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A Generational Cohort Analysis of Digital Tourism: Modelling Tourists' Willingness to Use Virtual Reality Tours Using TAM and TPB

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ABSTRACT

Virtual Reality (VR) has emerged as a transformative digital tool in the tourism sector, reshaping how tourists explore, evaluate, and plan travel experiences. The present study examines the factors influencing tourists' willingness to use virtual reality tours, with particular attention to generational differences. Using a quantitative research design, data were collected from tourists belonging to Generation Y and Generation Z and analyzed using SPSS. The study investigates the relationships among perceived usefulness, perceived convenience, attitude toward virtual tours, and willingness to use virtual reality tours. The results reveal that perceived usefulness and perceived convenience significantly influence tourists' attitudes toward virtual tours, with perceived convenience emerging as the stronger predictor. Attitude, in turn, positively affects tourists' willingness to use virtual reality tours. Generational analysis indicates that Generation Z exhibits a higher willingness to use virtual tours compared to Generation Y, although the difference is marginal. The findings offer valuable theoretical insights into digital tourism behaviour and practical implications for tourism marketers and destination managers seeking to promote immersive and sustainable tourism experiences.

Keywords: Virtual Reality, Willingness to Use, Tourist Attitude, Digital Tourism, Generational Differences

Introduction

The tourism industry is increasingly driven by digital technologies, with Virtual Reality (VR) enabling tourists to explore destinations before travel decisions (Alyahya & McLean, 2022). VR tours provide immersive experiences that enhance cognitive evaluation and emotional engagement (El-Said & Aziz, 2022). In the post–COVID-19 era, demand for safe and convenient digital exploration has grown, and virtual tours support responsible tourism by reducing unnecessary travel and environmental impact, contributing to Sustainable Development Goal 12 (Rane et al., 2023).In emerging digital tourism markets in India, Generation Z shows greater openness toward immersive technologies (Phoong et al., 2024). However, tourists' willingness to use virtual reality tours depends on perceived usefulness and convenience, which shape attitudes toward virtual tours (Bansah & Darko Agyei, 2022; Alyahya & McLean, 2022). This study therefore examines these relationships and generational differences between Generation Y and Generation Z within a TAM–TPB framework.

Theoretical Lens of the Study

This study is grounded in the Technology Acceptance Model (TAM) (Davis, 1989), which explains technology behaviour through perceived usefulness and ease of use. Here, perceived convenience is adapted from ease of use to reflect the accessibility and comfort of virtual tour

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technologies (Lin, 2016). These perceptions shape tourists' attitudes toward virtual tours.In digital tourism; perceived usefulness refers to the value of virtual tours in travel planning and destination evaluation, while perceived convenience captures ease and flexibility of access. Both positively influence attitudes (Bansah & Darko Agyei, 2022; Alyahya & McLean, 2022; Van Nguyen et al., 2025). Supported by the Theory of Planned Behaviour (Ajzen, 1991), attitude is positioned as a mediator linking technological perceptions to tourists' willingness to use virtual reality tours across generational cohorts.

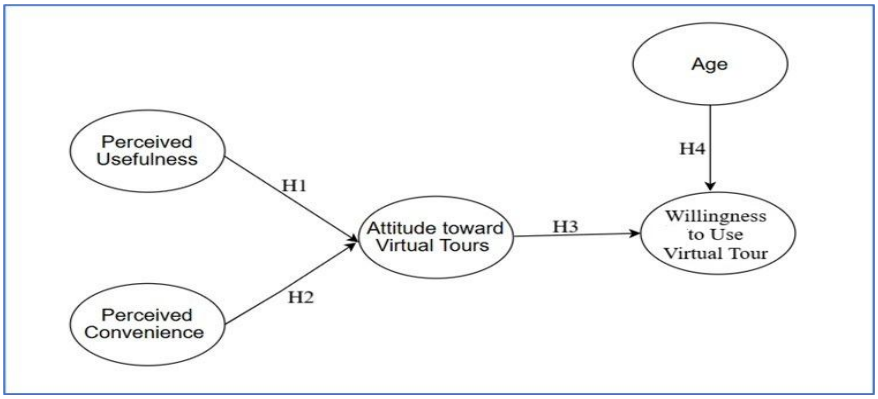

Figure 1.1

Perceived Usefulness (PU) refers to tourists' belief that virtual tours enhance travel planning and destination evaluation. When virtual tours are perceived as beneficial and informative, tourists are more likely to develop favourable attitudes toward using them (Davis, 1989; Bansah & Darko Agyei, 2022).

H1: Perceived Usefulness (PU) positively influences Attitude toward Virtual Tours (ATTVT). Perceived Convenience (PC) reflects the ease and accessibility of using virtual tourism technologies. Greater convenience leads to more favourable attitudes toward virtual tours (Lin, 2016; Alyahya & McLean, 2022).

H2: Perceived Convenience (PC) positively influences Attitude toward Virtual Tours (ATTVT).

Attitude represents an individual's overall evaluation of virtual tour technologies. A positive attitude increases tourists' willingness to use virtual reality tours (Ajzen, 1991; Alyahya & McLean, 2022).

H3: Attitude toward Virtual Tours (ATTVT) positively influences Willingness to Use Virtual Reality Tours (WUVRT).

Generational differences may influence receptiveness to immersive technologies, with younger cohorts typically showing higher willingness to use virtual tours (Rane et al., 2023; Phoong et al., 2024).

H4: Age significantly influences Willingness to Use Virtual Reality Tours (WUVRT).

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Research Methodology and Results

This study was conducted among 102 respondents to examine tourists' willingness to use Virtual Reality (VR) tours. The sample comprised Generation Y (1981–1996) and Generation Z (1997–2012) respondents. Data were collected using a structured questionnaire covering demographic characteristics, travel-related behaviour, prior VR and virtual tour experience, and key attitudinal constructs, including Perceived Usefulness, Perceived Convenience, Attitude toward Virtual Tours, and Willingness to Use Virtual Reality Tours. All items were measured on a five-point Likert scale.

The data were analysed using SPSS, employing descriptive statistics, reliability analysis, Chi-square tests, ANOVA, and regression analyses.

Descriptive statistics for demographic and behavioural variables are presented below.

Variable	Frequency	Percent	Cumulative Percent
Gender	Male	43	42.2
	Female	59	100
Age	Gen Y	40	39.2
	Gen Z	62	100
Education	Schooling	17	16.7
	UG	22	38.2
	PG	32	69.6
	Professional	31	100
Annual Family Income	0–2.5 L	27	26.5
	2.5–5 L	19	45.1
	5–7.5 L	18	62.7
	7.5–10 L	20	82.4
	Above 10 L	18	100
Travel Frequency	Rarely/Never	28	27.5
	Once/year	24	51
	2–3 times/year	26	76.5
	4+ times/year	24	100
Prior VR Experience	Yes	39	38.2
	No	63	100
Prior Virtual Tour Experience	Yes	21	20.6
	No	81	100

Table 1.1 demographic and behavioral variables

Reliability of scales was assessed using Cronbach's alpha, with all scales achieving acceptable internal consistency:

Scale	Cronbach's Alpha	N of Items
Perceived Usefulness	0.78	5
Perceived Convenience	0.84	5
Attitude toward Virtual Tour	0.81	3
Willingness to Use VirtualTours	0.79	3

Table 1.2 Realiability test

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A Chi-square test was conducted to examine the association between age and travel frequency. Results indicated no significant relationship ($p > 0.05$), suggesting that travel frequency does not differ substantially between Gen Y and Gen Z:

Test	Value	df	p
Pearson Chi-Square	2.436	3	0.487
Likelihood Ratio	2.45	3	0.484
Linear-by-Linear Association	0.297	1	0.586

Table 1.3 Chi-square test - Age and Travel frequency

One-way ANOVA was conducted to examine differences in willingness to use virtual reality tours between Generation Y and Generation Z. Although Generation Z reported a higher mean willingness, the difference was marginally insignificant ($p = 0.072$).

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.046	1	2.046	3.316	0.072
Within Groups	61.685	100	0.617		
Total	63.731	101			

Table 1.4 ANOVA

Multiple linear regression was conducted to test the influence of Perceived Usefulness (PU) and Perceived Convenience (PC) on Attitude toward Virtual Tours:

R	R^2	Adjusted R^2	Std. Error
0.458	0.21	0.196	0.624

Table 1.5 Multiple linear regression

Both PU ($\beta = 0.28$, $p < 0.01$) and PC ($\beta = 0.52$, $p < 0.001$) positively influenced attitude, with PC being the stronger predictor.

Simple linear regression indicated that Attitude significantly predicted Willingness to Use Virtual Reality Tours:

R	R^2	Adjusted R^2	Std. Error
0.406	0.165	0.157	0.711

Table 1.5 Simple linear regression

Overall, the findings confirm that both Perceived Usefulness (PU) and Perceived Convenience (PC) positively influence attitude toward virtual tours, with PC emerging as the stronger predictor. Attitude, in turn, enhances willingness to use VR tours, and Generation Z demonstrates higher willingness compared to Generation Y. reduce the word limit let it be crisp.

Findings

The analysis reveals several key insights regarding tourists' willingness to use virtual reality tours among tourists in Chennai. Descriptive statistics indicate a balanced sample of Gen Y and Gen Z respondents, with Gen Z demonstrating a slightly higher interest in virtual tours. The Chi-square test showed no significant association between age and travel frequency,

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suggesting that travel habits are relatively consistent across generations. ANOVA results indicated that Gen Z exhibits a higher mean willingness to use virtual reality tours compared to Gen Y, though the difference was marginally insignificant.

Reliability analysis confirms that all scales achieved acceptable internal consistency, supporting the credibility of the measured constructs. Multiple linear regression results show that both perceived usefulness and perceived convenience positively influence attitude toward virtual tours, with perceived convenience emerging as the stronger predictor (Bansah & Darko Agyei, 2022; Alyahya & McLean, 2022). Furthermore, simple linear regression indicates that attitude significantly predicts tourists' willingness to use virtual reality tours, confirming the theoretical model based on the Technology Acceptance Model (Davis, 1989).

Practical & Theoretical Implications

The findings suggest that marketers and destination managers should prioritize convenience and ease of use in virtual tour platforms to enhance tourists' willingness to use VR experiences. Generational differences indicate that Generation Z, as digital natives, may respond more positively to interactive and accessible VR features. Theoretically, the study reaffirms the relevance of TAM in tourism, showing that perceived convenience may exert a stronger influence than perceived usefulness in shaping attitudes toward immersive technologies (El-Said & Aziz, 2022; Van Nguyen et al., 2025).

Limitations and Suggestion for future research

Limitations of this study include the geographical focus on Chennai and the sample size of 102 respondents, which may limit generalizability. Future research could expand to multiple urban centres and explore additional factors such as sensory engagement, prior VR experience, or content realism. Longitudinal studies could also track patterns of willingness to use virtual reality tours over time.

Conclusion

In conclusion, this study demonstrates that perceived usefulness and convenience significantly enhance attitude toward virtual tours, with convenience being the dominant predictor. Attitude, in turn, positively influences willingness to use virtual reality tours. Gen Z shows higher receptivity toward VR-based tourism, suggesting that immersive technologies have considerable potential to reshape urban tourist behaviour in India, promoting informed and sustainable travel decisions (Phoong et al., 2024; Rane et al., 2023).

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