ARTICLE

JOURNAL OF CONTEMPORARY TOURISM AND HOSPITALITY
KSTCL IIUM

Mobile Applications and Tourist Loyalty in Malaysia: A Comparative Case Study of Malaysia Airlines and AirAsia

Muhammad Kyrie Zariff Mohamed[1], Nur Shuhadah Mohd[2]*, Muhammad Fadhlullah Najimudin[3]

[1,2] Department of Tourism, Kulliyyah of Sustainable Tourism and Contemporary Languages, International Islamic University Malaysia, Malaysia, [3]School of Law, College of Law, Government and International Studies, Universiti Utara Malaysia, Malaysia

[1]ahmadmuhammad0070@gmail.com
[2] shuhadah@iium.edu.my
[3]fadhlullah.najimudin@gmail.com

*Corresponding author: shuhadah@iium.edu.my

ABSTRACT

In today's globalised world, mobile platforms have become indispensable, especially in tourism, where travel applications enhance efficiency and convenience. Yet, despite their potential, airline mobile applications face persistent challenges such as low user engagement, limited utilisation, and minimal adoption for flight bookings. This study explores how the attributes of airline mobile applications influence tourist loyalty within the Malaysian context. Employing a quantitative approach, the research analyses patterns of tourist loyalty in relation to the use of airline mobile applications. The findings identify five key attributes shaping loyalty: user experience, usability, interface design, security features, and system compatibility. These characteristics show significant positive relationships with tourist loyalty, with some exerting stronger influence than others. The study offers important practical implications for airlines and tourism stakeholders by emphasising the strategic design of mobile applications that prioritise these attributes to strengthen customer retention. By optimising application features, airlines can enhance user engagement and increase the adoption of mobile bookings in the Malaysian market. This research also contributes to the literature on tourism and mobile technologies by providing empirical evidence on the direct impact of mobile application attributes on tourist loyalty in a developing aviation market. It highlights the need for well-designed, secure and user-friendly platforms to meet travellers'

expectations and sustain competitive advantage in an increasingly digitalised tourism environment.

Keywords: Airline mobile applications; Consumer loyalty; Mobile applications attributes; Mobile usability; User experience design

Article Classification: Research Paper

1. INTRODUCTION

Airlines and other businesses have adapted mobile technology to offer customers greater control over their service experience and to develop offerings tailored to individual needs. Through airline mobile applications, consumers can separate the moment of purchase from consumption, enhancing convenience during pre-travel stages. Globally, airlines have increasingly encouraged customers to use mobile applications for tasks traditionally handled by service personnel, such as check-in, flight status updates, and boarding pass generation. According to the International Air Transport Association (2024), 71% of travellers now book their journeys online or through a mobile application, with more than half preferring to use the airline's website or app. Mobile applications and websites have become the most common reservation platforms (Travelport Digital, 2019). Furthermore, 32% of travellers want all travel information consolidated in one place before departure, and convenience remains the main factor influencing their choice of payment method (International Air Transport Association, 2024). These patterns signal a sustained shift towards digital self-service, supported by growing expectations for speed, transparency, and personalisation in airline service delivery.

While online travel agency (OTA) applications aim to provide a one-stop platform for booking flights, hotels, rental cars, and other services (Phocuswright, 2021), airline-specific mobile applications are more focused on flight-related services such as status updates, in-flight entertainment, and baggage tracking (Wang *et al.*, 2018; Benckendorff *et al.*, 2019). OTA apps are often perceived as offering more comprehensive services and competitive prices by aggregating multiple airlines and services (Phocuswright, 2021). Furthermore, OTA apps' features are more user-friendly and streamlined interfaces, whereas airline apps can sometimes be cluttered or less intuitive (Zhang, 2021).

Despite the advantages of mobile technology, adoption rates for travel apps remain limited. Gelfeld (2017) reported that more than half of tourists preferred not to use travel apps, and only a small percentage used mobile phones to book vacations or flight tickets (Kemmis, 2022). Many travellers are reluctant to download travel apps due to infrequent usage (Benady & Hadwick, 2016), while poor user experiences such as slow

loading times, complex navigation, and limited personalisation further discourage engagement (Dickinson *et al.*, 2015). Restricted functionality, where apps offer only basic services like flight booking, may reduce competitiveness compared to platforms offering multiple travel options (Egger *et al.*, 2020). In addition, the abundance of alternative apps and websites makes travellers hesitant to commit to a single platform (Sia *et al.*, 2023).

In Malaysia, internet penetration reached 97.7% in early 2025 (34.9 million users), with mobile connections exceeding the total population at 121%, indicating broad access to mobile technology (Kemp, 2025). Among users aged 16–64, 98.5% owned a mobile device, with popular online activities including downloading apps, shopping, and social media (Howe, 2024). The government has also promoted digital literacy and e-commerce skills (Othman *et al.*, 2021). Yet, despite this high digital readiness, the uptake of airline mobile applications remains inconsistent, and their role in fostering consumer loyalty is still underexplored. This gap is critical, as poor usability, limited features, or weak interface design may discourage repeat use and push travellers towards OTA platforms, which often provide more integrated and competitive services.

While global studies have examined mobile app adoption, there is limited empirical evidence focusing on the Malaysian airline sector, particularly regarding how specific app attributes influence behavioural engagement and purchase intention. This lack of contextual research makes it difficult for airlines to design applications that effectively build and sustain loyalty. Therefore, this study investigates the attributes of airline mobile applications, including user experience, usability, user interface, security, and compatibility, and examines how these factors influence tourists' loyalty in Malaysia. By addressing this gap, the study offers both academic contributions and practical insights for airlines seeking to improve mobile app strategies and strengthen long-term customer relationships.

2. LITERATURE REVIEW

2.1 Mobile Travel Services

The rapid advancement of mobile technologies has fundamentally transformed travel planning and booking processes. Mobile devices such as smartphones now enable travellers to access a wide range of services, including flight searches, hotel reservations, and itinerary management, with increasing convenience (Ho *et al.*, 2021). Industry reports show steady growth in mobile travel service adoption as users prioritise real-time accessibility and on-the-go functionality (Market.us, 2025). As mobile platforms continue to evolve, their integration into tourism is expected to deepen, further reshaping traveller expectations and behaviours (Kim & Kim, 2017).

These mobile travel services are delivered through multiple channels, each catering to different user needs. Web-based platforms provide browser-accessible travel solutions optimised for mobile devices (Schmidt-belz *et al.*, 2002), while email-based services deliver booking confirmations, promotional offers, and itinerary updates (Knowles & Westcott, 2021). However, mobile applications, particularly airline applications, have emerged as the most comprehensive solution, offering personalised features such as real-time flight updates, digital boarding passes, and in-app rebooking options (Kim & Kim, 2017). This multi-channel approach ensures travellers can manage their journeys seamlessly across different touchpoints.

The global mobile travel market has experienced exponential growth, reflecting the increasing reliance on digital solutions. Recent industry analyses estimate the market's value at $424 billion by 2020, with the Asia-Pacific and European regions driving much of this expansion (Phocuswright, 2021). Studies further reveal that mobile devices now dominate the entire travel journey, from initial destination research to post-trip reviews (Phocuswright, 2021). This shift reflects the central role of mobile platforms in modern tourism, as travellers increasingly expect instant access to information and services.

Mobile travel services have also influenced consumer decision-making and travel patterns, proving their role beyond convenience. Research indicates that the ease of mobile bookings can reduce price sensitivity, particularly for flight purchases (Islam *et al.*, 2010). However, adoption rates vary significantly across regions due to geographic, cultural, and infrastructural factors (Bouwman *et al.*, 2012). Studies on other mobile services, such as location-based mobile services, further demonstrate that user experiences shape expectations, leading to demand for more precise and context-aware functionalities (Schmidt-belz *et al.*, 2002). These findings highlight the transformative impact of mobile services on tourism, while also acknowledging the need for continued innovation to meet diverse traveller needs.

Additional research in the Malaysian context reinforces this point. The i-Suyyah mobile application, developed for Arab tourists in Malaysia, demonstrated that strong usability directly improves satisfaction and engagement, highlighting usability as a key determinant of mobile app success (Daud *et al.*, 2021). Similarly, the adoption of mobile wallets in Malaysia has been found to depend on levels of trust and the strength of supporting infrastructure, which in turn shape perceived ease of use and usefulness (Lui & Zainuldin, 2025). These findings illustrate that, beyond accessibility, factors such as usability and trust are essential in encouraging the adoption and sustained use of mobile travel applications, a consideration particularly relevant to airline apps where convenience and security expectations are high.

2.2 Travel Consumption through Mobile Applications

Mobile travel applications have transformed travel consumption patterns across all stages of the journey. Travellers increasingly use these apps for destination research, comparing flights and hotels, and accessing peer reviews, fundamentally changing pre-trip planning behaviours (Lee & Kim, 2023). The convenience of mobile apps has similarly altered consumption during travel, streamlining arrangements and providing real-time information (Sia *et al.*, 2023). Post-trip engagement has also evolved, with travellers frequently using apps to share experiences through photos and reviews, thereby influencing both the industry and future travellers (Bhinder, 2025).

The purchasing process through mobile travel applications exemplifies the sector's growth of mobile commerce (m-commerce). Users typically browse options, select itineraries, and complete transactions via various payment methods before receiving electronic confirmations (Phocuswright, 2021). Between 2019 and 2023, global revenue from travel apps more than tripled (Statista Research, 2024), and total global downloads are projected to surpass 2 billion in 2024, with app revenues reaching about $180 million (Rui Ma, 2024). Purchasing behaviours differ between platforms, with online travel apps serving broader audiences with comprehensive services like trip planning, while airline apps cater to frequent flyers with flight-specific features (Parise *et al.*, 2016).

Consumer preferences for mobile shopping are shaped by several key factors, including convenience, trust, and personalisation, which significantly influence purchasing decisions (Groß, 2015). Streamlined checkout processes particularly enhance conversion rates, reflecting the broader shift towards mobile-first consumption where apps have become the preferred channel for browsing and booking travel services (Groß, 2015). Airline mobile applications serve as essential tools for travellers to manage itineraries, modify bookings, and access real-time flight updates, offering significantly greater convenience than traditional desktop platforms (Budd & Vorley, 2013; Joshi *et al.*, 2024). These applications enhance customer satisfaction through personalised experiences, with their effectiveness largely dependent on thoughtful design implementation (Budd & Vorley, 2013).

The success of travel applications is reflected in three key design principles: utility, usability, and novelty, which collectively enhance competitive advantage and product performance (Chang, 2015; Lee *et al.*, 2011). These elements correspond to fundamental technological characteristics, which are compatibility, complexity, and relative advantages, directly influencing user perception and experience (Lee *et al.*, 2011). Superior design not only differentiates products in competitive markets but also increases recommendation likelihood and user satisfaction (Lee *et al.*, 2011). Consequently, understanding these design qualities becomes critical, as they determine how effectively an application meets both non-functional requirements and core functional needs.

Prior research also supports the link between consumption and loyalty, particularly in relation to service quality and personalisation. In the hospitality sector, studies have shown that mobile applications delivering personalised features enhance customer engagement and strengthen emotional connections with brands (Yeo *et al.*, 2024). Within the airline industry, service quality and price remain central drivers of satisfaction and loyalty. Mahmud *et al.* (2013) found that passengers' satisfaction with service and pricing significantly influenced their loyalty, while Nadiri *et al.* (2008) reported that quality perceptions directly shaped repeat patronage in the airline sector. These studies suggest that mobile app-based consumption in airlines is not just a matter of convenience but reflects travellers' broader perceptions of service quality and fairness, both of which play a decisive role in strengthening or weakening loyalty.

2.3 Loyalty towards Airline Applications

Loyalty in mobile travel applications manifests through measurable user engagement and purchasing behaviours, demonstrating both perceived value and satisfactory user experiences (Lee & Kim, 2023). These loyalty indicators extend to information-seeking activities, community participation, and experience-sharing features within applications (Lee & Kim, 2023). The combination of recommendation, positive word-of-mouth, and purchase frequency collectively establishes reliable metrics for assessing app loyalty (Kim *et al.*, 2016). Such loyalty dynamics prove particularly valuable in travel applications where user retention directly influences revenue generation through repeat bookings and service expansions (Kim & Kim, 2017)**.**

The fundamental concept of customer loyalty reflects the probability of repeat consumption with a company, shaped by satisfaction levels, service quality, and perceived value (Kim & Kim, 2017). Within mobile travel contexts, application usability and interface design significantly affect loyalty by shaping the overall booking experience (Kim & Kim, 2017). Contemporary research characterises loyalty through both behavioural patterns of repeat purchases and attitudinal preferences for specific brands (Foster & Cadogan, 2000). This dual perspective recognises that loyal customers resist competitor approaches and actively promote their preferred brands through recommendations and additional purchases (Griffin, 2009; Kotler & Keller, 2009).

The digital marketplace amplifies loyalty's importance, where customer retention demonstrates greater cost-efficiency than new customer acquisition (Deng *et al.*, 2010). Within mobile commerce environments, loyal users generate sustained revenue while reducing marketing expenditures, resulting in service providers implementing retention strategies, including device upgrades and bonus services (Eshghi *et al.*, 2007). Comprehensive loyalty encompasses repurchase intentions, willingness to recommend, price tolerance, and engagement with additional product lines (Chang & Fong, 2010) . For

the present study, mobile application loyalty is defined as users' long-term commitment to their current service platform combined with their propensity to recommend it to others (Reichheld & Schefter, 2000).

Recent research has expanded the understanding of loyalty dynamics within the aviation sector. Bastari *et al.*(2023) found that advertising on platforms such as Instagram significantly influenced satisfaction and loyalty among low-cost airline passengers. Likewise, social media feedback has been shown to be a valuable tool for airlines to evaluate performance and identify weaknesses. For instance, Saad et al. (2023) applied Twitter sentiment analysis to AirAsia and revealed mixed perceptions of service quality after COVID-19, while Fan and Niu (2016) demonstrated that service recovery strategies deployed through social media could directly affect consumer perceptions of loyalty. Furthermore, Iris and Nagalingham (2023) highlighted how business intelligence solutions implemented in United Airlines leveraged passenger feedback and digital data to refine loyalty strategies. In addition, research on brand app usability indicates that cross-channel features mediate the relationship between offline service satisfaction and app recommendations, ultimately strengthening consumer loyalty in the airline industry (Chen et al., 2020). Collectively, these findings suggest that loyalty through mobile apps cannot be seen in isolation but must be analysed within a broader digital ecosystem of usability, social engagement, and brand integration.

3. METHODOLOGY

This study employed a quantitative, cross-sectional survey design with purposive sampling. The participants were required to have prior experience using both the Malaysia Airlines App and the AirAsia Super App, as these represent the two most widely used airline applications in Malaysia. A total of 100 valid responses were collected, comprising 32 males and 68 females. The majority of respondents were from Generation Z (aged 10–25 years, n = 92), while the remainder were from Generation Y (aged 26–41 years, n = 6) and Generation X (aged 42–57 years, n = 2).

The research instrument was a structured questionnaire, developed based on validated scales from previous studies to ensure construct validity. The questionnaire consisted of three sections: (i) demographic information, (ii) perceptions of airline app attributes covering five constructs (user experience, usability, user interface, security, and compatibility), and (iii) measures of loyalty through two constructs, behavioural engagement and purchase intention. All items were measured using a 5-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). Data collection was conducted through both online distribution and face-to-face administration in order to maximise response rates within the given time constraints. Respondents were informed of the purpose of the study and provided consent before participating.

For data analysis, descriptive statistics were applied to profile respondents and summarise mean scores for both airline applications. A paired sample t-test was employed to examine whether observed differences in attribute ratings and loyalty measures between the two apps were statistically significant, with the significance level set at $p < 0.05$. Qualitative data were also obtained from open-ended questions, and thematic coding was used to identify recurring themes. All quantitative analyses were performed using SPSS software.

4. FINDINGS AND DISCUSSION

4.1 Respondent Profiles

A total of 100 respondents participated in this study. The demographic breakdown is presented in Table 1, showing both the number of respondents and their respective percentages. The sample was predominantly female, with most respondents belonging to Generation Z (aged 10–25 years). The majority were from Selangor, followed by Johor and Kuala Lumpur, and most were students pursuing tertiary education.

Table 1. Respondents' Profile

Category	Subcategory	Frequency	Percentage (%)
Gender	Male	32	32
	Female	68	68
Age	10–25 years (Gen Z)	92	92
	26–41 years (Gen Y)	6	6
	42–57 years (Gen X)	2	2
	Above 57 years	0	0
Origin	Selangor	28	28
	Johor	15	15
	Kuala Lumpur	12	12
	Perak	9	9
	Terengganu	8	8
	Pahang	7	7
	Kelantan	6	6
	Pulau Pinang	4	4
	Sabah, Kedah	6	6 (3+3)
	Negeri Sembilan	2	2
	Sarawak, Melaka, Thailand	3	3 (1+1+1)

	Perlis	0	0
Education	Secondary	1	1
	Tertiary	91	91
	Postgraduate	8	8
Employment	Government sector	3	3
	Private sector	2	2
	Business owner	1	1
	Student	93	93
	Unemployed	1	1
Marital Status	Married	6	6
	Single	94	94

The respondents were largely young, single, and pursuing higher education, with females forming the majority of the sample. Most participants came from urbanised states, especially Selangor, Johor, and Kuala Lumpur, reflecting the higher concentration of mobile adoption in these regions. The dominance of Gen Z and student respondents suggests that the study primarily captures insights from digitally savvy and mobile-active users, a demographic highly relevant for evaluating airline mobile applications.

4.2 Airline Mobile Application Attributes and Consumer Loyalty

A comparative analysis of mean scores was undertaken to evaluate the users' perception towards the attributes of the Malaysia Airlines and the AirAsia Super apps (Table 2). Mean values ranged from 3.22 to 4.18, reflecting generally favourable user perceptions of both platforms.

Table 2. Summary of Mean Score Comparisons of Users' Perception towards Apps Attributes Between Malaysia Airlines App and AirAsia Super App

Attribute	Item	Higher Mean Score
IV1: User Experience	Enhances travel experience	AirAsia (4.02)
	Saves time	Equal (4.11)
IV2: Usability	Meets travel needs	AirAsia (4.06)
	Easy to use	AirAsia (4.13)
IV3: User Interface	Visual appeal	AirAsia (4.16)
	Aesthetic design	AirAsia (4.03)
IV4: Security	Personal data protection	Malaysia Airlines (3.82)

	Privacy & security attributes	AirAsia (3.94)
IV5: Compatibility	OS compatibility	AirAsia (3.90)
DV1: Behavioural Engagement	Intend to stay as user	AirAsia (3.97)
	Support other members	AirAsia (3.96)
DV2: Purchase Intention	Willing to buy tickets	Malaysia Airlines (4.18)
	Frequent future purchases	AirAsia (4.02)
	Reconsider other product purchases	AirAsia (3.55)
	Avoid counter purchases	AirAsia (3.29)

As shown in Table 2, both applications achieved high ratings for user experience (IV1), with similar scores for enhancing the travel experience (M = 3.98 for Malaysia Airlines; M = 4.02 for AirAsia) and identical means for saving time (M = 4.11). In terms of usability (IV2), the AirAsia Super App recorded slightly higher means for meeting travel needs (4.06 vs. 3.99) and ease of use (4.13 vs. 3.95). For user interface (IV3), AirAsia again outperformed Malaysia Airlines in both visual appeal (4.16 vs. 3.98) and aesthetic design (4.03 vs. 3.90). Under security (IV4), Malaysia Airlines had a marginal advantage in personal data protection (3.82 vs. 3.73), while AirAsia scored higher for overall privacy and security attributes (3.94 vs. 3.85). For compatibility (IV5), scores were nearly identical, with a slight edge for AirAsia (3.90 vs. 3.85). In behavioural engagement (DV1), AirAsia consistently recorded higher means, particularly for intention to remain a user (3.97 vs. 3.75) and willingness to support other members (3.96 vs. 3.86). Regarding purchase intention (DV2), both apps scored highly for willingness to buy tickets via the app (4.18 for Malaysia Airlines; 4.17 for AirAsia) and for frequent future purchases (4.02 vs. 3.94). AirAsia also achieved higher ratings for reconsidering other product purchases in the app (3.55 vs. 3.36) and avoiding counter purchases after using the app (3.29 vs. 3.22).

Overall, the comparative results demonstrate that the five app attributes examined, including the user experience, usability, user interface, security, and compatibility, are directly associated with tourists' loyalty outcomes, particularly behavioural engagement and purchase intention. This confirms that the study's research objective has been addressed, as the findings highlight how specific application features shape users' willingness to continue engaging with and purchasing from airline mobile applications in Malaysia.

The descriptive analysis shows that both applications received positive ratings across all measured attributes, with mean scores ranging from 3.22 to 4.18. AirAsia scored

higher in most usability, user interface, behavioural engagement, and purchase intention items, while Malaysia Airlines led in specific security measures and willingness to purchase tickets via the app. These results align with existing studies emphasising usability and interface design as critical factors in mobile app adoption (Gao *et al.*, 2013; Wang *et al.*, 2018). The small differences in mean values suggest that both airlines provide competitive mobile platforms; however, AirAsia's advantage lies in its more intuitive and appealing interface. Meanwhile, Malaysia Airlines' stronger security perception could be leveraged as a marketing point to differentiate its app in a market where data protection is increasingly valued.

4.3 Differences in Application Attributes and Loyalty between AirAsia and Malaysia Airlines

A paired sample t-test was conducted to compare respondents' evaluations of application attributes and consumer loyalty between the Malaysia Airlines App and the AirAsia Super App. This analysis tested whether the observed differences in mean scores represented genuine variations in user perceptions rather than random fluctuations. The results are summarised in Table 3.

Table 3. Paired Sample t-test Results

Variables Compared	Mean Difference	SD	t-value	Sig. (2-tailed)
IV: Application Attributes – DV: Consumer Loyalty	-0.0875	0.5080	-1.722	0.088
IV1: User Experience – DV1: Behavioural Engagement	-0.0700	0.5756	-1.216	0.227
IV1: User Experience – DV2: Purchase Intention	-0.0520	0.5926	-0.878	0.382
IV2: Usability – DV1: Behavioural Engagement	-0.1225	0.6131	-1.998	**0.048**
IV2: Usability – DV2: Purchase Intention	-0.1045	0.6357	-1.644	0.103
IV3: User Interface – DV1: Behavioural Engagement	-0.1195	0.6085	-1.964	0.052
IV3: User Interface – DV2: Purchase Intention	-0.1195	0.6085	-1.964	0.052
IV4: Security – DV1: Behavioural Engagement	-0.0733	0.4814	-1.524	0.131

IV4: Security – DV2: Purchase Intention	-0.0553	0.4665	-1.186	0.238
IV5: Compatibility – DV1: Behavioural Engagement	-0.0850	0.5426	-1.567	0.120
IV5: Compatibility – DV2: Purchase Intention	-0.0670	0.5673	-1.181	0.240

Note: Significant results ($p < 0.05$) are in bold.

The paired t-test analysis found that most attribute–loyalty relationships between the two applications were not statistically significant, except for usability's effect on behavioural engagement ($p = 0.048$), favouring the AirAsia Super App. This proves that usability is a key determinant of sustained user interaction, consistent with prior research linking ease of navigation and efficient functionality to higher engagement (Dickinson *et al.*, 2015; Egger *et al.*, 2020).

This reflected usability as a key driver of sustained engagement, aligning with the Expectation-Confirmation Theory, which indicated that user satisfaction and continued use are driven by the confirmation of initial expectations (Yao *et al.*, 2025). Given that usability improvements were the only statistically significant differentiator, this suggests that in competitive mobile service environments, incremental gains in ease of use can translate to disproportionate loyalty benefits. The absence of significance for other attributes may indicate that baseline expectations for these features (e.g., security, compatibility) are already met by both airlines, thus reducing their potential as differentiating factors (Gilbert & Wong, 2003; Park *et al.*, 2020).

These results directly support the study's objective by showing that, while most attributes were perceived similarly across the two apps, usability emerged as the most critical differentiator influencing tourists' loyalty. This finding reinforces the importance of app design that prioritises ease of use as a means of sustaining long-term user engagement in Malaysia's airline industry.

4.4 Perception of AirAsia and Malaysia Airlines App Performance

The final section of the questionnaire included an open-ended question to gather respondents' views on the performance of the Malaysia Airlines App and the AirAsia Super App, as well as comments and suggestions for improvement. A total of 78 respondents provided feedback, summarised in Table 4.

Table 4. Summary of Open-Ended Responses

Attribute	Malaysia Airlines App – Key Reasons	AirAsia Super App – Key Reasons
User Experience	More convenient; Better experience; Smooth service (6%)	User-friendly; Smoother experience (4%)
Usability	Smooth booking; More stable (2%)	Booking convenience; More functions; Simple ticket booking; Easier access; Time-saving; Live chat (9%)
User Interface	Better design; Simpler layout (2%)	Easier navigation; Appealing visuals; Systematic layout; Better UI design (9%)
Security	Higher trust in MAS (2%)	–

Feedback revealed no unanimous preference between the two applications, with opinions divided. AirAsia was frequently described as more appealing and feature-rich, particularly in usability and interface design, and respondents highlighted promotional offers as a factor influencing ticket purchases. In contrast, some users preferred Malaysia Airlines for its simpler design, ease of ticket booking, and perceived stability. Fewer respondents cited brand trust and security as reasons for choosing Malaysia Airlines. Several comments also indicated a preference without detailed justification, while others mentioned ticket pricing and brand promotions as deciding factors.

AirAsia's strengths in usability and user interface, identified in the mean score comparisons and the paired t-test analysis, were echoed in open-ended feedback, where respondents frequently mentioned more straightforward navigation, a wider range of functions, and appealing visual design. These attributes align with prior research highlighting that intuitive design and expanded functionality enhance user satisfaction and engagement (Kadaskar, 2024; Liu *et al.*, 2024).

Conversely, some respondents' preference for Malaysia Airlines on the basis of simplicity, stability, and trust reflects the higher score it received for security-related measures in the quantitative analysis. This suggests that while AirAsia may lead in interactivity and features, Malaysia Airlines retains an advantage in perceived reliability and data protection, a factor that can be particularly influential for risk-averse users

(Belanche *et al.*, 2022). The mention of promotions and ticket pricing as drivers for choosing AirAsia also points to an area not directly measured in the survey but potentially influential in shaping loyalty, suggesting that future research could integrate pricing strategy variables alongside application attributes.

These qualitative insights complement the quantitative findings by highlighting how specific app attributes, such as usability, user interface, and security, shape tourists' loyalty behaviours. By capturing user perceptions in their own words, the open-ended responses provide additional evidence that supports the research objective of identifying which mobile application features most strongly influence behavioural engagement and purchase intention in the Malaysian airline context.

5. CONCLUSION AND IMPLICATIONS

This study examined the attributes of airline mobile applications and their influence on tourist loyalty in Malaysia, focusing on a comparison between the Malaysia Airlines App and the AirAsia Super App. Quantitative results indicated that both applications were rated positively across all measured attributes, with AirAsia outperforming Malaysia Airlines in most areas related to usability, user interface, and behavioural engagement, while Malaysia Airlines held a marginal advantage in personal data protection and willingness to purchase tickets via the app. Paired sample t-test results confirmed that usability had a statistically significant impact on behavioural engagement, favouring AirAsia, while other attribute–loyalty relationships showed no significant difference. Qualitative feedback supported these findings, with respondents highlighting AirAsia's ease of use, appealing design, and promotional offers, and Malaysia Airlines' simplicity, stability, and perceived trustworthiness.

The findings carry several implications for airline operators in Malaysia. For Malaysia Airlines, improving usability, particularly in navigation, booking processes, and interactive features, could enhance user engagement and close the gap with AirAsia's performance. At the same time, the airline could leverage its perceived strengths in security and trust to attract and retain risk-averse users, positioning these as key differentiators in its marketing strategy. For AirAsia, maintaining its lead in usability and interface design is important, but strengthening data protection measures and communicating these improvements to users could further solidify its competitive position. The role of promotional offers and ticket pricing, highlighted in the qualitative results, also suggests that non-technical factors can significantly influence loyalty and should be integrated into broader mobile engagement strategies.

The study reflected the importance of balancing functional performance, security, and marketing appeal in mobile application design from an industry perspective. As

mobile platforms continue to be a primary channel for customer interaction in the airline sector, investing in features that enhance usability and user interface quality can directly impact engagement and purchase behaviours. Meanwhile, maintaining strong privacy and security standards is essential for sustaining trust, especially in an environment where personal data protection is increasingly scrutinised. Future research could expand on these findings by including a larger and more diverse respondent pool, incorporating pricing and promotional factors into the analysis, and examining longitudinal changes in user perceptions over time.

REFERENCES

Bastari, F. F., Aras, M., Sofyan, C. F., & Rustam, T. I. (2023). Distribution of advertisement on Instagram in relation to satisfaction and loyalty of low-cost airline passengers in Indonesia. *Journal of Distribution Science, 21*(3), 45–56.

Belanche, D., Guinalíu, M., & Albás, P. (2022). Customer adoption of p2p mobile payment systems: The role of perceived risk. *Telematics and Informatics, 72,* 101867.

Benady, D., & Hadwick, A. (2016). *The mobile travel market in 2016.* EyeforTravel.

Benckendorff, P., Xiang, Z., & Sheldon, P. J. (2019). *Tourism information technology* (3rd ed.). CABI.

Bhinder, H. (2025). *Social media and its influence on travel decision-making.* IGI Global Scientific Publishing.

Bouwman, H., Carlsson, C., Lopez-Nicolas, C., McKenna, B., Molina-Castillo, F., Tuunanen, T., & Walden, P. (2012). Mobile travel services: The effect of moderating context factors. *Information Technology & Tourism, 13*(2), 57–72.

Budd, L., & Vorley, T. (2013). Airlines, apps, and business travel: A critical examination. *Research in Transportation Business and Management, 9,* 41–49.

Chang, C. C. (2015). Exploring mobile application customer loyalty: The moderating effect of use contexts. *Telecommunications Policy, 39*(8), 678–690.

Chang, N., & Fong, C. (2010). Green product quality, green corporate image, green customer satisfaction, and green customer loyalty. *Journal of Business Management, 4*(13), 132–142.

Daud, W. A. A. W., Ghani, M. T. A., Amiruddin, A. Z., Ghani, K. A., & Rahman, A. A. (2021). The usability of i-suyyah: A mobile tourism application for Arab tourists in Malaysia. *Enlightening Tourism, 11*(1), 20–37.

Deng, Z., Lu, Y., Wei, K. K., & Zhang, J. (2010). Understanding customer satisfaction and loyalty: An empirical study of mobile instant messages in China. *International Journal of Information Management, 30*(4), 289–300.

Dickinson, J. E., Cherrett, T., Hibbert, J. F., Winstanley, C., Shingleton, D., Davies, N., Norgate, S., & Speed, C. (2015). Fundamental challenges in designing a collaborative travel app. *Transport Policy, 44,* 28–36.

Egger, I., Lei, S. I., & Wassler, P. (2020). Digital free tourism: An exploratory study of tourist motivations. *Tourism Management, 79,* 104098.

Eshghi, A., Haughton, D., & Topi, H. (2007). Determinants of customer loyalty in the wireless telecommunications industry. *Telecommunications Policy, 31*(2), 93–106.

Foster, B. D., & Cadogan, J. W. (2000). Relationship selling and customer loyalty: An empirical investigation. *Marketing Intelligence & Planning, 18*(4), 185–199.

Gao, T., Rohm, A. J., Sultan, F., & Pagani, M. (2013). Consumers un-tethered: A three-market empirical study of consumers' mobile marketing acceptance. *Journal of Business Research, 66*(12), 2536–2544.

Gelfeld, V. (2017, February 1). AARP travel research: 2017 travel bucket lists. *AARP.*

Gilbert, D., & Wong, R. K. C. (2003). Passenger expectations and airline services: A Hong Kong based study. *Tourism Management, 24*(5), 519–532.

Griffin, J. (2009). *Taming the search-and-switch customer: Earning customer loyalty in a compulsion-to-compare world.* John Wiley & Sons.

Groß, M. (2015). Exploring the acceptance of technology for mobile shopping: An empirical investigation among smartphone users. *International Review of Retail, Distribution and Consumer Research, 25*(3), 215–233.

Ho, R. C., Amin, M., Ryu, K., & Ali, F. (2021). Integrative model for the adoption of tour itineraries from smart travel apps. *Journal of Hospitality and Tourism Technology, 12*(2), 145–160.

Howe, S. (2024). *Social media statistics for Malaysia.* Meltwater.

International Air Transport Association. (2024). *Passengers want convenience and technology to improve processes, regional preferences diverging.* International Air Transport Association.

Islam, M. A., Ahmad, T. S., Khan, M. A., & Ali, M. H. (2010). Adoption of m-commerce services: The case of Bangladesh. *World Journal of Management, 2*(1), 37–48.

Joshi, P. K., Bubana, B., Gillarkar, T., Warade, P., Chetalangia, Y., & Qureshi, S. (2024). AirTech Odyssey: A web application for air travel reservations. In *2024 3rd International Conference on Automation, Computing and Renewable Systems (ICACRS)* (pp. 225–230). IEEE.

Kadaskar, H. R. (2024). Enhancing user experience in mobile application design through gestural interaction: A human-computer interaction perspective. *International Journal of Scientific Research in Modern Science and Technology, 3*(8), 1–6.

Kemmis, S. (2022, November 3). Why booking travel on your phone is a bad idea. *The Star.*

Kemp, S. (2025). *The state of digital in Malaysia in 2025.* DataReportal.

Kim, D., & Kim, S. (2017). The role of mobile technology in tourism: Patents, articles, news, and mobile tour app reviews. *Sustainability, 9*(11), 2082.

Kim, S., Baek, T. H., Kim, Y. K., & Yoo, K. (2016). Factors affecting stickiness and word of mouth in mobile applications. *Journal of Research in Interactive Marketing, 10*(3), 177–192.

Knowles, H., & Westcott, M. (2021). Travel services. In M. Westcott & W. Anderson (Eds.), *Introduction to tourism and hospitality in BC* (2nd ed.). BCcampus OpenEd.

Kotler, P., & Keller, K. L. (2009). *Marketing management* (13th ed.). Prentice Hall.

Lee, J. M., & Kim, J. K. (2023). Effects of service quality of airline mobile application and individual characteristics on user satisfaction and intention to reuse. *International Journal of Mobile Communications, 21*(1), 89–104.

Lee, S., Ha, S., & Widdows, R. (2011). Consumer responses to high-technology products: Product attributes, cognition, and emotions. *Journal of Business Research, 64*(11), 1195–1200.

Liu, Y., Tan, H., Cao, G., & Xu, Y. (2024). Enhancing user engagement through adaptive UI/UX design: A study on personalized mobile app interfaces. *World Journal of Innovation and Modern Technology, 7*(5), 1–21.

Lui, T. K., & Zainuldin, M. H. (2025). Are mobile wallets the future of tourism in developing countries? A tap into tourists' actual adoption in Malaysia. *Consumer Behavior in Tourism and Hospitality.*

Mahmud, A., Jusoff, K., & Hadijah, S. T. (2013). The effect of service quality and price on satisfaction and loyalty of customer of commercial flight service industry. *World Applied Sciences Journal, 23*(3), 354–359.

Market.us. (2025). *Travel and tourism apps market.*

Nadiri, H., Hussain, K., Ekiz, E. H., & Erdoğan, Ş. (2008). An investigation on the factors influencing passengers' loyalty in the North Cyprus national airline. *TQM Journal, 20*(3), 265–280.

Othman, I. W., Mokhtar, S., Tham, A., & Yong, K. (2021). The significance of entrepreneurship education literacy in the era of digital transformation: Graduates of the post-pandemic Covid-19 unemployment crisis. *International Journal of Accounting, Finance and Business, 6*(6), 45–60.

Parise, S., Guinan, P. J., & Kafka, R. (2016). Solving the crisis of immediacy: How digital technology can transform the customer experience. *Business Horizons, 59*(4), 411–420.

Park, S., Lee, J. S., & Nicolau, J. L. (2020). Understanding the dynamics of the quality of airline service attributes: Satisfiers and dissatisfiers. *Tourism Management, 81,* 104163.

Phocuswright. (2021). OTA bookings projected to climb 55% in Europe. *Phocuswright.*

Reichheld, F. F., & Schefter, P. (2000). E-loyalty: Your secret weapon on the web. *Harvard Business Review, 78*(4), 105–113.

Rui Ma. (2024). *2024 travel apps and brands market insights report.* SensorTower.

Schmidt-Belz, B., Zipf, A., Fit, F., & Augustin, S. (2002). Location-based mobile tourist services: First user experiences. In *Proceedings of the European Media Lab Conference.* Queen Mary University of London.

Sia, P. Y. H., Saidin, S. S., & Iskandar, Y. H. P. (2023). Systematic review of mobile travel apps and their smart features and challenges. *Journal of Hospitality and Tourism Insights, 6*(2), 203–220.

Statista Research. (2024). *Mobile travel trends – Statistics & facts.* Statista.

Travelport Digital. (2019). *Mobile travel trends 2019.* Travelport.

Wang, Z., He, S. Y., & Leung, Y. (2018). Applying mobile phone data to travel behaviour research: A literature review. *Travel Behaviour and Society, 11,* 59–71.

Yao, J., Zhang, Y., & Wang, R. (2025). Beyond expectation and confirmation: Unraveling the drivers of continued engagement with Chinese short video apps. *Telematics and Informatics Reports, 18,* 100209.

Yeo, S. F., Tan, C. L., Lim, K. B., Kong, S. L., Kim, L., & Leong, I. Y. C. (2024). Smart hospitality: Leveraging smartphone apps for service innovation in hotels. In *Proceedings of the 8th International Conference on Business and Information Management (ICBIM 2024)* (pp. 13–17). IEEE.

Zhang, X. (2021). Overcoming the airline industry's mobile-app fiasco. *TNMT.*