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INDIVIDUALS' CONTINUANCE INTENTION OF THEME PARK MOBILE APPS

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ABSTRACT

Mobile apps have become a pivotal channel for engaging visitors at leading global attractions, including theme parks, where they significantly enhance visitor satisfaction and generate substantial ancillary revenues. Despite their growing adoption, sustaining users' continuance intention remains a persistent challenge. While previous studies have extensively examined the factors influencing mobile app continuance intention across various tourism contexts, such as museums and natural landscapes, research on the theme park mobile apps (TPMAs) remains limited. In response, this study focuses on investigating the continuance intention of TPMAs through a comprehensive framework, exploring the relationships between user beliefs, user attitudes, and continuance intention.

Grounded in well-established theoretical frameworks, including perceived value theory and uses and gratifications theory, the present research categorizes users' beliefs into five dimensions: aesthetic-related, functional-related, hedonic-related, social-related, and environmental-related beliefs. In addition, functional-related beliefs are further segmented into five core components: real-time information, map navigation, virtual queues, online ordering, and recommended routes. These beliefs are examined for their influence on user attitudes, specifically satisfaction and delight, as well as their direct impact on continuance intention. Additionally, user characteristics, such as residence type, cultural background, smartphone usage habits, and theme park visit frequency, are explored as moderators shaping these relationships.

This study implements a quantitative strategy to identify the key factors that impact the users' continuance intention toward the TPMA. Data were collected through three rounds of surveys conducted among individual TPMA users in China and Europe. Two analytical techniques were employed: structural equation modeling (SEM) to test hypothesized relationships, supplemented by fuzzy set qualitative comparative analysis (fsQCA) to identify configurational patterns of antecedents.

The main findings of this study reveal that functional beliefs (e.g., perceived usefulness), hedonic beliefs (perceived enjoyment), environmental beliefs (perceived environmental friendliness), and user attitudes (satisfaction and delight) are direct determinants of continuance intention. However, this study did not identify a statistically significant relationship between social beliefs and continuance intention. Besides, satisfaction is influenced by functional and hedonic beliefs, while

delight is shaped by functional, hedonic, and aesthetic beliefs. From a configurational perspective, online ordering emerges as a core condition driving continuance intention, while other app functional value, such as real-time information, map navigation, virtual queues, and recommended routes, serve as peripheral conditions.

The study makes significant contributions to the field of TPMAs. First, it advances traditional IS research by incorporating environmental beliefs into the analysis of continuance intention. Findings indicate that environmental beliefs significantly impact continuance intention, reflecting users' growing prioritization of eco-friendly practices. Additionally, beyond satisfaction, this research highlights the critical role of user delight, an often-overlooked attitude in IS studies. Both satisfaction and delight directly influence continuance intention, underscoring the importance of designing user experiences that not only meet functional and hedonic needs but also evoke positive emotions, such as surprise and excitement, to enhance the continuance intention of the TPMA users. Third, this research contributes to a deeper insight into continued intention outcomes by identifying its positive influence on revisit intention. Finally, user characteristics further enrich prior literature. Residence type and cultural background influence the relationships between beliefs, attitudes, and continuance intention. From a configurational perspective, smartphone usage habits and theme park visit frequency also play critical roles in shaping continuance intention. These insights reveal the critical role of targeted strategies in addressing the heterogeneous needs of distinct user groups. Practically, the results provide actionable insights for theme park operators and app developers aiming to improve user retention of TPMA.

KEYWORDS: Continuance intention, theme park mobile app, perceived value, uses and gratification, satisfaction, delight

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TIIVISTELMÄ

Mobiilisovelluksista on tullut keskeinen väline, kun kävijöitä sitoutetaan jatkamaan asiakassuhdetta monissa maailmanlaajuisissa matkailukohteissa. Tämä koskee myös teemapuistoja, joissa ne saattavat parantaa merkittävästi kävijöiden tyytyväisyyttä ja tuottaa jopa huomattavia lisätuloja. Vaikka sovellusten käyttö yleistyy jatkuvasti, käyttäjien sitoutuminen niiden jatkuvaan käyttöön muodostaa edelleen keskeisen haasteen. Aiemmat tutkimukset ovat laajasti tarkastelleet mobiilisovellusten jatkuvan käytön aikomukseen vaikuttavia tekijöitä eri matkailukonteksteissa, kuten museoissa ja luonnonmaisemissa, mutta tutkimukset teemapuistojen mobiilisovelluksista (TPMA) ovat edelleen vähäisiä. Tässä tutkimuksessa selvitetään käyttäjien sitoutumista käyttämään TPMA-sovelluksia kattavan viitekehyksen avulla, tarkastellen käyttäjien uskomusten, asenteiden ja jatkuvan käytön aikomuksen välisiä suhteita.

Tutkimus pohjautuu koetun arvon teoriaan (perceived value theory) ja käyttötapojen ja -hyötyjen teoriaan (uses and gratifications theory). Käyttäjien uskomukset luokitellaan viiteen ulottuvuuteen: esteettisiin, toiminnallisiin, hedonisiin, sosiaalisiin ja ympäristöön liittyviin uskomuksiin. Lisäksi toiminnalliset uskomukset jaetaan edelleen viiteen ydinalueeseen: reaaliaikainen tieto, karttanavigointi, virtuaaliset jonot, verkko-ostaminen ja suositellut reitit. Näiden uskomusten vaikutuksia käyttäjien asenteisiin (erityisesti tyytyväisyyteen ja ilahduttavuuteen) sekä niiden suoraa vaikutusta jatkuvaan käyttöaikomukseen tarkastellaan tutkimuksessa. Lisäksi eräitä käyttäjien ominaisuuksia, kuten asuinpaikkatyyppiä, kulttuuritaustaa, älypuhelinten käyttöä ja teemapuistossa vierailun tiheyttä, tarkastellaan näitä suhteita muokkaavina tekijöinä.

Tutkimus hyödyntää kvantitatiivista tutkimusotetta tunnistaakseen keskeiset tekijät, jotka vaikuttavat käyttäjien jatkuvaan TPMA-sovelluksien käyttöaikomuksen. Data kerättiin kolmella kyselykierroksella yksittäisiltä TPMA-käyttäjiltä Kiinassa ja Euroopassa. Analyysissa käytettiin kahta menetelmää: rakenneyhtälömallinnusta (SEM) hypoteesien testaamiseen ja täydentävänä menetelmänä epätarkkojen joukkojen kvalitatiivista vertailevaa analyysiä (fsQCA), jolla tunnistettiin edellytysten erilaisia konfiguraatiomalleja.

Tutkimuksen päätulokset osoittavat, että toiminnalliset uskomukset (esim. koettu hyödyllisyys), hedoniset uskomukset (koettu nautinnollisuus), ympäristöuskomukset (koettu ympäristöystävällisyys) sekä käyttäjäasenteet (tyytyväisyys ja

ilahduttavuus) ovat jatkuvan käytön aikomuksen suoria määrittäjiä. Tutkimuksessa ei kuitenkaan havaittu tilastollisesti merkitsevää suhdetta sosiaalisten uskomusten ja jatkuvan käytön aikomuksen välillä. Tyytyväisyyteen vaikuttavat toiminnalliset ja hedoniset uskomukset, kun taas ilahduttavuuteen vaikuttavat toiminnalliset, hedoniset ja esteettiset uskomukset. Verkko-ostaminen nousee keskeiseksi ehdoksi jatkuvan käytön aikomukselle, kun taas muut sovelluksen toiminnalliset arvot, kuten reaaliaikainen tieto, karttanavigointi, virtuaaliset jonot ja suositellut reitit, ovat täydentäviä ehtoja.

Tutkimus antaa kontribuutioita TPMA-tutkimuksen kenttään. Se edistää perinteistä tietojärjestelmätutkimusta sisällyttämällä ympäristöuskomukset jatkuvan käytön aikomuksen analyysiin. Tulokset osoittavat ympäristöuskomusten merkittävän vaikutuksen jatkuvaan käyttöaikomukseen, mikä heijastaa käyttäjien kasvavaa kiinnostusta ympäristöystävällisiin käytäntöihin. Lisäksi tutkimus nostaa esiin käyttäjien ilahduttavuuden, joka on usein sivuutettu käsite tietojärjestelmätutkimuksessa. Sekä tyytyväisyys että ilahduttavuus vaikuttavat suoraan jatkuvan käytön aikomukseen, mikä korostaa käyttäjäkokemusten suunnittelun merkitystä: niiden tulee täyttää sekä toiminnalliset että hedoniset tarpeet ja samalla herättää positiivisia tunteita, kuten yllätystä ja innostusta. Edelleen tutkimus syventää ymmärrystä jatkuvan käytön aikomuksen vaikutuksista osoittamalla niiden positiivisen yhteyden uusintavierailuaikomukseen. Lisäksi käyttäjäominaisuudet rikastavat aiempaa tutkimusta osoittamalla, että asuinpaikkatyyppi ja kulttuuritausta vaikuttavat uskomusten, asenteiden ja jatkuvan käytön aikomuksen suhteisiin. Konfiguraationäkökulmasta myös älypuhelinten käyttötavat ja teemapuistossa vierailun tiheys ovat keskeisiä jatkuvan käytön aikomuksen muotoutumisessa. Tulokset tarjoavat konkreettisia ehdotuksia teemapuistojen toimijoille ja sovelluskehittäjille, jotka pyrkivät parantamaan käyttäjien uskollisuutta TPMA-sovellusten avulla.

ASIASANAT: jatkuva käyttöaikomus, teemapuiston mobiilisovellus, koettu arvo, käyttötavat ja -hyödyt, tyytyväisyys, ilahduttavuus

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May 2025

Ting Long

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List of Original Publications

This dissertation is based on the following original publications, which are referred to in the text by their Roman numerals:

I Long, T. and Suomi, R., 2022. Determinants and Effects of User Delight with Theme Park Apps. *In Proceedings of the 55th Hawaii International Conference on System Sciences*, pp. 4675-4684.

II Long, T. and Suomi, R., 2022. User Continuance Intention Toward Theme Park Apps: A Uses and Gratification Perspective. *In Proceedings of the 27th Pacific Asia Conference on System Sciences*, pp. 1-17.

III Long, T. and Suomi, R., 2025. Perceived Value and User Features in Continuance Intention to Use Theme Park Apps. *Pacific Asia Journal of the Association for Information Systems*, 17(2), pp. 25-47.

IV Long, T. and Suomi, R. Beyond Utility and Enjoyment: The Impact of Environmental Value on Continuance Intention of Theme Park Apps. *Under review.*

1 Introduction

In this chapter, an overview of the research is introduced. It starts by defining the phenomenon of interest and the significance of the research context. The motivation and objectives are then clarified, followed by research question formulation. Finally, this chapter ends with a concise synopsis of each paper and an illustration of the dissertation's structure.

1.1 Research interest

Recently, mobile apps have emerged as a critical channel for engaging with visitors at leading global attractions. The adoption of mobile apps in theme parks has significantly improved visitor satisfaction and contributed to substantial ancillary revenue streams. Even before the COVID-19 pandemic, the trend of increasing travel app downloads was evident, with a 40% rise in the use of visitor attraction apps on-site in 2019 compared to 2018 (Jones and Attractions.io, 2020). This upward trajectory has only accelerated as visitors now expect seamless mobile experiences as part of their overall visit. According to Omnico, 95% of theme park visitors globally stated they would increase their spending if they had access to a feature-rich, dedicated park app—essentially a "theme park in their pocket" (Omnico.io, 2019). Major brands like Disney have responded by developing specialized apps, such as the *My Disney Experience* app, to enhance visitor experience. Similarly, in Finland, Moominworld has also introduced its own mobile app, the *Moominworld* app, reflecting this growing trend of theme park mobile apps (TPMAs) across various markets.

However, despite the growing trend of mobile app adoption in theme parks, a significant challenge remains: sustaining individual users' long-term usage. A 2021 report from Statista revealed that only 20% of users continue to use travel-related apps after the initial download (Statistia, 2021). Even more concerning is the average yearly retention rate for such apps, which stands at a mere 6%, highlighting the difficulty of maintaining app usage over time (Statistia, 2021). These statistics emphasize the need to gain a deeper insight into the factors underpinning TPMA continuance, as well as the importance of designing features and experiences that encourage sustained usage.

Continuance intention represents a user's commitment to maintaining the use of an Information System (IS) over time. This factor is essential for the sustainability of IS implementations because long-term success is directly tied to users' continued interaction with the IS (Bhattacherjee, 2001). For theme park operators, maintaining enduring relationships with users through continued app usage can lead to significant benefits, such as reduced operational costs and increased profitability (Bhattacherjee, 2001). While many visitors may only visit a theme park once, continued usage of the park's app offers substantial advantages. For instance, through ongoing communication and interaction facilitated by the app, operators can deliver personalized promotions, exclusive content, and loyalty rewards. These features may not only enhance customer loyalty but also increase the likelihood of repeat visits. As such, it is significant for operators to uncover the factors that encourage users to keep using TPMA to maximize both customer retention and long-term profitability. Therefore, examining the determinants of app continuance intention is a crucial area of study for the theme park industry.

Previous literature has extensively examined the factors influencing mobile app continuance intention across various tourism contexts, such as museums and natural landscapes, from multiple theoretical viewpoints (e.g., Choi et al., 2019; Foroughi et al., 2024). Despite advancements, several gaps remain in the existing research. First, the specific context of theme parks—defined as human-created, artificial environments designed to offer extraordinary and immersive experiences distinct from everyday life (Milman, 1988; 1991)—has been largely overlooked. Theme parks possess unique characteristics that differentiate them from other tourism settings, such as their densely populated environments (Pan et al., 2022). Friction caused by large crowds, including long wait times and missed opportunities to participate in activities, is more pronounced in theme parks compared to other attractions like museums or natural landscapes.

Additionally, the literature presents inconsistent findings regarding the predictors of continuance intention for travel apps. For example, perceived value has been shown to positively influence continuance intention for specific types of travel apps, such as accommodation apps (Kim et al., 2019b), but demonstrated no significant impact on general mobile travel apps (İlkan et al., 2023). Correspondingly, although perceived usefulness has been established as a principal determinant of continuance intention (Malik and Rao, 2019; Zhou et al., 2022), others have found it to have no significant impact (Foroughi et al., 2024). These inconsistencies could be attributed to the varying tourism contexts in which these apps are studied, suggesting that the factors driving app continuance intention might vary depending on the category of the app and its specific context. Therefore, further research into the continuance

intention of TPMA is necessary and crucial for identifying the commonalities and differences in predictors of continuance intention across various tourism contexts.

1.2 Research motivation and objectives

Although a wealth of research has explored the intention of mobile app continuance, several gaps persist, particularly in the TPMA context. The existing literature on IS continuance has predominantly relied on traditional theoretical models, for instance, the Technology Acceptance Model (TAM) (Davis, 1989), the Post-Acceptance Model of IS Continuance (Bhattacherjee, 2001), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003), and the extended model, UTAUT2 (Venkatesh et al., 2012). These classical theories primarily emphasize utilitarian factors (e.g., perceived usefulness, ease of use) to explicate continuance intention. While these theories have contributed significantly to our understanding of IS continuance, they may not fully capture the multi-dimensional nature of TPMA.

In fact, the TPMA is designed not only to streamline visitors' experiences by making their visits more convenient and efficient but also to enhance the hedonic and social aspects of their experiences. For example, these apps allow users to access entertainment content, interact with others, and engage in social experiences like gamification, which go beyond the basic utilitarian functions that traditional IS models typically address. Consequently, while traditional IS theories focus on utility, they may overlook how hedonic and social features foster user engagement and continuance intention. This gap highlights the need to investigate TPMA through a more comprehensive lens encompassing these additional dimensions.

Another research gap lies in the environmental dimension of TPMA, which is increasingly being used as a digital solution to promote ecological sustainability by replacing traditional paper-based materials in theme parks. However, limited research explores how issues such as users' perceived environmental friendliness of these apps influence continuance intention. Specifically, perceived environmental friendliness reflects users' perception that the app can facilitate waste reduction and environmental preservation in the park (Chen et al., 2015). Investigating how environmental perceptions affect app continuance intention is essential, especially with theme parks' growing focus on sustainability. Despite its importance, the influence of perceived environmental friendliness on user satisfaction and long-term app engagement has not been thoroughly investigated, revealing a gap in current research.

Moreover, while previous research has examined the continuance intention of general travel-related mobile apps, few studies have focused on specialized app functions designed for theme parks. Unlike general travel apps, the TPMA includes

park-specific features that address the unique challenges of theme park environments. For instance, features like virtual queuing help visitors avoid long physical lines, thereby enhancing their overall experience. However, despite the growing reliance on these specialized functions, their specific influence on continuance intention has not been thoroughly examined. This gap necessitates further exploration into how these unique, context-specific features contribute to users' continuance intention of the app.

Furthermore, existing studies on continuance intention have primarily focused on user satisfaction as a key predictor. However, other important user attitudes, such as delight, have been largely overlooked. While satisfaction arises from meeting users' expectations, delight is derived from unexpected positive experiences that exceed expectations. Delighted users will likely have stronger emotional connections to the app, increasing the likelihood of continued usage. Despite the potential for delight to enhance app retention, the exploration of its role in TPMA remains insufficient, underscoring another significant gap.

To fill the research gaps identified above, this study takes a comprehensive approach to analyze TPMA continuance intention. The central objective is to formulate and empirically validate the conceptual research model, which explores the connections between app functionality, user beliefs, attitudes, and continuance intention. Specifically, users' beliefs are classified into five distinct areas: aesthetic-related, utilitarian-related, hedonic-related, social-related, and environment-related beliefs. These beliefs are examined for their influence on user attitudes, which include both user satisfaction and delight, as well as their direct impact on continuance intention.

The study also evaluates how app-specific functions—designed to improve user experiences and address challenges unique to theme park environments—shape users' continuance intention. Additionally, it investigates how user attitudes, particularly satisfaction and delight, mediate the engagement of beliefs and users' TPMA continuance intention. By integrating these dimensions, this study offers a holistic perspective on the factors shaping users' continuance intention of TPMA.

1.3 Research questions

Drawing from the above analysis, this study explores the relationship between beliefs, attitudes, and continuance intention within the TPMA context. Therefore, the fundamental research question of this study is:

RQ: *What are the predictors of individual users' continuance intention of TPMA?*

Specifically, the research will address the following sub-questions:

RQ1: How do different user beliefs affect their attitudes and continuance intention regarding TPMA?

RQ2: How do the app-specific functions affect the user's continuance intention of TPMA?

RQ3: How do user attitudes affect their continuance intention of TPMA?

To answer RQ1, this study examines users' beliefs, including aesthetic, utilitarian, hedonic, social, and environment-related, to determine their impact on user attitudes and continuance intention. Four distinct studies were conducted to investigate how these beliefs influence these outcomes. The first article explores how aesthetic, utilitarian, hedonic, and social beliefs affect delight, which subsequently impacts continuance intention. The second article applies the uses and gratification theory to explore how utilitarian, hedonic, and social beliefs drive continuance intention. The third article employs a configurational perspective to analyze how convenience, hedonic, and social beliefs, together with specific functions, collectively influence continuance intention. Finally, the fourth article evaluates how environmental beliefs, together with utilitarian, hedonic, and social beliefs, shape user satisfaction and continuance intention. By incorporating the constructs identified in these studies, the conceptual framework offers a comprehensive perspective on the factors shaping users' continuance intention with TPMA.

In response to RQ2, this study evaluates the effects of five TPMA functions—real-time information, map navigation, virtual queue, online ordering, and recommended routes—in shaping continuance intention through a configurational lens. These functional constructs were incorporated together to emphasize the essential app-specific features influencing users' continuance intention.

To address RQ3, this research investigates how users' different attitudes influence their continuance intention. Drawing from prior literature, user satisfaction and delight are identified as two distinct types of attitudes. The impact of these two attitudes on continuance intention was tested separately through two models using survey data. The findings were then synthesized to illustrate the role of user attitudes in shaping continuance intention.

A comprehensive framework is developed to depict the factors of user continuance intention toward TPMA. The core constructs encompass individuals' beliefs (including aesthetic-related, utilitarian-related, hedonic-related, social-related, and environment-related beliefs), attitudes (measured through satisfaction and delight), and app-specific functions (captured by real-time information, map navigation, virtual queue, online ordering, and recommended routes). These constructs are grounded in established theories and prior research, including perceived value theory, uses and gratification theory, alongside previous IS studies on delight and satisfaction. Extending IS research on continuance intention to the TPMA setting investigates the role of diverse user beliefs and two distinct attitudinal constructs in shaping continuance behavior, thus, enriching the broader IS continuance literature and contributing valuable insights into user retention

strategies. Furthermore, the research findings significantly contribute to the TPMA literature by providing practical knowledge on designing and sustaining a successful TPMA, thereby enhancing user continuance intention and long-term app retention.

1.4 Research structure

This thesis was based on four research articles focused on the TPMA continuance intention. Therefore, the research questions are addressed through these original articles. Articles 1, 2, and 4 are based on structural equation modeling (SEM), while Article 3 applies fuzzy-set qualitative comparative analysis (fsQCA) to offer a complementary perspective to SEM-based studies. Figure 1 illustrates the framework based on four selected research articles.

Article 1, titled "*Determinants and Effects of User Delight with Theme Park Apps*", addresses RQ1 and RQ3 by exploring the determinants and consequences of user delight. Specifically, this article examines the influence of four types of user beliefs—aesthetic, social, achievement-related utilitarian, and hedonic—on user delight, as well as the impact of delight on four user behavioral intentions: feedback, recommendation, continuance intention, and revisit intention. The findings reveal that beliefs, such as aesthetic, utilitarian, and hedonic, significantly predict user delight, while social-related beliefs have no impact. Moreover, user delight exerts a significant positive influence on continuance intention, recommendation willingness, intention to provide feedback, and revisit intention of the theme park.

Article 2, titled "*User Continuance Intention Toward Theme Park Apps: A Uses and Gratification Perspective*", addresses RQ1 by applying the uses and gratification theory. This article explores how social, utilitarian, and hedonic gratifications influence continuance intention, and how continuance intention, in turn, affects revisit intention. The results reveal that both utilitarian and hedonic gratifications significantly improve users' continued intention to use the TPMA, thereby increasing users' likelihood of revisiting the theme park. Social gratifications, however, were found to have no significant impact in this context.

Article 3, titled "*Perceived Value and User Features in Continuance Intention to Use Theme Park Apps*", addresses RQ1 and RQ2 using the fsQCA approach. Specifically, this study investigates the joint effects of perceived value (functional, convenience, hedonic, and social) and user features (travel frequency and smartphone usage habits) on TPMA continuance intention. The analysis further deconstructs functional value into five dimensions: real-time information, map navigation, virtual queue, online ordering, and recommended routes. The findings highlighted six combinations of causal factors leading to continuance intention, grouped into two primary sets. The first solution set highlights perceived online order and convenience value as core conditions, while the second solution set suggests that

the importance of different subtypes of perceived functional value varies depending on the presence of other conditions.

Article 4, titled "*Beyond Utility and Enjoyment: The Impact of Environmental Value on Continuance Intention of Theme Park Apps*", addresses RQ1 and RQ3 by exploring the motivators of satisfaction and continuance intention from a perceived value perspective. Specifically, this article posits that environmental beliefs, alongside utilitarian, hedonic, and social beliefs, exert an impact on user satisfaction and continuance intention, with satisfaction being a determinant of continuance intention. The results indicate that utilitarian, hedonic, and environmental beliefs significantly enhance continuance intention, while social beliefs are insignificant. Additionally, the satisfaction of users is a pivotal driver in determining continuance intention and is driven primarily by utilitarian and hedonic beliefs.

This dissertation is structured into five chapters, supplemented by four research articles: Chapter 1 provides an introduction to the research, outlining the research interest, explaining research motivation, identifying research gaps, introducing the research questions, and mapping out the structure of this dissertation.

Chapter 2 offers a comprehensive literature review, discussing prior studies and theoretical frameworks supporting the research articles. Thus, this chapter establishes the theoretical foundation upon which the research is built by integrating key theories and concepts.

Chapter 3 outlines the research methodology, including the rationale behind the selected research paradigms and strategies. It also describes the data collection and analysis processes, drawing on established methodological practices from previous studies.

Chapter 4 presents and synthesizes the main findings, integrating the results from the four research articles and providing insights into how they contribute to the broader field of study.

Chapter 5 concludes the dissertation by summarizing the findings and highlighting both the theoretical and practical contributions of this research. It also addresses the research limitations and the research opportunities in the future.

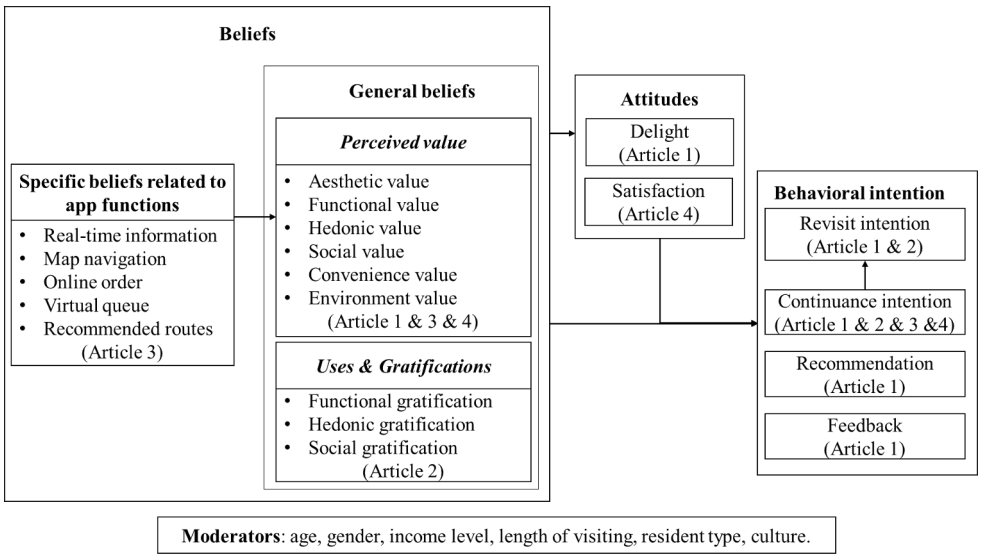


Figure 1. The framework based on four selected research articles.

2 Research Background

This chapter begins with an introduction to studies on IS continuance intention and mobile apps in tourism, offering a summary of relevant literature. Following this, it illustrates the theories and constructs, such as perceived value, uses and gratifications, satisfaction, and delight. Finally, the chapter presents the overarching research framework.

2.1 Research on theme park apps

2.1.1 IS continuance research

Continuance intention has been widely explored in the field of IS, with two dominant research streams. One central approach is represented by the IS post-acceptance model proposed by Bhattacherjee (2001). From the perspective of this model, perceived usefulness (PU) and post-adoption satisfaction are important determinants of IS continuance intention. The model explains that users form a sense of confirmation by evaluating whether their initial expectations align with their actual experiences after the first use. This confirmation then influences both PU and satisfaction. By examining the interactions among post-adoption expectations, confirmation, and satisfaction, the model establishes users' overall attitude toward a specific IS. This framework has significantly shaped subsequent research on IS continuance intention in various contexts, such as online learning (Dağhan and Akkoyunlu, 2016), social networks (Lin et al., 2014; Ahmad and Sun, 2018), mobile payment (Zhou, 2013; Cao et al., 2018), and AI-powered Chatbot (Ashfaq et al., 2020).

The other mainstream studies emphasize the impact of users' beliefs and attitudes on IS continuance intention, which is supported by several well-established theories, such as the theory of reasoned action (TRA) (Fishbein and Ajzen, 1975), the theory of planned behavior (TPB) (Ajzen, 1991), TAM (Davis, 1989), UTAUT (Venkatesh et al., 2003), and UTAUT2 (Venkatesh et al., 2012). Based on these theories, scholars have explored how different beliefs and attitudes influence IS continuance intention. For example, in studies based on the TAM framework, IS researchers have identified PU as a key antecedent of continuance intention (Davis,

1989). Research grounded in UTAUT or UTAUT2 has highlighted effort expectancy as a critical antecedent impacting an IS's continued usage intention (Venkatesh et al., 2003; Venkatesh et al., 2012). Additionally, prior studies have revealed that IS users' cognition of the difficulty of performing a behavior can also impact their continuance intention. For example, studies based on TPB have demonstrated that perceived behavioral control significantly influences users' intention to continue using an IS (Ajzen, 1991). Similarly, in Venkatesh's research on UTAUT and UTAUT2, facilitating conditions have also been shown to affect users' continuance intention (Venkatesh et al., 2003; Venkatesh et al., 2012).

These studies confirm that the users' beliefs impact IS continuance intention. Meanwhile, users' attitudes are a crucial antecedent driving IS continuance intention. For example, TPB assumes that when users hold a positive attitude toward a particular IS, they are more willing to engage in continued usage (Ajzen, 1991). Furthermore, through in-depth analysis, some researchers have demonstrated that attitude mediates beliefs and behavioral intention (Fishbein and Ajzen, 1975; Davis, 1989). This suggests that IS users' beliefs can influence continuance intention both directly and indirectly through attitude as a mediating factor.

Beyond these two dominant research streams, other studies have also identified additional factors influencing users' IS continuance intention. For instance, Venkatesh's research highlights that users' habits and perceived price value can also significantly impact their intention to continue using an IS (Venkatesh et al., 2012). Moreover, scholars acknowledge that individual differences can also play a role in shaping continuance intention. That is, factors such as users' gender, age, and IS use experience may moderate the relationships between determinants and continuance intention (Venkatesh et al., 2003; Venkatesh et al., 2012).

To sum up, the factors influencing users' IS continuance intention can be summarized into three main groups. First, users' beliefs about IS continuance intention, such as PU. Second, users' attitudes toward IS continuance intention, such as satisfaction. Lastly, individual differences in IS continuance intention include personal characteristics (e.g., age, gender). The first two categories typically serve as direct determinants of IS continuance intention, while the third category primarily functions as a moderating factor, influencing continuance intention by adjusting the effects of the former two.

As discussed earlier, continuance intention has been extensively studied in IS. However, limited research has specifically addressed continuance intention in the context of TPMA. Similar to other IS, continuance intention is crucial for TPMA as it plays a pivotal role in ensuring their long-term growth and success (Bhattacherjee, 2001). Therefore, gaining a deeper understanding of TPMA's continuance intention is essential for designing sustainable and user-centric mobile apps that enhance the overall visiting experience in the park.

On the other side, the factors influencing the continuance intention of TPMA may differ from those identified in other IS contexts. While recent studies on travel mobile apps have highlighted the importance of hedonic and social factors alongside utility in shaping IS continuance behavior, the findings regarding key predictors of continuance intention remain inconsistent. For instance, perceived value has been identified as a significant predictor for accommodation apps, but insignificant for general travel apps. These discrepancies in the drivers of continuance intention may vary depending on the specific tourism setting. Specifically, theme parks, as a distinct tourism environment, present unique challenges that differentiate them from other attractions like museums or natural landscapes (Choi et al., 2023; Foroughi et al., 2024). Their densely populated nature often leads to friction caused by large crowds, such as extended wait times and missed opportunities to engage in activities (Pan et al., 2022). These challenges are more pronounced in theme parks, underscoring the need for specialized mobile apps to address these issues and improve the visitor experience.

In addition to addressing operational challenges, recent research has explored the potential of mobile apps as digital solutions to support environmental sustainability, such as reducing paper usage during travel. However, limited attention has been given to how environmental friendliness influences users' continuance intention for such apps. This gap highlights the need for further investigation into the role of users' beliefs about utility, enjoyment, social interaction, and environmental factors in sustaining the usage of TPMA. Consequently, a thorough examination of the interplay between users' diverse beliefs and their attitudes is required to advance understanding in this area and enhance the design of TPMA.

2.1.2 Mobile apps in tourism

Mobile apps have been widely used in the tourism industry, with extensive research examining their usage. The existing studies can be divided into two mainstreams. One stream examines the use of mobile apps in tourism from a design perspective, highlighting the integration of technological innovations and user-centric strategies like personalization, gamification, and user experience (UX) design to meet travelers' diverse needs and expectations. For instance, personalization has been shown to be crucial in app design by offering tailored experiences that align with individual preferences and behaviors. Nethmin et al. (2023) demonstrated that mobile apps using machine learning can analyze user data to create customized itineraries and provide personalized recommendations for accommodations, attractions, and dining options.

Gamification has also been proven to be an effective strategy for attracting app users. By incorporating game-like elements such as challenges, rewards, and social

sharing features, travel apps foster increased interaction and engagement. Recent studies highlighted the success of gamified elements of travel apps in appealing to travelers, such as Pokémon Go (Guo et al., 2022), exercise app (Jang and Kim, 2022), and bicycle navigation app (Minnich, 2023).

Another important strategy in the design of tourism mobile apps is UX, which focuses on ease of navigation, speed, and visual appeal—factors that travelers prioritize in travel apps. For instance, Cornet et al. (2019) emphasized the importance of incorporating functions that assess travel time within apps to improve users' travel experience. Similarly, Zhang and Shen (2018) highlighted the value of customized routes, online booking, handbooks, and travelogues as practical functions for enhancing UX.

In addition to these core design strategies, emerging technologies such as augmented reality (AR) and blockchain have been proposed to design a better travel app. For instance, blockchain technology has been suggested to ensure secure transactions and data sharing within travel apps (Tham and Sigala, 2020; Parekh et al., 2021). Meanwhile, AR is reshaping how users interact with destinations by offering immersive experiences (Singh et al., 2023). AR-based features, such as virtual tours and historical reconstructions, have significantly enriched travelers' understanding and appreciation of travel destinations, such as cultural and heritage sites (Anand et al., 2023; Qin et al., 2021).

The other stream investigates mobile apps in tourism from the perspective of user behavior, focusing on the factors that drive behavioral intentions, such as continuance intention. Table 1 overviews recent studies on travel mobile apps' continued usage intention. Concisely, most prior research on continuance intention has concentrated on general travel apps, with limited attention given to TPMA. Unlike general travel apps designed to accommodate a wide array of travel activities, such as booking flights, reserving hotels, or exploring multiple destinations, TPMA is purpose-built to enhance the in-park experience. The primary aim is to address the unique challenges of theme park visits, for instance, reducing wait times, managing crowd density, and improving visitor convenience. In contrast, general travel apps cater to broader tourism contexts, including museums, natural landscapes, and urban exploration, but lack the specialized functionalities required for navigating theme parks' dynamic and fast-paced environment. As a result, the applicability of motivators identified in general travel apps may not translate directly to TPMA due to their distinct focus. For example, findings regarding PU as a determinant of continuance intention have been inconsistent. While research by Liu et al. (2023) reported a significant impact, Foroughi et al. (2024) found no significant effect. These discrepancies highlight the need for further investigation into the unique drivers of continuance intention in the specific context of TPMA.

Table 1. Recent IS research on mobile apps in tourism.

Study	App type	Theory	Research method	Dependent variables	Key findings
Chang et al. (2016)	Taiwan Medical travel app	Decomposed theory of planned behavior	Survey (N=346)	App usage intention	Attitude (+), perceived behavioral control (+), social influence (+), electronic word-of-mouth (/) → App usage intention; App involvement (+), perceived ease of use (+), perceived usefulness (+) → attitude; Mobile self-efficacy (+) → perceived behavioral control
Fang et al. (2017)	General travel app	Stimulus-organism-response model	Survey (N=804)	Behavioral engagement intention	Utilitarian (+), hedonic (+), social benefits (+), psychological engagement (+) → behavioral engagement intention; Psychological engagement (+) → utilitarian benefit; Psychological engagement (+) → hedonic benefit; Psychological engagement (+) → social benefit; User interface attractiveness (+), privacy and security (+), portability (-), compatibility (+), ease of use (+), relative advantage (+) → psychological engagement;
Kim et al. (2019b)	Accommodation apps	Value-Based Adoption Model; Expectation-Confirmation Model	Survey (N=410)	Continuance intention	Satisfaction (+), perceived value (+) → continuance intention; Perceived value (/), perceived usefulness (+), perceived enjoyment (+), confirmation (+) → satisfaction
Choi et al. (2019)	Travel related information-searching apps; accommodation apps; airline apps; destination specific apps	Perceived value theory	Interview (N=22)	Continuance intention	Perceived functional benefits, perceived ease of use, perceived enjoyment, perceived financial benefits, satisfaction and trust are important determinants of continuance intention; Perceived functional benefits, perceived ease of use, perceived enjoyment, and perceived financial benefits are important determinants of satisfaction

Study	App type	Theory	Research method	Dependent variables	Key findings
Malik and Rao (2019)	On-demand ride services/ride hailing app	Extended Expectation-Confirmation Model; Self-efficacy; Perceived value theory	Survey (N=1552)	Continuance intention	Perceived ease of use (+), Perceived usefulness (+), Perceived value (+), Self-efficacy (+), Satisfaction (+) → continuance intention; Perceived ease of use (+), Perceived usefulness (+), Confirmation (+) → satisfaction
Kamboj and Joshi (2021)	General travel apps	Unified Theory of Acceptance and Use of Technology 2	Survey (N=357)	Reuse intention	Smartphone app use (+) → reuse intention; Aesthetics scope (/), social loneliness (+), perceived value in use of mobile apps (+), hedonism in use of mobile apps (+), habits in use of mobile apps (+), tourist innovativeness (+), device portability (+) → smartphone app use
Turulja and Činjarević (2021)	General travel apps	Stimulus-organism-response model	Survey (N=151)	Travel app downloading intention	online customer reviews (OCRs) helpless (+) → trust; OCRs helpless (+), trust (+) → attitude; Trust (+), attitude (+) → downloading intention
Tak and Gupta (2021)	General travel app	Stimulus-organism-response model	Survey (N=418)	Behavioral intention	Consumer engagement (+) → behavioral intention; Visual (+), information (+), and collaboration design (+) → consumer engagement
Anand et al. (2023)	AR-based mobile travel app	IS Success Model	Survey (N=204)	Continuance intention	Satisfaction (+) → continuance intention; Information quality (+), system quality (+), service quality (+) →satisfaction
Zhou et al. (2022)	General travel apps	Theory of planned behavior; Technology acceptance model	Survey (N=278)	Continuance intention	Perceived usefulness (+), perceived ease of use (+), perceived enjoyment (+) → continuance intention
Coves-Martínez et al. (2023)	General travel apps	Unified Theory of Acceptance and Use of Technology 2	Survey (N=482)	Continuance intention	Satisfaction (+) →continuance intention; Performance expectancy (+), effort expectancy (+), hedonism (+), eWOM (+), personalization (+), relative advantage (+), privacy risk (-) → satisfaction

Study	App type	Theory	Research method	Dependent variables	Key findings
Liu et al. (2023)	General travel apps	Expectation-Confirmation Model; IS Success Model	Survey (N=480)	Continuance intention	Satisfaction (+), perceived usefulness (+) → continuance intention; Perceived usefulness (+), perceived trust (+), perceived enjoyment (+), perceived risk (-), expectation confirmation (+) →satisfaction
Choi et al. (2023)	General travel apps	Technology acceptance model; Expectation-Confirmation Model; Privacy–Trust–Behavioral Intention Model	Mixed methods (Survey, N=509; Interview, N=11)	Continuance intention	Expectation confirmation (+), privacy protection (/), security (+), satisfaction (+), trust (+) → continuance intention; Expectation confirmation (+), privacy protection (+), perceived security (+) → satisfaction
İlkan et al. (2023)	General travel apps	Uses and Gratifications Theory; Diffusion of Innovation Theory	Survey (N=510)	Continuance intention	Perceived value (/), satisfaction (+) → continuance intention; Simplicity, benefit (+), compatibility (+), playfulness (+), informativeness (/), social interaction (/) → satisfaction
Shang et al. (2023)	General travel apps	Technology threat avoidance theory	Survey (N=002)	Continuance intention	Perceived price fairness (+), perceived deception (-), threat appraisal (-), avoidance intention (/), emotion-focused coping (+) → continuance intention
Foroughi et al. (2024)	General travel apps	Technology Continuance Theory	Survey (N=355)	Continuance intention	Perceived usefulness (/), satisfaction (+), attitude (+), personal innovativeness (-), attractiveness of alternatives (-) → continuance intention; Perceived enjoyment (+), confirmation (+), perceived usefulness (+) → satisfaction
Pham et al. (2024)	ChatGPT for travel services	Stimulus-organism-response model	Survey (N=606)	Continuance intention	Trust in ChatGPT (+), attitude towards ChatGPT (+), satisfaction (+) → continuance intention; Trust in ChatGPT (+), attitude towards ChatGPT (+) → satisfaction

2.2 Foundational theories and concepts

This section offers foundational theories and theoretical concepts underpinning this study. Two key theories—perceived value, uses and gratifications—along with two theoretical concepts, delight, and satisfaction, are utilized to examine the elements driving users' continuance intention with TPMA. These theories provide the foundation for addressing research questions.

2.2.1 Perceived value

The roots of perceived value theory trace back to marketing and psychology. Zeithaml (1988) defined perceived value as an individual's overall evaluation of the benefits gained and the costs related to acquiring a product or service. This theory suggests that individuals are likely to choose a specific product or service based on their assessments of its value (Zeithaml, 1988). Holbrook (1994) further expanded on this theory, highlighting its multi-dimensional nature by identifying experiential, emotional, and social dimensions of value. Sheth et al. (1991) emphasize that individuals' perceived value can influence both attitude and behavioral intention, with its relative importance varying depending on the specific context.

In IS research, perceived value is vital in understanding user attitudes and behavioral intentions. Researchers have examined it as both a unidimensional construct that reflects an overall evolution and a multi-dimensional concept that captures various facets of a product or service (see Table 2). Recent studies have highlighted that the intention to engage with an IS can be influenced by multiple dimensions of perceived value (Van der Heijden, 2004). For instance, in the social media context, perceived value has been categorized into four key dimensions: hedonic, informational, technological, and social (Li et al., 2018a). Similarly, in the case of online travel agencies, perceived value encompasses functional, social, epistemic, and conditional dimensions (Talwar et al., 2020).

This research employs perceived value as the foundational theoretical framework for several key reasons: first, perceived value is a well-established and extensively validated framework in IS research, making it a reliable tool for investigating individuals' continuance intention of TPMA. Numerous studies (see Table 2) have demonstrated its effectiveness in identifying the drivers influencing different mobile apps' continuance intention, providing a solid foundation for its adoption in the context of TPMA. Second, perceived value offers a comprehensive and multi-dimensional structure, making it particularly suited for the nuanced analysis required in this study. It categorizes user perceptions into distinct dimensions, such as functional, hedonic, social, and other types of values, allowing for a thorough exploration of the factors influencing continuance intention. This multi-dimensional approach is essential for tailoring the framework to the specific context of TPMA.

For instance, TPMA users might derive value not only from practical functionalities like real-time information or online ordering, but also from entertainment features and social interactions that enhance their overall experience. Moreover, this study extends the traditional dimensions of perceived value by incorporating environmental value, an increasingly relevant consideration in today's digital landscape. As sustainability gains prominence in both academic research and industry practices, integrating environmental value allows this research to address the evolving expectations of users who prioritize eco-friendly tools. In the context of TPMA, this might include TPMA features such as online ordering that reduce paper waste, and promote environmentally conscious behavior within theme parks.

Table 2. Recent studies using perceived value theory in IS and tourism fields.

Reference	App type	Method	Dimensions of perceived value	Dependent variable
Kim et al. (2013)	Mobile user engagement	Survey (N=297)	Perceived value	Satisfaction; Mobile engagement intention
Peng et al. (2014)	Branded app	Survey (N=245)	Perceived acquisition value; Perceived efficiency value; Perceived quality value; Perceived emotion value	Intention to use branded apps
Xu et al. (2015)	General mobile app	Survey (N=347)	Hedonic benefits (aesthetics, enjoyment); Utilitarian benefits (app utility, app quality)	Satisfaction; Intention to recommend; Continuance intention
Shi et al. (2016)	Social media	Survey (N=342)	Social value (Interactivity, Collaboration, social presence); Emotional value (entertainment, arousal); Functional value (Information quality, Product-related learning, Economic benefit)	Continued interaction intention
Hsiao et al. (2016)	Mobile social media	Survey (N=378)	Utilitarian value (perceived usefulness); Hedonic value (perceived enjoyment); Social influence (social ties)	Satisfaction; Habit; Continuance intention
Zhang et al. (2017)	Social media	Survey (N=240)	Social value; Information value; Emotional value; Hedonic value	Continuance intention
Tseng et al. (2017)	Mobile instant messaging	Survey (N=291)	Functional value; Social value; Self-expressive value	Loyalty

Reference	App type	Method	Dimensions of perceived value	Dependent variable
Li et al. (2018a)	Social media	Survey (N=297)	Hedonic value (enjoyment); Information value (information documentation, information sharing); Media value (media appeal); Social value (social interaction)	Continuance intention
Wang et al. (2018)	Global positioning system (GPS) navigation app	Survey (N=219)	Perceived value	Purchase intention
Weng et al. (2018)	Collective intelligence	Measurement development (study 1, N=134; study 2, N=179; study 3, N=558; study 4, N=751)	Problem-solving value (value of improving cooperative environment, value of problem-solving effectiveness); Social value (value of enhancing interpersonal relationship, value of enhancing personal reputation)	/
Yang et al. (2018)	Mobile government microblogging service	Survey (N=619)	Extrinsic value (information value, social value); Intrinsic value (hedonic value, emotional value)	Mobile GMS continuance
Cho et al. (2019)	Food delivery app	Survey (N=311)	Perceived value	Attitudes; Continuance intention
Karjaluoto et al. (2019)	Mobile financial services app	Survey (N=992; N =524)	Utilitarian value Hedonic value	Overall satisfaction; Commitment
Lei et al. (2019)	Hotel mobile app	Interview (N=1000)	Functional value; Emotional value; Social value; Epistemic value; Value of personalization	/
Shaw and Sergueeva (2019)	Mobile commerce	Survey (N=287)	Perceived value	Intention to use
Wang et al. (2019)	Mobile catering app	Survey (N=196)	Perceived value	Satisfaction; Ewom; Intention to reuse
Chen et al. (2020)	Traffic-related social media	Survey (group 1, N=248; group 2, N=224)	Perceived utilitarian value; Perceived hedonic value; Relational capital	Satisfaction Affective commitment; Continuance intention to consume; Continuance intention to provide

Reference	App type	Method	Dimensions of perceived value	Dependent variable
Talwar et al. (2020)	Online travel agency	Survey (N=809)	Functional value (monetary value, quality of benefits value); Social value (social status value); Epistemic value (information value); Conditional value (preference value)	Purchase intention
Su et al. (2022)	mobile food delivery service	Survey (N=494)	Perceived value	Loyalty
Kurtaliqi et al. (2022)	Mobile tracing apps	Survey (N=832)	Perceived value	Trust in government; Wellbeing; Trust in the future; Word of mouth
Shi et al. (2022)	Online travel agency	Mixed method (study 1, literature review; study 2, N=317)	Functional value; Social value; Emotional value	Purchase intention
Touni et al. (2022)	Brand social media	Survey (N=396)	Functional value; Social value; Entertainment value	Booking intention; Customer-brand relationship strength
Zhu et al. (2023)	Health and fitness apps	Survey (N=613)	Social value (social interaction, affiliation); Conditional value (condition); Functional value (physical appearance, general health); Emotional value (enjoyment); Epistemic value (learning)	Intention to use

2.2.2 Uses and gratifications

The theory of uses and gratifications (U&G), which has its foundations in communication and media research, examines audience motivations and behaviors. The theory was formalized by Katz et al. (1974), who outlined that media usage is goal-directed, with users selecting a specific medium to fulfill their needs. This theory suggests that users actively choose media to satisfy their desires and gratify particular needs. Recently, U&G has been extended to digital technologies, highlighting its relevance in understanding individuals' usage of internet-based technologies. Its application has been widely explored in other IS contexts, for example, social media (e.g., Cheung et al., 2011; Kim et al., 2021), online games (e.g., Xu et al., 2025a; Jang and Liu, 2020), and mobile apps (e.g., Kaur et al., 2020; Ho and See-To, 2018; Kim et al., 2019a).

Table 3 summarizes the related research on the application of U&G theory in IS. Previous studies have classified the gratifications derived from various IS into distinct dimensions based on the needs they fulfill for users. For instance, in the context of home computer adoption, Venkatesh and Brown (2001) identified three types of gratifications: utilitarian (utilitarian value), hedonic (fun), and social (status), emphasizing that each gratification significantly affects users' intention. Jang and Liu (2020) depict content gratification (e.g., catching Pokémon) and process gratification (e.g., entertainment) significantly influence continuance intention; however, social gratification (e.g., social interaction) and technology gratification (e.g., medium appeal) are insignificant. In addition, Ho and See-To (2018) confirmed that entertainment, informativeness, and socializing gratifications positively influence users' attitudes toward the tourist attraction fan pages.

To summarize, U&G explains the continuance of IS usage across various contexts. In this study, the theory acts as the foundational framework for several reasons. First, U&G theory offers a user-centered perspective, highlighting the proactive behavior of individuals in choosing and engaging with media to fulfill their needs or desires. This focus aligns closely with the characteristics of TPMA, which are designed to address various user-specific needs, such as reducing wait times, enhancing convenience, and providing entertainment.

Second, U&G theory categorizes user gratifications into distinct dimensions—hedonic, utilitarian, and social—that drive user behavior. This granularity is particularly relevant to TPMA, where users often seek to satisfy multiple needs simultaneously. By examining these dimensions, U&G provides a nuanced perspective on the multifaceted motivations behind user continuance intention.

Third, U&G theory has been widely validated across multiple IS contexts, which makes it a reliable framework for studying IS-related behaviors. As demonstrated in prior studies (see Table 3), U&G theory has been instrumental in identifying the

specific gratifications that influence continuance intention, further supporting its suitability for this research.

While U&G theory and perceived value theory share certain similarities, their distinct focuses and perspectives complement each other in achieving a detailed understanding of the continuance intention of TPMA. Specifically, both theories emphasize the importance of user perceptions in shaping behavioral intentions, and both adopt multi-dimensional approaches to explain user behavioral intentions. However, their focal points differ: U&G focuses on motivations and gratifications from TPMA, but perceived value focuses on evaluating the benefits and costs associated with their use experiences. Beyond fulfilling needs, there are certain value-driven aspects—such as environmental considerations or long-term benefits—that U&G cannot fully capture. This study incorporates both theories to address this gap, enabling a more comprehensive analysis of the determinants shaping users' continuance intention of TPMA.

Table 3. Recent studies using U&G theory in IS and tourism fields.

Reference	Context	Method	Dimensions of gratifications	Dependent variable
Gan and Li (2018)	WeChat	Survey (N=297)	Hedonic gratification (perceived enjoyment, passing time); Utilitarian gratification (self-presentation, information documentation, information sharing); Social gratification (social interaction, social presence); Technology gratification (media appeal)	Continuance intention
Ho and See-To (2018)	Tourist attraction fan page	Survey (N=240)	Entertainment gratifications; Informativeness gratifications; Socializing gratifications	Attitudes on fan page; Attitude on attractions; Intention to visit
Li et al. (2015)	Online games	Survey (N=3919)	Hedonic gratification (enjoyment, fantasy, escapism); Social gratification (social interaction, social presence); Utilitarian gratification (achievement, self-presentation)	Continuance intention
Li et al. (2018b)	Mobile government microblogging service	Survey (N=629)	Content gratification (content consumption); Social gratification (social interaction); Process gratification (enjoyment experience)	Continuance intention

Reference	Context	Method	Dimensions of gratifications	Dependent variable
Jang and Liu (2020)	Pokémon go	Survey (N=280)	Content gratification (catching Pokémon); Process gratification (passing time, entertainment); Social gratification (social interaction); Technology gratification (medium appeal)	Continuance intention
Mouakket (2019)	Mobile instant messaging	Survey (N=596)	Intrinsic gratification (entertainment, perceived escapism); Extrinsic gratification (information sharing, perceived usefulness)	Continuance intention; Word of mouth
Chiu and Huang (2015)	Social network services	Survey (N=657)	General gratification	Continuance intention
Chang (2018)	Social network sites	Survey (N=255)	Information gratification; Emotional gratification; Social gratification	Continuance intention
Chaouali (2016)	Mobile social network sites	Survey (N=729)	Gratification-obtained (escapism, information seeking, exhibitionism, voyeurism, voluntarism); Gratification-opportunity (mobility)	Satisfaction; Continuance intention
Gao (2023)	Smart mobile learning	Survey (N=595)	Technology gratification (intelligence, convenience); Hedonic gratification (perceived enjoyment, concentration); Social gratification (status); Utilitarian gratification (achievement); Content gratification (education)	Continuance intention
Shih and Sung (2021)	Multi-sided platforms	Survey (N=309)	Process gratification; Content gratification; Social gratification	Continuance intention
Singh and Chakrabarti (2023)	Online reviews	Survey (N=547)	Gratification of advice seeking; Convenience seeking; Entertainment seeking; Information seeking	Attitude toward reviews; Continuance intention; Purchase intention
Hur et al. (2017)	Travel-related social media	Survey (N=384)	Gratification of information seeking; Entertainment; Relationship maintenance	Continuance intention; Information sharing intention
Hsu et al. (2015b)	Social media	Survey (N=493)	Gratifications of entertainment; Information seeking; Socialization; Self-presentation	Continuance intention

2.2.3 Delight and satisfaction

In this study, delight and satisfaction are considered two important types of user attitudes. Specifically, user delight, originating from the marketing and service disciplines, has been conceptualized through two primary perspectives (Finn, 2011). The first perspective views delight as an exceptionally high level of satisfaction (Anderson and Mittal, 2000). The second perspective defines delight as a distinct emotional response characterized by positive emotions, including joy, surprise, and excitement (Finn, 2005; 2011). In comparing these perspectives, Finn (2011) provided empirical support for the second approach, arguing that delight should be considered a unique service performance metric, distinct from satisfaction, that requires separate observation and management. Delight and satisfaction influence user behaviors in distinct ways (Finn, 2011). As evidenced by Bartl et al. (2013), delight has a greater impact on purchase intentions than satisfaction in online settings. Regarding mobile app usage, delight drives user citizenship behaviors more strongly, while satisfaction is more closely tied to continuance intention (Hsu et al., 2015a). In addition, Barnes et al. (2010) demonstrated that delighted users exhibit higher levels of commitment, loyalty, and willingness to pay, further emphasizing the unique behavioral consequences of delight.

Prior research has explored the factors that influence delight from multiple dimensions. Researchers acknowledged that delight is an emotion triggered by experience. For instance, when users encounter a positive surprise that exceeds their expectations, they experience delight (Berman, 2005). Oliver et al. (1997) also pointed out that such surprise and unexpected experiences evoke arousal, which subsequently generates pleasure and finally leads to delight. Therefore, joy and surprise are key drivers of delight, as supported by previous literature on marketing and service (Barnes and Krallman, 2019). In other research contexts, delight can be aroused by various factors. For example, in mobile app contexts, users' cognitive evaluations (e.g., unexpectedness and confirmation) have influenced delight (Hsu et al., 2015a). Meanwhile, in a corporate website's context, usefulness, and entertainment have also been found to affect delight (Bartl et al., 2013). In the context of educational technology tools, gamification has been demonstrated to be an antecedent of delight (Esnaashari and Rehm, 2019).

In previous research, satisfaction with an IS has also been confirmed to influence users' continuance intention. Bhattacherjee (2001) defined it as users' response to prior IS usage. This revealed that satisfaction positively impacts users' continuance intention in the context of online banking services. In essence, users' prior satisfaction can increase their likelihood of continuing IS usage (Bhattacherjee, 2001). The significant relationship between satisfaction and continuance intention has been confirmed across diverse contexts, for instance, mobile services (Gao et al.,

2015), AI-powered Chatbot (Ashfaq et al., 2020), and video-on-demand services (Pereira and Tam, 2021).

The antecedents of satisfaction have also been extensively explored in IS research. For instance, satisfaction is determined by perceived usefulness and expectation confirmation according to IS post-acceptance model (Bhattacherjee, 2001). Bae (2018) highlighted the role of discrepancies between gratifications sought and gratifications obtained in affecting satisfaction, particularly the divergences regarding socialization, social support, and entertainment within social networking sites. Ashfaq et al. (2020) identified service quality, information quality, perceived enjoyment, and perceived usefulness as key drivers of satisfaction in AI-powered chatbots. Similarly, in the context of video-on-demand services, Pereira and Tam (2021) examined how enjoyment and confirmation positively affect satisfaction.

Drawing on prior literature, this study incorporates delight and satisfaction as key user attitudes to examine their influence on continuance intention. Prior research indicates that both delight and satisfaction effectively represent users' attitudes toward an IS, making them appropriate constructs for analyzing their direct impact on continuance intention. Therefore, this study utilizes delight and satisfaction to address RQ1 and RQ3, contributing to a profound insight into the underlying motivations influencing TPMA continuance intention.

2.3 Conceptual framework

Building on prior studies suggesting that users' beliefs and attitudes can influence continuance intention, the conceptual research framework is presented in Figure 2. The framework proposes five key categories of user beliefs: (1) aesthetic beliefs, emphasizing the visual and aesthetic design of TPMA. (2) functional beliefs, focusing on the utilitarian perspective of using TPMA. Such beliefs are measured from both general and specific perspectives. Specifically, general functional beliefs are measured through constructs like perceived usefulness, and specific beliefs are measured through five specific core functions designed for TPMA: real-time information, map navigation, virtual queue, online order, and recommended routes. (3) hedonic beliefs, highlighting the enjoyment derived from using TPMA. (4) social beliefs, focusing on social interactions embedded within TPMA. (5) environmental beliefs, emphasizing the sustainability benefits of using TPMA as a digital tool that contributes to environmentally friendly practices in theme parks. Additionally, user attitudes in the framework consist of two types: satisfaction and delight.

Furthermore, beyond continuance intention, the study also investigates additional behavioral intentions, including IS-related behavioral intentions (recommendation and feedback) and travel-related behavioral intentions (revisit intention). Moreover, user-specific characteristics—such as age, gender, income

level, visit duration, visit frequency, residence type, and smartphone usage habits—affect engagement among beliefs, attitudes, and behavioral intentions. Consequently, the framework is composed of five main categories: general beliefs (aesthetic, functional, hedonic, social, and environmental beliefs), specific functional beliefs (real-time information, map navigation, virtual queue, online order, and recommended routes), attitudes (satisfaction and delight), behavioral intentions (continuance intention, recommendation, feedback, and revisit intention), and moderators.

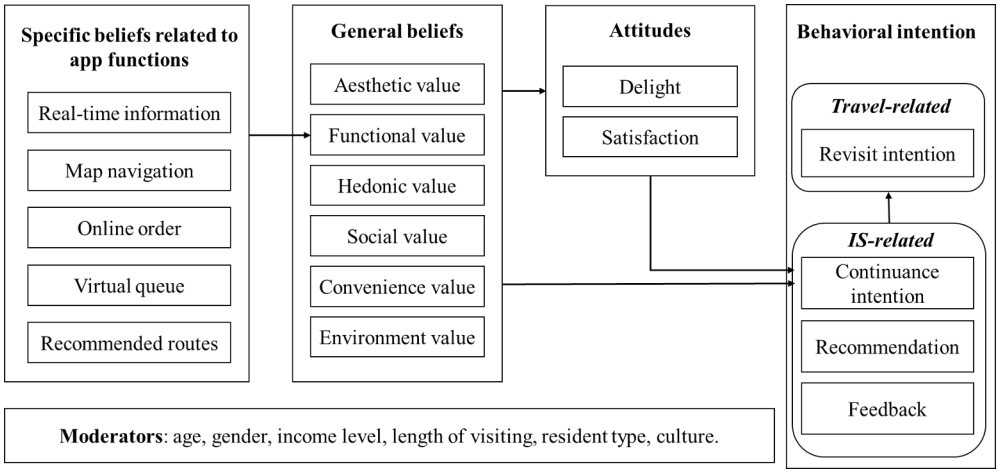


Figure 2. The conceptual research framework.

3 Research Methodology

This chapter begins with a discussion of positivist, interpretive, and critical research paradigms, offering a foundational understanding of the philosophical approaches considered for this research. Following this, the chapter discusses the research strategy utilized in this research: the quantitative research method used to investigate the continuance intention of TPMA. Next, the chapter details the data collection process, covering the design and procedures for surveys, as well as the characteristics of the data samples. Finally, the data analysis approaches are presented, including structural equation modeling (SEM) and fuzzy-set qualitative comparative analysis (fsQCA), along with data validity and reliability techniques.

3.1 Information Systems Science research paradigms

Philosophical assumptions regarding the nature of reality and the chase for knowledge underpin all research. These assumptions are fundamental in shaping how researchers design and conduct their studies, as they influence the criteria for what constitutes valid knowledge and acceptable methodologies (Lee, 2004). Thus, understanding these underlying philosophical foundations is crucial for conducting rigorous and meaningful research. Chua (1986) identified three key dimensions of beliefs that guide how researchers observe and study the world. The first dimension relates to "*epistemological and methodological assumptions*", which address the nature of knowledge and the processes of truth assessment. Epistemological assumptions establish the standards for determining valid truth, while methodological assumptions influence the selection of appropriate research methods for gathering credible evidence.

The second dimension focuses on "*ontological assumptions*", which concern the nature of reality itself. Such assumptions define whether physical and social realities exist independently of the observer (objective reality) or are shaped by human perception and interaction (subjective reality). The distinction between these two views of reality is essential in shaping the research approach, especially in determining whether a study seeks to uncover objective facts or explore subjective experiences.

The third dimension pertains to the "*relationship between theory and practice*", specifically concerning how theories influence or reflect practical realities. This dimension emphasizes the importance of understanding how theoretical frameworks are applied or tested in real-world contexts, thereby integrating academic research with practical application. Following the concept of paradigms developed by Kuhn (1996), these philosophical beliefs form the basis of a "paradigm"—a shared set of assumptions within a research community. Mingers (2001) defined a paradigm as "*a construct that encompasses a set of assumptions related to ontology (what is assumed to exist), epistemology (the nature of valid knowledge), axiology (what is valued), and methodology (how research is conducted)*". Orlikowski and Baroudi (1991), in the IS domain, expanded on Chua's work to delineate "positivist", "interpretive", and "critical" as three broad research paradigms.

Regarding ontology, positivist IS researchers assume the existence of a reality that exists independently of researchers and can be objectively observed and measured. This perspective holds that reality is external and separate from the observer, allowing it to be captured, described, and quantified without significant interpretive challenges (Orlikowski and Baroudi, 1991; Weber, 2004). Positivist IS researchers believe that reality can be unproblematically examined and understood through the use of empirical methods. In terms of epistemology, IS positivists emphasize the significance of empirically testing theories. Their primary focus is determining whether a given theory or hypothesis can be "verified" or "falsified" through deductive reasoning. Positivists approach knowledge as something that can be discovered through rigorous testing, where research objects possess qualities independent of the researcher. Therefore, IS positivist studies often rely on methods such as sample surveys, field experiments, or laboratory experiments to learn behavioral regularities or patterns (Weber, 2004).

Meanwhile, the data collection process is considered a true representation of reality, with validity reflecting the accuracy and reliability of the measurements, ensuring the consistency of results across different studies or replications. From an axiological perspective, IS positivist researchers maintain a value-neutral stance, asserting that they are independent of the social phenomena being studied. This separation is crucial to maintaining objectivity in their work. The IS researcher's subjective opinions, beliefs, or moral judgments are considered irrelevant to the inquiry, as the goal is to observe and measure reality without bias (Orlikowski and Baroudi, 1991). The assumption is that the IS researcher can remain detached from the subject matter, ensuring that the findings reflect the truth as it exists, not as it is interpreted by the researcher.

Interpretive IS researchers are grounded in the belief that reality and individuals, including researchers, are intrinsically linked. It is perceived as a social construct shaped by interactions, language, shared meanings, and collective consciousness.

This perspective emphasizes the significance of symbolic actions, socio-political contexts, and subjective interpretations in the dynamic process of constructing and reconstructing reality (Orlikowski and Baroudi, 1991). Unlike the positivist approach, which views reality as external and objective, interpretive IS research focuses on understanding reality as it is experienced and interpreted by individuals. Epistemologically, interpretive IS researchers generate theories through "inductive reasoning", seeking to build understanding from the ground up by interpreting rich, qualitative data. Rooted in the philosophical traditions of hermeneutics and phenomenology, interpretive IS research seeks to comprehend phenomena by examining how individuals assign meaning to their lived experiences (Weber, 2004). The goal is not to test pre-existing hypotheses but to explore and interpret the underlying meaning structures that influence behavior and social interactions. Field studies are often employed to immerse the researcher in the social environment being studied, allowing for in-depth observation and interpretation. In this context, validity is achieved when research findings are "plausible and defensible", meaning they offer credible explanations based on the data and context. From a methodological standpoint, interpretive IS research is considered reliable when researchers are conscious of and acknowledge their own subjectivity, ensuring transparency in how personal biases may influence interpretations (Weber, 2004). Recognizing this subjectivity is crucial in enhancing the trustworthiness of the research findings. Axiologically, interpretive IS research is "value-bound", meaning that the researcher's opinions, emotions, and expectations are inherently involved in the research process. Researchers are not neutral observers but active participants in the co-construction of meaning within the phenomena they study (Orlikowski and Baroudi, 1991). Consequently, the interpretive approach holds that research outcomes are influenced by the researcher's engagement with the subject matter, highlighting the importance of reflexivity throughout the research process.

Critical IS researchers view reality as historically constituted, where economic, political, social, and cultural domination shapes individuals' ability to form their material and social circumstances (Orlikowski and Baroudi, 1991). Critical IS research seeks to challenge and deconstruct existing norms by exposing alienating and oppressive conditions within social systems to alleviate these sources of domination and alienation (Orlikowski and Baroudi, 1991). Unlike positivist and interpretive approaches, which focus on explaining or predicting phenomena, critical research is inherently transformative in its intent. It not only seeks to understand reality but also aims to change it by addressing power imbalances and advocating for emancipation. Epistemologically, critical IS researchers believe that knowledge is embedded in historical and social contexts. This belief influences their research methods, prioritizing long-term, contextually rich studies, such as ethnographies and historical analyses, which enable a holistic exploration of how power structures have

evolved over time and how they continue to shape human experiences (Orlikowski and Baroudi, 1991). Critical IS research emphasizes the importance of understanding the broader forces that shape individuals' realities and experiences by focusing on historical and social practices. Axiologically, critical research is "value-bound", requiring researchers to move beyond mere observation and theorizing. The role of the researcher in this paradigm extends to actively engaging with the phenomena under study, intending to promote social change (Orlikowski and Baroudi, 1991). Researchers are expected to play an active role in challenging oppressive systems and contributing to the emancipation of marginalized groups. Thus, critical research is not neutral; it is inherently activist in nature, driven by a commitment to social justice and transforming inequitable structures.

Each IS research paradigm provides a unique perspective for understanding reality (Mingers, 2001). This study adopts a positivist approach to conduct the objective investigation of the research questions. Given that the study's primary focus is to identify measurable factors affecting TPMA continuance intention, the positivist paradigm is well-suited for testing hypotheses and establishing causal relationships. This approach facilitates the collection of objectives, and quantifiable data through methods such as surveys, ensuring that the findings are grounded in observable evidence rather than subjective interpretations. By employing a positivist framework, this study enables a rigorous, data-driven analysis designed to produce reliable and replicable results, specifically within the context of TPMA.

3.2 Quantitative research method

This research adopts a positivist quantitative research method, which is widely recognized in the IS field for its capacity to produce generalizable, objective, and empirical results. Rooted in the natural science traditions of Boudreau et al. (2001); and Kaplan and Duchon (1988), quantitative methods, such as surveys, are particularly suited for studies that aim to empirically validate hypotheses and establish causality within the sociotechnical systems that encompass human interactions with digital technologies.

The survey method is specifically chosen for this study because it is one of the most effective and widely used tools for examining IS usage behaviors (Orlikowski and Baroudi, 1991; Chen and Hirschheim, 2004). Surveys are particularly advantageous for collecting large-scale data in a structured and systematic way, which is ideal for examining user behaviors such as app continuance intention. As Newsted et al. (1998) observed, surveys offer numerous advantages, including: (1) ease of administration and scoring, (2) measurement of variables and relationships, (3) generalizability of results, (4) reusability for comparisons, (5) predictive capabilities, (6) objective theory testing, and (7) validation and quantification of

qualitative research. These characteristics make surveys an ideal method for generating reliable, generalizable insights into continuance intention of TPMA in this study.

Three key attributes set the survey research method apart. First, it generates quantitative descriptions of the studied population. Second, it relies on structured and predefined questions, allowing for response consistency and ease of analysis. Finally, the findings apply to a broader population because the data collection process is sample-based (Pinsonneault and Kraemer, 1993). This method is particularly valuable for studies that aim to understand user behaviors and preferences across a broad range of TPMA users.

Additionally, previous IS literature indicates that the survey is especially useful for answering "what" and "how" questions (Pinsonneault and Kraemer, 1993). It is most appropriate in situations where the research seeks to understand "what is happening", "how" phenomena occur, and "why" they appear. Furthermore, surveys are advantageous when manipulating independent and dependent variables, which is neither practical nor desirable, or when studying phenomena in their natural settings (Yin, 2008). Since this study aims to identify the antecedents driving the continuance intention of TPMA, the research questions are typical "what" questions, which makes the survey approach highly fitting for collecting data that reflects real-world behaviors without needing to control for behavioral events.

The survey research method can serve multiple purposes, including description, exploration, and explanation (Pinsonneault and Kraemer, 1993). Descriptive surveys are designed to capture the current state of events, viewpoints, or attitudes within a specific population. These surveys provide factual insights into the distribution of phenomena across different population subsets but do not test theories or causal relationships. In contrast, exploratory surveys are used to gain familiarity with a research area and to uncover preliminary concepts that can inform further investigation. These surveys identify which concepts should be measured and how they can be best assessed. By soliciting diverse responses from individuals with varying perspectives, exploratory surveys help lay the groundwork for more structured, rigorous research; explanatory surveys aim to test theories and uncover causal relationships between variables; explanatory surveys focus on identifying these relationships' existence and the underlying reasons why they occur (Pinsonneault and Kraemer, 1993).

This study serves both explanatory and exploratory purposes. As an explanatory survey, this research builds upon established theories and empirical findings to develop research models and hypotheses. Specifically, the study is grounded in well-established theoretical frameworks such as the theory of perceived value, and the theory of U&G. The objective is to test how these theoretical constructs influence user continuance intention in the TPMA context, making it a clear example of

explanation-oriented survey research. Table 4 depicts the research methods employed in each article.

Table 4. The research methods employed in each article.

Research method	Article employed	Questions and aims	
Quantitative research	Article 1	RQ1: How do different user beliefs affect their attitudes and continuance intention regarding TPMA? RQ3: How do user attitudes affect their continuance intention of TPMA?	To examine the impact of various user beliefs on user delight, and how the delight influences the continuance intention of TPMA.
	Article 2	RQ1: How do different user beliefs affect their attitudes and continuance intention regarding TPMA?	To assess the influences of user different beliefs on continuance intention.
	Article 3	RQ1: How do different user beliefs affect their attitudes and continuance intention regarding TPMA? RQ2: How do the app-specific functions affect the user's continuance intention of TPMA?	To explore the impacts of user different beliefs and the specific app features on continuance intention.
	Article 4	RQ1: How do different user beliefs affect their attitudes and continuance intention regarding TPMA? RQ3: How do user attitudes affect their continuance intention of TPMA?	To explore the effects of user different beliefs on satisfaction, and how the satisfaction affects continuance intention.

3.3 Data collection

3.3.1 Timeline of data collection

The data collection were conducted in three rounds. The first round occurred from May 27 to June 4, 2021. The second round took place from December 18 to 30, 2021. The third round was conducted from February 19 to 29, 2024. Figure 3 illustrates the timeline of data collection. The relationship between the articles and the data collection rounds is as follows: the first round survey provided data for Articles 1 and 2, the second round survey supported Article 3, and the third round collected data was used for Article 4.

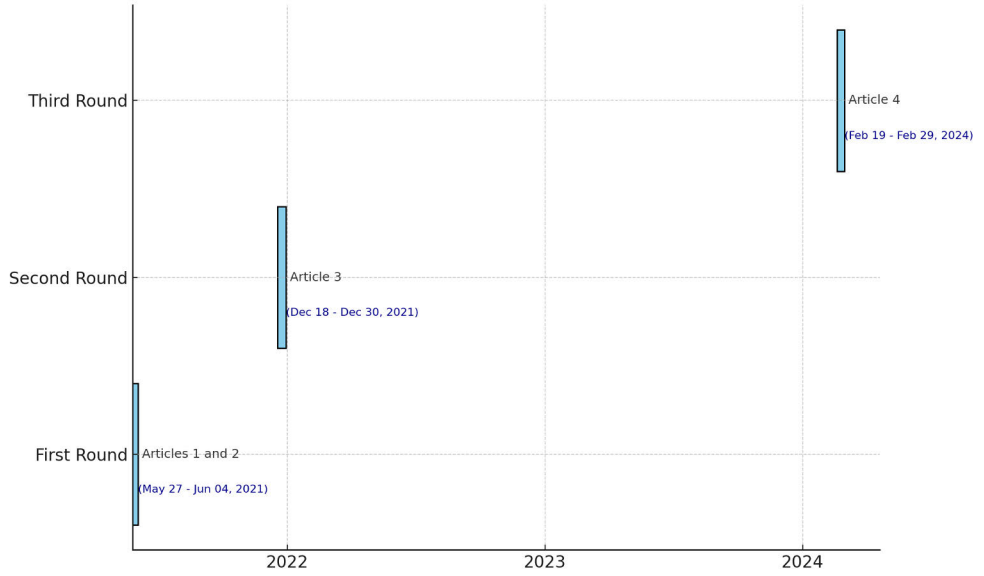


Figure 3. Timeline of data collection.

3.3.2 First round survey data collection

The first round of survey data collection, conducted through an online survey in China, provided the data used for Articles 1 and 2. Initially, the questionnaire was designed in English, and then translated into Chinese by the author, a native Chinese speaker. After this, two senior IS researchers were invited to check the Chinese and English questionnaires. There were 15 Chinese TPMA users who participated in the pretest to ensure clarity and relevance. Based on their feedback, several ambiguous sentences were removed, and questions were revised for better clarity and fluency. In addition, attention check questions were applied to ensure respondents paid attention to all questions.

The questionnaire items utilized constructs adapted from validated scales in international IS journals and measured using a seven-point Likert scale (from "Strongly disagree" to "Strongly agree"). Table 5 summarizes the measurement items in this round of data collection.

Table 5. The measurement items in the first round of data collection.

Construct	Measurement items	References
Achievement-related gamification	The frequency of interacting with badges/medals/trophies. The frequency of interacting with points/scores/experience points. The importance of interacting with badges/medals/trophies. The importance of interacting with points/scores/experience points.	Xi and Hamari (2019); Venkatesh et al. (2012)
Social-related gamification	The frequency of interacting with team/cooperation. The frequency of interacting with social networking features. The importance of interacting with team/cooperation. The importance of interacting with social networking features.	Xi and Hamari (2019); Venkatesh et al. (2012)
Aesthetic design	The design of theme park app (i.e., colors, boxes, menus, etc.) is attractive. The theme park app looks professionally designed. The theme park app has good graphics design. The theme park app has visually appealing overall look and feel. Overall, I find that the theme park app looks attractive.	Merikivi et al. (2017); Van der Heijden (2004)
Entertainment	I feel that the theme park app is enjoyable and entertaining. To me, it is amusing to use the theme park app. I feel that it is pleasant to use the theme park app. The use of this theme park app gave me pleasure.	Tsang et al. (2004); Griffin et al. (2000)
Utilitarian value	I accomplished just what I wanted to do on the theme park app. I could do what I really needed to do in the theme park app. While using the theme park app, I found just the functions I need.	Griffin et al. (2000); Zhou et al. (2012)
Delight	I felt delighted at some time during my use of this theme park app. I felt gleeful at some time during my use of this theme park app. I felt elated at some time during my use of this theme park app.	Finn (2005)
Continuance intention	I intend to continue using the theme park app rather than discontinue its use. My intentions are to continue using this theme park app than use any alternative means. I will recommend others to use the theme park app.* If I could, I would like to continue my use of the theme park app.	Bhattacherjee (2001)
Feedback	I will fill out a customer satisfaction survey regarding the theme park app.	Hsu et al. (2015a)

Construct	Measurement items	References
	I will provide helpful feedback to the theme park app service providers. I will provide information when surveyed by the theme park app service providers. I will inform the theme park app service providers about issues or suggestions.	
Recommendation	I will say positive things about the theme park app to other people. I will recommend the theme park app to anyone who seeks my advice. I will refer my acquaintances to the theme park app.	Kim and Son (2009)
Revisit intention	I intend to revisit the theme park again. It is very likely that I will revisit the theme park in the future. The likelihood of my return to the theme park for another travel is high.	Hutchinson et al. (2009)

The data was collected using the sample service provided by Wenjuanxing (wjx.com), an online survey platform crowdsourced in China with 2.6 million registered respondents. The questionnaire began with informed consent, research objective, data confidentiality, and researcher contact information. Only respondents who agreed and confirmed their use of TPMA proceeded to complete the survey. Next, the questionnaire collected demographic information, such as gender, age, income, place of residence, and prior theme park visit experiences. The final part gathered responses regarding perceptions of using TPMA.

After collecting 224 submissions, 20 respondents were excluded for providing dishonest answers, such as claiming their home city had a theme park where none existed in fact. Therefore, 204 valid responses were employed for further analysis. Among the 204 valid respondents, 68.1% were female, and 31.9% were male, with the majority (67.6%) aged between 26 and 35. Nearly half of the respondents earned more than 55,000 RMB annually. In addition, 62.7% were theme park host city residents, and approximately 55% of visitors spent half a day or a full day, depending on the length of their visiting time. Table 6 illustrates the respondents' demographic information.

Table 6. The demographics of survey participants in the first round.

Measure	Items	Frequency	Percent (%)
Age	>18 and ⩽25	34	16.7
	>26 and ⩽35	138	67.6
	>36 and ⩽45	29	14.2
	>46 and ⩽55	1	0.5
	>55	2	1.0
Gender	Male	65	31.9
	Female	139	68.1
Income level	⩽15,000 RMB	18	8.8
	15,001–25,000 RMB	21	10.3
	25,001–35,000 RMB	21	10.3
	35,001–45,000 RMB	15	7.4
	45,001–55,000 RMB	19	9.3
	⩾55,000 RMB	110	53.9
Residence type	Local	128	62.7
	Non-local	76	37.3
Length of visiting time	Half-day and less	4	2.0
	Half-day to one day	112	54.9
	One to two days	78	38.2
	Over two days	10	4.9

3.3.3 Second round survey data collection

The data collection for the second round was also conducted through an online survey in China, which provided the dataset for Article 3. Similarly, the questionnaire was first designed in English and subsequently translated into Chinese by the researcher; two senior IS researchers reviewed two versions of the questionnaire and enhanced the whole expression. In addition, a pretest was conducted, and according to the feedback, several survey items were rephrased to improve clarity, enhance readability, and ensure the language was more natural and relatable for respondents.

The survey questionnaire included four sections: informed consent, screening questions, personal background information, and perceptions of using TPMA. The informed consent section detailed the research aim, method, data storage, privacy protection, and researchers' contact information. Only respondents who agreed to the consent could proceed. The screening questions ensured respondents had experience with TPMA, asking, "Have you used a TPMA when you visited a theme park before?" and "What is the name of the app?". The personal background section collected information such as age, gender, education, mobile app usage habits, and frequency of theme park visits. The final section focused on respondents' experiences and perceptions of TPMA. All the measurements regarding user experience were designed based on well-established scales in previous research. Table 7 summarizes the measured items used in the second round.

Table 7. The measurement items in the second round of data collection.

Construct	Measurement items	References
Continuance intention	I intend to continue using theme park app rather than discontinue its use, when I visit the theme park next time. My intentions are to continue using theme park app than use any alternative means, when I visit the theme park next time. If I could, I would like to continue my use of theme park app, when I visit the theme park next time.	Bhattacherjee (2001)
Convenience value	Using theme park apps would help me to make my visit in a convenient way. not make my visit a hassle. help me to make my visit without any extra effort. help me to use my time wisely. help me not to waste time when visiting a theme park. enable me to make my visit quickly.	Souiden et al. (2019)
Hedonic value	Theme park app is fun to use. The actual process of theme park app is pleasant. Using theme park app is enjoyable.	Kim et al. (2019a)
Social value	Using the theme park app enables me to create interpersonal relationships with other users. Using the theme park app enables me to maintain a personal connection with other users. Using the theme park app enables me to make new friends. Using the theme park app enables me to enhance my relationship with others.	Kim et al. (2019a)
Real-time information	During the on-site visit, this theme park app provides detailed and timely information about the events/attractions in the park. During the on-site visit, this theme park app provides a comprehensive list of the events/attractions in the park. During the on-site visit, this theme park app provides real-time information on a large number of attributes for each of the events/attractions featured. During the on-site visit, the information provided by this theme park app is up to date.	Cenfetelli et al. (2008); Liu et al. (2020)
Map navigation	During the on-site visit, the theme park app helps me avoid being lost with a map. During the on-site visit, the theme park app provides the necessary map to guide my visit in the theme park. During the on-site visit, the theme park app helps me find the way to an attraction with a map navigation.	Cenfetelli et al. (2008); Liu et al. (2020)
Online order	During the on-site visit, the theme park app allows me to place orders for different products online, such as food, drink, tickets, and merchandise. During the on-site visit, the theme park app provides the necessary functions to order various products, such as food, drink, tickets, and merchandise. During the on-site visit, the theme park app allows me to order products online.	Cenfetelli et al. (2008); Liu et al. (2020)

Construct	Measurement items	References
Virtual queue	During the on-site visit, the theme park app allows me to queue online. During the on-site visit, the theme park provides the necessary functions to queue virtually. During the on-site visit, the theme park allows me to queue for attractions online.	Cenfetelli et al. (2008); Liu et al. (2020)
Recommended routes	When I was in the theme park, the theme park app offered me suggestions regarding visiting schedules in the theme park. the theme park app provided the necessary functions to help me develop or choose a visit plan for the theme park. the theme park app recommended me a list of visiting routes.	Cenfetelli et al. (2008); Liu et al. (2020)
Smartphone use habit	The use of smartphone has become a habit for me. I am addicted to using smartphone. I must use smartphone.	Venkatesh et al. (2012)

Given the active engagement of theme park enthusiasts on social media and the limited sample size provided by Wenjuanxing's survey services, this round of data collection shifted to social media platforms such as Weibo to reach a larger audience. The survey link was shared to collect responses, and a snowball sampling approach was utilized, encouraging participants to distribute the survey to other theme park visitors in their networks. To incentivize participation, red packets valued between 1 and 3 RMB were offered as rewards.

The data collection period lasted two weeks in December 2021, yielding 361 responses. After reviewing the submissions, 14 responses were excluded for being invalid, such as selecting the same answer for all questions. Finally, 347 valid responses were analyzed. Of these respondents, 47% were male, 52.4% were female, and 0.6% preferred not to disclose their gender. Regarding age distribution, 54.8% were between 26 and 35 years old, 24.8% were under 25, and 20.5% were over 36. Regarding education, 75.5% held a bachelor's degree or higher, 14.4% had completed high school or below, and 10.4% had an associate degree. Additionally, 97.7% of respondents reported visiting a theme park annually. Table 8 shows the demographics of survey participants in this round.

Table 8. The demographics of survey participants in the second round.

Measure	Items	Frequency	Percentage (%)
Gender	Male	163	47.0
	Female	182	52.4
	Unwilling to disclose	2	0.6
Age	18-25	86	24.8
	26-35	190	54.8
	36-45	67	19.3
	46-55	4	1.2
Education	High school or below	35	10.1
	Associate	50	14.4
	Bachelor	211	60.8
	Master or above	51	14.7
The number of visits to a theme park annually	0	8	2.3
	1	132	38.0
	2	139	40.1
	3 or above	68	19.6

3.3.4 Third round survey data collection

The third round of data collection was implemented based on the lessons learned from the previous two rounds. The questionnaire was intended for distribution in China and Europe, so bilingual versions were developed. Both versions underwent pilot testing, and the Chinese version was back-translated to ensure accuracy and address any potential language inconsistencies. This survey round was conducted in both China and Europe to examine regional differences in TPMA user behavior. In China, as in the second round, data were collected via social media platforms to secure sufficient respondents. In Europe, however, the initial distribution of the survey through Facebook and Instagram yielded limited responses. To address this issue, the survey was transitioned to Prolific, a professional platform that successfully provided an adequate sample size (Filieri et al., 2021).

The survey consisted of four parts: informed consent, demographic information, personal habits, and app usage perceptions. The informed consent form detailed the survey's purpose, voluntary participation, confidentiality of information, and contact information were presented first. The second part collected basic demographic information of the respondents. The third part focused on respondents' habits and previous theme park experiences. The fourth part assessed respondents' experiences with TPMA, emphasizing their perceptions of their value, and intention to continue using them. Adapted from prior studies, the items were measured using a seven-point

Likert scale, with some items tailored to the research context. Table 9 depicts the measurement items in the third round.

Table 9. The measurement items in the third round of data collection.

Construct	Measurement items	References
Perceived usefulness	I find the theme park app useful in my visiting in the park. Using the theme park app helps me accomplish things more quickly. Using the theme park app increases my performance when visiting the park.	Bhattacherjee (2001)
Hedonic value	Using the theme park app service is fun. Using the theme park app service is enjoyable. Using the theme park app service is very entertaining.	Venkatesh et al. (2012)
Social value	Using the theme park app enables me to create interpersonal relationships with other users. Using the theme park app enables me to maintain a personal connection with other users. Using the theme park app enables me to make new friends. Using the theme park app enables me to enhance my relationship with others.	Kim et al. (2019a)
Environmental friendliness	Using the theme park app is environment-friendly Using the theme park can reduce environmental impact Compared to other traditional tools (e.g., printed guidebook), using the theme park is more environment-friendly	Chen et al. (2015)
Satisfaction with app	How do you feel about your overall experience of theme park app use? Very dissatisfied- very satisfied. Very displeased- very pleased. Very frustrated- very contented. Absolutely terrible- absolutely delighted.	Bhattacherjee (2001)
Continuance intention	I intend to continue using the theme park app rather than discontinue their use when I visit the theme park next time. My intentions are to continue using the theme park app than use any alternative means when I visit the theme park next time. If I could, I would like to continue my use of the theme park app, when I visit the theme park next time.	Bhattacherjee (2001)

For the Chinese sample, the data collection process took place from February 19 to 29, 2024, resulting in 316 valid responses. Initially, 493 responses were collected,

but 177 were excluded for various reasons: 13 respondents did not consent to participate, 102 had not used the official TPMA during their visit, eight indicated they had never used a TPMA when asked about their usage duration, 52 failed the first attention check question, and two failed the second attention check question. Participants were incentivized with red packets ranging from 2 to 10 RMB. For the European sample, data collection occurred from February 23 to 29, 2024, resulting in 330 valid responses. Initially, 584 responses were collected, but 254 were excluded: 1 respondent refused to participate, 225 indicated they had never used a TPMA, 21 listed app names that do not exist, and seven respondents selected "never" when asked about the duration of app usage, confirming they had not used the app at all. The data was collected using Prolific, with each participant receiving £1.05.

As a result, 646 valid responses were obtained for this study, comprising 316 from China and 330 from Europe. Among these respondents, 53.6% were female, 46.1% were male, and 0.3% chose not to disclose. Additionally, 46.9% were between the ages of 26 and 35. More than half of the respondents (52.6%) had bachelor's degrees. A significant majority (83.2%) indicated that they had been using TPMA for no more than three years. When asked about their theme park visit frequency, 37.3% reported visiting once a year, 31.4% reported visiting less than once a year, and 26% reported visiting 2 to 3 times a year. Regarding companionship during theme park visits, the most common response was visiting with friends (39.2%), followed by visiting with a spouse (24.6%), and visiting with children (20.9%). Table 10 depicts the demographics of survey participants in the third round.

Table 10. The demographics of survey participants in the third round.

Measures	Items	Frequency	Percentage (%)
Countries and areas	Europe	330	51.1
	China	316	48.9
Age	>18 and <=25	205	31.7
	>26 and <=35	303	46.9
	>36 and <=45	99	15.3
	>46 and <=55	26	4.0
	>55	13	2.0
Gender	Male	346	53.6
	Female	298	46.1
	Prefer not to disclose	2	0.3
Education	Primary education	2	0.3
	Junior high school	6	0.9
	Secondary vocational school	7	1.1
	High school	87	13.5
	Junior college	62	9.6
	Bachelor	340	52.6
	Master	125	19.3
	Doctor	17	2.6

Measures	Items	Frequency	Percentage (%)
Length of using a theme park app	>0 and <=1 years	293	45.4
	>1 and <=3 years	244	37.8
	>3 and <=5 years	75	11.6
	>5 years	34	5.3
the frequency of visit a theme park	Less than once a year	203	31.4
	Once a year	241	37.3
	2-3 times a year	168	26.0
	More than 4 times a year	34	5.3
the travel type of visit a theme park	Alone	18	2.8
	With spouse	159	24.6
	With children	135	20.9
	With relatives	73	11.3
	With friends	253	39.2
	With an organized tour	8	1.2

3.4 Data analysis

3.4.1 Structural equation modeling

Structural equation modeling (SEM) is a statistical technique that integrates factor analysis and path analysis. This analytical approach was applied in Article 1, Article 2, and Article 4 to evaluate the hypothesized causal relationships among multiple independent and dependent variables. SEM encompasses both observable manifest variables and latent variables that cannot be directly measured. SEM estimates the measurement model by analyzing the loadings of observed variables on their respective latent constructs, providing a comprehensive framework for assessing complex relationships within the research (Gefen et al., 2000). As Astrachan et al. (2014) mentioned, this approach allows simultaneously analyzing measurement and structural models, making it particularly valuable when dealing with structural models that include multiple dependent variables, latent constructs with multi-item indicators, or hierarchical constructs. Therefore, SEM has been widely applied across various fields, including information systems, marketing, and management research (Urbach and Ahlemann, 2010).

There are two primary approaches to conducting SEM: covariance-based SEM (CB-SEM), and partial least squares SEM (PLS-SEM). CB-SEM is commonly used in software such as LISREL, EQS, and AMOS, while PLS-SEM is implemented in tools like PLS and PLS-Graph (Gefen et al., 2000). These approaches differ in their assumptions, estimation techniques, and research objectives. CB-SEM relies on a maximum likelihood (ML) estimation technique to reproduce *"the theoretical covariance matrix (i.e., minimizing the difference between the observed and estimated covariance matrix), without focusing on explained variance*" (Hair et al., 2011). This approach is predominantly used to validate or refute theoretical models

by assessing how well the proposed model aligns with the covariance structure of the data (Hair et al., 2017). In contrast, PLS-SEM adopts a regression-based ordinary least squares (OLS) estimation method, focusing on maximizing the variance explained in latent constructs by *"minimizing the error terms and maximizing the R^2 values of the (target) endogenous constructs"* (Hair et al., 2017). This approach is particularly suited for predictive modeling and theory development, as it prioritizes variance explanation and model evaluation rather than strict model validation (Hair et al., 2017).

Hair et al. (2017, p.23) provide the most common guideline for choosing CB-SEM or PLS-SEM. They suggest using PLS-SEM when the primary aim is to predict key "driver" constructs or identify significant ones. PLS-SEM is also more suitable for structural models that include formatively measured constructs, smaller sample sizes, or data that deviates from a normal distribution. Given that this research aims to explore the antecedents driving the continuance intention of TPMA, alongside a relatively small sample size and non-normal data distribution, PLS-SEM is deemed a more suitable analytical approach.

In Articles 1, 2, and 4, research models were analyzed using SmartPLS. After collecting the survey data, they were cleaned and organized using SPSS 27.0 and subsequently imported into SmartPLS 3.0 for detailed data analysis. In addition, a two-step process was employed to analyze the data.

The first step involved evaluating the measurement model by assessing both convergent and discriminant validity. Convergent validity was assessed through specific criteria: factor loadings for each measurement item needed to exceed 0.7, composite reliability (CR) for each construct had to surpass 0.7, and the average variance extracted (AVE) for each construct was required to be above 0.5. Two established methods assessed discriminant validity. Based on Fornell (1981), the CR requires that items load greater on their designated construct than on any other construct, and that the square root of each construct's AVE exceeds the correlations between the construct and other constructs. Based on Henseler et al. (2015), CR requires that the confidence interval for the Heterotrait-Monotrait (HTMT) ratio must be below 0.90. Both techniques were applied to ensure the robustness of the measurement model (Henseler et al., 2015).

The second step focused on examining the structural model by analyzing the relationships between different latent variables and the outcome variables. Specifically, this involves assessing the size and significance of the path coefficients. In addition, the coefficient of determination (R^2 value), and the predictive relevance (Q^2 value) are crucial in determining the model's explanatory and predictive power (Hair et al., 2017). The detailed results from the PLS-SEM analyses conducted for Articles 1, 2, and 4 can be found in the original papers.

3.4.2 Fuzzy-set qualitative comparative analysis

FsQCA was employed for one study (Article 3) to examine the configurational effects of perceived value and user features on the continuance intention of TPMA. FsQCA is a methodological approach grounded in set theory and Boolean algebra, allowing researchers to explore how combinations of causal conditions lead to specific outcomes (Ragin, 2008). This technique is particularly advantageous for identifying both necessary and sufficient conditions, as well as uncovering multiple configurations to the same outcome (Fiss, 2011). Unlike traditional statistical methods, fsQCA accommodates causal asymmetry, recognizing that the factors driving the occurrence of an outcome may differ from those preventing it. Additionally, it bridges qualitative and quantitative approaches by calibrating variables into fuzzy sets, capturing degrees of membership rather than binary categorizations. FsQCA has been widely applied in various areas, including IS, tourism, and organizational studies, to analyze complex interdependencies among conditions and provide actionable insights (Mattke et al., 2022; Kraus et al., 2018).

Article 3 evaluates the combined effects of perceived value and user features on continuance intentions from a configurational perspective. The application of fsQCA in this study addresses the configurational complexity inherent in understanding continuance intention for TPMA.

Utilizing fsQCA in this research offers several key benefits for understanding the continuance intention of TPMA from a configurational perspective. Compared to SEM, fsQCA enables exploring how combinations of perceived values (e.g., functional, hedonic, social, convenience) and user features (e.g., travel frequency, smartphone habits) influence continuance intention. This approach accounts for causal asymmetry, revealing that the factors leading to app continuance may differ from those driving discontinued usage, offering a more nuanced understanding of behavior. Furthermore, fsQCA captures equifinality, allowing the identification of multiple configurations that result in the same outcome, such as continuance intention, which is particularly relevant for diverse user groups with varying preferences. By calibrating variables into fuzzy sets, fsQCA provides a detailed analysis of degrees of membership rather than binary classifications, capturing subtle variations in user behavior. This method also identifies necessary and sufficient conditions, differentiating the core and peripheral conditions of perceived value and user features. These capabilities make fsQCA ideal for capturing the interplay between perceived values and user features. By revealing actionable insights, fsQCA complements traditional approaches, offering a more comprehensive framework to improve user engagement and app personalization strategies for theme park operators.

In Article 3, research models were analyzed using fsQCA 3.0 software. The first step involved calibrating the data, particularly the variables measured by Likert

scales. Two common approaches to calibration were: one was to set specific anchor points, such as 6, 4, and 2 (Park et al., 2017), while the other used percentile thresholds, such as 95%, 50%, and 5% (Xu et al., 2025b). Both methods are valid, and the option depended on the research requirements.

The second step was to conduct a necessary conditions analysis, identifying conditions necessary for the outcome. This step examined whether any single condition consistently appeared across cases where the result was present. For a condition to be considered necessary, its consistency value must exceed 0.9, as per the threshold established by Ragin (2008).

The third step involved performing a sufficient conditions analysis, which used the fsQCA algorithm to identify combinations of conditions that sufficiently explained the outcome. During this process, it was essential to set the cutoff value. For smaller sample sizes, a cutoff of 1 could be used, whereas larger samples required a cutoff of 2, 3, or higher (Pappas and Woodside, 2021). Additionally, the raw consistency threshold was determined, commonly set at 0.8 but sometimes adjusted to 0.9 for stricter analyses (Lin et al., 2024; Pappas and Woodside, 2021). Next, the Proportional Reduction in Inconsistency (PRI) threshold was set, either by identifying a natural breakpoint in the data or by directly assigning a value, typically around 0.75 (>0.5 minimum) (Misangyi et al., 2017; Pappas and Woodside, 2021).

The fourth step was to conduct a robustness test, which ensured the reliability of the results. There were two main methods for this: one involved altering cutoff, raw consistency, or PRI thresholds (Wang et al., 2024; Xu et al., 2025b), while the other used a subsample analysis, where a portion of the original dataset was analyzed to evaluate any variation in the results compared to the entire dataset (Mikalef and Krogstie, 2020; Shao, 2024).

Finally, the results were reported, typically divided into complex, intermediate, and parsimonious solutions (Ragin, 2008; Pappas and Woodside, 2021). Typically, the intermediate and parsimonious solutions were emphasized in reporting, as they provided a balance between theoretical complexity and empirical parsimony. The solutions first distinguished between conditions that were present or absent, and conditions whose presence or absence did not significantly impact the outcome. Next, the solutions identified core conditions, which exhibited a consistent and robust causal link to the outcome across configurations, and peripheral conditions, which played a supporting role depending on the specific context of a configuration. To facilitate interpretation, it was common to include a solution table, visually representing the combinations of conditions that led to the outcome. This graphical representation provided a clearer understanding of the configurations and enhanced the communicability of the research findings. Comprehensive results from the fsQCA analyses conducted for Article 3 are provided in the original paper.

4 Findings

This chapter offers key findings from the four research articles. First, each article's main results are outlined. Second, the primary factors influencing the continuance intention of TPMA are highlighted. Third, insights into the relationships between beliefs and attitudes are discussed. Finally, a comprehensive summary is provided to address the research questions.

4.1 Summary of original articles

This section briefly summarizes each article, highlighting its objectives, methodologies, key findings, and contributions.

4.1.1 Determinants and effects of delight (Article 1)

Article 1, "*Determinants and Effects of User Delight with Theme Park Apps*," was published in the proceedings of the 55th Hawaii International Conference on Information Systems (HICSS 2022). This article explored what determines user delight with TPMA and what consequences were produced by user delight. The data were gathered through an online survey with TPMA users in China (N = 204). The data were analyzed via SmartPLS 3.0.

This article contributed answers to RQ1 and RQ3. The findings suggest that user delight, as a form of user attitude, is shaped by various beliefs, including aesthetic beliefs (represented by aesthetic design), functional beliefs (represented by achievement-related gamification), and hedonic beliefs (captured by entertainment). However, social beliefs, represented by social-related gamification, do not have a significant impact on user delight. Additionally, user delight influences not only continuance intention but also other behavioral intentions, including recommending the app, providing feedback, and the intention to revisit the park. The results are depicted in Figure 4.

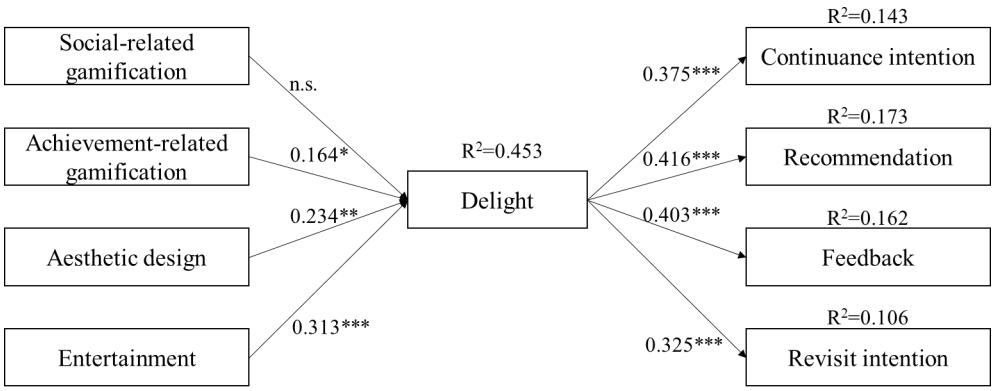


Figure 4. The determinants and effects of user delight with TPMA.

4.1.2 Direct effects of user beliefs on continuance intention (Article 2)

Article 2, entitled "*User Continuance Intention toward Theme Park Apps: A Uses and Gratification Perspective*," was published at the proceeding of the 27th Pacific Asia Conference on Information Systems (PACIS, 2022). This article explored the direct impact of user beliefs on continuance intention through the lens of U&G theory.

Based on U&G theory, three subtypes of gratifications (social, utilitarian, and hedonic gratifications) were proposed to be the factors that affect continuance intention, which in turn positively influenced revisit intention. The data used in this article were the same as those in Article 1.

The findings of this article reveal two key insights and contribute answers to RQ1. First, the continuance intention of TPMA is directly determined by functional (represented by utilitarian value) and hedonic beliefs (represented by entertainment), while social beliefs (represented by social-related gamification) are found to be insignificant for users' continued usage intention of TPMA. Second, continuance intention exerts a positive impact on revisit intention. The results are described in Figure 5, which shows the main findings of Article 2.

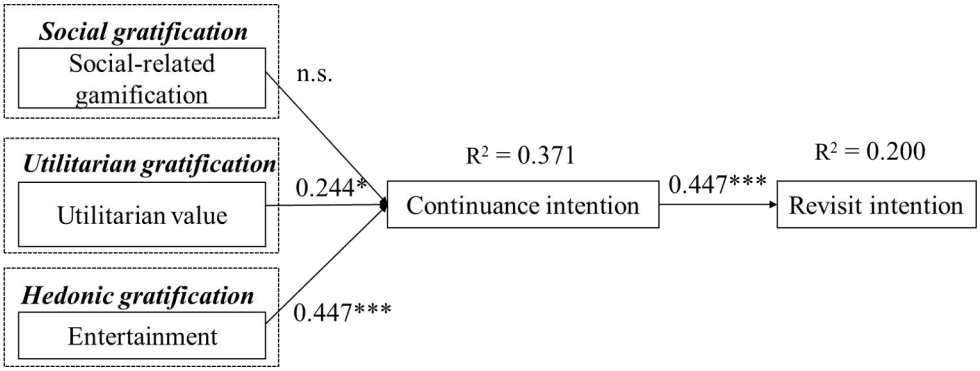


Figure 5. The direct effects of user beliefs on continuance intention.

4.1.3 Combining effects of user beliefs on continuance intention (Article 3)

Article 3, entitled "*Perceived Value and User Features in Continuance Intention to Use Theme Park Apps*," was published in the Pacific Asia Journal of Association for Information Systems. This article employed a configurational approach to investigate how various combinations of user beliefs and characteristics influenced users' intentions to continue using TPMA.

Grounded in perceived value theory, this article investigated the impact of various user beliefs, including perceived functional, convenience, hedonic, and social values, alongside user-specific features, including frequency of theme park visits and smartphone usage habits, on continuance intention. Functional value was further categorized into five specific app functions: real-time information, map navigation, virtual queuing, online ordering, and recommended routes. The empirical data were gathered from China through an online survey (N = 347).

The findings reveal six distinct configurations of causal conditions that lead to continuance intention, which are grouped into two primary equifinality solutions. S1 identifies perceived online ordering and convenience value as core conditions, while S2 suggests that the importance of different subtypes of perceived functional value varies depending on the presence of other conditions. These insights contribute to answering RQ1 and RQ2, with findings are illustrated in Table 11.

Table 11. Solutions of fsQCA method.

Configuration	Solutions					
	S1			S2		
	S1a	S1b	S1c	S2a	S2b	S2c
Functional value						
Real-time information	●	●	●	●	●	
Map navigation	●	●	●	●	●	●
Virtual queue	●	●	●	●	●	●
Online order	●	●	●	●		●
Recommended routes	●	●	●		●	●
Convenience value	●	●	●	●	●	●
Social value		●	⊗	●	●	●
Hedonic value	●	●		●	●	●
Travel frequency to theme parks	⊗		●	●	●	●
Smartphone use habit			●	●	●	●
Raw coverage	0.446	0.589	0.207	0.329	0.332	0.336
Unique coverage	0.021	0.071	0.010	0.001	0.004	0.008
Consistency	0.974	0.980	0.978	0.985	0.990	0.990
Overall solution coverage	0.636					
Overall solution consistency	0.970					

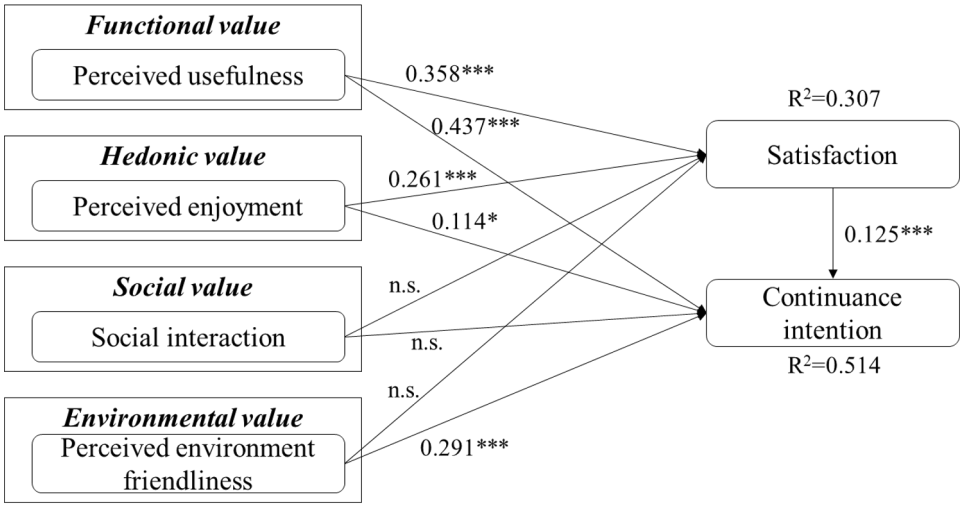
(Notes: black circles (●) indicate the presence of a condition, the large circle means a core condition, the small circle represents a peripheral condition; the circles with "×" (⊗) indicate the absence of a condition; the small circle means peripheral condition; the blank spaces indicate "do not care" situation.)

4.1.4 Determinants and effects of satisfaction (Article 4)

Article 4, "*Beyond Utility and Enjoyment: The Impact of Environmental Value on Continuance Intention of TPMA*," is currently under review. It explored the drivers of user satisfaction—a key attitude—through the lens of perceived value. It proposed that environmental beliefs, alongside functional, hedonic, and social beliefs, influenced both satisfaction and continuance intention. Additionally, satisfaction was hypothesized to exert a positive impact on continuance intention, with cultural context assumed to be a significant moderator. The proposed model was tested using data collected from both China and Europe (N = 646).

The findings reveal that environmental beliefs (measured by perceived environmental friendliness) have a notable impact on continuance intention, though not on satisfaction. Functional beliefs (measured by perceived usefulness) and

hedonic beliefs (measured by enjoyment) positively affect both satisfaction and continuance intention, while social beliefs (measured by perceived social interaction) show no significant relationship with either. In turn, satisfaction has a positive impact on continuance intention. Additionally, cultural differences moderate the influence of hedonic beliefs on both satisfaction and continuance intention. Specifically, hedonic beliefs have a stronger impact on satisfaction for European users than for Chinese users, while they affect continuance intention significantly for Chinese users but not for European users. The findings are summarized in Figure 6.



*(Notes: ***: $p < 0.001$; *: $p < 0.05$; n.s.: not significant)*

Figure 6. The determinants and effects of user satisfaction with TPMA.

This article advances the understanding needed to address RQ1 and RQ3 by elucidating the role of four types of perceived value in shaping satisfaction and continuance intention, in addition to the impact of satisfaction on continuance intention. The findings from Article 4 indicate that functional, hedonic, and environmental values directly affect continuance intention, while functional and hedonic values also significantly enhance satisfaction. Furthermore, as a key user attitude, satisfaction positively influences continuance intention.

4.2 Findings for continuance intention

Four quantitative studies investigated the factors influencing users' TPMA continuance intention. In Article 1, results show that user delight significantly impacts continuance intention ($\beta = 0.375$, $p < 0.001$). This result aligns with findings

from previous research on other mobile apps, where delight has also been shown to enhance continuance intention, such as in productivity apps (Hsu et al., 2015a). Similarly, in the context of TPMA, when users experience delight in using the app, they are more inclined to continue using it.

In Article 2, findings indicate that two types of user beliefs—hedonic gratification (measured by entertainment) ($\beta = 0.447$, $p < 0.001$) and utilitarian gratification (measured by utilitarian value) ($\beta = 0.244$, $p < 0.05$)—serve as significant motivators of continuance intention, whereas social gratification (measured by social-related gamification) does not. The model explains 37.1% of the variance in continuance intention. Specifically, the positive effect of hedonic beliefs on continuance intention aligns with previous research in other contexts, such as WeChat (Gan and Li, 2018), and online games (Li et al., 2015). In the TPMA context, users are offered diverse entertainment options, such as short videos, and mini-games. By providing such choices for fun, TPMA can satisfy users' desire for hedonic gratification, thereby strengthening their willingness to continue engaging with the app.

The influence of utilitarian beliefs is similarly supported by previous research, such as travel apps (Fang et al., 2017) and social media (Gan and Li, 2018). In this research, TPMA provides several functional features, such as real-time wait times, map navigation, check-in and check-out options, ticket pre-ordering, and virtual queuing, which satisfy users' utilitarian needs. Therefore, users are more inclined to continue using a TPMA when they perceive it as streamlining their visit and enhancing efficiency.

Surprisingly, social beliefs are not found to be a motivating factor, which contrasts with prior studies in other contexts (e.g., online games and MOOCs) (Rohan et al., 2021). This discrepancy may result from the varying importance of social gratification across different contexts. In environments like MOOCs and online games, social elements are integral to users' needs for collaboration and competition. However, TPMA users often turn to established social media platforms, such as Facebook or WeChat, to share experiences and connect with friends rather than relying on the social features within the app itself. Additionally, social features within TPMA are often limited compared to broader social networks, as the app's user base consists primarily of theme park enthusiasts, excluding those uninterested in theme parks.

Another possible explanation is cultural influence. For instance, research on WeChat shows that social gratification did not significantly affect continuance intention, possibly due to the collectivist culture in China, where users already maintain extensive social networks in daily life (Gan and Li, 2018). As our respondents are also Chinese, it is unlikely that they would continue using TPMA solely for social gratifications.

In Article 3, the study explores continuance intention from a configurational perspective, identifying six unique combinations of factors that drive users' continuance intention. These configurations are grouped into two main equifinality solutions. The S1 underscores perceived online ordering and convenience as core conditions, suggesting that a strong perception of functional value regarding online order and convenience value significantly enhances users' likelihood to continue using the app. The S2 reveals that the relative importance of different types of perceived functional value shifts based on other factors. Specifically, user features play a role: frequent theme park visitors who regularly use smartphones tend to use the apps' functional features in diverse combinations. In other words, when these users experience high levels of convenience, enjoyment, and social value from the app, the influence of specific functional values adjusts accordingly. For instance, when real-time information is sufficient, the importance of recommended routes diminishes.

In Article 4, the positive effects of functional beliefs (measured by perceived usefulness) ($\beta = 0.358$, $p < 0.001$) and hedonic beliefs (measured by perceived enjoyment) ($\beta = 0.261$, $p < 0.001$) are confirmed, along with the nonsignificant impact of social beliefs (perceived social interaction). Additionally, a new motivator—environmental value ($\beta = 0.219$, $p < 0.001$)—is identified. Satisfaction also emerges as a predictor of continuance intention ($\beta = 0.125$, $p < 0.001$). The model accounts for 51.4% of the variance in continuance intention.

Notably, perceived environmental friendliness positively influences continuance intention, potentially due to its alignment with users' ethical values and long-term social considerations. Users may be motivated to continue using an app because they perceive it contributes to broader societal goals, like environmental sustainability, even if immediate personal benefits are minimal.

Satisfaction is also shown to be a significant factor in continuance intention, consistent with prior studies (Yan et al., 2021). Similarly, in the case of TPMA, satisfied users are more inclined to continue their app usage.

In summary, user beliefs—including functional, hedonic, and environmental beliefs—are identified as predictors of continuance intention for TPMA, whereas social beliefs are not. Additionally, two types of user attitudes—satisfaction and delight— also serve as motivators for continuance intention.

4.3 Findings for user beliefs and attitudes

Two studies explored the influence of user beliefs on user attitudes. Specifically, Article 1 examined the relationship between user beliefs and user delight. The findings reveal that functional beliefs (measured by perceived achievement-related gamification) ($\beta = 0.164$, $p < 0.05$), hedonic beliefs (measured by perceived

entertainment) ($\beta = 0.313$, $p < 0.001$), and aesthetic beliefs (measured by perceived aesthetic design) ($\beta = 0.234$, $p < 0.01$) are significant drivers of user delight, explaining 45.3% of its variance. These results align with previous research, which shows that achievement-related gamification can impact users' emotional attitudes (Xi and Hamari, 2019), aesthetic design elements like visual appeal can elicit positive emotions such as pleasure and enjoyment (Hsu et al., 2015a), and entertainment serves as a key motivator for delight in contexts such as corporate websites (Bartl et al., 2013).

Interestingly, social beliefs (social-related gamification) do not emerge as a motivator of user delight. One possible explanation is that users often prefer engaging with others through established social media platforms like Facebook or Instagram rather than through a TPMA. As a result, social-related gamification features in the app may not be sufficient to evoke delight, even when available.

In Article 4, functional beliefs (perceived usefulness) ($\beta = 0.358$, $p < 0.001$) and hedonic beliefs (perceived enjoyment) ($\beta = 0.261$, $p < 0.001$) are identified as key drivers of user satisfaction, accounting for 30.7% of its variance. The positive impact of perceived usefulness is consistent with prior research on travel apps (Liu et al., 2023) and ride-hailing apps (Malik and Rao, 2019). When users perceive that a TPMA enhances their visit efficiency and overall experience, they are more inclined to experience satisfaction as the app successfully fulfills their practical needs. Similarly, the significant influence of enjoyment on satisfaction is consistent with previous research on travel apps (Choi et al., 2019) and accommodation apps (Kim et al., 2019b). When users find the app enjoyable to use, their satisfaction increases accordingly.

Social beliefs (measured by perceived social interaction) are again found not to influence satisfaction, which is consistent with the findings in Article 1. Additionally, environmental beliefs do not show a significant impact on satisfaction, likely because environmental friendliness focuses on broader societal benefits rather than immediate personal needs. While users may value the app's environmentally friendly aspects, this appreciation operates more on an ethical and public level rather than directly enhancing their personal satisfaction. Thus, environmental beliefs do not significantly predict user satisfaction.

In summary, functional and hedonic beliefs are critical drivers of both satisfaction and delight, while social beliefs do not significantly impact either attitude. Aesthetic beliefs specifically motivate user delight, whereas environmental beliefs do not contribute to satisfaction.

4.4 Findings for continuance intention and other behavioral intentions

The research highlighted a significant link between users' continuance intention and other behavioral intentions. Article 2 reveals that revisit intention is positively influenced by continuance intention ($\beta = 0.447$, $p < 0.001$), explaining 20% of the variance in revisit intention. This aligns with prior tourism research, which found that travelers' revisit intentions are shaped by their adoption and engagement with IS, such as social media platforms (Leung and Bai, 2013).

In the context of TPMA, users who express a strong desire to continue using the app are more likely to plan a return visit to the park. This can be attributed to the hybrid experience facilitated by these apps during their visits. TPMA enables users to meet both utilitarian and hedonic needs, enhancing the efficiency and enjoyment of their physical experience. That is to say, when users feel that their practical and entertainment-related needs are fulfilled, they are likely to form positive associations with the hybrid experience, further strengthening their intention to revisit the park. Thus, a greater intention to keep using a TPMA increases the likelihood of a return visit.

4.5 Findings for the moderators

Previous research on IS has highlighted the moderating effects of individual characteristics, such as gender, age, and income level, on individuals' behavioral intentions (Hung et al., 2015; Lee et al., 2021; Yan et al., 2021). Previous studies on travel-related IS have also identified variations based on travel experience (such as length of visit) and cultural differences (Lee et al., 2021; Kirova and Vo Thanh, 2019; Coves-Martínez et al., 2023). Consequently, age, gender, residence type, income level, length of visit, and culture were investigated as moderators in this research. While investigating these moderating effects was not the study's primary aim, the findings provide additional insights into the continuance intention for TPMA.

In Article 1, the moderating roles of age, gender, income level, and length of visit were tested. The results indicate that these factors do not act as moderators. However, residence type does moderate the relationship between hedonic beliefs and delight. Specifically, for non-local users, hedonic beliefs have a stronger influence on delight compared to local users. This difference may arise because local users are more familiar with the theme parks in their area, reducing the novelty and entertainment's ability to elicit delight.

Article 2 explored the moderating effects of age, gender, income level, residence type, and length of visit. The results indicate no significant differences between user groups across these factors.

In Article 4, culture was examined as a moderator, revealing that it influences the paths from hedonic beliefs (perceived enjoyment) to satisfaction and continuance intention. Specifically, perceived enjoyment has a stronger effect on satisfaction for European users ($\beta = 0.346$, $p < 0.001$) compared to Chinese users ($\beta = 0.144$, $p < 0.05$). This difference could stem from the collectivist nature of Chinese culture, where enjoyment is more likely derived from the overall visit experience rather than the app itself. For Chinese users, enjoyment tends to be tied to shared, immersive experiences, such as spending time with family or friends, with the app serving as a supportive tool rather than a central source of pleasure. Consequently, perceived enjoyment from the app has a weaker influence on satisfaction among Chinese users.

Furthermore, perceived enjoyment directly affected continuance intention for Chinese users ($\beta = 0.216$, $p < 0.05$), but not for European users. This may be due to the indirect effect of perceived enjoyment on continuance intention via satisfaction. A post hoc mediation analysis confirmed that satisfaction fully mediates perceived enjoyment's impact on European users' continuance intention (indirect effect: $\beta = 0.076$, $p < 0.01$; direct effect: $\beta = 0.002$, $p > 0.05$). For European users, enjoyment alone may not be sufficient to enhance their intention to continue using the app; only when they feel satisfied are they more likely to sustain app usage.

Finally, Table 12 provides an overview of the moderating effects of age, gender, income level, length of visit, residence type, and culture.

Table 12. Moderating effects in this research.

Moderator	Studies on continuance intention
Age	No significant moderating effects (Articles 1 and 2)
Gender	No significant moderating effects (Articles 1 and 2)
Income level	No significant moderating effects (Articles 1 and 2)
Length of visit	No significant moderating effects (Articles 1 and 2)
Residence type	Residence type has significant moderating effects on the path from hedonic beliefs to delight (Article 1)
Culture	Culture has significant moderating effects on the path from hedonic beliefs to satisfaction and continuance intention (Article 4)

4.6 Summary of research findings

This study enhances the understanding of factors affecting continuance intention in the TPMA context. The overarching research question was:

RQ: What are the predictors of individual users' continuance intention of TPMA?

Insights addressing this research question were derived from the findings discussed earlier. Users' decisions to continue using TPMA are influenced by their

beliefs and attitudes. This research identified functional beliefs, hedonic beliefs, environmental beliefs, and attitudes as significant direct predictors of continuance intention. Additionally, user characteristics, such as residence type and cultural background, were found to act as significant moderators, while smartphone usage habits and theme park visit frequency also affected continuance intention.

Specifically, the direct determinants of continuance intention include functional beliefs (perceived usefulness), hedonic beliefs (perceived enjoyment), environmental beliefs (perceived environmental friendliness), and user attitudes (satisfaction and delight). Furthermore, user delight is shaped by functional beliefs (achievement-related gamification), aesthetic beliefs (perceived aesthetic design), and hedonic beliefs (perceived entertainment). Similarly, user satisfaction is influenced by functional beliefs (perceived usefulness) and hedonic beliefs (perceived enjoyment).

From a configurational perspective, the study identified perceived online ordering (a specific form of functional belief) and convenience value as core conditions driving continuance intention. Other specific functional beliefs—such as real-time information, map navigation, virtual queuing, and recommended routes—were recognized as peripheral conditions. Moreover, user features, including theme park visit frequency and smartphone usage habits, also significantly contribute to shaping users' continuance intention.

5 Conclusions

This final chapter first highlights the theoretical implications of the existing literature on the continuance intention of TPMA. Next, practical implications are addressed. Finally, the study's limitations and potential research directions are provided.

5.1 Theoretical contributions

From a theoretical standpoint, this study contributes to information systems (IS) research and the field of theme park studies. First, it enhances the understanding of factors influencing continuance intention by examining users' functional, hedonic, social, and environmental beliefs, as well as their attitudes. Although continuance intention has been extensively explored in IS research, its drivers within the specific context of TPMA remain underexplored and fragmented. This study suggests that while TPMA shares similarities with other travel mobile apps, it also possesses unique characteristics. For example, these apps often feature specialized functions tailored to the park environment, which are not typically found in general travel apps. Moreover, prior research has reported inconsistent findings regarding the predictors of continuance intention across different types of travel apps. For instance, perceived value was identified as a significant factor for accommodation apps (Kim et al., 2019b) but not for general travel apps (İlkan et al., 2023). These discrepancies suggest that the factors driving continuance intention in TPMA may differ, and some determinants identified in earlier studies may not fully explain user continuance intention in this context.

While prior studies have predominantly focused on user satisfaction, this research highlights the often-overlooked role of user delight. By integrating users' beliefs (functional, hedonic, social, and environmental), attitudes (satisfaction and delight), and continuance intention, this study enhanced the understanding of the interplay of beliefs and attitudes in influencing users' continuance intention within the TPMA context.

Specifically, in traditional IS research, continuance intention is often affected by users' functional beliefs (e.g., perceived usefulness) (Bhattacherjee, 2001) and hedonic beliefs (i.e., perceived enjoyment) (Wu and Lu, 2013). This study supports these findings, reaffirming the critical role of functional and hedonic beliefs in

shaping users' continuance intention. Additionally, the results reveal that environmental beliefs (i.e., perceived environmental friendliness) also influence continuance intention, extending beyond the typical factors considered in IS research. This suggests that functional, hedonic, and environmental beliefs are key motivators for the continued use of TPMA. However, social beliefs are found to have no significant impact on continuance intention in this context.

Besides, this study extends the concept of functional beliefs by categorizing them into five specific dimensions closely aligned with the dedicated features of TPMA. From a configurational perspective, it identifies real-time information, map navigation, virtual queues, online ordering, and recommended routes as critical features influencing users' continuance intention. Among these, online ordering stands out as a core condition, underscoring its essential role in meeting users' practical needs and driving their intention to continue using the app. The remaining four features, while classified as peripheral conditions, still play a significant role in influencing user behavior, highlighting their complementary value. These functionalities collectively enhance the user experience by streamlining park visits, minimizing effort, and offering greater convenience. This, in turn, strengthens users' motivation to remain using the app. The findings emphasize the importance of specific app features that address users' practical requirements, thereby, ensuring user continuance intention.

Furthermore, this study goes beyond the traditional emphasis on the impact of satisfaction on continuance intention by exploring another critical user attitude: delight. The findings demonstrate that both satisfaction and delight directly influence users' continuance intention. In the TPMA context, users are more likely to continue using the app when they experience both satisfaction and a sense of delight in their interactions with it. This highlights the importance of creating a user experience that not only meets basic expectations but also evokes positive emotional responses, such as surprises. Meanwhile, user satisfaction and delight are shaped by functional and hedonic beliefs. Users are more likely to feel satisfied and delighted with an app when they perceive it as both useful and enjoyable. Additionally, aesthetic beliefs are identified as a significant predictor of delight, highlighting the importance of a visually appealing interface in eliciting positive emotional responses from users.

Moreover, this study enhances the understanding of the outcomes of continuance intention by identifying its positive influence on revisit intention. When users are motivated to continue using the app, their likelihood of revisiting the park increases, demonstrating a clear link between continuance intention and other behavioral intentions.

Otherwise, user features such as residence type and culture emerged as significant moderators in this study. Additionally, from a configurational perspective, user features like users' smartphone usage habits and park visit

frequency played a crucial role. These findings underscore the importance of user features in explaining how different beliefs influence users' attitudes and continuance intention. By highlighting the interplay between user features, attitudes, and continuance intention, this study advances our understanding of the antecedents driving continuance intention for specific users.

This research also makes significant contributions to the TPMA literature. Though previous research has addressed the design of such apps, this study focuses on the factors driving users' continuance intention, which are critical for the long-term viability of these apps. The findings provide valuable insights into retaining users by exploring the relationships between user beliefs, attitudes, and continuance intention. These insights enhance understanding of the design and optimization of TPMA to support sustained usage.

Lastly, a well-designed, sustainable TPMA can serve as an effective digital tool for promoting environmental sustainability by reducing paper usage within parks. By examining users' environmental beliefs, this study also builds on prior research by highlighting how TPMA can generate eco-friendly practices and address broader public concerns.

5.2 Practical implications

This study offers several practical implications for theme park operators and app designers aiming to enhance user retention through TPMA. First, the findings highlight that functional beliefs, including both general and specific functional features such as real-time information, map navigation, virtual queues, online ordering, and recommended routes, are key drivers of users' continuance intention. This suggests that operators should prioritize improving users' perception of app usefulness. Notably, online ordering has been identified as a core feature, indicating its centrality in meeting users' practical needs. Other specific features, while not core conditions, remain important and should be integrated to address practical needs effectively.

Second, hedonic beliefs are significant motivators for continuance intention, underscoring the importance of incorporating elements that enhance intrinsic enjoyment. Operators and designers should include enjoyable features such as vibrant animations, themed graphics, fantastic music, and even interactive games to make the app more engaging and enjoyable.

Third, environmental beliefs also influence users' continuance intention. Theme Park operators can leverage this by highlighting how the app supports sustainability efforts, such as reducing paper usage and promoting eco-friendly practices within the park.

Fourth, both user satisfaction and delight positively impact continuance intention. Satisfied and delighted users are more likely to continue using the app, making it essential for operators to focus on strategies that foster these attitudes. The study finds that functional and hedonic beliefs are the primary drivers of satisfaction and delight. Operators should ensure these aspects are optimized, as previously mentioned. Additionally, delight is influenced by aesthetic beliefs, suggesting the importance of designing visually appealing interfaces, such as incorporating theme park characters into the app's layout.

Fifth, social beliefs were not found to be significant motivators of continuance intention. Therefore, TPMA designers need not prioritize the integration of social interaction features. However, this study suggests that social beliefs can function as a peripheral condition when combined with other factors. While not central to continuance intention, incorporating social interaction features, such as linking the app to other social media platforms, can still add value by enabling users to share their experiences with their social networks.

Finally, user features, including residence type and culture, were found to be important moderators. Additionally, factors like smartphone usage habits and visit frequency to theme parks, in combination with other beliefs, influence continuance intention. To address this, operators and designers should consider user-specific traits and provide personalized options. For instance, apps could include customizable features or toggle options that allow users to turn specific functionalities on or off, tailoring the app experience to their preferences and needs.

5.3 Limitations and future research

This dissertation acknowledges several limitations that are important to consider when interpreting the results. These limitations also propose potential directions for future inquiry.

Firstly, relying on online surveys introduces temporal constraints, capturing participants' beliefs, attitudes, and behaviors at a single juncture. Given the fluid nature of these constructs, especially in the context of TPMA usage, it is recommended that future studies adopt a longitudinal approach. This would enable a more comprehensive understanding of the evolution of users' beliefs and attitudes and their subsequent influence on information system post-adoption behaviors.

Secondly, while the study primarily employs quantitative surveys, adhering to established methodologies, there is an acknowledgment of potential external factors that could impact users' intentions to continue using TPMA. For instance, the current study predominantly examines the benefits of app usage, overlooking potential costs, such as privacy concerns, which should be addressed in future investigations. Also, this study focuses on the impacts of two distinct user attitudes but does not explore

the differences in the pathways from beliefs to these attitudes. Future research could investigate and compare their respective antecedents and consequences to provide a deeper understanding of these relationships.

Finally, the study's sample is somewhat limited in scope. Although the participants from the surveys conducted in China and Europe represent the research objectives, expanding the participant pool to include more diverse geographies would enhance the universality of the findings. Broadening the sample to encompass a wider range of countries could provide a more comprehensive perspective on the global user experience with TPMA. Additionally, while the current research offers valuable insights, future studies should consider a longitudinal design, incorporate a broader range of influencing factors, and expand the geographical diversity of the sample to build upon the findings presented here.

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Appendices

Appendix 1: Survey questionnaire in Chinese (round 1)

关于主题公园应用程序（APP）使用的问卷调查
知情同意书

亲爱的参与者，在您决定参与本次调查之前，请仔细阅读知情同意书。

本次问卷旨在了解主题公园官方应用程序（APP）的使用情况，例如：上海迪士尼度假区官方 APP，长隆旅游 APP 或方特旅游 APP。本次问卷包括三部分内容：第一部分将询问您的个人基本信息；第二部分询问您之前访问主题公园的相关经历；第三部分询问您对使用主题公园应用程序（APP）的感受或经历。完成此调查问卷大约需要 10 分钟。您参与此项调查是完全自愿的。如果您同意参与该研究，请根据您的实际情况和感受如实回答问题。我们将严格遵守法律和研究道德准则，确保您个人信息的保密性。除了研究团队成员，其他任何人不能访问这些信息。如果您不希望参与这项研究，您不必回答问题。您也可以选择随时终止答题。谢谢您的合作！

如果您有任何疑问，可以联系以下团队成员：芬兰图尔库大学博士研究生龙婷（tilong@utu.fi）

1. 您是否同意参加这次问卷调查？ [单选题] *
○同意
○不同意

2. 您是否使用过主题公园官方应用程序（APP）？例如：上海迪士尼度假区官方 APP，长隆旅游 APP 或方特旅游 APP。 [单选题] *
○是
○否

3. 您的年龄是____? [单选题] *
○18 岁以下（含 18 岁）
○18-25 岁（含 25 岁）
○26-35 岁（含 35 岁）
○36-45 岁（含 45 岁）

○46-55 岁（含 55 岁）
○55 岁以上

4. 您的性别是____? [单选题] *
○男
○女
○不愿意透露

5. 您所获得的最高学历是____？（如果目前是在校学生，请选择您已经完成的最高学位） [单选题] *
○初中
○高中或中专
○大专
○本科
○硕士
○博士

6. 您过去一年的个人收入（税前）是____？（包括工资，自营收入和其他收入来源） [单选题] *
○≤15000 元
○15001-25000 元
○25001-35000 元
○35001-45000 元
○45001-55000 元
○≥55000 元

7. 您最近一次游览的主题公园是____？ [单选题] *
○迪士尼乐园
○环球影城
○长隆主题公园
○方特主题公园
○宋城主题公园
○欢乐谷
○海洋世界
○其它 _____

8. 您使用的主题公园应用程序（APP）所属的主题公园是否在您所居住的城市？ [单选题] *
○是
○否

9. 您通常和谁一起游览主题公园？ [单选题] *
○独自一人
○配偶/伴侣 （包括男女朋友）
○孩子
○父母
○亲人
○朋友

10. 您通常会花多长时间游览主题公园？ [单选题] *
○半天以内（含半天）
○半天到一天（含一天）
○一天到两天（含两天）
○两天以上

请根据您游览主题公园及使用其对应的官方应用程序（APP）的实际情况和感受如实回答多大程度上同意每个陈述。（1=非常不同意，2=不同意，3=有点不同意，4=中立，5=有点同意，6=同意，7=非常同意）

11. 感知有用性 [矩阵量表题] *
使用主题公园应用程序（APP）让我的主题公园之旅很高效。
使用主题公园应用程序（APP）提升了我的主题公园之旅的效。
使用主题公园应用程序（APP）让我的主题公园之旅效率得到提升。
总而言之，主题公园应用程序（APP）在我的主题公园之旅中是很有用的。

12. 感知易用性 [矩阵量表题] *
主题公园应用程序（APP）的界面清晰易懂。
使用主题公园应用程序（APP）不需要大量的脑力劳动。
我发现主题公园应用程序（APP）易于使用。
我发现主题公园应用程序（APP）很容易操作。

13. 社会影响力 [矩阵量表题] *
对我很重要的人认为我应该使用主题公园应用程序（APP）。
对我影响很大的人认为我应该使用主题公园应用程序（APP）。
观点对我很重要的人希望我使用主题公园应用程序（APP）。

14. 设计美学 [矩阵量表题] *
主题公园应用程序（APP）的设计（即颜色、选择框、菜单等）很有吸引力。
主题公园应用程序（APP）的设计看起来很专业。

主题公园应用程序（APP）具有良好的图形设计。
主题公园应用程序（APP）的整体外观具有视觉吸引力。
总的来说，我发现主题公园应用程序（APP）看起来很有吸引力。

15. 娱乐性 [矩阵量表题] *
我觉得主题公园应用程序（APP）既愉快又有趣。
对我来说，使用主题公园应用程序（APP）很有趣。
我觉得使用主题公园应用程序（APP）很愉快。

16.惊讶 [矩阵量表题] *
在使用主题公园应用程序（APP）过程中，我有时会有一种惊讶无比的感觉。
在使用主题公园应用程序（APP）过程中，我有时会有一种令人惊讶的体验。

17. [矩阵量表题] *
请在这七个选项中选择“中立”这一项。

18. 与成就有关的游戏化 [矩阵量表题] *
使用主题公园应用程序（APP）过程中，获取徽章/提升等级的频率很高。
使用主题公园应用程序（APP）过程中，获取徽章/提升等级很重要。
使用主题公园应用程序（APP）过程中，累积积分/获取经验值的频率很高。
使用主题公园应用程序（APP）过程中，累积积分/获取经验值很重要。

19. 与社交有关的游戏化[矩阵量表题] *
在主题公园应用程序（APP）中，与同游的人的互动频率很高。
在主题公园应用程序（APP）中，与同游的人的互动很重要。
在主题公园应用程序（APP）中，使用社交网络交互功能频率很高。
在主题公园应用程序（APP）中，社交网络交互功能很重要。

20. 感知愉悦[矩阵量表题] *
在使用主题公园应用程序（APP）过程中，我感到高兴。
在使用主题公园应用程序（APP）过程中，我感到快乐。
在使用主题公园应用程序（APP）过程中，我的心情很不错。

21. 使用价值 [矩阵量表题] *
我在主题公园应用程序（APP）上完成了我想做的事情。
我可以在主题公园应用程序（APP）中做我真正需要做的事情。

在使用主题公园应用程序（APP）时，我找到了我需要的功能。

22. 享乐价值 [矩阵量表题] *
我很享受使用主题公园应用程序（APP），不仅仅是因为它帮助我提升了主题公园游览效率。
使用主题公园应用程序（APP）给我带来了乐趣。
当使用主题公园应用程序（APP）时，我沉浸其中。

23. 期望确认 [矩阵量表题] *
我使用主题公园应用程序（APP）的体验比我预期的要好。
主题公园应用程序（APP）提供的服务水平比我预期的要好。
我使用主题公园应用程序（APP）的经历比我预期的要好。
总体而言，我对使用主题公园应用程序（APP）的期望大多数得到了满足。

24. 满意度 [矩阵量表题] *
我对使用主题公园应用程序（APP）的决定感到满意。
我对之前使用主题公园应用程序（APP）的经历感到满意。
我选择使用主题公园应用程序（APP）是一个明智的选择。

25. 欣喜程度 [矩阵量表题] *
使用主题公园应用程序（APP）时，我有时会感到十分高兴。
使用主题公园应用程序（APP）时，我有时会感到兴高采烈。
使用主题公园应用程序（APP）时，我有时会感到欢欣鼓舞。

26. 方便 [矩阵量表题] *
我可以通过使用使用主题公园应用程序（APP）轻松游览主题公园。
我可以通过使用主题公园应用程序（APP）快速无接触式入园。
我可以通过使用主题公园应用程序（APP）方便快捷获取实时排队信息及预订服务。

27. 持续使用意愿 [矩阵量表题] *
我打算继续使用主题公园应用程序（APP），而不是停止使用它。
我打算继续使用主题公园应用程序（APP），而不是使用其他替代产品。
我会推荐其他人使用主题公园应用程序（APP）。
如果可以的话，我想继续使用主题公园应用程序（APP）。

28. 推荐意愿 [矩阵量表题] *
我会向其他人介绍使用主题公园应用程序（APP）的好处。
我会向所有征求我意见的人推荐主题公园应用程序（APP）。
我会向我熟识的人推荐主题公园应用程序（APP）。

29. 反馈意愿 [矩阵量表题] *
我将填写有关主题公园应用程序（APP）的客户满意度调查表。
我将向主题公园应用程序（APP）的提供商提供有用的反馈。
当主题公园应用程序（APP）的提供商进行调查时，我将提供相关信息。
我将向主题公园应用程序（APP）的提供商提供建议和意见。

30. [矩阵量表题] *
请在这七个选项中选择“不同意”这一项。

31. 再次游览相同品牌主题公园意愿 [矩阵量表题] *
我打算游览属于同一品牌的其他主题公园。
我认为这个主题公园品牌是我在该旅游产品类别中的首选。
下次我想体验主题公园时，我会选择相同的品牌。

32. 再次游览此主题公园意愿 [矩阵量表题] *
我打算再次游览这个主题公园。
将来我很可能会重新游览这个主题公园。
我再次游览这个主题公园的可能性很高。

Appendix 2: Survey questionnaire in Chinese (round 2)

关于主题公园官方应用程序（APP）使用情况的问卷调查
知情同意书

亲爱的参与者，在您决定参与本次调查之前，请仔细阅读知情同意书。本次问卷旨在了解主题公园官方应用程序（APP）的使用情况，例如：上海迪士尼度假区官方 APP，长隆旅游 APP 或方特旅游 APP。本次问卷包括三部分内容：第一部分将询问您的个人基本信息；第二部分询问您之前访问主题公园的相关经历；第三部分询问您对使用主题公园应用程序（APP）的感受或经历。完成此调查问卷大约需要 10 分钟。您参与此项调查是完全自愿的。如果您同意参与该研究，请根据您的实际情况和感受如实回答问题。我们将严格遵守法律和研究道德准则，确保您个人信息的保密性。除了研究团队成员，其他任何人不能访问这些信息。如果您不希望参与这项研究，您不必回答问题。您也可以选择随时终止答题。

谢谢您的合作！

如果您有任何疑问，可以联系以下团队成员：华中师范大学及芬兰图尔库大学博士研究生龙婷（tinalong26@163.com 或 tilong@utu.fi）

1. 您是否同意参加这次问卷调查？ [单选题] *
○同意
○不同意（请跳至第问卷末尾，提交答卷）

2. 您之前游览主题公园时，使用过主题公园 APP 吗？ [单选题] *
○是（请跳至第 3 题）
○否（请跳至第问卷末尾，提交答卷）

3. 您最近所使用的主题公园 APP 是： [单选题] *
○上海迪士尼度假区
○香港迪士尼乐园
○方特旅游
○长隆旅游
○北京环球度假区
○其它 _____ *
依赖于第 2 题第 1 个选项

4. 您的年龄是： [单选题] *
○18-25 岁（含 25 岁）
○26-35 岁（含 35 岁）
○36-45 岁（含 45 岁）
○46-55 岁（含 55 岁）

○55 岁以上

5. 您的性别是: [单选题] *
○男
○女
○不愿意透露

6. 您所获得的最高学历是：（如果目前是在校学生，请选择您已经完成的最高学位） * [单选题] *
○初中
○高中及中专
○大专
○本科
○硕士
○博士

7. 您每个月的收入（税后）是：（包括工资，自营收入和其他收入来源） [单选题] *
○≤1500 元
○1501-3000 元
○3001-4500 元
○4501-6000 元
○6001-7500 元
○7501-9000 元
○9001-10500 元
○≥10500 元

8. 您大概每年会去访问主题公园多少次？ [单选题] *
○0 次
○1 次
○2 次
○3 次及以上

9. 您通常和谁一起游览主题公园？ [单选题] *
○独自一人
○孩子
○朋友
○家人
○跟团游

10. 平均而言，您每天使用手机多长时间？ [单选题] *
○1 个小时内
○1 到 3 个小时
○3 到 6 个小时
○6 到 9 个小时
○9 个小时以上

11. 您对于您使用各种手机 APP 的自信心评价是：[矩阵单选题] *（从 1-7 表示程度的加深）
非常不自信→非常自信

请根据您游览主题公园及使用其对应的官方应用程序（APP）的实际情况和感受如实回答多大程度上同意每个陈述。（1=非常不同意，2=不同意，3=有点不同意，4=中立，5=有点同意，6=同意，7=非常同意）

12. 您对于您使用手机习惯的评价是：[矩阵单选题] *
使用智能手机已经成为我的习惯。
我沉迷于使用智能手机。
智能手机已经成为我生活的必备品。

13. 在游览主题公园途中，您对于主题公园 APP 提供的活动或景点信息功能的评价是：[矩阵单选题] *
主题公园 APP 提供了有关主题公园内活动/景点的详细信息。
主题公园 APP 提供了主题公园内全部活动/景点的完整列表。
主题公园 APP 提供了每个活动/景点详细信息。
主题公园 APP 提供的活动/景点信息是最新的。

14. 在游览主题公园途中，您对于主题公园 APP 提供的地图导航功能的评价是：[矩阵单选题] *
主题公园 APP 提供的园内地图能让我避免迷路。
主题公园 APP 提供了必要的地图为我的游览提供导航。
主题公园 APP 的地图导航能帮助我找到前往景点的捷径。

15. 在游览主题公园途中，您对于主题公园 APP 提供的在线排队功能的评价是：[矩阵单选题] *
主题公园 APP 能让我在线排队。
主题公园 APP 提供了在线排队的功能。
主题公园 APP 让我可以在线排队去参观景点。

16. 在游览主题公园途中，您对于主题公园 APP 提供的在线预订功能的评价是：[矩阵单选题] *

主题公园 APP 能让我在线订购不同的商品，例如食物、饮料、门票或者纪念品。

主题公园 APP 会提供必要的功能让我能在线订购各种各样的商品，例如食物、饮料、门票或者纪念品。

主题公园 APP 能让我在线订购商品。

17. 在游览主题公园途中，您对于主题公园 APP 提供的游览路线规划功能的评价是：[矩阵单选题] *

主题公园 APP 会向我推荐游览方案。

主题公园 APP 会向我提供必要的功能，来帮助我制定/选择游览方案。

主题公园 APP 会向我提供一系列游览路线供我选择。

18. 您对于主题公园 APP 的方便程度的评价是：[矩阵单选题] *

使用主题公园 APP 会帮助我以方便的方式游览主题公园。

使用主题公园 APP 不会让我的游览变得麻烦。

使用主题公园 APP 能帮助我轻松游览主题公园。

使用主题公园 APP 能帮助我合理利用时间。

使用主题公园 APP 能帮助我在游览主题公园时不浪费时间。

使用主题公园 APP 使我能够快速游览主题公园。

19. 您对于主题公园 APP 的有用性程度的评价是：[矩阵单选题] *

使用主题公园 APP 让我的游览速度更快。

使用主题公园 APP 让我的游玩效率更高。

使用主题公园 APP 提高了我的游玩效率。

总而言之，在我游览主题公园时，主题公园 APP 很有用。

20. 您对于主题公园 APP 的期望确认的评价是：[矩阵单选题] *

使用主题公园 APP 的体验比我预期的要好。

主题公园 APP 的服务水平比我预期的要好。

总而言之，我对主题公园 APP 的预期大多数都得到了满足。

21. 您对于主题公园 APP 的易用性的评价是：[矩阵单选题] *

学习使用主题公园 APP 对我来说很容易。

通过主题公园 APP 去做我想做的事情很容易。

我与主题公园 APP 的互动清晰易懂。

我与主题公园 APP 的交互十分灵活。

熟练使用主题公园 APP 对我来说很容易。

主题公园 APP 易于使用。

请选择“不同意”这一选项。

22. 您对于使用主题公园 APP 的愉悦性程度的评价是：[矩阵单选题] *
主题公园 APP 使用起来很有趣。
主题公园 APP 的使用过程是愉悦的。
使用主题公园 APP 是愉快的。

23. 您对于主题公园 APP 的使用价值的评价是：[矩阵单选题] *
使用主题公园 APP 时，我完成了我想做的事情。
我可以在主题公园 APP 中做我真正需要做的事情。
在使用主题公园 APP 时，我找到了我需要的功能。

24. 您对于主题公园 APP 是否能满足您的社交互动的评价是：[矩阵单选题] *
使用主题公园 APP 使我能够与其他用户建立人际关系。
使用主题公园 APP 使我能够与其他用户保持个人联系。
使用主题公园 APP 使我能够结识新朋友。
使用主题公园 APP 使我能够提升与他人的联系。

25. 您对于主题公园 APP 是否能满足您的好奇心的评价是：[矩阵单选题] *
使用这个主题公园 APP 满足了我对主题公园其他游客和活动的好奇心。
使用这个主题公园 APP 激发了我对主题公园中其他游客和活动的想象。
使用这个主题公园 APP 激发了我对主题公园中其他游客和活动的好奇心。

26. 您对于使用主题公园 APP 欣喜程度的评价是：[矩阵单选题] *
在使用主题公园 APP 的过程中，我有一种欣喜无比的感觉。
在使用主题公园 APP 的过程中，我有一种非常愉快的感觉。
在使用主题公园 APP 的过程中，我有一种欢欣鼓舞的感觉。

27. 您对于您继续使用主题公园 APP 意愿的评价是：[矩阵单选题] *
当我下次访问主题公园时，我打算继续使用主题公园 APP，而不是不再继续使用。
当我下次访问主题公园时，我打算继续使用主题公园 APP，而不是用其他的替代产品。
当我下次访问主题公园时，如果可以，我愿意继续使用主题公园 APP。

28. 您对于您向别人推荐主题公园 APP 意愿的评价是：[矩阵单选题] *
我会向其他人介绍主题公园 APP 的好处。
我会向征求我意见的人推荐主题公园 APP。

我会向我认识的人推荐主题公园 APP。
我会在社交媒体上推荐主题公园 APP。

29. 您对于您通过主题公园 APP 提供有关主题公园体验反馈意愿的评价是：[矩阵单选题] *
我将通过主题公园 APP 向主题公园提供客户满意度的反馈。
我将通过主题公园 APP 向主题公园提供有用的游客反馈。
当主题公园进行游客体验调查的时候，我将通过主题公园 APP 进行反馈。
我将通过主题公园 APP 向主题公园提供建议和意见。

30. 您对于您重游主题公园意愿的评价是：[矩阵单选题] *
我打算再次重游这个主题公园。
以后很有可能会重游这个主题公园。
我再次游览这个主题公园的可能性很高。
请您选择“同意”这个选项。

31. 您认为社交影响对您使用主题公园 APP 的影响是：[矩阵单选题] *
对我很重要的人认为我应该使用主题公园 APP。
对我影响很大的人认为我应该使用主题公园 APP。
其观点对我很重要的人希望我使用主题公园 APP。

32. 您认为社会临场感对您使用主题公园 APP 的影响是：[矩阵单选题] *
在使用主题公园 APP 过程中，我感受到自己与其他用户有关联。
在主题公园 APP 与其他用户的互动时，我能做我自己，并展示我是什么样的人。
在使用主题公园 APP 时，我感受到自己是主题公园 APP 用户社区的一员。

33. 您认为个人创新对您使用主题公园 APP 的影响是：[矩阵单选题] *
如果我听说了一种新的信息技术，我会寻找途径去体验它。
在同龄人中，我通常是第一个尝试新信息技术的人。
我喜欢尝试新的信息技术。

34. 您对于使用主题公园 APP 对您的主题公园认知参与的评价是：[矩阵单选题] *
使用主题公园 APP 让我想到主题公园。
在使用主题公园 APP 时，我经常想到主题公园。
使用主题公园 APP 激发了我对主题公园的兴趣。

35. 您对于使用主题公园 APP 对您的主题公园情感参与的评价是：[矩阵单选题] *

当我使用主题公园 APP 时，我感觉很积极向上。
当我使用主题公园 APP 时，我感觉很好。
使用主题公园 APP 让我很开心。

36. 您对于使用主题公园 APP 对您的主题公园行为参与的评价是：[矩阵单选题] *
与其他手机 APP 相比，当我游玩主题公园时，我花更多时间去使用主题公园 APP。
每当我游玩主题公园时，我经常使用主题公园 APP 的各项功能。
当我游玩主题公园时，主题公园 APP 是我常用的手机 APP 之一。

37. 您对于您使用主题公园 APP 的整体体验的评价是：[矩阵单选题] *
对于我所使用的主题公园 APP，我非常满意。
对于我所使用的主题公园 APP，我非常高兴。
对于我所使用的主题公园 APP，我非常满足。
对于我所使用的主题公园 APP，我非常欢喜。

38. 您对于您游览主题公园的整体体验的评价是：[矩阵单选题] *
对于我游览的主题公园，我非常满意。
对于我游览的主题公园，我非常高兴。
对于我游览的主题公园，我非常满足。
对于我游览的主题公园，我非常欢喜。

39. 综合考虑，您对于您使用的主题公园 APP 的评价是：[矩阵单选题] *
我认为使用主题公园 APP 是一个明智的想法。
我认为使用主题公园 APP 是一个积极的想法。
我认为使用主题公园 APP 是一个有益的想法。
我认为使用主题公园 APP 是一个好主意。

40. 时尚意识[矩阵单选题] *
如果在穿着“时尚”和“舒适”之间二选一，我通常选择穿着“时尚”，而不是“舒适”。
穿着得体对我而言在生活中很重要。
一个人应该尽量穿得有型。

41. 对蓝色的态度[矩阵单选题] *
与其他颜色相比，我更喜欢蓝色。
我喜欢蓝色。
我喜欢穿蓝色的衣服。

Appendix 3: Survey questionnaire in Chinese (round 3)

关于主题公园应用程序（APP）使用情况的问卷调查
知情同意书

亲爱的参与者，请在参与本次调查之前仔细阅读此同意书。本研究的目的是为了了解主题公园应用程序的使用情况。此次调查包括三部分：您的基本人口背景信息、以前的旅行经历，以及对主题公园应用程序的看法或经验。本次调查大约需要 15 分钟完成。您参与本研究是完全自愿的。如果您同意参与本次研究，请根据您的实际情况和经验诚实回答问题。我们将严格遵守中国的法律和学术研究伦理准则，以确保您披露的任何个人信息的保密性。除了特定的研究团队成员，没有其他人可以访问这些信息。如果您不希望参与本研究，您可以选择不参与。您也可以随时选择停止参与本次调查。感谢您的合作！

如果您有任何问题，可以联系以下研究人员：龙婷 ting.long@ccnu.edu.cn

1. 您同意参与此次调查吗? [单选题] *
○同意
○不同意

2. 您在游览主题公园时是否使用过官方的主题公园应用程序（APP）? [单选题] *
○是
○否 （请跳至第问卷末尾，提交答卷）

3. 如果是，请填写您所使用的***主题公园应用程序（APP）名称***或者您游览的***主题公园名称***: [填空题] *

_____
依赖于（题目：2. 您在游览主题公园时是否使用过官方的...）第 1 个选项

4. 您的年龄是 [单选题] *
○18 岁-25 岁（含 25 岁）
○26 岁-35 岁（含 35 岁）
○36 岁-45 岁（含 45 岁）
○46 岁-55 岁（含 55 岁）
○55 岁以上

5. 您的性别是 [单选题] *
○男
○女
○不愿透露

6. 您完成的最高教育水平是? [单选题] *
○小学
○初中
○中专/技校
○高中
○大专
○本科
○硕士
○博士

7. 您使用过主题公园应用程序（例如：上海迪士尼度假区官方 APP，北京环球度假区 APP、长隆旅游 APP 等）的时间有多长? [单选题] *
○从未
○>0 年且 ≤1 年
○>1 年且 ≤3 年
○>3 年且 ≤5 年
○>5 年

8. 您游览主题公园的频率是？（例如：如迪士尼乐园、环球影城、长隆度假区、方特、欢乐谷等） [单选题] *
○一年少于 1 次
○一年 1 次
○一年 2-3 次
○一年 4 次及以上

9. 您通常和谁一起去主题公园? [单选题] *
○独自一人
○与配偶
○与孩子
○与亲戚
○与朋友
○参加旅行团

请根据您的实际情况和感受如实回答多大程度上同意每个陈述。（1=非常不同意，2=不同意，3=有点不同意，4=中立，5=有点同意，6=同意，7=非常同意）

10. 您对于您***智能手机使用习惯***的评价是：[矩阵单选题] *

我已经习惯了使用智能手机。
我对使用智能手机上瘾。
我在日常生活中必须使用智能手机。

11. 您对于您***个人创新性***的评价是：[矩阵单选题] *
如果我听说了一种新的信息技术，我会寻找方法来试验它。
在我的同龄人中，我通常是第一个尝试新信息技术的人。
一般来说，我不愿尝试新的信息技术。
我喜欢尝试新的信息技术。

以下问题与您之前游览主题公园的经历有关。请您依据您最近一次使用主题公园应用程序（APP）游览主题公园时的经历指出您对每项陈述的同意程度。（1=非常不同意，2=不同意，3=有点不同意，4=中立，5=有点同意，6=同意，7=非常同意）

12. 您对于您游览主题公园时感受到的***时间压力***的评价是：[矩阵单选题] *
为了按时完成我的主题公园游玩计划，我必须抓紧时间。
我感觉在主题公园的（每一项）游玩必须快速完成。
我在主题公园玩耍的时间不够。

13. 您对于您游览主题公园时感受到的***物理拥挤***的评价是：[矩阵单选题] *
在主题公园里面，它的道路拥挤。
在主题公园里面，它的厕所拥挤。
在主题公园里面，它的服务缓慢。
在主题公园里面，它的休息区拥挤。

14. 您对于您游览主题公园时感受到的***人群拥挤***的评价是：[矩阵单选题] *
我感觉自己处在一个非常开阔的区域。
我感觉整个游览空间十分有限。
我觉得主题公园的商店里有很多顾客。
我感觉主题公园的商店非常忙碌。
我感觉游览区的人流缓慢。
对我而言，主题公园的整个游览区域都拥挤。

15. 您对于***主题公园的吸引力***的评价是：[矩阵单选题] *
主题公园维护良好的景观吸引了我。
主题公园优美的景色吸引了我。
主题公园美味丰富的食物令我向往。
主题公园独有的商品和纪念品吸引了我。
主题公园各个板块和景点的鲜明主题和氛围吸引了我。

主题公园的独特表演和娱乐活动对我有吸引力。

16. [矩阵单选题] *
请选择“不同意”。

17. 您对于主题公园应用程序（APP）***绩效期望***的评价是：[矩阵单选题] *
我发现主题公园应用程序（APP）在我参观公园时很有用。
使用主题公园应用程序（APP）可以帮助我更快地完成游览。
使用主题公园应用程序（APP）可以提高我游览主题公园时的表现。

18. 您对于主题公园应用程序（APP）***努力期望***的评价是：[矩阵单选题] *
我发现使用主题公园应用程序（APP）来获取服务很容易。
学习使用主题公园应用程序（APP）来获取服务对我来说很容易。
我很容易熟练使用主题公园应用程序（APP）来获取服务。

19. 您对于主题公园应用程序（APP）***享乐价值***的评价是：[矩阵单选题] *
使用主题公园应用程序（APP）服务很有趣。
使用主题公园应用程序（APP）服务是令人愉快的。
使用主题公园应用程序（APP）服务给我提供了乐趣。

20. 您对于主题公园应用程序（APP）***社会价值***的评价是：[矩阵单选题] *
使用主题公园应用程序（APP）使我能够与其他用户建立人际关系。
使用主题公园应用程序（APP）使我能够与其他用户保持个人联系。
使用主题公园应用程序（APP）使我能够结交新朋友。
使用主题公园应用程序（APP）使我能够增强与他人的关系。

21. 您对于主题公园应用程序（APP）***环境友好性***的评价是：[矩阵单选题] *
使用主题公园应用程序（APP）是环保的。
使用主题公园应用程序（APP）可以减少对环境的影响。
与其他传统工具（例如印刷游园指南）相比，使用主题公园应用程序（APP）更环保。

22. 您对于主题公园应用程序（APP）***隐私问题***的评价是：[矩阵单选题] *
我担心主题公园应用程序（APP）所收集的我的个人信息可能会被滥用。
我担心有人可以通过主题公园应用程序（APP）获取我的个人信息。
我担心主题公园应用程序（APP）收集我的个人信息，因为其他人可能会用它来做什么。
我担心主题公园应用程序（APP）收集我的个人信息，因为它可能会以我意想不到的方式加以利用。

23.[矩阵单选题] *
请选择“中立”。

24. 您对于主题公园应用程序（APP）***持续使用意愿***的评价是：[矩阵单选题] *
在我下次访问主题公园时，我打算继续使用主题公园应用程序（APP）而不是不再使用。
我的意愿是在下次游览主题公园时继续使用主题公园应用程序（APP），而不是使用任何其他替代方式。
如果可以的话，我想在下次访问主题公园时继续使用主题公园应用程序（APP）。

25. 您向其他人***推荐***您最近一次使用过的主题公园应用程序（APP）的态度是：[矩阵单选题] *
我会向我的亲朋好友推荐这一主题公园应用程序（APP）。
当我回家后，我会积极宣传该主题公园应用程序（APP）。
我会强烈推荐其他人使用这一主题公园应用程序（APP）。

26. 您对于您最近一次使用过主题公园应用程序（APP）的主题公园***重游意愿***的评价是：[矩阵单选题] *
我打算再去一次这个主题公园。
以后很有可能还会再去这个主题公园。
我返回这个主题公园再次旅行的可能性很高。

27. 您向应用服务提供商提供您最近一次使用主题公园应用程序（APP）***反馈***的态度是：[矩阵单选题] *
我将填写有关主题公园应用程序（APP）的客户满意度调查。
我将向主题公园应用程序（APP）服务提供商提供有用的反馈。
当主题公园应用程序（APP）服务提供商进行调查时，我将提供信息。
我会将问题或建议告知主题公园应用程序（APP）服务提供商。

28. 您对您最近一次使用过的主题公园应用程序（APP）的整体使用体验有何看法？[矩阵单选题] *
非常不满意→非常满意
非常不愉悦→非常愉悦
非常　沮丧→非常满足
非常　糟糕→非常高兴

29. 您对于蓝色的态度：[矩阵单选题] *

与其他颜色相比，我更喜欢蓝色。
我喜欢蓝色。
我喜欢蓝色的衣服。

Appendix 4: Survey questionnaire in English (round 3)

Survey on the use of theme park APPs
Informed Consent Agreement

Dear Participants,

Please read this consent agreement carefully before participating in the survey.

The purpose of this study is to gain an understanding of the use of theme park APPs. This survey includes three parts: basic information about your demographic background, prior travel experience, and opinion or experience with theme park APPs. The survey will take you about 5-8 minutes to complete.

Your participation in this research is entirely voluntary. If you agree to take part in the research, please answer the questions truthfully in accordance with your actual circumstances and experience. We will strictly follow the law and ethical research guidelines in Finland to ensure the confidentiality of any personal information that you have disclosed. No one else except identified research team members can gain access to the information.

You do not have to participate in this research if you do not wish to do so. You may also choose to stop

participating in the survey at any time. Thank you for being so cooperative!

If you have any questions, you may contact the following doctoral researcher: University of Turku, Doctoral researcher Ting Long ting.long@utu.fi.

1. Do you agree to participate in this survey? *
○Agree
○Disagree

2. Have you used the official theme park APP when you visit a theme park? *
○Yes
○No

3. If yes, what is the name of the theme park APP or the name of the theme park? *

_____
Depending on Answer “Yes” of Question 2.

4. What is your age? *
○>18 and ≤25
○>26 and ≤35
○>36 and ≤45

○>45 and ≤55
○>55

5. What is your gender? *
○Male
○Female
○Prefer not to disclose

6. What is the highest level of education you have completed? *

○Primary education
○Junior high school
○Secondary vocational school
○High school
○Junior college
○Bachelor
○Master
○Doctor

7. How long have you ever used a theme park APP, for instance, Disneyland, Legoland, or others? *
○Never
○>0 and <=1 years
○>1 and <=3 years
○>3 and <=5 years
○>5 years

8. How frequently do you visit a theme park, such as Disneyland, Legoland, or others? *
○Less than once a year
○Once a year
○2-3 times a year
○More than 4 times a year

9. With whom do you usually visit theme parks? *
○Alone
○With spouse
○With children
○With relatives
○With friends

○With an organized tour

The following questions contain statements about your experience in daily life. Please indicate the extent to which you agree with each statement. (1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neutral, 5=Somewhat agree, 6=Agree, 7=Strongly agree)

10. Smartphone use habit *
The use of smartphones has become a habit for me.
I am addicted to using smartphones.
I must use smartphones during my daily life.

11. Personal innovativeness *
If I heard about a new information technology, I would look for ways to experiment with it.
Among my peers, I am usually the first to try out new information technologies.
In general, I am hesitant to try out new information technologies.
I like to experiment with new information technologies.

The following questions contain statements about your experience in visiting a theme park before. Please indicate the extent to which you agree with each statement. (1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neutral, 5=Somewhat agree, 6=Agree, 7=Strongly agree)

12. Time pressure *
I must hurry if I am to complete my plan of visiting and playing on time in the theme park.
I feel pressured to complete my travel quickly in the theme park.
I do not have enough time to play in the theme park.

13. Physical crowding *
The roads are crowded in the theme park.
The toilets in the theme park are crowded.
The service is very slow in the theme park.
The rest areas are crowded in the theme park.

14. Human crowding *
I feel like I'm in a very open area in the theme park.
I felt the whole tour space in the theme park is very limited.
I feel there are many consumers in the shops in the theme park.

I feel the shops in the theme park are very busy.
I feel the flow of people in the theme park is slow.
For me, the whole tour area in the theme park is crowded.

15. Attractiveness of the theme park *
The well-maintained landscaping of the theme park attracts me.
The picturesque views of the theme park attract me.
The delicious and rich food at the theme park make me long for it.
The exclusive merchandise and souvenirs available only at the theme park attract me.
The distinctive theming and atmosphere of the theme park's various sections and attractions attract me.
The unique performances and entertainment offerings at the theme park Appeal to me.

16. *
Please select "Disagree".

17. Performance expectancy *
I find the theme park APP useful in my theme park visit.
Using the theme park APP helps me accomplish things more quickly.
Using the theme park APP increases my performance when visiting the theme park.

18. Effort expectancy *
I find it easy to use the theme park APP to access the theme park APP services.
Learning to use the theme park APP to access the theme park APP services is easy for me.
It is easy for me to become skillful at using the theme park APP to access the theme park APP services.

19. Hedonic value *
Using the theme park APP service is fun.
Using the theme park APP service is enjoyable.
Using the theme park APP service is very entertaining.

20. Social value *
Using the theme park APP enables me to create interpersonal relationships with other users.

Using the theme park APP enables me to maintain a personal connection with other users.

Using the theme park APP enables me to make new friends.

Using the theme park APP enables me to enhance my relationship with others.

21. Environmental friendliness *

Using the theme park APP is environment-friendly.

Using the theme park APP can reduce environmental impact.

Compared to other traditional tools (e.g., printed guidebook), using the theme park APP is more environment-friendly.

22. Privacy concern *

I am concerned that my personal information collected by the theme park APP could be misused.

I am concerned that a person can access my personal information through the theme park APP.

I am concerned about personal information collected by the theme park APP, because of what others might do with it.

I am concerned about personal information collected by the theme park APP, because it could be used in a way I did not foresee.

23. *

Please select “Neutral”.

24. Continuance *

I intend to continue using the theme park APP rather than discontinue the use when I visit the theme park next time.

My intentions are to continue using the theme park APP than use any alternative means when I visit the theme park next time.

If I could, I would like to continue my use of the theme park APP, when I visit the theme park next time.

25. Recommendation *

I will recommend the theme park APP to my friends and relatives.

When I return home, I will positively promote the theme park APP.

I will strongly recommend others to use the theme park APP.

26. Revisit intention *

I intend to revisit the theme park again.

It is very likely that I will revisit the theme park in the future.

The likelihood of my return to the theme park for another travel is high.

27. Feedback *

I will fill out a customer satisfaction survey regarding the theme park APP.

I will provide helpful feedback to the theme park APP service providers.

I will provide information when surveyed by the theme park APP service providers.

I will inform the theme park APP service providers about issues or suggestions.

28. How do you feel about your overall experience of theme park APP use? *

Very dissatisfied →Very satisfied.

Very displeased →Very pleased.

Very frustrated → Very contented

Absolutely terrible →Absolutely delighted.

29. Blue attitude *

I prefer blue to other colors.

I like the color blue.

I like blue clothes.

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