Hair et al. (2017), the bootstrap procedure (10,000 resamples) was used to generate standard errors and t-statistics to evaluate the significance of the parameters (see Table 5). Elaboration of mental imagery has a significant relationship with inspire-by ($\beta = 0.675$). Similarly, the quality of mental imagery indicates a significant relationship with inspire-by ($\beta = 0.156$). Thus, H1a and H1b are confirmed. Moreover, inspire-by shows a clear positive relationship with inspire-to ($\beta = 0.646$), likewise, inspire-to has a statistically significant and positive relationship with visit intention ($\beta = 0.380$).

To test the hypotheses, the researchers followed the procedure described in the literature related to PLS-SEM (Hair et al., 2017), investigating firstly the specific indirect effects in the model and then the direct effects (see Table 7). Regarding H2a, it was found that the specific indirect effect of elaboration of mental imagery on visit intention is significant ($\beta = 0.166$), since the 95% confidence intervals did not include zero. The direct effect is not significant (see Table 7). Thus, H2a is confirmed given that inspire-by and inspired-to fully mediate the relationships between mental imagery and visit intention. Regarding H2b, the specific indirect effect of quality of mental imagery on visit intention is significant ($\beta = 0.038$), since the 95% confidence intervals did not include zero. The direct effect is not significant (see Table 7) and the total effects were also investigated (see Table 6). The total effect of elaboration of mental imagery on visit intention is significant ($\beta = 0.248$). However, the effect of quality of mental imagery on visit intention is not significant (see Table 6). Thus, there is not enough evidence to confirm H2b, but if this effect is real, it is probably due to the intervening effect of inspired-by and inspired-to.

The Q^2 values for all six endogenous constructs were considerably above zero. More precisely, the Q^2 values were; visit intention (0.117), inspired-by (0.594) and inspired-to (0.403). These results provide clear support for the model's predictive relevance regarding the endogenous latent variables.

6 | DISCUSSION

The investigation of the underlying mechanisms that explain how VR influences the pre-purchase stage of the consumer decision-making process is still in its infancy (McLean & Barhorst, 2022). This research explores how VR-facilitated mental imagery transforms travel consumer decision making by facilitating travel inspiration of prospective tourists. The motivational concept of travel inspiration is used to explain how the VR-facilitated mental imagery leads to visit intentions. The research findings denote that, amid the dimensions of mental imagery, the role of elaboration (e.g., number of images, involvement) is more important than the quality (e.g., vividness). In other words, during the pre-purchase phase tourists look for highly engaged, novel experiences and ideas related to travelling to get inspired, and consequently start building their motivation and intention to visit a destination.

TABLE 2 Measurement model evaluation.

Variables	Items	Loadings	Cronbach's alpha	Composite reliability	AVE
Elaboration mental imagery	The mental images that came to my mind formed a series of events in which I was a part of.	0.722	0.883	0.906	0.518
	The mental images that came to mind made me feel as though I was actually experiencing the destination featured in this virtual reality activity.	0.681			
	This virtual reality activity made me fantasize about having the opportunity to experience the featured tourism destination.	0.652			
	I could easily construct a story about myself and the featured tourism destination based on the mental images that came to mind.	0.753			
	It was easy for me to imagine being at this tourism destination.	0.714			
	Whilst visiting that virtual reality activity I found myself daydreaming about the featured tourism destination.	0.646			
	Whilst reviewing this tourism destination through this virtual reality activity many images came to mind.	0.781			
	The images that came to mind acted as a source of information about the featured tourism destination.	0.742			
Quality mental imagery	I could actually see myself in the scenario presented in the virtual reality activity.	0.770	0.861	0.905	0.705
	Overall the images that came to mind while I examined the virtual tour were				
	1 = Dull, 7 = Sharp	0.871			
	1 = Weak, 7 = Intense	0.846			
	1 = Unclear, 7 = Clear	0.838			
Inspired-by	1 = Vague, 7 = Vivid	0.804	0.870	0.906	0.658
	My imagination was stimulated.	0.784			
	I was intrigued by a new idea.	0.812			
	I unexpectedly and spontaneously got new ideas.	0.784			
	My horizon was broadened.	0.848			
Inspired-to	I discovered something new.	0.826	0.955	0.965	0.847
	I was inspired to experience this destination more.	0.916			
	I felt a desire to experience this destination more.	0.923			
	My interest in experiencing this destination was increased.	0.925			
	I was motivated to experience this destination more.	0.937			
Visit Intention	I felt an urge to experience this destination more.	0.901	0.886	0.929	0.813
	I intend to travel to this destination in the near future.	0.924			
	I want to visit this destination in the near future.	0.876			
	It is likely to travel to this destination in the near future.	0.905			

6.1 | Theoretical implications

This study extends the literature related to consumers' reactions while using VR in the prospective travelling phase. Prior academic discussion examined the positive impact of VR-generated telepresence, presence and mental imagery on visit intention (Alyahya & McLean, 2022; Bogicevic et al., 2019; Lee et al., 2020; McLean &

Barhorst, 2022; Skard et al., 2021). However, travel inspiration has not received the appropriate research attention in this context, though its importance for generating visit intentions has been stressed (Dai et al., 2022). This study affirms that apart from presence and mental imagery, travel inspiration is a key construct in prospective travelling phase. Inspiration facilitates the transformation VR facilitated mental images to visiting intention (Heller et al., 2019; Morrison

TABLE 3 Discriminant validity assessment—the Fornell and Larcker (1981) criterion.

	Elaboration mental imagery	Inspired-by	Inspired-to	Quality mental imagery	Visit intention
Elaboration mental imagery	0.719				
Inspired-by	0.766	0.811			
Inspired-to	0.654	0.645	0.920		
Quality mental imagery	0.599	0.559	0.460	0.840	
Visit intention	0.359	0.331	0.456	0.273	0.902

TABLE 4 Discriminant validity assessment—Heterotrait-Monotrait ratio of correlations (HTMT).

	Elaboration mental imagery	Inspired-by	Inspired-to	Quality mental imagery	Visit intention
Elaboration mental imagery					
Inspired-by	0.871 [0.813; 0.917]				
Inspired-to	0.714 [0.641; 0.772]	0.703 [0.611; 0.776]			
Quality mental imagery	0.683 [0.591; 0.759]	0.639 [0.540; 0.724]	0.505 [0.392; 0.604]		
Visit intention	0.404 [0.287; 0.513]	0.374 [0.246; 0.489]	0.488 [0.379; 0.584]	0.312 [0.196; 0.416]	

et al., 2024). This is consistent with recent reflections on the urge to experience the VR-represented 'object' in person (Beck et al., 2019; Kang, 2020) since consumers' imagination is influenced by VR practices during the pre-purchase phase (Böttger et al., 2017; Rodríguez-Ardura & Martínez-López, 2014).

A key aspect of the paper with useful theoretical implications stems from the analysis of VR-facilitated mental imagery in the two components already discussed, namely: elaboration and quality of mental imagery, that exhibit various effects in the model. Although both elements of mental imagery are positively related to the inspired-by component, only the elaboration of mental imagery is indirectly related to visit intention through travel inspiration (inspired-by and inspired-to). This does not mean that the quality of mental imagery is redundant in the model. Rather it should be treated with care instead. The findings imply that the quality of mental imagery psychologically inspires the prospective traveller, whereas the elaboration of mental imagery affects both the psychological and the motivational aspect of inspiration to lead to some sort of intentional behaviour towards the destination. The paper provides corroborating evidence highlighting the prominent role of elaboration in VR and other mixed realities technology. For instance, Bogicevic et al. (2019) found that elaboration, but not quality of mental imagery, was positively and significantly associated with the sense of presence. Similarly, Park and Yoo (2020) found that the effect of quality on attitude is much lower than the one of elaboration. Probably one of the explanations stems from the use of HDM with overall high-quality images (Bogicevic et al., 2019).

6.2 | Managerial implications

The present study is giving rise to the practical role of inspiration regarding visit intention while experiencing VR practices related to a

destination. Specific recommendations derive from the research that can benefit best practices in tourism marketing.

Early literature suggested that VR can revolutionise tourism promotion and selling (Huang et al., 2016). As tourism and hospitality experiences cannot be tested in advance (Neuhofer et al., 2014), it is very reasonable for the tourism industry to witness a wide adoption and use of new technologies, such as VR (Buhalis, Leung, & Lin, 2023). This is particularly the case when travellers experience new destinations or tourism products such as cruises (Buhalis, Papathanassis, & Vafeidou, 2022). VR-related efforts in the prospective phase of the customer journey should aim to raise travellers' inspiration by generating engaging VR experiences; thus, VR facilitates prospective tourists to see for themselves experiencing the destination via different images and events. Destination characteristics such as attractiveness, uniqueness, escapism and creative atmosphere can generate prospective tourists' mental imagery and travel inspiration (He et al., 2023; Tsaur et al., 2022; Wei et al., 2023; Xue et al., 2022). However, destinations managers should view tourists as humans, caring about their wellbeing not only while travelling. Hence, VR experiences should demonstrate novel aspects of the destination broadening the horizons of prospective tourists, with new ideas that can improve their wellbeing not necessarily only while travelling to the destination.

Destination managers should also consider the different impact of mental imagery dimensions. Elaboration of mental imagery should be the priority when they develop VR experiences aiming to create a full episode of travel inspiration which leads to higher visiting intentions. Thus, engaging, authentic and relevant context (Zhu, Fong, et al., 2024; Zhu, Io, et al., 2024) should be incorporated in the VR experiences. However, some prospective tourists can explore a destination for the very first time and probably the use of shorter VR experiences with very sharp, vivid and intense imagery can facilitate the preliminary psychological travel inspiration, without reaching very

TABLE 5 Significance testing results of the structural model path coefficients.

	Path coefficient	Standard deviation (SD)	T statistics (O/SD)	p Values	Confidence intervals ^a [2.5%; 97.5%]
Elaboration mental imagery → inspired-by	0.675	0.032	16.184	0.000	[0.588; 0.750]
Elaboration mental imagery → Visit intention	0.082	0.084	0.953	0.340	[-0.087; 0.242]
Inspired-by → inspired-to	0.646	0.039	16.513	0.000	[0.558; 0.712]
Inspired-to → visit intention	0.380	0.076	5.002	0.000	[0.225; 0.524]
Quality mental imagery → Inspired-by	0.156	0.047	3.340	0.000	[0.065; 0.247]
Quality mental imagery → visit intention	0.050	0.050	0.776	0.438	[-0.081; 0.172]

^arefers to the bootstrap confidence intervals for significance testing. Could you please add it as a footnote?

TABLE 6 Significance testing results of the total effects.

	Sample mean (M)	Standard deviation (SD)	T statistics (O/SD)	p Values	Confidence intervals ^a [2.5%; 97.5%]
Elaboration mental imagery → inspired-by	0.675	0.042	16.184	0.000	[0.588; 0.750]
Elaboration mental imagery → inspired-to	0.437	0.042	10.307	0.000	[0.348; 0.513]
Elaboration mental imagery → visit intention	0.248	0.069	3.559	0.000	[0.105; 0.375]
Inspired-by → inspired-to	0.646	0.039	16.513	0.000	[0.558; 0.712]
Inspired-by → visit intention	0.246	0.052	4.742	0.000	[0.145; 0.348]
Inspired-to → visit intention	0.380	0.076	5.002	0.000	[0.225; 0.524]
Quality mental imagery → inspired-by	0.156	0.047	3.340	0.000	[0.065; 0.247]
Quality mental imagery → inspired-to	0.101	0.031	3.272	0.000	[0.042; 0.162]
Quality mental imagery → visit intention	0.089	0.064	1.382	0.167	[-0.041; 0.212]

^arefers to the bootstrap confidence intervals for significance testing. Could you please add it as a footnote?

TABLE 7 Mediation analyses.

	Direct effect		Specific indirect effects	
	Path coefficient	Confidence intervals ^a [2.5%; 97.5%]	Path coefficients	Confidence intervals ^a [2.5%; 97.5%]
EMI → VI	0.082	[-0.084; 0.244]	EMI → INSPB → INSPT → VI	0.166 [0.093; 0.245]
QMI → VI	-0.050	[-0.078; 0.176]	QMI → INSPB → INSPT → VI	0.038 [0.016; 0.071]

Abbreviations: EMI, elaboration of mental imagery; INSPB, inspired-by; INSPT, inspired-to; QMI, quality of mental imagery.

^aRefers to the bootstrap confidence intervals for significance testing.

high levels of elaboration. In other words, to efficiently visualise the destination with the aid of VR, tourism practitioners should examine the level of individual's involvement in the experience. With unlimited possibilities for personalisation that big data and AI offer (Neuhof et al., 2014), destination managers can significantly increase the experienced mental imagery, travel inspiration and consequently visit intentions for each customer.

Metaverse is generating a high-tech momentum for the tourism sector (Buhalis, 2020; Buhalis, O'Connor, & Leung, 2023; Koohang et al., 2023; Prados-Castillo et al., 2024), which presents a great booster of tourism transformation towards virtual management strategies. The implications for managers pave the way for appropriate initiatives that combine digital with physical dynamics in the metaverse

ecosystem. Phygital (physical plus digital) marketing needs to blend digital experiences with physical ones by looking for opportunities to broaden the horizon of tourists. With higher levels of environmental fidelity and sociability as promised in the metaverse ecosystem, prospective travellers can reach new higher levels mental imagery and travel inspiration.

6.3 | Limitations and further research

While this study has taken steps forward in the understanding of VR, it has limitations that could be addressed in future research. A positivistic research methodology contains limitations (Ryan, 2000) to be

handled in future studies, following a triangulation of methods and paradigms (Davies, 2003; Oppermann, 2000). In that sense, the complexity of technology mediated travel inspiration during the pre-purchase stage, can be further understood. The findings should also be confirmed by employing field and laboratory experimental studies. The potential negatives consequences of rich pictorial information generated by VR on travel inspiration should be investigated. Users' fatigue (Wei et al., 2023), perceived similarity with the destination (Deng et al., 2019) and less positive tourists' reaction when the information is related to a psychologically proximal destination (Jia et al., 2021) may constitute research priorities.

According to Thrash and Elliot (2003), antecedents of customer inspiration depend on the source of inspiration and the characteristics of the recipient. Different conditional effects should be examined to expand the findings of this paper (Errichiello et al., 2019). For instance, the conditional effects related to: users' capability to imagine (Ruusunen et al., 2023); existing desire to visit this destination (Böttger et al., 2017); tourists personality dimensions such as openness to experience (Thrash et al., 2014); and variety-seeking behaviour. Previous studies related to the role of inspiration in the creative process have highlighted that 'perspiration' (effort) is also important to transform ideas to final outcomes (Oleynick et al., 2014). Thus, additional research is required to understand the role of travel constraints in the transmission model of inspiration. Future studies should investigate less sophisticated types of VR, for example, 360° alongside with more sophisticated metaverse experiences that blend digital experiences with physical ones.

The proposed research model contributes to the current body of knowledge, by exploring the effects of VR on inspiration and intentional behaviour in travel and tourism that is currently moving towards metaverse virtual worlds. The investigation of the impact of VR-facilitated travel inspiration on user's value co-creation in a blended virtual and physical world (Buhalis, Lin, & Leung, 2022; Giannopoulos et al., 2022), may complement the outcomes of this study.

DATA AVAILABILITY STATEMENT

Research data are not shared.

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