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Research on Factors Affecting Smartphone Use on Generation Z's Travel Intention to Ha Giang Province

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Abstract
In the context of widespread digital transformation, smartphone usage has become a prevalent consumer behavior, particularly in the tourism activities of Generation Z—digital citizens who have matured in a technology-driven era. This study aims to investigate the factors influencing travel intention of Generation Z to Ha Giang Province, a high-potential tourism destination that has yet to fully leverage the advantages of digital technology. Grounded in the extended Technology Acceptance Model (TAM), the research integrates a quantitative survey with a case study focusing on Gen Z respondents in Bac Tu Liem District (Hanoi). Analytical methods employed include Cronbach's Alpha reliability analysis, Exploratory Factor Analysis (EFA), Pearson correlation, and multiple linear regression using SPSS 26.0. The findings identify four key determinants that positively influence travel intention: (1) perceived usefulness, (2) perceived ease of use, (3) user attitude toward smartphone usage, and (4) the impact of digital content and social media. Based on the empirical results, the study proposes several managerial implications, including the development of localized smart tourism applications, optimization of digital marketing strategies through social media platforms, and enhancement of digital experiences at tourist destinations. These findings offer both theoretical and practical contributions to the strategic formulation of digital marketing policies and the promotion of smart tourism development, especially in mountainous provinces like Ha Giang.

Keywords: Smartphone, Generation Z, Travel Intention, Technology Acceptance Model (TAM), Ha Giang, Digital Travel Behavior

1. Introduction

Generation Z – individuals born between 1995 and 2010 (Williams *et al*., 2010; Nguyễn Hồng Quân, 2022) [7, 5] – is characterized by a deep integration with technology and is emerging as a potential market segment of travelers who frequently utilize smartphones to search for information, make service bookings, and share travel experiences. Hà Giang Province, with its majestic natural landscapes and distinctive indigenous culture, is gradually transforming itself into an attractive destination for young tourists. Today, smartphones have become indispensable devices, enabling users to make calls, browse the internet, search for information, take photos, and more. In this context, it is essential to examine the relationship between smartphone usage behavior and Generation Z's travel intention to Hà Giang. This study aims to provide a scientific foundation for designing effective communication strategies, developing smart tourism products, and tapping into the young traveler segment. Moreover, the research endeavors to fill the existing gap in academic literature regarding digital travel behavior in highland localities.

2. Research Findings

2.1 Theoretical Overview of Smartphones, Travel Intention, and Generation Z

Concept of Smartphone: According to Lusekelo and Juma (2015) [2], a smartphone is a device that combines the functionalities of both a computer and a mobile phone. It operates on an operating system and allows the installation of applications, enabling it to function similarly to a computer. It also provides internet access and entertainment features such as photography, video playback, music streaming, and web browsing. Muhammad and Tariq (2013) [4] define a smartphone as a mobile phone that, beyond traditional functionalities like voice calling and text messaging, is equipped with advanced features including multimedia display, gaming, video streaming, web browsing, integrated camera, audio recording, email services, and access to social networking applications. Therefore, smartphones are significantly more advanced than conventional mobile phones.

Concept of Generation Z: Generation Z (Gen Z), also known as the post-Millennial generation, refers to individuals born approximately between 1995 and 2010, following Generation Y (Millennials). This is the first generation to grow up fully immersed in the digital era, characterized by their natural and frequent use of information technology. They are considered true "digital natives," having been raised alongside the proliferation of smartphones, social media, and digital communication platforms (Williams *et al*., 2012; Singh & Dangmei, 2016) [8, 6]. According to McCrindle & Fell (2020) [3], Gen Z not only exhibits superior technological competence but is also marked by global thinking, a continuous desire for learning, a strong sense of individuality, and deep concern for social issues such as equality, climate change, and civic responsibility. This generation tends to value real-life experiences over material possessions and often makes purchasing decisions based on online reviews and social media influence.

Concept of Travel Intention: According to Nguyen Viet Hoang (2023), travel intention is defined as "an individual's subjective desire to undertake a journey, influenced by perceived usefulness, ease of technology use, personal attitudes, and social media impact.".

2.2 Research Model and Hypotheses on the Impact of Smartphone Usage on Travel Intention among Generation Z in Hà Giang

This study is developed based on the adaptation and extension of the Technology Acceptance Model (TAM) proposed by Davis (1989) [1], while also incorporating specific behavioral characteristics of Generation Z in the tourism context. The proposed research model includes four key independent and mediating variables: (1) Perceived Usefulness (PU), (2) Perceived Ease of Use (PEOU), (3) Attitude Toward Smartphone Use in Tourism (ATT), and (4) Travel Intention (TI). In this framework, ATT functions as a mediating variable between PU/PEOU and TI.

The model is empirically tested using quantitative survey data and analyzed through statistical techniques including Cronbach's Alpha, Exploratory Factor Analysis (EFA), correlation analysis, and linear regression.

The research hypotheses are formulated as follows:

> **H1**: Perceived Usefulness (PU) has a positive effect on Attitude (ATT) toward smartphone usage in tourism.
> **H2**: Perceived Usefulness (PU) has a positive effect on Travel Intention (TI).
> **H3**: Perceived Ease of Use (PEOU) has a positive effect on Attitude (ATT).
> **H4**: Perceived Ease of Use (PEOU) has a positive effect on Perceived Usefulness (PU).
> **H5**: Attitude (ATT) has a positive effect on Travel Intention (TI).
> **H6**: Travel Intention (TI) positively influences the actual behavior of smartphone usage in tourism activities.

2.3 Results

Reliability Analysis

Bảng 1: Summary of Cronbach's Alpha Reliability Test

S. No	Construct	Number of Items	Cronbach's Alpha	Corrected Item–Total Correlation	Result
1	Perceived Usefulness (PU)	6	0.969	> 0.85	Excellent – all items retained
2	Perceived Ease of Use (PEOU)	6	0.97	> 0.85	Excellent – all items retained
3	Attitude toward Smartphone Use (ATT)	7 (ATT2 removed → 6 retained)	0.983 → 0.984	> 0.92	Excellent – ATT2 removed to improve reliability
4	Travel Intention (TI)	7	0.978	0.878 – 0.936	Excellent – all items retained

The reliability analysis of the measurement scales in the research model reveals that all constructs meet the reliability threshold based on Cronbach's Alpha, with values ranging from 0.969 to 0.984—indicating a very high level of internal consistency and scale stability. Specifically, the Cronbach's Alpha for the *Perceived Usefulness* (PU) scale is 0.969; *Perceived Ease of Use* (PEOU) is 0.970; *Attitude toward smartphone use in tourism* (ATT) reaches 0.984 after removing item ATT2 to enhance reliability; and *Travel Intention* (TI) records a value of 0.978. Additionally, the Corrected Item–Total Correlation coefficients for all observed variables are above 0.85, indicating each item significantly contributes to the measurement of its corresponding construct. These findings confirm that the scales are reliable and appropriate for further analyses such as Exploratory Factor Analysis (EFA) and regression. Moreover, the results reinforce the theoretical adequacy of the proposed research model, providing a solid foundation for exploring the influence of smartphone usage on the travel intention of Generation Z tourists toward Hà Giang Province.

Exploratory Factor Analysis (EFA)

The results of the Exploratory Factor Analysis confirm that the measurement scales demonstrate both convergent and discriminant validity, validating the factor structure in line with the empirical data. For the independent variables (PU and PEOU), the Kaiser–Meyer–Olkin (KMO) measure is 0.921, and Bartlett's Test of Sphericity is statistically significant (Sig. = 0.000), indicating that the data is suitable for factor extraction. Two distinct factors—*Perceived Usefulness* and *Perceived Ease of Use*—are extracted, together explaining 86.909% of the total variance, which reflects excellent construct quality.

For the mediating variable (ATT), a single factor is extracted, accounting for 92.512% of the total variance, with all factor loadings exceeding 0.95, demonstrating high conceptual consistency. Similarly, the dependent variable (TI) is also confirmed as a unidimensional construct, explaining 88.540% of the variance with strong factor loadings (above 0.91). These results provide robust empirical evidence for the construct validity of the scales, ensuring a reliable foundation for subsequent correlation and regression analyses.

Correlation Analysis

PU and PEOU: The correlation coefficient is 0.407, p = 0.000. There is a statistically significant, moderate positive correlation between *Perceived Usefulness* and *Perceived Ease of Use*. This indicates that users who perceive smartphones as easier to use are also more likely to perceive them as useful in tourism contexts.

PU and ATT: The correlation coefficient is 0.380, p = 0.000. A moderate, statistically significant positive correlation exists between *Perceived Usefulness* and *Attitude toward smartphone use in tourism*, suggesting that higher perceived usefulness is associated with a more favorable attitude toward using smartphones.

PU and TI: The correlation coefficient is 0.434, p = 0.000. There is a moderate, statistically significant positive relationship between *Perceived Usefulness* and *Travel Intention*, indicating that when users find smartphones useful, they are more likely to intend to use them for travel purposes.

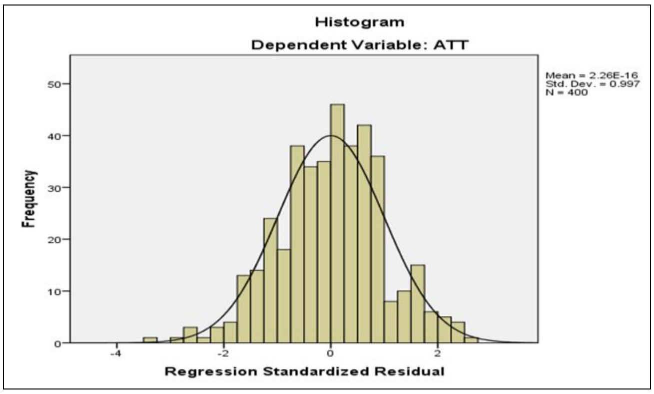
PEOU and ATT: The correlation coefficient is 0.400, p = 0.000. A statistically significant, moderate positive correlation exists between *Perceived Ease of Use* and *Attitude*, indicating that greater ease of use is associated with a more favorable attitude.

PEOU and TI: The correlation coefficient is 0.362, p = 0.000. There is a moderate, statistically significant positive relationship between *Perceived Ease of Use* and *Travel Intention*, suggesting that ease of use enhances the likelihood of using smartphones for travel purposes.

ATT and TI: The correlation coefficient is 0.397, p = 0.000. A statistically significant, moderate positive correlation exists between *Attitude* and *Travel Intention*. This indicates that users with a more positive attitude toward using smartphones in tourism are also more likely to intend to use them in their travel behavior.

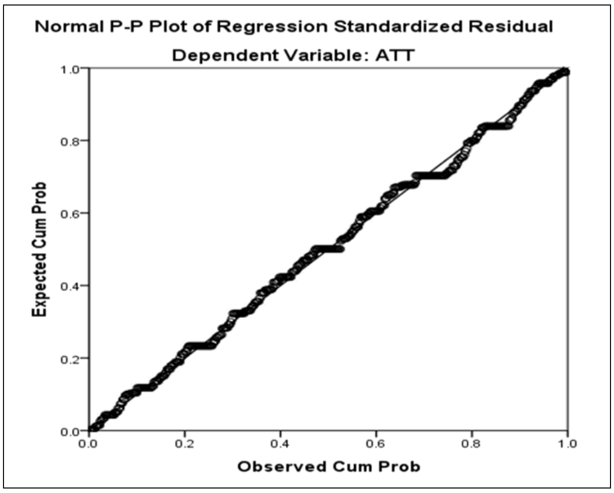
Regression Analysis

Testing the Assumptions of Regression



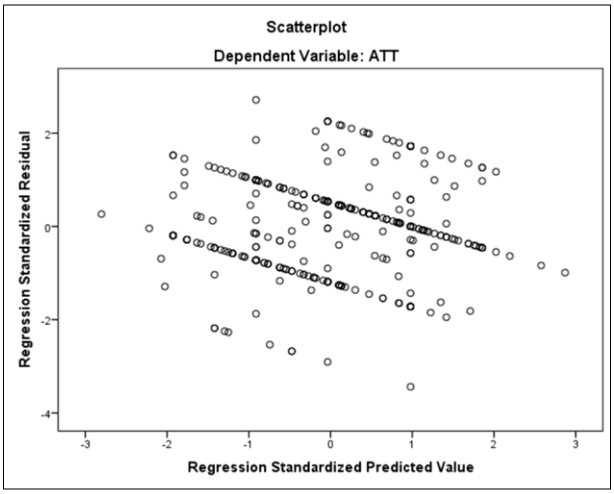
Histogram Diagram

Based on the Histogram chart, the standardized residuals are approximately normally distributed. The mean value is 2.26×10^{-16}, which is close to zero, and the standard deviation is 0.997, which is approximately equal to one. These results indicate that the standardized residuals follow a normal distribution.



P-Plot Diagram

Based on the Normal P–P Plot, the data points (represented by small circles) tend to align closely along the diagonal line. This indicates that the observed cumulative distribution of the standardized residuals closely matches the expected cumulative distribution of a normal distribution. The proximity of the points to the diagonal line is a strong indication that the standardized residuals follow a normal distribution.



Regarding the Linearity Assumption

The linearity assumption was examined using the Scatterplot method. The scatterplot of standardized residuals versus standardized predicted values shows that the residuals do not follow any discernible pattern. The Regression Standardized Residuals appear to be randomly dispersed around zero, regardless of the Regression Standardized Predicted Values. This indicates that the linearity assumption is not violated. In other words, the standardized predicted values represent the predicted outcomes of the dependent variable after normalization, while the standardized residuals reflect the difference between the actual and predicted standardized values.

4. Conclusion

In the context of the digital technology boom and the growing popularity of "smart tourism," especially among young travelers from Generation Z, this study investigates the factors influencing the travel intention of Gen Z tourists to Hà Giang Province—a promising yet under-promoted destination in terms of digital communication. Grounded in the Technology Acceptance Model (TAM) and prior foundational research, the study proposes a conceptual model comprising four core components: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude toward smartphone use in tourism (ATT), and Travel Intention (TI).

The quantitative analysis based on a sample of 400 respondents in Bắc Từ Liêm District (Hanoi) shows that all measurement scales demonstrate high reliability, with Cronbach's Alpha exceeding 0.96. Exploratory Factor Analysis (EFA) confirms the theoretical construct validity, with total variance explained exceeding 85% and all factor loadings above 0.91. Correlation and linear regression analysis indicate that both PU and PEOU have a positive and statistically significant influence on ATT, with PEOU exerting a stronger effect. Furthermore, ATT plays a critical mediating role in influencing travel intention (TI). The regression models reveal that the independent variables explain 21.7% of the variance in attitude and 19.1% of the variance in travel intention—an acceptable level in behavioral and social science research.

Based on these findings, the study proposes several practical recommendations to enhance the digital travel experience for Generation Z, including: developing local tourism applications integrating AR/VR technologies, improving telecommunications infrastructure at key destinations, strengthening social media outreach through KOLs and influencers, and promoting digital skills education for youth in local communities. Additionally, it is important to leverage the role of Generation Z as cultural ambassadors who can creatively and dynamically promote Hà Giang's tourism image.

This research contributes not only practical insights for local tourism marketing strategies tailored to the digital behavior of young consumers, but also academic value in validating and expanding the TAM framework within the context of digital tourism. It serves as a scientific foundation for further studies on technology-driven consumer behavior in Vietnam's service industries.

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