Volume 6, Issue 1 (2025)
e-ISSN: 2716-666X

The Asian Journal of Professional and Business Studies

Please cite this article as: Abdul Rahman, A. (2025). Virtual Reality Acceptance in Tourism Product Information: A Study among Young Travelers in Pulau Pangkor, Perak. *The Asian Journal of Professional & Business Studies*, *6*(1), 32–42. https://doi.org/10.61688/ajpbs.v6i1.401

VIRTUAL REALITY ACCEPTANCE IN TOURISM PRODUCT INFORMATION: A STUDY AMONG YOUNG TRAVELERS IN PULAU PANGKOR, PERAK

Aris Abdul Rahman

Faculty of Communication and Media Studies, Universiti Teknologi Mara (UiTM), Selangor, Malaysia

Corresponding author: vavavom777@gmail.com
Received 16 April 2025, Accepted 1 June 2025, Published 30 Jun 2025

ABSTRACT

Virtual reality (VR) refers to a computer-generated simulation that facilitates interaction between users and digital systems, offering immersive three-dimensional (3D) visual experiences that closely replicate real-world environments. This technology is particularly advantageous for presenting tourism product information. In recent years, VR has garnered substantial attention within Malaysia's tourism industry due to its capacity to deliver interactive, engaging and distinctive experiences for tourists. Conventionally, acquiring tourism-related information at physical tourism counters can be both time-intensive and costly, as it typically involves direct, face-to-face engagement. VR presents an innovative alternative by enabling young travelers to obtain tourism information remotely, without the need for physical presence. As an emerging technology, VR demonstrates significant commercial potential, particularly within the tourism domain. This study seeks to explore the acceptance and use of VR for accessing tourism product information among young travelers in Pulau Pangkor, Perak. A non-probability convenience sampling technique was employed, whereby questionnaires were distributed to a sample of 100 young respondents. The results indicated that Hedonic Motivation exhibited the strongest correlation with behavioural intention to use VR (Pearson's r = .781), identifying it as the principal factor influencing VR adoption. These findings suggest that young travelers are increasingly receptive to VR as a viable alternative to traditional means of obtaining tourism information, such as physical tourism counters or online searches. The study contributes to the existing body of knowledge by providing empirical evidence on VR adoption in the Malaysian tourism context and offers valuable insights for future research and technological development in this area.

Keywords: Virtual Reality, Tourism, Acceptance & Use, Young Traveler, Pulau Pangkor,

1 INTRODUCTION

The introduction in Virtual Reality (VR) technologies have been widely applied in the tourism industry, given their competitive advantages in offering users a novel experience that makes an artificial environment or scene feel like the real world. As a result, VR has been reported as a highly sought-after technology, as offer a new way to engage tourists and enhance their travel experience. (Cham et al., 2023). VR leverages computer technology to construct interactive, three-

Copyright: © 2025 The Author(s)
Published by Universiti Poly-Tech Malaysia.
This article is published under the Creative Commons Attribute (CC BY 4.0) license. http://creativecommons.org/licenses/by/4.0/legalcode

dimensional environments that simulate elements of the physical world (Jailani & Nurbatra, 2019). This technology offers users an immersive experience by enabling exploration and interaction within digitally generated virtual spaces (Godovykh et al., 2022). The integration of digital technologies within the tourism industry has significantly transformed how tourists access information, introducing more interactive and efficient methods that reduce the time and effort traditionally required for information-seeking. By utilising VR, tourism sector is able to provide immersive and comprehensive experiences that help travellers in gaining information on product tourism. One of the key advantages of utilising VR in presenting tourism product information lies in its capacity to provide users with a more detailed, immersive, and realistic representation of tourism offerings (Sun, 2023). Unlike traditional methods, such as static images, which often fail to capture the full essence, atmosphere, and experiential aspects of a destination, VR allows potential tourists to engage more deeply with the product, enhancing both understanding and decision-making. VR technologies in the tourism sector have introduced innovative dimensions to how travel experiences are presented and consumed (Sobarna et al., 2025). These tools function as facilitators that intensify immersion and enhance the perceived authenticity of tourism experiences (Fan et al., 2022). VR are able to take travellers on a virtual tour, allowing them to witness the entire scenario of the tourism product (Bretos et al., 2023). Wang (2022), states that by donning a dedicated VR headset, users are fully immersed in a virtual world that effectively stimulates their senses of vision, touch, hearing and even smell and taste. VR technology is increasingly being applied across diverse sectors, including the township planning, halal industry, education, entertainment and medical training. In today's digital era, the demand for accessible and transparent tourism product information has grown significantly. The integration of VR presents a promising solution by enhancing the delivery of accurate and immersive product information to meet travellers' evolving expectations (Sobarna et al., 2025).

In the tourism industry, VR offers several notable advantages. Firstly, it allows prospective tourists to experience the atmosphere and distinctiveness of a destination without the need for physical travel, providing a more immersive and engaging experience compared to conventional photographs or videos (Kim, Lee & Jung, 2020). Secondly, VR functions as an appealing and interactive platform for promoting tourism destinations (Adachi et al., 2022). Virtual tours that highlight natural landscapes, cultural heritage and local activities have proven effective in attracting potential visitors (Jorge et al., 2023). Lastly, VR facilitates the delivery of information related to history, culture and key attractions in an interactive manner, thereby enhancing tourists' understanding and appreciation of the destination (Atzeni et al., 2022). These benefits enhance young traveller perception on tourism product information and overall increase in young travellers' eagerness in obtaining new information regarding tourism knowledge. By creating virtual environments, young travellers are able to explore tourism product information without being at the specific place as information would be able to obtain through digitalisation information. Using VR in obtaining tourism information, allows young travellers to increase interest in learning tourism information (Talwar et al., 2023), promote the understanding of culture, as well as the establishment of emotional attitude and values. (Zhang & Yin, 2020). VR are able to empower young travellers to make obtain tourism product information whenever they need without being at the required location. Virtual reality is poised to revolutionise the way product information is presented and accessed by travellers. Its ability to offer enhanced product visualisation, deliver engaging education, provide global access, support interactive decision-making and promote eco-friendliness makes VR an invaluable tool for businesses in the tourism industry (Talwar et al., 2023). As the demand for tourism products continues to grow, embracing VR technology cannot only meet this demand but also foster trust, transparency and informed travellers about choices in gaining tourism information.

In order to identify the acceptance of virtual reality in tourism product information among young travellers in Pulau Pangkor, Perak, this study underline three (3) main objectives: -

i. To identify VR factors influencing Young Travellers Virtual Information Behavioural Intention (YTVIBI)
ii. To identify Young Travellers Virtual Information Behavioural Intention (YTVIBI) and its impact towards Young Travellers Virtual Information Use Behaviour (YTVIUB)
iii. To study the acceptance and use of Young Travellers Virtual Information Use Behaviour (YTVIUB) and its impact towards Tourism Product Information (TPI)

This study uses the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) (Venkatesh et al., 2012) as the theoretical foundation to explore the factors influencing the adoption and utilization of VR technology by young travelers

for obtaining tourism product information. Prior to the development of UTAUT2, Venkatesh et al. (2003) introduced the UTAUT model, which identified Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI) and Facilitating Conditions (FC) as the primary factors driving technology acceptance. UTAUT has gained widespread recognition as an effective framework for understanding technology adoption, and it has been extensively applied in numerous studies on technology acceptance and use. These factors are also moderated by variables such as age, gender, experience, and the voluntariness of use. The UTAUT model provides a robust framework for predicting and explaining technology acceptance (Fareed & Kirkil, 2025; Azalan et al., 2022), demonstrating stronger predictive power compared to other models. Over time, UTAUT has been refined, and UTAUT2 now includes three additional constructs: Hedonic Motivation (HM), Price Value (PV) and Habit (H), to better account for behavioral intention and usage behavior. In this study, the UTAUT2 framework is adapted to understand and predict the behavioral intentions and usage patterns of young travelers toward VR technology in acquiring tourism product information. Figure 1 presents the theoretical framework for VR adoption, which integrates UTAUT2 (Venkatesh et al., 2012) to assess the acceptance of this new technology in the context of tourism product information (Saha et al., 2021).

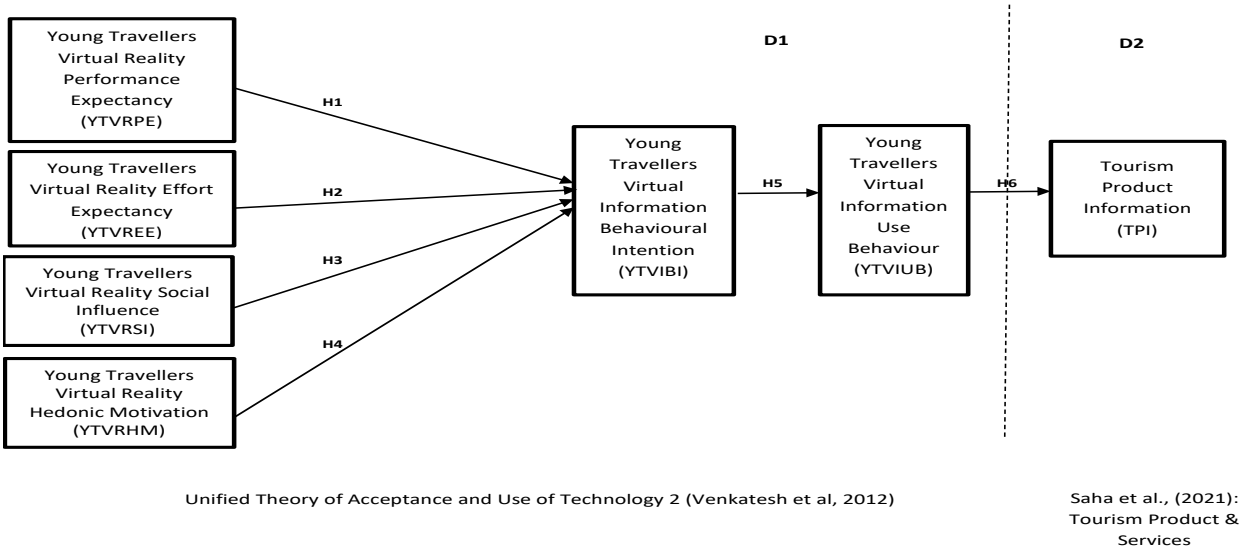

Figure 1. Research Theoretical Framework

The following hypotheses obtain from research theoretical framework in Figure 1.

H_1 There is a significant relationship between Young Travelers Virtual Reality Performance Expectancy (YTVRPE) and Young Travelers Virtual Information Behavioural Intention (YTVIBI)
H_2 There is a significant relationship between Young Travelers Virtual Reality Effort Expectancy (YTVREE) and Young Travelers Virtual Information Behavioural Intention (YTVIBI)
H_3 There is a significant relationship between Young Travelers Virtual Reality Social Influence (YTVRSI) and Young Travelers Virtual Information Behavioural Intention (YTVIBI)
H_4 There is a significant relationship between Young Travelers Virtual Reality Hedonic Motivation (YTVRHM) and Young Travelers Virtual Information Behavioural Intention (YTVIBI)
H_5 There is a significant relationship between Young Travelers Virtual Information Behavioural Intention (YTVIBI) among and Young Travelers Virtual Information Use Behaviour (YTVIUB)
H_6 There is a significant relationship between Young Travelers Virtual Informaation Use Behaviour (YTVIUB) and Tourism Product Information (TPA)

2 LITERATURE REVIEW

2.1 The Development of Virtual Reality

Virtual reality is an advancing form of communication that offers users immersive and interactive experiences between the physical and digital worlds. VR offers unparalleled immersion, enabling young traveller to step into entirely digital worlds and communicate plus interaction with them in real-time. By simulating realistic environments, VR creates a sense of presence, transporting traveller to places and situations that were previously unimaginable (Khodabandeh, 2022). Over the past few decades, VR technology has advanced significantly, transforming digital content and reshaping numerous industries. VR has emerged as a powerful tool for tourism industry, with potential benefits for tourist of all ages. VR has changed the conceptual definition of getting normal way of product information to a different learning environment where high fidelity graphics and immersive content using head mounted-displays (HMD) have allowed travellers to explore complex information in a way that traditional methods are not able to do so (Atzeni et al., 2022). VR utilises computer-generated 3D graphics, allowing travellers to explore a broad range of tourism product information environments from pre-existing 3D assets. This creates a versatile range of resources that travellers from all age are able to use VR continuously to gain product information (Xie et al., 2021). Virtual reality delivers an immersive and interactive environment that transcends the limitations of the physical world (Hilken et al., 2021; de Keyser et al., 2019). This interactivity has been shown to enhance user engagement, particularly among younger travellers, by increasing their willingness to seek and absorb information related to tourism products. Initially regarded as a niche innovation, VR has since evolved into a multifaceted technology with broad applications across industries including gaming, healthcare, marketing, halal product development, education, and beyond. Despite its rapid advancement, the evolution of VR has encountered several technical challenges, particularly in relation to graphical rendering capabilities and the design of user interfaces, both of which are critical for ensuring a seamless and engaging user experience. VR has the potential to revolutionise various industries by offering unparalleled opportunities for innovation and transformation. In the field of tourism, VR enhance learning experiences by creating immersive simulations and virtual field trips, allowing travellers to gain practical knowledge and understanding different culture (Cham et al., 2023). Weijdom wrote in year 2022 that VR is a new media of digital environment where the user metaphorically stepping inside a reality world in exploring interactive information, enjoying conferences and playing games. The concept of digitalisation offers travellers a unique platform to engage with content and virtual environments that closely simulate real-world experiences (Talwar et al., 2023). It enables users to perceive and interact with computer-generated elements within a three-dimensional space, thereby fostering a highly interactive environment. With ongoing advancements in computing power and display technologies, the cost of VR hardware has progressively decreased, making it more accessible to a broader audience (Hashem et al., 2021).

2.2 Tourism Product Information

Tourism has grown to be the most important economic activity in the world during the second half of the twentieth century (Azmi et al., 2023). The World Tourism Organisation (WTO) and World Travel and Tourism Council (WTTC) reported that the tourism sector generates approximately 11% of the global gross domestic product (GDP) and consistently employs over 200 million people in the global workforce. Hence, tourism is now an essential vehicle for regional and national development and a major contributor to the local economy in various countries and regions (Kunjuraman et al., 2022). Virtual Reality (VR) technology has emerged as a transformative tool in the tourism industry, revolutionising the way travellers explore destinations and experience tourism products (Cham et al., 2023). By immersing users in lifelike virtual environments, VR offers a unique and immersive way to showcase destinations, attractions, and experiences, providing travellers with a compelling preview of what they should be experiencing. One of the primary advantages of VR in tourism is its ability to provide vivid and realistic visualisations of destinations, allowing travellers to explore iconic landmarks, natural wonders, and cultural sites from the comfort of their homes (Beck, 2019). According to Lee (2020), context of tourist is influence by pulling factors in attracting tourist on ‘where to go’, ‘how long to stay’, and ‘what to do’. By having virtual reality in tourism product information, it’s able to facilitate immersive cultural experiences by transporting travelers to distant lands and heritage sites, enabling them to engage with local traditions, customs and lifestyles (Godovykh et al., 2020). Within virtual cultural exchanges, travelers are able to participate in traditional ceremonies, festivals, and rituals, gaining a deeper understanding and appreciation of diverse cultures and societies. VR fosters empathy and cross-cultural understanding by breaking down barriers and promoting intercultural dialogue and exchange. Through immersive 360-degree videos and virtual tours, travellers are able to

navigate through streets, monuments, and attractions as if they were physically present, gaining valuable insights into the destination's ambiance, architecture, and atmosphere According to Wirawan and Gading (2022), traditional methods such as reading maps, consulting travel blogs, or obtaining information from tourism counters were once the primary sources of travel-related information. However, with the emergence of VR, travellers are able to virtually explore a wide array of tourism products within a highly immersive and interactive environment.

3 METHODOLOGY

This research uses cross-sectional survey where questionnaire was distributed to young traveller aged 18 to 25 years old (Adams et al., 2021; Peng et al, 2020) in Pulau Pangkor, Peak, Malaysia. This age group was chosen because it is widely recognised as the stage of "emerging adulthood," a developmental period characterised by significant transitions and identity exploration (Arnett & Tanner, 2016). This age is a development period where emerging adulthood is a phase between adolescence and young adulthood. Young travellers in this stage often experience a sense of being "in-between," marked by instability, self-focus and a multitude of possibilities for the future. Arnett & Tanner (2016), describe that this period is unique due to the exploration of various life directions before making enduring adult commitments whereby if this young traveller thinks VR is good thus there is a high possibility that they will use in the future. According to Richard et al., (2015), this age group have behavioural adjustments associated with basic psychosocial age-related developmental tasks where emotion and intellectual thinking have an impact on brain development. During this period, young traveller experience increased personal freedom, experimentation and the development of independence from their families (Zarrett & Schulenberg, 2006). In today's digitalisation world, youngsters are growing up in a digital technology era where internet-based smartphones, laptops and tablets influence all aspects of our modern life (Cottin et al., 2022). Additionally, this age period is an exploration and identity formation, where youngsters is more open to new experiences and willing to engage in self-reflection (Koumoutzis et al., 2021). This openness to new ideas and self-exploration are able contribute to the validity and richness of survey responses, as young traveller is more willing to provide honest and introspective answers. This survey applied convenience sampling in Pulau Pangkor, Perak as the respondent meet the age criteria and this island is always visited by international and domestic tourist. The study employed a traditional paper-and-pencil survey approach, as it has been shown to generate higher response rates than online surveys. This decision was influenced by concerns that some participants might be less inclined to take part in an online format due to limited motivation or preference for digital engagement (Lefever et al., 2007). The results indicate that the effect of the length of the response field is more pronounced in the paper-and-pencil condition compared to the web survey condition (Fuchs, 2009). They were 42.9 % of male and 57.1 % of female took part in this questionnaire.

4 FINDINGS AND DISCUSSION

4.1 To Identify VR Factors Influencing Young Traveller Virtual Learning Behavioural Intention (YTVLBI)

A one-tailed test was employed to examine the likelihood of a relationship occurring in a predetermined direction, intentionally excluding the possibility of an association in the opposite direction. Table 1 presents the results of the factors influencing Young Travelers' Virtual Learning Behavior Intention (YTVLBI), as determined through Pearson correlation analysis. The findings reveal that Young Travelers' Virtual Reality Hedonic Motivation (YTVRHM) exhibits the strongest correlation with YTVLBI in the first dimension (r = .781), identifying it as the primary influencing factor. Hedonic motivation plays a vital role in young traveller acceptance and use of VR technology in tourism sector. By understanding and leveraging hedonic motivation in VR, end user enhances the overall user experience and drive adoption and continued use of VR technology. 74.5% of young traveller in Pulau Pangkor, strongly agree that using VR for tourism in fun while only 1.5% disagree to the above statement. Bracq et al., (2019) conducted a research on accepting new technology and number of participants noted that virtual reality was an enjoyable experience, and that the system was fun: *"You have to familiarize yourself with the system and you have to understand, but it doesn't take long and it becomes fun", "we do it while having fun, it's fun and enjoyable"*. This intrinsic enjoyment is a form of hedonic motivation (Meena & Sarabhai, 2023). Consistent with previous findings, studies by Bower and Lai (2020) as well as Sharif and Raza (2017) have demonstrated that hedonic motivation serves as a significant predictor of behavioural intention in the adoption of new technologies. By prioritising fun and enjoyment learning, Malaysia tourism sector are able to enhance and widen this digitalisation method as young travellers enjoy the interactive tourism information with VR adoption

technology. The next result of Pearson Correlation follows by YTVRSI (r = .723) and YTVRPE (r = .688). The least factor that influence the relationship between YTVLBI is YTVREE (r = .602), however this factor is still significant towards the study because young travellers perceives the expectations that by using VR it creates, convenience tourism product information, reduce time and easy to use. The construct of YTVRPE, YTVREE, YTVRSI, YTVRHM does have significant relationship between YTVLBI among young travellers thus hypothesis H_1, H_2, H_3 *and* H_4 has been answered. Numerous studies have confirmed that PE, EE, SI and HM significantly impact BI to adopt new technologies. This has been demonstrated in various contexts, including students' acceptance of the Use & Go Pay platform (Batoro, 2020), the Moodle Learning Management System (Zwain, 2019) and the adoption of e-scooter VR services (Huang, 2020). These findings collectively underscore the pivotal role of these factors in shaping users' willingness to embrace emerging technological solutions.

Table 1 Summary Results of Pearson Correlation (n = 100)

Variable	Pearson Correlation (*r*)
YTVRPE > YTVLBI	.688
YTVREE > YTVLBI	.602
YTVRSI > YTVLBI	.723
YTVRHM > YTVLBI	.781

4.2 To Identify Young Traveller Virtual Learning Behavioural Intention (YTVLBI) And Its Impact Towards Young Traveller Virtual Learning Use Behavioural (YTVLUB)

The Pearson correlation analysis indicated a strong and significant relationship between YTVLBI and YTVLUB, with a correlation coefficient of r = .820. Based on this result, H_5 is supported. According to Kunjuraman (2022), the advent of technology in a globalised world has led to a transformation in tourism sector, shifting it towards conventional platforms towards virtual learning environment. Given that the respondents in this study are young travellers aged between 18 and 25 years, an age group commonly associated with emerging adulthood, they tend to exhibit a strong enthusiasm and openness toward adopting new technologies. This developmental stage is characterised by exploration, adaptability and a heightened receptiveness to innovation, making these individuals particularly responsive to technological advancements in the tourism sector. Their eagerness to engage with novel digital experiences, such as virtual reality, reflects a broader trend among young adults who view technology not only as a tool for information-gathering but also as an enriching and enjoyable component of their travel experiences.

4.3 To Identify Young Traveller Virtual Learning Use Behavioural (Ytvlub) And Its Impact Towards Tourism Product Information (TPI)

On the second dimension, where TPI is the dependent variable, researcher find out that YTVLUB influence TPI with Pearson Correlation result (r = .737). These findings indicate that YTVLUB plays a substantial role in explaining TPI thus this result shows that there is a significant relationship between YTVLUB and TPI among young travellers as indicated at H_6. The introduction of graphics-oriented visuals has had a significant impact on traveller behaviour, particularly in the context of gaining information (Beck, 2019) In the second dimension, where TPI serves as the dependent variable, the analysis reveals that YTVLUB significantly influences TPI, as evidenced by a Pearson correlation coefficient of r = .737. This finding suggests that YTVLUB plays a critical role in shaping young travellers' intentions to gain information on travelling related activities. Consequently, H_6 is supported, confirming a strong relationship between YTVLUB and TPI among this demographic group. Moreover, the integration of graphics-oriented visuals such as interactive content and immersive experiences, has been shown to significantly affect traveller behaviour, particularly in terms of information acquisition (Beck, 2019). The results highlight the importance of engaging digital content and active usage behaviours in influencing young travellers' gaining tourism product information intentions, reinforcing the value of immersive technologies in modern tourism strategies.

5 CONCLUSION

One of the significant contributions of VR is the use of virtual technology in the tourism sector where young travellers are emphasising on alternative way of getting tourism product information. The use of VR in the tourism environment is gaining significant attention due to its ability to create immersive and interactive experiences that transcend conventional way of transmitting information (Bretos et al., 2023). This technology enables young travellers to engage with tourism information product in ways that were previously impossible, allowing them to explore complex concepts, historical events, scientific phenomena and much more through simulated environments. As a result, travellers are not only passively absorbing information but actively participating in their own tourism journey, fostering deeper comprehension and retention of product information. By allowing young travellers to explore virtual tourism environments and interact with digital objects, VR promotes active plus interactive tourism product information and enables users to have a hands-on experience that goes beyond what is possible in a traditional setting (Weissblueth & Nissim, 2018). Additionally, VR in tourism provides a safe and controlled environment for young travellers to learn skills and scenarios that may be difficult or impossible to replicate in real life. The emergence of the COVID-19 pandemic has had profound effects on various aspects of society, including the tourism sector. Prior to the pandemic, traditional methods of getting tourism information through information centre or brochure were the norm. However, the COVID-19 pandemic has forced tourism sector to swiftly adapt to digitalisation as a means of continuing to spread tourism information (Godovykh et al., 2022).

6 ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to Universiti Poly-Tech Malaysia for providing the resources and support necessary to complete this study. We would also like to thank all participants who contributed their time and insights to this research. Special appreciation is extended to colleagues and peers who offered valuable feedback during the development of this manuscript.

REFERENCES

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

Adams, S. H., Schaub, J. P., Nagata, J. M., Park, M. J., Brindis, C. D., & Irwin, C. E. Jr. (2021). Young adult perspectives on COVID-19 vaccinations. *Journal of Adolescent Health, 69*(3), 511–514.

Arnett, J. J., & Tanner, J. L. (2016). The emergence of emerging adulthood: The new life stage between adolescence and young adulthood. In *Routledge handbook of youth and young adulthood* (pp. 50–56). Routledge.

Atzeni, M., Del Chiappa, G., & Mei Pung, J. (2022). Enhancing visit intention in heritage tourism: The role of object-based and existential authenticity in non-immersive virtual reality heritage experiences. *International Journal of Tourism Research, 24*(2), 240–255. https://doi.org/10.1002/jtr.2497

Azalan, N. S., Mokhtar, M. M., & Karim, A. H. A. (2022). Modelling e-Zakat acceptance among Malaysians: An application of the UTAUT model during the COVID-19 pandemic.

Azmi, E., Che Rose, R. A., Awang, A., & Abas, A. (2023). Innovative and competitive: A systematic literature review on new tourism destinations and products for tourism supply. *Sustainability, 15*(2), 1187.

Batoro, B. (2020). Evaluation factors influencing the use of Go-Pay with the Unified Theory of Acceptance and Use of Technology 2 model. In *1st Annual Management, Business and Economic Conference (AMBEC 2019)* (pp. 211–214). Atlantis Press.

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

Bower, M., DeWitt, D., & Lai, J. W. (2020). Reasons associated with preservice teachers' intention to use immersive virtual reality in education. *British Journal of Educational Technology, 51*(6), 2215–2233.

Bracq, M. S., Michinov, E., Arnaldi, B., Caillaud, B., Gibaud, B., Gouranton, V., & Jannin, P. (2019). Learning procedural skills with a virtual reality simulator: An acceptability study. *Nurse Education Today, 79*, 153–160.

Bretos, M. A., Ibáñez-Sánchez, S., & Orús, C. (2023). Applying virtual reality and augmented reality to the tourism experience: A comparative literature review. *Spanish Journal of Marketing - ESIC.*

Cham, T.-H., Tan, G., Aw, E., Ooi, K.-B., Jee, T.-W., & Pek, C.-K. (2023). Virtual reality in tourism: Adoption scepticism and resistance. *Tourism Review, 79.* https://doi.org/10.1108/TR-10-2022-0479

Cottin, M., Blum, K., Konjufca, J., Quevedo, Y., Kaaya, S., Behn, A., ... & Zimmermann, R. (2022). Digital use of standardized assessment tools for children and adolescents: Can available paper-based questionnaires be used free of charge in electronic format? *BMC Psychiatry, 22*(1), 379.

De Keyser, A., Köcher, S., Alkire, L., Verbeeck, C., & Kandampully, J. (2019). Frontline service technology infusion: Conceptual archetypes and future research directions. *Journal of Service Management, 30*(1), 156–183. https://doi.org/10.1108/JOSM-03-2018-0082

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

Fareed, A. S., & Kirkil, G. (2025). Integrating technology acceptance model with UTAUT to increase the explanatory power of the effect of HCI on students' intention to use e-learning system and perceived success. *IEEE Access.*

Fuchs, M. (2009). Differences in the visual design language of paper-and-pencil surveys versus web surveys: A field experimental study on the length of response fields in open-ended frequency questions. *Social Science Computer Review, 27*(2), 213–227.

Godovykh, M., Baker, C., & Fyall, A. (2022). VR in tourism: A new call for virtual tourism experience amid and after the COVID-19 pandemic. *Tourism and Hospitality, 3*(1), 265–275. https://doi.org/10.3390/tourhosp3010018

Hashem, M., Joolee, J. B., Hassan, W., & Jeon, S. (2021). Soft pneumatic fingertip actuator incorporating a dual air chamber to generate multi-mode simultaneous tactile feedback. *Applied Sciences, 12*(1), 175. https://doi.org/10.3390/app12010175

Hilken, T., Chylinski, M., Keeling, D. I., Heller, J., Ruyter, K., & Mahr, D. (2021). How to strategically choose or combine augmented and virtual reality for improved online experiential retailing. *Psychology & Marketing, 39*(3), 495–507. https://doi.org/10.1002/mar.21600

Huang, F. H. (2020). Adapting UTAUT2 to assess user acceptance of an e-scooter virtual reality service. *Virtual Reality.* https://doi.org/10.1007/s10055-019-00424-7

Jailani, M. K., & Nurbatra, L. H. (2019). Virtual reality system for job interview application: A development research. *Celtic: A Journal of Culture, English Language Teaching, Literature and Linguistics, 6*(1), 31–50.

Jorge, F., Losada, N., & Teixeira, M.-S. (2023). Behavioural intentions through virtual reality from a destination image perspective. *Journal of Place Management and Development, 16*(3), 347–366. https://doi.org/10.1108/JPMD-02-2022-0016

Khodabandeh, F. (2022). Exploring the applicability of virtual reality-enhanced education on extrovert and introvert EFL learners' paragraph writing. *International Journal of Educational Technology in Higher Education, 19*(1). https://doi.org/10.1186/s41239-022-00334-w

Kim, M. J., Lee, C.-K., & Jung, T. (2020). Exploring consumer behavior in virtual reality tourism using an extended stimulus–organism–response model. *Journal of Travel Research, 59*(1), 69–89. https://doi.org/10.1177/0047287518818915

Koumoutzis, A., Cichy, K. E., Dellmann-Jenkins, M., & Blankemeyer, M. (2021). Age differences and similarities in associated stressors and outcomes among young, midlife, and older adult family caregivers. *The International Journal of Aging and Human Development, 92*(4), 431–449.

Kunjuraman, V., Hussin, R., & Aziz, R. C. (2022). Community-based ecotourism as a social transformation tool for rural community: A victory or a quagmire? *Journal of Outdoor Recreation and Tourism, 39*, 100524.

Lee, S. W., & Xue, K. (2020). A model of destination loyalty: Integrating destination image and sustainable tourism. *Asia Pacific Journal of Tourism Research, 25*(4), 393–408.

Lefever, S., Dal, M., & Matthíasdóttir, Á. (2007). Online data collection in academic research: Advantages and limitations. *British Journal of Educational Technology, 38*(4), 574–582.

Meena, R., & Sarabhai, S. (2023). Extrinsic and intrinsic motivators for usage continuance of hedonic mobile apps. *Journal of Retailing and Consumer Services, 71*, 103228.

Peng, Y., Zhu, Q., Wang, B., & Ren, J. (2020). A cross-sectional study on interference control: Age affects reactive control but not proactive control. *PeerJ, 8*, e8365. https://doi.org/10.7717/peerj.8365

Richard, J. B., Clare, S., & Heather, B. (Eds.). (2015). *Investing in the health and well-being of young adults.* Washington, DC: National Academies Press.

Saha, P. K., Lopa, I. A., Sathi, J. F., Rimi, S. D., & Dilshad, A. (2021). Integrating product development in achieving tourism sustainability. In A. Hassan (Ed.), *Tourism products and services in Bangladesh* (pp. 317–332). Springer. https://doi.org/10.1007/978-981-33-4279-8_18

Sharif, A., & Raza, S. A. (2017). The influence of hedonic motivation, self-efficacy, trust, and habit on adoption of internet banking: A case of developing country. *International Journal of Electronic Customer Relationship Management, 11*(1), 1–22.

Sobarna, A., Saefullah, K., & Hadian, S. D. (2025). Virtual reality application in rural tourism experience. *International Journal of Applied Business Research, 7*(1), 24–40.

Sun, N., Liu, W., & Zheng, Z. (2023). Campus outdoor environment, learning engagement, and the mental health of college students during the COVID-19 pandemic. *Frontiers in Public Health, 11.* https://doi.org/10.3389/fpubh.2023.1143635

Talwar, S., Kaur, P., Nunkoo, R., & Dhir, A. (2023). Digitalization and sustainability: Virtual reality tourism in a post-pandemic world. *Journal of Sustainable Tourism, 31*(11), 2564–2591.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425–478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly, 36*(1), 157–178. https://doi.org/10.2307/41410412

Wang, Y., & Hemchua, S. (2022). Can we learn about culture by EFL textbook images? A semiotic approach perspective. *Language Related Research, 13*(3), 479–499. https://doi.org/10.52547/lrr.13.3.19

Weijdom, J. (2022). Performative prototyping in collaborative mixed reality environments: An embodied design method for ideation and development in virtual reality. In *Proceedings of the Sixteenth International Conference on Tangible, Embedded, and Embodied Interaction.* https://doi.org/10.1145/3490149.3501316

Weissblueth, E., & Nissim, Y. (2018). The contribution of virtual reality to social and emotional learning in pre-service teachers. *Creative Education, 9*(10), 1551–1564.

Wirawan, I. M. T. A., & Gading, I. K. (2022). Interactive PowerPoint learning media on science content for fifth grade elementary school.

Xie, B., Liu, H., Alghofaili, R., Zhang, Y., Jiang, Y., Lobo, F. D., ... & Yu, L. F. (2021). A review on virtual reality skill training applications. *Frontiers in Virtual Reality, 2*, 645153.

Zarrett, N. R., & Schulenberg, J. E. (2006). Mental health during emerging adulthood: Continuity and discontinuity in courses, causes, and functions.

Zhang, N., Chen, X., & Yin, H. (2020). Significance and possibility of VR technology embedded in the teaching of ideological and political theory courses in colleges and universities. *IEEE Access.*

Zwain, A. A. A. (2019). Technological innovativeness and information quality as neoteric predictors of users' acceptance of learning management system: An expansion of UTAUT2. *Interactive Technology and Smart Education, 16*(3), 239–254. https://doi.org/10.1108/ITSE-09-2018-0065