THE ANTECEDENTS OF TOURIST FLOW EXPERIENCE: THE ROLE OF TOURIST-RELATED, TOURIST PERSONALITY, AND DESTINATION-LED FACTORS

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Abstract: This study presents a comprehensive model of the tourist flow experience, which includes tourist-related factors, such as skills, challenges, and tourist-to-tourist interaction, and the effect of using mobile technology on these variables. Also, this model investigates tourist personality factors, such as self-efficacy and openness to experience, as well as destination-led factors, such as destination authenticity and destination self-congruence. Additionally, the outcomes of the tourist flow experience, such as tourist satisfaction and destination loyalty, were examined. Data were collected through a cross-sectional and self-reported questionnaire from 669 tourists who had a trip within the past three months at the time of completing the survey and had used their mobile phones during their travels. A convenient purposive sampling method was adopted, and the Prolific platform was used to collect data. The findings of the study revealed significant positive effects of skills, openness to experience, self-efficacy, destination authenticity, and destination self-congruence on the tourist flow experience. However, the effects of challenge and tourist-to-tourist interactions on the tourist flow experience were not significant. The study also examined the moderating effect of mobile technology usage on the tourist flow experience and found that mobile usage for travel-related purposes weakened the relationship between skills and tourist flow experience. Furthermore, this factor moderated the influence of challenge and the tourist flow experience. Lastly, mobile usage for travel purposes weakened the relationship between tourist-to-tourist interaction and tourist flow experience. The findings of this study expand knowledge related to the flow theory in the tourism industry and provide insights into the role of personality traits and destination attributes in shaping the tourist flow experience. The study's results highlight the importance of considering mobile technology usage in understanding the tourist flow experience and have practical implications for destination marketers and tourism policymakers in developing strategies to enhance tourists' experience and satisfaction.

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CHAPTER I

INTRODUCTION

1.1. Chapter Overview

This chapter provides an overview of the flow experience concept and tourist flow experience. It then continues by discussing the research gaps in the flow experience literature. After explaining the significance of the study, the research objectives will be discussed. This chapter finishes by discussing the theoretical and practical contributions of the study.

1.2. Overview

In the modern day, due to technological advancement and information transparency, customers have become more experienced, powerful, and with higher expectations and demand for personalized services (Wang, 2016). In consequence, there is a fast-evolving competitive landscape in the tourism industry, and tourism companies need to make a continuous effort to make tourists satisfied and differentiate themselves from other competitors in the market (Oh et al., 2007; Pike & Page, 2014; Cronjé & du Plessis, 2020). A satisfied customer is more willing to stay longer at a destination, pay more money, share the great experience with others, and revisit a destination (Choi & Chu, 2001; del Bosque & San Martín, 2008; Saayman, Li, Uysal & Song, 2018; Wu & Ko, 2013).

Although extensive research has been carried out about tourist satisfaction (Cater et al., 2021), little attention has been paid to flow experience as one of the factors that yields customer/ tourist satisfaction. Flow experience is defined as "the state in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it at great cost, for the sheer sake of doing it" (Csikszentmihalyi, 1992, p.4). Flow can enhance the cognitive, affective, and behavioral responses to an experience (Van Noort, Voorveld, & Reijmersdal, 2012), thus, leading to satisfaction. Many studies conducted in different domains supported the positive effect of flow experience on consumer satisfaction (Chang, 2013; Choi & Chu, 2001; Ding et al., 2010; Gao & Bai, 2014; Novak et al., 2000). Therefore, investing in flow experience can be one of the less-reviewed ways to increase satisfaction among tourists (Chhetri, Arrowsmith, & Jackson, 2004; Choi & Chu, 2001; Wu & Liang, 2011).

Based on the Flow Theory developed by Csikszentmihalyi (1992), flow occurs when there is a balance between the perceived challenges and skills (Csikszentmihalyi, 1992). When the challenges are too low compared to the skill, one gets bored, and if the challenges are too high, one experiences anxiety (Csikszentmihalyi, 1991). When there is a match between challenges and skills, people enjoy the optimal experience and try to engage in that activity for a more extended period (Wu & Liang, 2011).

Based on the Flow theory literature, several antecedents of flow experience have been identified. For example, Wu and Liang (2011) reported the significant positive role of skills, challenges, and playfulness on the tourist flow experience. Kang, Lee, and Namkung (2018) found the positive influence of skills and challenges on the flow experience in restaurants' social networking sites. Customer-to-customer interaction (CCI) or tourist-to-tourist

interaction (TTI) were the other factors found to have a significant positive effect on the flow experience (Ding & Hung, 2021; Jackson, 1995; Su, Chiang, Lee & Chang, 2016; Wu & Liang, 2011). Interestingly, most of these antecedents, i.e., skills, challenges, and tourist-to-tourist interactions, are being affected by mobile technologies, which consequently can affect tourists' flow experience.

Mobile technology makes tourists more skillful in several ways. For instance, mobile technology can provide location-based services, access to social networks, and different mobile applications, which help tourists to be more knowledgeable and confident (Wang et al., 2016; Yu et al., 2018). At the same time, using mobile technology can produce several challenges, such as disengagement, diminished sense of place, increasing social tensions (expected constant connectivity), and limited interaction with locals. These challenges can result in anxiety and stress for some travelers (Paris et al., 2015), which, in turn, can negatively impact the flow experience. Moreover, the advent of smartphones and access to the Internet have empowered travelers to interact with each other through various social networks and online travel communities (Roozen & Raedts, 2018). As a result, skills, challenges, and tourist-to-tourist interactions are modified by mobile technology, and it may have formed the technology-influenced flow experience. However, empirical studies and evidence on such an effect are lacking, pointing to the lack of research on the impact of technology on flow experience and its outcomes.

1.3. Research Gaps

When reviewing the literature on Flow Theory, several gaps emerge. First, while previous studies showed the impact of mobile technology on the tourist experience as a whole (i.e., Dickinson et al., 2016; Dorcic et al., 2019; Wang et al., 2014), its effect on tourist

flow experience has not been addressed yet. Since flow experience is the best state of consumer experience, named "optimal experience" (Csikszentmihalyi, 1975), focusing on this concept can be essential and beneficial for tourism companies. It has been shown that optimal experience will lead to such positive outcomes as increased loyalty, word of mouth (WOM), and revisit intentions (Chang & Chang, 2014; Hsu et al., 2012; Lee & Wu, 2017).

Tourist experience constantly changes over time, and one of the primary reasons is the integration of mobile technology (Egger et al., 2020). Mobile devices have modified the way tourists obtain information, process it, manage travel itineraries, and make decisions during travel (Egger et al., 2020; Law et al., 2009; Neuhofer et al., 2014; Yu et al., 2018). While some of the factors affecting tourist flow experience, such as skills, challenges, playfulness, perceived value, and goal clarity, have been investigated in previous studies (i.e., Cheng & Lu, 2015; Ding & Hung, 2021; Kang et al., 2018; Skadberg et al., 2021; Wu & Liang, 2011; Wu & Ko, 2013), how technology influenced the flow experience is still unclear. Based on the previous studies (i.e., Dickinson et al., 2014; Ghaderi et al., 2019; Lin & Wong, 2021; Roozen & Raedts, 2018; Tussyadiah, 2014; Wang et al., 2016; Yan et al., 2013; Yu et al., 2018), it can be concluded that mobile technology can change the relationship between several antecedents of flow like skills, challenges, and tourist-to-tourist interaction and the tourist flow experience. For example, the Internet has made tourists more skillful by accessing almost unlimited information about their destination, allowing them to explore unknown local areas, try new activities, and create unique experiences (Ghaderi et al., 2019; Yu et al., 2018). Excessive use of smartphones during travel can cause distraction, disengagement, and a lacking sense of serendipity, thus, creating challenges (Yu et al., 2018).

Second, most antecedents investigated in tourism and hospitality have focused on 'tourist-related factors' (i.e., skills, challenges, tourist-to-tourist interactions, and perceived value). Few studies consider factors related to the destination or the tourist personalities that can affect tourists' flow experiences. According to Ryan (2002), the tourist experience is shaped by both internal factors (such as tourist motivation, visitors' personalities, prior experience, and destination knowledge) and external factors (such as destination image, other tourists at the destinations, and the activities during the travel). Also, Kim (2014) emphasized two types of factors forming memorable tourist experiences, including psychological or experiential factors (such as novelty, involvement, and hedonism) and destination attributes (such as local culture, the variety of activities, infrastructure, and hospitality).

Several studies have highlighted the important role of destination (Chen et al., 2017; Huang et al., 2019; Lin & Kuo, 2016; Mehmetoglu & Normann, 2013; Stamboulis & Skayannis, 2003) and tourists' personalities in forming the tourist experience (Heller et al., 2015; Huang et al., 2017; Ullén et al., 2012). Increasing knowledge about destination-related and tourist personality factors would increase our understanding of how destination managers can facilitate an appropriate environment for tourists to experience flow during their trips. Therefore, in order to attain a more realistic picture of factors affecting flow experience, tourists' personalities (like self-efficacy and openness to experience) and destination-related factors (like destination self-congruence and destination authenticity) should be considered.

Third, while flow experience has been examined in different domains such as marketing (i.e., Ozkara et al., 2017), the game industry (i.e., Liu & Liu, 2018), and computer and information technology (i.e., Skadberg et al., 2021), few studies in tourism domain have been conducted regarding flow experience (i.e., Kim & Thapa, 2018; Skadberg et al., 2021; Wöran

& Arnberger, 2012; Wu & Liang, 2011). Tourism is mainly a pleasure-seeking activity (Goossens, 2000), and hedonic value is a critical element of products and services in this industry (Miao et al., 2014). Despite the importance of both utilitarian and hedonic values in forming customer satisfaction in most industries (Babin et al., 1994; Prebensen & Rosengren, 2016), some businesses related to leisure, entertainment, and travel are more hedonic-oriented (Bilgihan & Bujisic, 2015; Calver & Page, 2013; Hosany & Gilbert, 2010; Wakefield & Blodgett, 1999).

The significance of the hedonic aspect of tourism products has been proved in previous studies (Calver & Page, 2013; Hosany & Gilbert, 2010; Quadri-Felitti & Fiore, 2012). The hedonic value leads to a long-lasting relationship (Carpenter, 2008), affecting satisfaction (Eroglu et al., 2005) and customer loyalty (Butz & Goodstein, 1996). Since flow experience has been found to have a positive relationship with hedonic values (Senecal et al., 2002), studying flow experience in the tourism and hospitality industry seems necessary due to such connection and also such outcomes of satisfaction as revisit intentions, loyalty, and positive WOM (Chang & Chang, 2014; Hsu et al., 2012; Lee & Wu, 2017). In that view, such authors as Csikszentmihalyi (1991), Farber and Hall (2007), Jones et al. (2003), and Mannell and Iso-Ahola (1987) emphasized the importance of studying flow experience in tourism and recreational context.

Forth, among the limited studies examining flow experience in tourism, most of them have focused on it in the online environment (i.e., Jeon et al., 2018; Kim et al., 2020; Nusair & Parsa, 2011; Wu et al., 2014) and only a few examined the behavioral responses in the actual travel activities (Kang, Lee, & Namkung 2018). Previous studies proved that the Internet and using smartphones have changed different facets of the tourist experience,

including how tourists search and collect data to plan the trip, how they decide at the destination during the travel experience, and how they document and share the experience with other people (Kramer et al., 2007; Tussyadiah & Zach, 2012; Wang et al., 2012, 2016). As a result, actual consumer behavior is different from online environment behavior, and studying them separately is essential (Chan et al., 2003). Thus, exploring the flow experience in the actual travel experience is needed.

Finally, studies about flow experience in the tourism industry are limited to activity-based tourism and adventurous activities such as white water rafting (Wu & Liang, 2011), paragliding (Arslan & Ayazlara, 2015), surfing (Cheng et al., 2015), mountain climbing (Tsaur et al., 2013), mountain skiing (Qunming, Rong, Ting, & Nijing, 2017), scuba diving (Cater et al., 2021), hiking (Cheng et al., 2016), and mountain hiking (Wöran & Arnberger, 2012). Few studies have examined flow experience in a regular journey to a destination (i.e., Chen et al., 2017). Adventure activities have risk-taking, challenges, excitement, and emotional stimulation as their main components, so forming a flow experience in such activities can differ from a regular journey. Thus, there is a need to examine how the flow experience is shaped during a regular vacation.

1.4. Research Objectives

To sum up, in order to get a comprehensive and realistic understanding of tourists' flow experience, three types of factors, including 1) tourist-related factors, 2) destination-led factors, and 3) tourist personality factors, should be taken into account. Also, how mobile technology usage during travel changes the relationships between tourist-related factors and flow experience has been overlooked. Thus, the current study aims to develop a comprehensive model of the tourist flow experience, which includes tourist-related factors,

such as skills, challenges, and tourist-to-tourist interaction, and the effect of mobile technology usage on these relationships. Additionally, this model accounts for tourist personality factors, such as self-efficacy and openness to experience, as well as destination-led factors, such as destination authenticity and destination self-congruence. Also, this model incorporates the consequences of the tourist flow experience, including satisfaction and destination loyalty.

Consequently, the following research questions are developed to achieve the research objectives:

1. How do tourist-related factors (challenge, skills, and tourist-to-tourist interaction), tourist personality factors (openness to experience and self-efficacy), and destination-led factors (destination self-congruence and destination authenticity) influence tourist flow experience?
2. How does mobile technology usage (tourism-related and personal usage) moderate the effect of skills, challenges, and tourist-to-tourist interaction on the tourist flow experience?
3. How would tourist flow experience impact tourist satisfaction and destination loyalty?

CHAPTER II

REVIEW OF LITERATURE

2.1. Chapter Overview

This Chapter provides a comprehensive analysis of the existing literature on the flow experience. This chapter begins by defining the concept of flow and exploring its dimensions. Next, it provides a thorough overview of the antecedents of the tourist flow experience, including tourist-related factors (skills, challenges, and tourist-to-tourist interaction), mobile technology usage, tourist personality factors (openness to experience and self-efficacy), and destination-led factors (destination authenticity and destination self-congruence). Finally, the studies about tourist satisfaction and destination loyalty as two outcomes of the tourist flow experience are explained.

2.2. Flow

The concept of flow was originally developed in the 1970s by Csikszentmihalyi (1975) in psychology. Csikszentmihalyi was curious to find out why people put considerable time and effort into activities like rock climbing, chess-playing, and dancing without any specific external reward like money or recognition. He interviewed hundreds of different types of people, like artists, athletes, and musicians, and found that people do certain activities just for the sake of intrinsic enjoyment. The respondent emphasized that the activities were ‘autotelic’ and rewarding by themselves. People experience flow when

they are fully engaged and absorbed in an activity (Csikszentmihalyi, 1992). The concept of flow is intertwined with the optimal experience, which is defined as "the rare occasions that we feel a sense of exhilaration, a deep sense of enjoyment that is long cherished and that becomes a landmark in memory for what life should be like" (Csikszentmihalyi, 1991).

The concept of flow was further developed in the field of positive psychology, where it refers to a mental state in which people find themselves fully involved and immersed in an activity. Although flow has been identified in various ways (Lee et al., 2011), the most popular definition of flow was suggested by Csikszentmihalyi (1992, p.4), who defined it as " a state in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it at great cost, for the sheer sake of doing it". Another definition (Csikszentmihalyi, 1975, p. 36) explained flow as "the holistic sensation that people feel when they act with total involvement," and it is obtained when "the person feels simultaneously cognitively efficient, motivated, and happy" (Moneta & Csikszentmihalyi, 1996, p. 277). Indeed, when people are engaged in an activity with a high level of involvement, concentration, and enjoyment, they may lose self-consciousness, ignore unrelated thoughts, become immersed in the activity, and experience flow (Koufaris, 2002; Mao et al., 2016). Skadberg and Kimmel (2004) add 'losing the time' as one of the other elements of flow experience.

Csikszentmihalyi (2016) emphasized two main points regarding the importance of studying flow. First, flow is one of the vital aspects of everyone's life that they experience frequently. However, since they do not have a specific name for that, it is hard to understand. Second, studying flow assists scholars in adding a new perspective on human behavior. By investigating flow, we can understand why people are highly involved in an activity and

spend more time doing that activity. It can help to establish an enduring involvement and create long-term enthusiasm for any activity (McGinnis, Gentry, & Gao, 2008).

Despite the positive and highly desirable consequences of flow experience, previous studies have also pointed to the dark side of flow (i.e., Csikszentmihalyi, 1975; Schüler & Nakamura, 2013). Csikszentmihalyi (1991, p. 62) states that "enjoyable activities that produce flow have a potential negative aspect: while they are capable of improving the quality of existence by creating order in mind, they can become addictive, at which point the self becomes captive of a certain kind of order, and is then unwilling to cope with the ambiguities of life". The addictive effect of flow has been proved in different domains, such as cyber gaming (Chen, 2006; Chou & Ting, 2003) and exercise (Partington, Partington, & Olivier, 2009). In addition to addiction to flow-producing activities, flow can be seen as valueless, meaningless, and a waste of time (Salisbury & Tomlinson, 2016). Moreover, Schüler and Nakamura (2013) conducted studies on kayakers and rock climbers, indicating that flow might cause low-risk awareness and actual risky behavior in physical activities.

Flow has been identified as a multidimensional construct that includes various components. While there is agreement about the multidimensionality of flow, there is a debate about the number of components. Initially, Jackson and Csikszentmihalyi (1999) proposed nine main dimensions of flow:

1. Challenge-skills balance: This is the most critical dimension of flow. This can happen when there is a positive balance between the challenges individuals think they will face and the skills and capabilities they believe they will have to do that activity. It is noteworthy to mention that by challenge and skills, we mean the subjective perception of challenge and skill (what you think about the challenge and skills).

2. ***Action-awareness merging:*** When people process an activity effortlessly, at the limits of their capacity, and feel absorbed in that activity, then action and awareness are merged. The body and mind process the activity simultaneously, like breathing and "things happening automatically".

3. ***Clear goals:*** "Goals direct actions and provide focus". When people set goals, they have a clear idea of what they should expect next and know moment-by-moment what to do next. Having clear goals assist in concentrating on the activity and reducing distractions.

4. ***Unambiguous feedback:*** Receiving immediate and clear feedback can let people fully engage in an activity. Feedback means the knowledge about the performance that helps an individual keep up the activity toward reaching the goals. Feedbacks allow them to be confident that everything is going well and according to the plan.

5. ***Concentration on the task at hand:*** In addition to required skills, clear goals, and feedback, one should have s total concentration on a task to experience flow. One focuses on the task at hand in a way that irrelevant extraneous thoughts and concerns do not distract them.

6. ***Sense of control:*** It is a sense of having control over an activity and being able to regulate the task in a given environment. Having control over an activity by diminishing the level of anxiety about failure can generate a feeling of confidence and calmness.

7. ***Loss of self-consciousness:*** As the person becomes one with the activity, all the attention resources will be employed to do that activity and free that individual of self-consciousness. The person will be free from self-concern, self-doubt, worries, and negative thoughts. This dimension is closely related to action-awareness merging.

8. ***Transformation of time:*** When a person is so immersed in an activity, that individual cannot keep track of the clock, and the time seems to pass faster for that person. This flow dimension has also been named 'distorted time perception'.

9. ***Autotelic experience:*** Autotelic nature of flow is the last dimension of flow. It means that people do an activity because it is self-rewarding by itself. There is no external reward or future benefits for doing that activity, and people do it because they just enjoy doing it, and the activity is intrinsically rewarding.

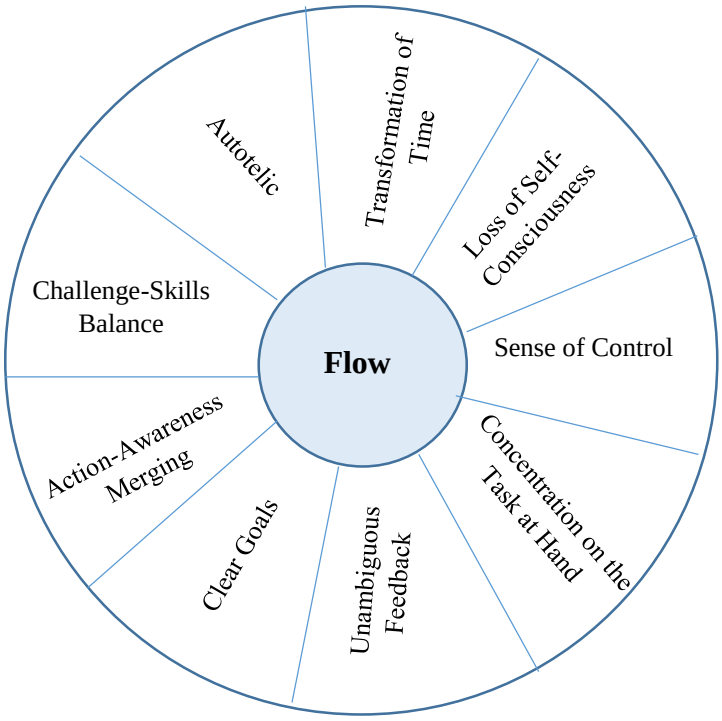

Figure 2. 1. Nine Dimensions of flow proposed by Jackson and Csikszentmihalyi (1999)

Further studies grouped these nine dimensions into three main groups 1) antecedents, 2) characteristics, and 3) consequences of flow (Csikszentmihalyi & Csikszentmihalyi, 1992). Antecedents are those factors that can help and facilitate a flow experience, including the balance of challenge and skills, clear goals, and immediate feedback. The momentarily

experienced characteristics of flow consist of the merging of action and awareness, concentration on the task at hand, and a sense of control. They describe the cognitive-perceptual process that leads to a flow experience (Hancock et al., 2019). Finally, the consequences of flow are the factors that occur after experiencing a flow and are the effect of flow, such as a distorted sense of time, loss of self-consciousness, and autotelic experience. DeMatos et al. (2021) reviewed the tourist flow experience studies and found a divergence in the number and type of the flow dimensions, stating that not all the dimensions were required to exist simultaneously for experiencing flow. They also pointed to the confusion and uncertainty among scholars about the antecedents, dimensions, and outcomes of the flow experience, which have been used interchangeably.

The experience produced by flow is called flow experience or optimal experience in which the challenges level matches one's skills level. Indeed, to shape a flow experience, the perceived fit of individual skills and demands of the activity should be balanced (Csikszentmihalyi, 1975). Nakamura and Csikszentmihalyi (2009) introduced six factors in a flow experience, including 1) intense and focused concentration on the present moment, 2) merging of action and awareness, 3) a loss of reflective self-consciousness, 4) a sense of personal control or agency over the situation or activity, 5) a distortion of temporal experience, and 6) experience of the activity as intrinsically rewarding (autotelic experience). In another study conducted by Schaffer (2013), seven conditions were found to be essential to have a flow experience: 1) knowing what to do, 2) knowing how to do it, 3) knowing how well you are doing, 4) knowing where to go, 5) high perceived challenges, 6) high perceived skills, and 7) freedom from distractions.

The importance of creating a flow experience has been emphasized in previous studies. They showed that people who are highly engaged in an activity ignore the passage of time and, by getting positive emotions toward that activity, prefer to do the activity for a longer period and enjoy the positive feelings (Wu & Liang, 2011). Due to the importance of hedonic values in tourism and leisure (Miao et al., 2014), optimal experience and flow are critical factors in increasing the understanding of the tourist experience (Ritchie & Hudson, 2009). In order to have a better understanding of flow experience in tourism, the first step is to identify various antecedents of tourist flow experience. The following section will discuss such antecedents, including 'tourist-related factors', 'tourist personality factors', and 'destination-led factors.'

2.3. Tourist-Related Factors

In this part, the studies about antecedents related to tourists, including skills, challenges, and tourist-to-tourist interaction, will be reviewed, and how mobile technology buffers their effects on the flow experience will be explained.

2.3.1. Challenges- Skills Balance

Based on the original Flow theory (Csikszentmihalyi, 1975), flow experience occurs when skills and challenges are balanced. Challenge refers to the difficulty an individual perceives in doing an activity, and skills are the perceived capabilities and actual personal ability to cope with the difficulties of a task. Hoffman and Novak (1996, p. 60) also defined skills as "consumer's capacities for action". Based on the abovementioned definitions, the word 'perceived' is used for explaining skills and challenges. It means that skills and challenges are not absolute concepts, and they can be assessed differently for different individuals with various personal feelings, personality traits, and society (Cheng & Lu,

2015). So, the skills and challenges are subjective experiential variables (Moneta & Csikszentmihalyi, 1996), and consequently, flow experience is considered a 'dynamic equilibrium process' (Chen et al., 1999).

Previous studies reported that the effect of skills and challenges on flow varies. In the original model, Csikszentmihalyi (1975) stated that to reach a flow experience, the level of skills and challenges for a specific task should be balanced regardless of whether they are high or low. If the level of perceived challenge is higher than the level of skills for doing a task, it will lead to anxiety, and if the level of skills exceeds the level of challenges, it will lead to boredom. Then, based on the results of Experience Sampling Method (ESM) studies, Csikszentmihalyi and Csikszentmihalyi (1992) revised the original model and posited that although challenge-skills balance is a must for creating a flow experience, the optimal experience only happens when both of them are above the average level. The modified model suggested that an individual can experience flow when the challenges and skills are relatively balanced and higher than the individual's mean level. On the other hand, according to quadrant model, when both challenges and skills are lower than the average, it would lead to apathy (Nakamura & Csikszentmihalyi, 2002).

While the balance between challenges and skills was identified as the central requirement for the flow, further studies claimed that challenge-skill balance is not a main predictor of flow (i.e., Engeser & Rheinberg, 2008; Løvoll & Vittersø, 2014) and flow happens even when the perceived challenges and skills are not equal (Engeser & Rheinberg, 2008). Engeser and Rheinberg (2008) showed that the perceived importance of the activity moderates the relationship between challenge-skill balance and flow. Indeed, while in activities of low importance, the challenges and skills should be equal, for the important

activities, the flow can be experienced if the level of skills exceeds the level of challenge. Despite the lack of agreement between scholars regarding being balance or imbalance of challenges and skills as a precondition of flow, there is a perfect agreement that both of them are required and essential to creating a flow experience (i.e., Csikszentmihalyi, 1975; Fong et al., 2015; Ghani & Deshpande, 1994; Ozkara et al., 2017a).

The effect of skills and challenges has also been investigated in the tourism and hospitality context. For example, Wu and Liang (2011) identified the relationship between tourist rafting skills and the level of challenges with flow experience and reported that it eventually leads to positive emotions and satisfaction. In another study, Arslan and Ayazlara (2015) investigated the flow concept in paragliding and identified challenge-skill balance as one of the crucial dimensions of flow. Kang et al. (2018) studied the flow of social networking sites (SNSs) in the restaurant industry and found skills and challenges served as antecedents of flow experience.

Although some studies investigated the effect of challenge-skills balance on flow experience, many studies in the tourism context examined skills and challenges as separate antecedents (i.e., Kang et al., 2018; Novak et al., 2000; Ozkara et al., 2017b; Wu & Liang, 2011). So, in this study, skills and challenges will be investigated as two separate antecedents of the tourist flow experience. Based on the extant literature examining the effect of skills and challenges on the flow experience (i.e., Arslan & Ayazlara, 2015; Kang & Lee, 2018; Kang et al., 2018; Novak et al., 2000; Wu & Liang, 2011), the following hypotheses are proposed:

H1: Tourists' perceived challenge level positively influences the tourist flow experience.

H2: Tourists' perceived skills level positively influences the tourist flow experience.

2.3.2. Tourist-to-Tourist Interaction

In many service settings, especially in the tourism and hospitality industry, customers interact with other customers while receiving a service like restaurants, conferences, and flights (Martin, 1996). This relationship among customers has been called customer-to-customer interaction, defined as "the exchange of information, emotions, and feelings between customers" (Lin, Gursoy, & Zhang, 2020). In the marketing literature, most of the studies regarding interaction have been conducted to research customer-employee relationships (i.e., Kharouf, Sekhon, Fazal-e-Hasan, Hickman, & Mortimer, 2019; Kim & Baker, 2019), but little attention has been paid to customer-to-customer interaction. Customer-to-customer interaction is even more tangible and important in the tourism context, in which tourists usually are in direct contact with each other for a long period and with high involvement (Rihova et al., 2015; Nicholls, 2011).

Consumer-to-Consumer interaction (CCI) is an essential part of service (Nicholls, 2010), and it is found as a significant component of servicescapes (Rosenbaum & Massiah, 2011). In many service settings, customers play an active role and influence one another indirectly (by their presence in the service environment) or directly (through direct communication) (Baker, 1986). Interpersonal interaction can happen verbally or through nonverbal communication, such as physical appearance or facial expressions (Gursoy et al., 2017), and alter the consumption experience. Previous studies indicated that CCI could have both positive and negative (such as drunkenness or violent behaviors) impacts on customer experience (Nicholls, 2010, 2011).

CCI interaction has been identified as a critical factor in service sectors, and previous studies emphasized that in some services, customer-to-customer interaction has equal or even more effects on fellow customers' experience compared to the effect of employee-customer interaction (Miao & Mattila, 2013). Heinonen, Jaajjola, and Neganova (2018) found that the effect of other customers had a severe and long-lasting impact on an individual's service experience and the overall perception of service. (Miao & Mattila, 2013).

A considerable amount of literature has been published about CCI in the services marketing domain, and the positive consequences of positive CCI have been discussed. Previous studies have found that positive CCI leads to customer service experience (Harris & Baron, 2004; Heinonen et al., 2018; Tomazelli et al., 2017), loyalty, and WOM communication (Moore et al., 2005; Imankhan et al., 2012), role perception, perceived service quality, and customer participation (Yoo et al., 2012), and customer satisfaction (Choi & Kim, 2013; Ekpo et al., 2015; Martin, 1996; Imankhan et al., 2012; Tomazelli et al., 2017; Yoo et al., 2012).

Over the last three decades, CCI has received much attention in tourism and hospitality studies. In that context, it is called tourist-to-tourist interaction (TTI). It is more important in the tourism and hospitality industry rather than in other fields because the duration of the travel experience is long. Tourists have more time and opportunity to interact with each other on a trip so that they influence each other's travel experiences (Lin et al., 2019). It is easier and more applicable for tourists to interact with other tourists rather than local people because of cultural differences, especially in international travel (Crompton, 1979). Thus, tourist-to-tourist interaction plays an important role in the travel experience.

Among the studies regarding tourist-to-tourist interaction, Sørensen (2003) used an ethnographic study of international backpackers to indicate how social interactions among backpackers formed their travel cultures. Another study by Huang and Hsu (2010) studied cruise travelers and found that customer-to-customer interactions could positively impact the cruise experience and increase vacation satisfaction considerably. Altinay et al. (2019) investigated the effect of interactions between elderly customers in a local coffee shop and found that it directly influenced their satisfaction and social well-being. In addition, Yin and Poon (2016) studied Chinese tourists who participated in a domestic package tour and found that the appearance, behaviors, and language of other people on the tour impacted the individuals' travel experience. Also, the significant contribution of tourist-to-tourist interaction on tourists 'evaluation of fellow customers' and customer satisfaction was studied by Wu et al. (2007). Millán et al. (2016) found that close interaction among tourists can cause a positive experience and tourist satisfaction. They proved that the quality, intensity, valence, and influence of customer-to-customer interaction affected the travel experience.

While most previous studies examined the effect of tourist-to-tourist interaction on experience consumption and customer satisfaction, few studies (i.e., Chen et al., 2020; Ding & Hung, 2021) were conducted to identify TTI's effect on flow experience. Among them, Jackson (1995) found that the interaction among group members was an important factor in experiencing flow. Individuals' internal motivations and positive interaction in the group were identified as two factors in the flow experience.

The impact of CCI on flow experience has been identified in gaming (i.e., Chang, 2013; Choi & Kim, 2004; Sweetser & Wyeth, 2005), social commerce (i.e., Liu et al., 2016), and information technology (i.e., Pilke, 2004). For instance, Chang (2013) found that online

game players showed more satisfaction and flow experience when they had higher user-to-user interaction (social interaction) with other players. In the tourism context, Ding and Hung (2021) proved that tourist-to-tourist interaction in music festivals positively affects the flow experience.

Thus, several studies in various domains reported the effect of customer-to-customer interaction or tourist-to-tourist interaction on the flow experience (Chang, 2013; Choi & Kim, 2004; Ding & Hung, 2021; Jackson, 1995; Liu et al., 2016; Sweetser & Wyeth, 2005). Hence, based on the above discussion, a hypothesis is developed as follows:

H3: Tourist-to-tourist interaction positively influences the tourist flow experience.

2.3.3. Mobile Technology Usage

New technological devices such as smartphones, tablets, smartwatches, and smart glasses have become very easy to carry, affordable, and accessible to many people in recent years. Based on research conducted by Pew Research Center(2021), 85% of Americans have a smartphone, showing a considerable increase compared to 2011, which was 35%. Omnipresence, flexibility, individualization, and accessibility of technologies like the Internet, mobile connectivity, smartphones, and social media have given a great opportunity both for travelers to access any information at any time and for service providers to be in touch with customers all the time (Kim, Park, & Morrison, 2008).

Tourists are more willing to use their mobile phones and stay connected with each other (Dorcic et al., 2019). Since using mobile devices has become an essential part of the tourist experience (Neuhofer et al., 2014; Wang et al., 2016), accessing the internet and using smartphones capabilities now has emerged as a primary concern for tourists (Magasic & Gretzel, 2020). Technology can create, enhance, or destroy travel experiences (Stipanuk,

1993). Mobile technology and access to Wi-Fi capabilities and various mobile applications have not only influenced the travel experience during travel, but also it has changed trip preparation, planning, and recollection phases (Gretzel, 2011; Wang et al., 2014). Also, it has changed how people experience a trip and how they can get a flow experience and immerse themselves in the destination (Egger, Lei, & Wassler, 2020).

Though several studies examined the impact of technology on the tourist experience, no general agreement was found among scholars. Some studies show that mobile technology can facilitate the tourist experience (i.e., Filieri & McLeay, 2014; Navío-Marco et al., 2018; Law, Leung, & Buhalis, 2009; Neuhofer et al., 2014), and some studies showed negative impacts (i.e., Dickinson et al., 2016; Fortunati et al., 2013; Paris et al., 2015). For example, mobile technology enhances the tourist experience by helping them manage information, strengthen process efficiencies, engage, and communicate in an online environment (Law, Leung, & Buhalis, 2009; Neuhofer et al., 2014). Tourism is an information-intensive industry (Sheldon, 1997), and technology, by making information more available to tourists, facilitates the travel experience (Filieri & McLeay, 2014; Navío-Marco et al., 2018). For instance, Gretzel (2010) emphasized the importance of location-specific and time-sensitive information facilitated by mobile technology (like Global Positioning System or GPS) in reshaping the travel experience. Also, using social media and websites has empowered customers to change settings and the information they prefer, ultimately personalizing their experiences (Gretzel & Jamal, 2009; Tussyadiah & Fesenmaier, 2009). In addition, mobile technology can facilitate the co-creation process in travel, thus supporting travelers (Prahalad & Ramaswamy, 2004; Tussyadiah & Fesenmaier, 2009).

Despite the benefits that technology can bring for travelers, it also negatively impacts tourists' experience. Mobile technology has enabled travelers to maintain their social presence with others during travel which can sometimes cause stress and anxiety (Paris et al., 2015). Staying connected to everyday life and the workplace can lead to stress and anxiety for many travelers (Dickinson et al., 2016; Fortunati et al., 2013), influencing their travel experiences. Therefore, many travelers are trying new concepts like 'technology dead zones', 'digital detox', and 'digital switch-off' (Gretzel, 2014; Lay, 2014; Pearce & Gretzel, 2012) to be immersed in the destination. Moreover, some studies indicated that popular mobile media technologies reduce the difference between home and away, consequently hurting a destination's authenticity and impeding immersion in a travel experience (Jules- Rosette, 1994, Jensson, 2007). Thus, scholars have no consensus regarding the effect of mobile technology on the travel experience and whether it enriches or weakens the travel experience.

Mobile technology can change the flow experience through several factors, including 'skills', 'challenges', and 'tourist-to-tourist interaction'. In terms of increasing tourists' skills, mobile technology and smartphones provide various functionalities in devices that enrich the travel experience (Dickinson et al., 2016). Campbell and Kwak (2011) identified three main patterns of mobile usage, including coordination (for example, contacting others via mobile communication and trying to get updates during the trip), rational use (for example, being active on social media and trying to touch base), and informational use (for example, seeking out information about the tourism opportunities at the destination).

In another classification, Wang et al. (2014) identified four main patterns of mobile usage during travel: communication (to be in touch with other people through text messages, emails, calls, and social networks, and update their friends about the activities that they are

doing during the trip), entertainment (for example, playing games, listening to music, and surfing the internet during the "downtime"), facilitation (for example, managing the itineraries, purchasing flight tickets, booking hotel and checking it in, using navigation, and finding directions), and information search (for example, searching for a flight, hotel, restaurants, and things to do at the destination).

Specifically, mobile technology has increased tourist skills in several ways. Since the tourism industry is very information-intensive (Sheldon, 1997), ICT and mobile technology have easily made information accessible to tourists almost everywhere with an internet or cell connection at any time. Indeed, mobile technology usage has changed how we obtain, save, communicate, and distribute information before, during, and after travel (Buhalis & O'Connor, 2005). By making a lot of information available about the destination, mobile technology gives tourists a feeling of support and enriches the tourism experience (Tussyadiah, 2014; Wang et al., 2014). Therefore, tourists are more likely to cope with the challenges of visiting a destination and experience flow at the destination (Yan, Davison, & Mo, 2013). For instance, advancing different geographic technologies and location-based services such as navigation systems, digital maps, geographical information systems (GIS), and global positioning systems (GPS) can increase tourists' skills and facilitate the flow experience. By carrying mobile devices and using different features like navigation, Wi-Fi, and information search, tourists feel more confident and safe (Wang et al., 2016; Yu et al., 2018). As a result, they feel unstrained to explore unknown areas, try new activities (Yu et al., 2018), as well as find more local and unique places (Ghaderi et al., 2019).

In general, using smartphones can assist tourists as they can take control of their experiences by making better decisions during travel (No & Kim, 2014). While smartphones

have enabled some tourists to feel adventurous and spontaneous, they work contradictory to others, so they reported a lack of adventure, serendipity, and instant enjoyment at the destination (Yu et al., 2018). By accessing a huge amount of information on the Internet and enhancing context awareness (Dickinson et al., 2014), those travelers may not feel it is necessary to interact with local people and ask them questions about the destination.

Moreover, smartphones have given enough resources to tourists to do some of the tasks they normally do in the pre-trip or post-trip phases during the core consumption experience/ trip (Dickinson et al., 2013, 2016; Wang et al., 2014). Hence, tourists should not necessarily plan every trip detail in advance. Also, they can easily change their trip plans and are more flexible during the trip (Wang et al., 2014). Therefore, using mobile technology in different phases of a trip (pre-trip, during, and post-trip phases) can impact the relationship between skills and the flow experience.

Mobile technology can be used for different purposes during travel. Smartphones have enabled people to remotely do many of their daily routine work and work-related tasks on their mobile devices. So, many people do their personal tasks, both daily tasks (such as checking email, online shopping, playing games, web surfing, or texting and calling with family and friends) and work-related tasks during travel. On the other hand, people also use their mobile devices for tourism purposes. Mang et al. (2016) identified seven primary uses of smartphones during travel, including map navigation, finding transportation, searching for restaurants, surfing tourism websites, language translation, social network usage, and taking pictures. While some people find travel an opportunity to escape from using their smartphones, many people use their mobile phones both for everyday life usage and travel

purposes. Many people switch their usage from personal use to travel-related use frequently and back and forth.

Previous studies have found mobile usage a double-edged sword (Fujimoto et al., 2016). Using smartphones for travel purposes can increase tourists' knowledge, safety feeling, and tendency to visit unknown unique places leading to a tourist flow experience. On the other hand, using mobile devices for personal and work-related purposes may increase disengagement, distraction, lower absorption, and consequently harm the flow experience. As a result, separating mobile usage into two categories, travel-related and personal usage, can give a clearer understanding of the role of mobile technology on flow experience. Accordingly, the following two hypotheses are proposed:

H4: Using mobile technology for personal purposes moderates the relationship between skills and the tourist flow experience, such that it becomes weaker as personal usage of mobile technology increases.

H5: Using mobile technology for tourism-related purposes moderates the relationship between skills and the tourist flow experience such that it becomes stronger as tourism-related usage of mobile technology increases.

As stated before, using mobile technology in travel does not always enrich the travel experience. While it offers many conveniences to travelers, it can generate several challenges in the travel experience as well. Based on a study by Yu et al. (2018), excessive use of smartphones can disrupt "togetherness," especially when someone travels with others, like family members. Yu et al. (2018) found that spending a significant amount of time on mobile phones could lead to less family interaction, frustration, more conflicts, and disappointment among family members.

Also, the authors showed that the pervasive use of smartphones while traveling could have detrimental effects on experiencing a destination. Since smartphones are well-equipped with high-quality digital cameras, documenting the trip in pictures or video format is very common. As a result, most of the time, many people experience tourist attractions through the screens of their mobile phones rather than consuming and enjoying the actual experience leading to missing 'instantaneous gratification' and less engagement with the experience (Wang et al., 2012; Yu et al., 2018).

Some scholars (i.e., Wang et al., 2012) believe that using smartphones has enabled tourists to plan every moment of their travel in detail. By reading information about the destination, reading online reviews, and watching pictures, tourists have detailed information about the travel experience that hinders making serendipitous moments during the travel. Thus, tourists rarely encounter unexpected situations that can create a unique and memorable experience for them. On the other hand, Mieli and Zillinger (2020) found that detailed travel planning due to technology usage did not eliminate serendipity. They argue that technology has enabled tourists to postpone travel planning to the travel time, leaving space for unexpected travel-related decision-making and unplanned behavior. So, according to Mieli and Zillinger (2020), serendipity and travel planning can coexist and can be called 'planned serendipity.' Furthermore, mobile technology can lead to disengagement, loss of sense of place, and limited interactions with other people at the destination (Gretzel, 2010).

Based on the above discussion, mobile technology can disrupt togetherness, impede instantaneous gratification, eliminate serendipity, and decrease tourists' engagement with the experience. Thus, mobile technology can change the effect of challenges on the flow experience. So, the following hypothesis can be developed:

H6: Using mobile technology for personal purposes moderates the relationship between perceived challenges and the tourist flow experience such that it becomes stronger as personal usage of mobile technology increases.

H7: Using mobile technology for tourism-related purposes moderates the relationship between perceived challenges and the tourist flow experience such that it becomes weaker as tourism-related usage of mobile technology increases.

The advent of new technologies like smartphones and the Internet has altered the way tourists interact with business providers, local people, and other fellow tourists. By creating numerous opportunities like mobile apps, social media, and other online communities, modern technology has removed the spatial boundaries among tourists (Nusair et al., 2013) and facilitated tourist interactions. Tourists do not have to wait till the time of the trip. Mobile technology has enabled tourists to not only interact with other tourists before the trip to gain more knowledge about the destination but also can be in touch with other tourists after the trip (Lin & Wong, 2021; Roozen & Raedts, 2018). While tourist-to-tourist interaction includes many things, tourists mostly interact with other people online to get information about the destination and the activities they can do at the destination (Bilgihan et al., 2016).

Using mobile devices can sometimes lead to fewer interactions with travel companions and local people. Yu et al. (2018) found that excessive use of smartphones can cause less face-to-face interaction on a family vacation leading to more conflicts and distractions. While some studies have pointed out the detrimental effect of using mobile technology on tourist-to-tourist interaction, most of them have highlighted the important role

of technology in fostering tourist-to-tourist interactions (Tsiakali, 2018). Previous studies have proved that real-time communication between tourists in travel-related mobile apps, online communities, blogs, and social media platforms has empowered tourists to interact with each other easily and share their knowledge and experiences more efficiently (Kim & Kim, 2017). Using mobile technology and the online environment has strengthened the tourist-to-tourist interaction in online environments through User-Generated-Content (UGC), such as sharing text, photos, videos, and customer reviews (Tsiakali, 2018). Besides, although some communities are formed online, they help people interact offline and in the real world, and it is named 'electronic-to-face' (E2F) communities (Torres & Orlowski, 2017).

All in all, mobile technology usage can make tourist-to-tourist interaction easier and facilitate tourist-to-tourist interaction in both online communities and the real offline world (Torres & Orlowski, 2017) and consequently moderate the relationship between TTI and the flow experience. Thus, the researcher hypothesizes that:

H8: Using mobile technology for personal usage moderates the relationship between tourist-to-tourist interaction and the tourist flow experience such that it becomes weaker as personal usage of mobile technology increases.

H9: Using mobile technology for tourism-related usage moderates the relationship between tourist-to-tourist interaction and the tourist flow experience such that it becomes stronger as tourism-related usage of mobile technology increases.

2.4. Tourist Personality Factors

Tourist behavior and the quality of the tourist experience are shaped by both external factors like destination characteristics and internal factors like tourist personality (Lew &

McKercher, 2006; Ryan, 2002). Personality refers to "a set of points falling along several behavioral dimensions, each corresponding to a trait, resulting in a unique profile, different from that of other individuals" (Pervin, 1989, p.7). Based on this definition, the same service or experience can be consumed and perceived differently by different individuals with distinct personality traits.

The significant relationship between various personality traits and flow experience has been reported in previous studies (i.e., Annalakshmi et al., 2020; Heller et al., 2015; Huang et al., 2017; Kim et al., 2019; Kowal & Fortier, 1999). For example, Heller et al. (2015) found a positive relationship between extraversion personality and flow experience in music practice. In the computer game industry, Huang et al. (2017) indicated that players' personality traits, such as persistence, novelty-seeking, and reward dependence, influenced flow and loyalty. While the effect of different personalities on flow experience has been examined in other disciplines, in tourism, these relationships are still unclear. While the role of personality in creating flow has been underlined in previous studies, its various types should be examined specifically in the tourism context in which tourists experience a destination for the sake of intrinsic rewards (DeMatos et al., 2021).

The current study focuses on two tourist personality dimensions: openness to experience and self-efficacy, and tests their effects on the tourist flow experience. These two dimensions have been selected because they can directly affect skill-challenge balance, one of the most important flow dimensions. People with a high level of openness to experience are more willing to try new experiences and invest their attention in that activity (Diana, 2019). They perceive being in unfamiliar and unpredictable situations and trying new experiences as positive challenges rather than threats. In the context of tourism, tourists with

high openness to experience may see the challenges, such as visiting unfamiliar destinations and activities, as exciting and rewarding. On the other hand, self-efficacy refers to the individual's belief in their ability to overcome the challenges during their travel experiences. Thus, both openness to experience and self-efficacy personalities directly affect how tourists perceive the challenges they face while traveling.

Furthermore, previous studies showed that these two personalities directly affect other aspects of flow as well. For example, previous studies in various fields confirmed the influence of self-efficacy in creating engagement and absorption (Bandura, 1997; Mesurado et al., 2016). Openness to experience was found to have a positive relationship with absorption, focused attention, autotelic experience, and skill-challenge balance (four main dimensions of flow experience). In addition, previous studies showed that openness to experience positively correlates with absorption, experiential involvement, destination engagement, and immersion (Annalakshmi et al., 2020; Bassi et al., 2007, 2014; Glisky et al., 1991; He et al., 2021; Khoi et al., 2020).

2.4.1. Openness to Experience

Openness to experience is an individual characteristic representing an individual's tendency to seek and explore novel experiences, new solutions and ideas, and potential surprises (Aho, 2001; Seibert & Kraimer, 2001). It is defined as a set of characteristics such as imaginative, creative, cultured, original, broad-minded, intelligent, and artistically sensitive (McCrae & Costa, 1997). An individual with high openness to experience shows more curiosity, intelligence, and imagination capabilities compared to an individual with low openness to experience (Fayombo, 2010; Moghavvemi et al., 2017).

While this personality trait was introduced in psychology, it has been applied in other fields, such as marketing and tourism. In the tourism context, a person with a high level of openness to experience personality trait is recognized as a curious person who accepts new experiences and changes, has flexibility in thinking, and has aesthetic goals (Costa & McCrae, 1992; He et al., 2021). Previous studies found that people with this personality trait are more likely to experience inspiration (Khoi et al., 2020) and are more willing to share their great experiences with others (Tan & Tang, 2013). Although there are some studies in tourism about tourist personalities and how they impact tourist behaviors (i.e., Bujisic et al., 2015; He et al., 2021; Khoi et al., 2020), no study investigates the relationship between openness to experience and tourist flow experience.

He et al. (2021) showed that visitors with a high level of openness to experience are more likely to engage at the destination by creating a full episode of inspiration. Indeed, tourists who are open to new experiences are more able to be immersed in the local environment and are more willing to explore the destination (He et al., 2021; Khoi et al., 2020). However, previous research findings into the impact of openness to experience on absorption have been inconsistent and contradictory. While Ross and Keiser (2014) found that all the personalities (such as neuroticism, extraversion, agreeableness, and conscientiousness) except openness to experience can predict flow propensity, some other studies (i.e., Annalakshmi et al., 2020; Bassi et al., 2014; Glisky et al., 1991; Weibel et al., 2010) found the opposite results. They concluded that openness to experience is the only personality trait that positively correlates with experiential involvement and flow experience. Glisky et al. (1991) argued that absorption and openness to experience are very conceptually

close to each other, and being open to an experience is a prerequisite to becoming absorbed in that experience.

The possible positive relationship between openness to experience and the flow experience can also be justified with another argument. Autotelic experience is one of the main characteristics of flow experience, and it means a person who is experiencing flow performs that activity because it is intrinsically rewarding, and that person does that activity for the sheer sake of doing it (Csikszentmihalyi, 1992). On the other hand, autotelic personality consists of elements such as curiosity, persistence, and intrinsic motivation (Tse et al., 2020), which are conceptually very similar to openness to experience. Thus, it is likely that openness to experience has a positive relationship with flow experience. Based on the above discussion, the following hypothesis can be developed:

H10: Openness to experience positively influences the tourist flow experience.

2.4.2. Self-Efficacy

The second personality factor, self-efficacy, is derived from internal resources such as ability, knowledge, and skills (Ben-Ami et al., 2014). Based on the self-efficacy theory developed by Bandura (1997), self-efficacy refers to "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p.3). In other words, self-efficacy is the person's judgment about his/her ability to do a specific task in order to get the desired outcome. Many studies have indicated that self-efficacy can significantly explain people's motivation to do certain behaviors (i.e., Ajzen, 2002; Hill et al., 1987). Self-efficacy originates from various internal resources, including "ability, knowledge, skill, endurance, and willpower" to do a task (Ben-Ami et al., 2014, p.1915). It is noteworthy to mention that self-efficacy is a different concept than skills.

Someone can have the required skills to accomplish an activity but, because of low self-efficacy, does not have adequate motivation or confidence to overcome the challenges and achieve favorable results (Gist & Mitchell, 1992; F. Wang & Lopez, 2020). Hence, in this study, self-efficacy refers to the tourists' evaluation and judgment about their ability during the travel, not the actual skills.

In tourism, multiple studies examined the effect of self-efficacy on tourists' decision-making and behaviors (i.e., Chen et al., 2019; Hung & Petrick, 2012; Wang & Xu, 2015). Several studies examined the role of self-efficacy in technology adoption. For example, in a recent study, Cao et al. (2022) found that self-efficacy is a major predictor of perceived functional, emotional, and social values in adopting smart voice assistants (SVA) like Google Home and Amazon Alexa among Airbnb guests. Guests with higher self-efficacy of using SVA perceive the SVA value more than people who are not confident about using voice assistants. Also, based on Cao et al.'s (2022) findings, self-efficacy impacts SVA adoption intention directly. In another study, Wang and Lopez (2020) examined the moderating role of self-efficacy in the relationship between safety messages and tourists' intention to visit and found that safety messages were more likely to affect people with a high level of self-efficacy rather than tourists with low self-efficacy. Zhu et al. (2017) discovered that self-efficacy was an essential antecedent of perceived value and perceived learning cost and consequently influenced attitudes toward the adoption of the ride-sharing application.

Most of the studies about tourists' self-efficacy focused on the role of this personality trait on specific tourist behavior like technology adoption (Cao et al., 2022; Lu et al., 2015; Zhu et al., 2017), and no studies have examined its impact on tourist experience or tourist flow experience. However, the influence of self-efficacy in shaping flow has been asserted in

other disciplines, such as human-computer interaction (Mahdi Hosseini & Fattahi, 2014), education (Bassi et al., 2007; Walker et al., 2006), social psychology (Rodríguez-Sánchez et al., 2011), and psychology (Salanova et al., 2006; Sweetman & Luthans, 2010). For example, Bandura (1997) found that when someone shows a high level of self-efficacy, that person puts more energy and effort into performing the task and potentially can be absorbed in the activity. In addition, Mesurado et al. (2016) reported similar results in academic settings and found that self-efficacy was a significant predictor of students' positive experience and study engagement.

Since self-efficacy specifies the extent to which tourists perceive themselves to fulfill the situational demands, adapt to the changes, and overcome possible challenges (Gu & Ryan, 2008), it can likely promote the psychological state of flow. Based on the study of Rodríguez-Sánchez et al. (2011), self-efficacy changes how people perceive their skills against challenges and consequently affects their flow experience. The authors concluded that in addition to balancing challenges and skills, people should be confident about their skills and power to overcome possible challenges. Moreover, tourists with low self-efficacy do not have enough confidence in their capabilities in travel decision-making and coping with travel challenges (Wang & Lopez, 2020). As a result, tourists are more likely to experience anxiety which prevents them from enjoying the travel and getting immersed in the destination. Based on the above discussion, the following hypothesis is developed:

H11: Tourist self-efficacy positively influences the tourist flow experience.

2.5. Destination-Related Factors

The quality of the tourist experience depends not only on internal factors, such as tourist personality, familiarity, and knowledge about the destination, but also on external factors, such as all the activities, people, and patterns at a destination (Ryan, 2002, 2010). Zouni and Kouremenos (2008) defined 'destination' from the tourist perspective and referred to it as a package of experiential products and services. Mehmetoglu and Normann (2013) found a positive relationship between tourist perceptions about the destination and tourist experience. Previous studies also confirmed the role of destination visual image (Ye & Tussyadiah, 2011), destination personality (Chen & Phou, 2013), destination image (Chen & Phou, 2013; Zhang et al., 2014), overall environment and destination infrastructure (Murphy et al., 2000), and environmental stimulation on tourist perceptions, attitudes, behaviors, and experiences (Campos et al., 2020).

Based on the Appraisal Theory of Emotion developed by Arnold (1960), tourists' evaluation of the destination will directly affect their emotions, consequently providing a great environment for tourists to experience flow. Although the impact of different destination attributes, such as tourist attractions, historical places, museums, accommodations, food services, and transportation on tourists' flow experience has been studied (i.e., Chen et al., 2017; Kim & Thapa, 2018), the influence of destination authenticity and destination self-congruence on flow experience has been overlooked. Thus, this study focuses on these two important factors and their influence on forming the tourists' flow experience.

Destination authenticity impacts 'concentration on the task', 'enjoyment', 'skills', and 'self-consciousness' as four dimensions of flow experience (Aykol et al., 2017; Bryce et al.,

2014; Zhang et al., 2019; Grayson & Martinec, 2004). In addition, previous studies proved that destination self-congruence leads to memorable outcomes (Bigné et al., 2005), destination engagement (Chen et al., 2020; Meeprom & Fakfare, 2021), and immersion (Fu et al., 2020). Fu et al. (2017) reported the effect of self-congruence on focused attention, absorption, and time distortion, which are the main dimension of flow.

The following section will discuss destination-led factors, including destination authenticity and destination self-congruence, and their effects on generating flow experience.

2.5.1. Destination Authenticity

Although many studies in various disciplines have paid attention to authenticity, there is no clear and precise definition of authenticity, and the debate about its correct definition continues (Yu et al., 2020). Wang (1999) believes that the reason for this disagreement about its definition is having different philosophical bases, including objectivism, constructivism, and existentialism. Among the three perspectives toward authenticity, existential authenticity is the most used in tourism studies (Yi et al., 2017). So, in this study, we used this definition which describes authenticity as the degree to which a tourist assesses a destination to be consistent, credible, honest, and symbolic. In addition, a destination that is perceived as authentic in tourists' minds is reliable, real, valid, original, first-hand, and trustworthy (Ram et al., 2016; Tasci & Knutson, 2004).

Wedow and MacCannell (1977) introduced the concept of authenticity to the tourism context for the first time, followed by other studies confirming the importance of it in the tourist memorable experience (Leigh et al., 2006), pleasant experience (Özdemir & Seyitoğlu, 2017), tourist satisfaction and loyalty (Chhabra et al., 2003; Girish & Chen, 2017; Yi et al., 2017), tourist engagement (Bryce et al., 2014; Lu et al., 2015), perceived value

(Chung et al., 2018), destination image (Lu et al., 2015), and place attachment (Jiang et al., 2017). In modern life, people lack authenticity and try to fulfill this need by purchasing authentic products like ethnic food, travel souvenirs, or original art pieces (Harkin, 1995; Lu & Fine, 1995) as well as having authentic experiences (Noy, 2004; Shi et al., 2019). In a journey, people are out of their routine lives and have the opportunity to show their true selves (Wang, 1999). Therefore, this is one of the best times for people to experience authenticity at the destination (Meng & Choi, 2016).

Although there are plenty of studies about the antecedents and consequences of authenticity in tourism, few studies have focused on its effect on tourist experience in general (i.e., Pearce & Moscardo, 1986; Wang, 1999; Zatori et al., 2018) and tourist flow experience specifically (i.e., Zhang et al., 2019). Among those studies, Aykol et al. (2017) collected data from theatre audiences and found a positive relationship between authenticity with flow experience and enjoyment in performing art settings. In another study, Zhang et al. (2019) asserted that authenticity in cultural and creative tourism destinations increases flow experience through perceived value and tourist involvement. In addition, Bryce et al. (2014) found that objective authenticity increased tourist engagement in Japanese heritage sites.

When a destination or a tourist attraction is completely unique, original, and different from the routine environment, tourists are more willing to explore and engage in the destination (Özdemir & Seyitoğlu, 2017; Zhang et al., 2019). Thus, it can evoke ‘focused attention' as one of the important dimensions of flow. On the other hand, “when consumers believe they are in the presence of something authentic, they can feel transported to the context to which the object or location is authentically linked, and thus they feel more connected with the context.”(Grayson & Martinec, 2004, p.302). This indicates that

authenticity correlates with some of the other flow experience dimensions, including 'loss of self-consciousness' and 'concentration on the task at hand.' Thus, it can be hypothesized that:

H12: Destination authenticity positively influences the tourist flow experience.

2.5.2. Destination Self-Congruence

In modern life, people have shifted from consuming actual products to consuming the images they get by purchasing them and trying to match those images with their self-concepts. Self-concept was first developed in social psychology, and it is defined as "the totality of the individual's thoughts and feelings having reference to himself as an object." (Rosenberg, 1979, p.7). Based on consistency theories, people tend to keep their current self-concept in order to be consistent in their attitudes and behavior patterns (Festinger, 1957; Huang et al., 2017). As a result, they prefer to purchase brands, products, or services that are congruent to their actual self, including their own images, true selves, values, attitudes, beliefs, and lifestyles (Ding & Hung, 2021; Malär et al., 2011; Sirgy, 1982). By doing so, they maintain or elevate their self-concept and express their values, lifestyles, and beliefs to others (Carver & Scheier, 1978; Fu et al., 2017).

According to self-congruence theory, self-congruence means the cognitive similarities between a product or brand's image and the customer's self-concept (Sirgy, 1982). This definition can be applied to tourism, where destination self-congruence refers to the perceived match between destination personality and tourists' self-concept (Beerli et al., 2007; Kim et al., 2019; Pratt & Sparks, 2014; Usakli & Baloglu, 2011). Based on the self-concept dimensions, Sirgy (1982) introduced four types of self-congruences, including actual self (how actually an individual sees himself), ideal self (how an individual would like to see

himself), social self (how an individual thinks that other people see him), and ideal social-self (how an individual would like others to see him). To capture the whole concept of self-congruence, many scholars measure all four facets (i.e., Ding & Hung, 2021; Fu et al., 2017; Sirgy & Su, 2000).

Self-congruence has received much attention in the tourism context. Previous studies have found the impact of self-congruence on visit intention and recommendation to others (Chen & Phou, 2013; Murphy et al., 2007a; Stokburger-Sauer, 2011; Usakli & Baloglu, 2011), tourist satisfaction (Chon, 1992; Litvin & Kar, 2004), destination choice (Beerli et al., 2007; Litvin & Goh, 2002), overall destination image and tourist attitude (Murphy et al., 2007b), and destination loyalty (Bosnjak et al., 2011; Ekinci et al., 2013; Fu et al., 2017). However, little has been done to explore the influence of destination self-congruence on tourist experience and the formation of flow in tourism.

Fu et al. (2017, 2020) are among the few studies in tourism focused on destination self-congruence and tourist flow experience in the theme park context. Fu et al. (2017) found that the more visitors found a match between self-image and theme park image, the more likely they experienced flow states, including a sense of time distortion, focused attention, and complete absorption. In other words, when people perceive the personality of a theme park close to their own personalities, they will be more willing to explore the park, engage with it, spend more time and money, and consequently experience flow. In another study, again in the theme park, Fu et al. (2020) confirmed the relationship between self-congruity and flow. They found that self-congruity assists visitors in getting immersed in the theme park and having an optimal experience.

Two theories can be used to explain the positive effect of destination self-congruence on the tourist flow experience. First, Cognitive Appraisal Theory states that when tourists find an experience pertinent to their benefits and goals, they have more favorable emotional responses to that experience (Choi et al., 2011; Kumar & Iyer, 2001). So, tourists who find the destination image close to their benefits and personal goals are more likely to have an optimal experience. Second, based on the Functional Attitude Theory developed by Katz (1960), people consume certain products or brands to express their actual or ideal self-image. As a result, they prefer to experience a destination whose personality matches their actual or ideal self (Govers & Schoormans, 2005) and consequently experience a favorable emotion and positive perception.

In addition, previous studies proved that destination self-congruence leads to memorable outcomes (Bigné et al., 2005), destination engagement (Chen et al., 2020; Meeprom & Fakfare, 2021), and immersion (Fu et al., 2020). Fu et al. (2017) reported the effect of self-congruence on focused attention, absorption, and time distortion, which are the main dimension of flow. Therefore, it can be hypothesized that:

H13: Destination Self-congruency positively influences the tourist flow experience.

2.6. Tourist Satisfaction

There are several definitions of satisfaction in the marketing and tourism literature, and each definition approaches it differently. Lundstrom and Hunt (1978) defined tourist satisfaction as a comparison of the actual product experience and what it should be. Product experience in a trip can be in various sectors, such as accommodation, tourist attractions, restaurants, shopping centers, and transportation. In another definition, tourist satisfaction is

the pleasant feeling tourists experience after a trip (Chen & Tsai, 2007; Kozak & Rimmington, 2000).

Basically, different paradigms are trying to understand and measure customer satisfaction. The most used theories of satisfaction include the Expectancy-Disconfirmation Paradigm (EDP)(Oliver, 1980), Importance Performance (Martilla & James, 1977), Perceived Overall Performance (Tse & Wilton, 1988), and Equity Theory (Oliver & Swan, 1989). Based on Expectancy Disconfirmation Paradigm (EDP), people compare their actual experiences with their expectations before consuming that experience. If the real experience is higher than the expected experience, then an individual is satisfied. However, there are limitations, such as the dynamic nature of expectation, which argues that consumer expectation changes persistently over the experience time, and there is no specific static expectation (Yüksel & Yüksel, 2001).

Prior studies indicated the role of flow experience in understanding customer satisfaction (Chhetri et al., 2004; O'Cass & Carlson, 2010; Pearce, 1987). When people experience flow, their desires will be fulfilled, leading to satisfaction (Cohen, 1979). The direct effect of flow experience and satisfaction in tourism has been investigated in previous studies (Bilgihan et al., 2014; Guo et al., 2016; Kang et al., 2018; Wu & Liang, 2011). Consistent with these findings, the following hypothesis is assumed:

H14: Flow experience positively influences tourist satisfaction.

Moreover, when people have an optimal experience and feel the flow, they are more likely to show loyalty (Zhou et al., 2010). The strong relationship between flow and behavioral intention has been investigated in the marketing and tourism literature (Gao &

Bai, 2014; Hausman & Siekpe, 2009; Jeon et al., 2018; Mathwick & Rigdon, 2004). Flow experience has a strong relationship with loyalty (Bilgihan, 2016; Ding & Hung, 2021; Jeon et al., 2018; Kim & Thapa, 2018; Zhou et al., 2010), repurchase intention, or revisit intention (Hausman & Siekpe, 2009; Hsu et al., 2012a; Kabadayi & Gupta, 2005; Tomaž Kolar & Čater, 2018; van Noort et al., 2012) and recommend to others (Tomaž Kolar & Čater, 2018; van Noort et al., 2012). Thus, it can be hypothesized that:

H15: Flow experience positively influence destination loyalty.

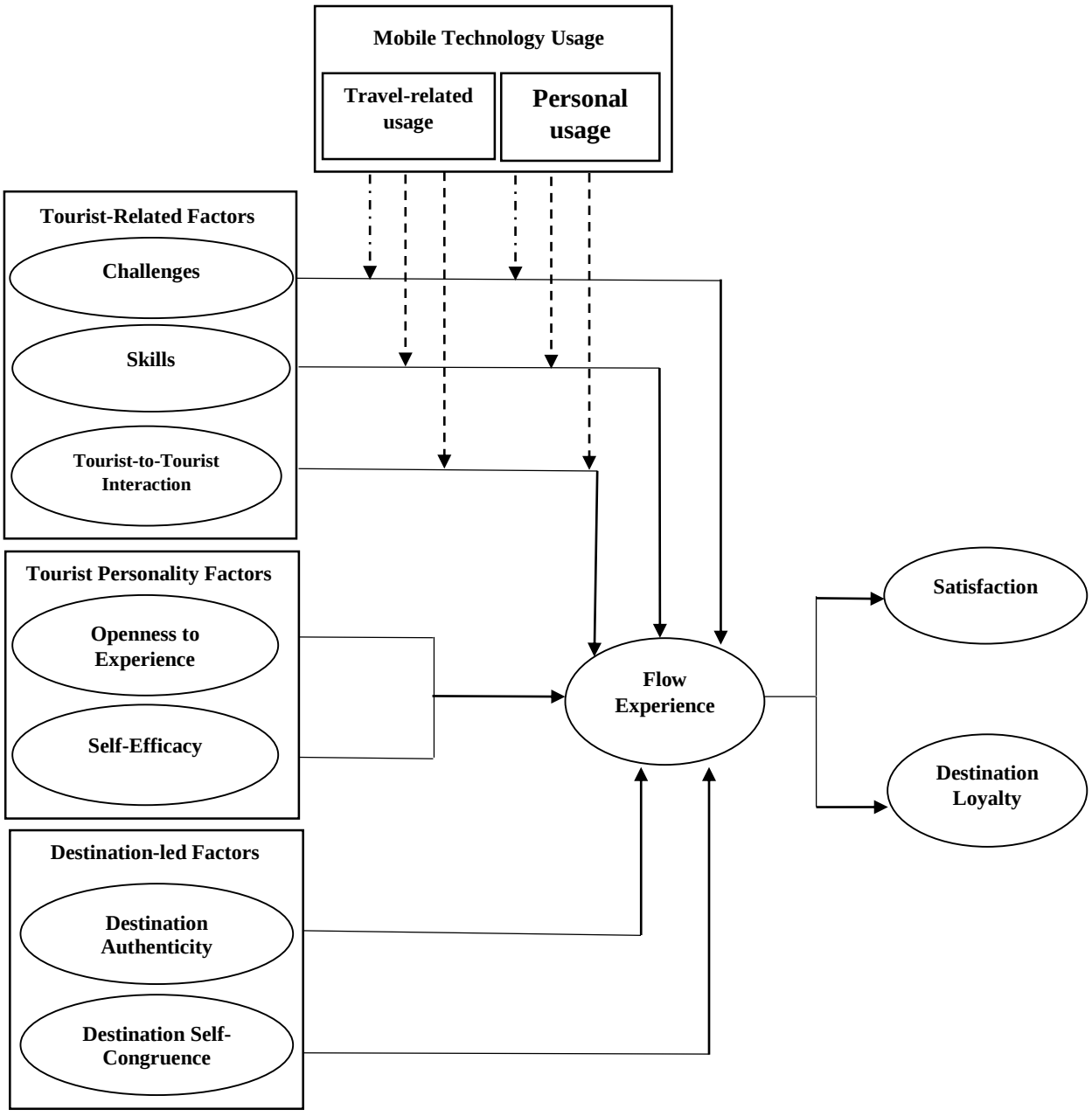

Figure 2. 2. The Conceptual Model

CHAPTER III

METHODS

3.1. Chapter Overview

This chapter provides an overview of the research methods used in this study. It begins by presenting the research design, followed by providing detailed information about the target population, sampling, data collection and procedures, and the survey measurements. After explaining the pilot study, this chapter finishes by explaining the data screening procedure and the data analyses used in this study.

3.2. Research Design

Following the research objectives, a quantitative research method was used to investigate the factors affecting the tourist flow experience and its outcomes. This study encompassed the overall tourist experience comprising the pre-trip (planning), the on-site experience, and the post-trip phases. As a result, the current study employed a cross-sectional and self-reported questionnaire to collect data and empirically test the proposed hypotheses.

Most of the previous studies which examined the antecedents and consequences of tourist flow experience have used quantitative surveys for collecting data (Cheng et al., 2015; Ding & Hung, 2021; Kang et al., 2018; Kim & Thapa, 2018; Wöran & Arnberger, 2012; Wu & Liang, 2011). A literature review by DeMatos et al. (2021) found that

among the total of 168 empirical studies, the majority (77%) employed a quantitative approach with various analysis types, including t-test, exploratory factor, and confirmatory. Thus, this study used a survey method to collect data and test the hypotheses through quantitative analyses such as Confirmatory Factor Analysis (CFA) and Structural Equation Model (SEM). Using a quantitative approach enabled easy comparison of findings with similar studies.

3.3. Target Population and Sampling

Given that the study aimed to investigate the factors that influence tourist flow experience, as well as the role of mobile technology in this regard, the target population had to meet two key criteria. First, they had to be at least 18 years old and have taken a travel within the past three months at the time of completing the survey. Second, they had to use their mobile phones during their travels. While the studies about tourist behavior have considered different timeframes for collecting data and measuring emotional responses, including three, six, and twelve months (Akbari et al., 2021; Godovykh & Tasci, 2021; Hsu, 2000; Islam & Kirillova, 2021; Kim et al., 2016; Sthapit et al., 2022; Tasci, 2007; Taylor & DiPietro, 2019), this study considered a three-months period as an appropriate timeframe.

Several reasons justified the three-month as a proper timeframe to study the tourist experience. Firstly, it provided an appropriate window within which tourists may have taken at least one leisure vacation, thus increasing the likelihood of capturing a diverse range of experiences. Second, this timeframe struck a balance between capturing sufficient data while minimizing recall bias (Robinson & Clore, 2002), as respondents were less likely to forget details about their trip. Furthermore, the three-month timeframe mitigated seasonal bias

(Alegre & Pou, 2014) by allowing for an even distribution of responses across different seasons, which can influence travel patterns and experiences.

Since the study's target population was those tourists who had a trip within three months and used their mobile phones during the travel, a convenient and purposive sampling method was adopted. The focus of the study was on a special group of tourists who had used their mobile phones during travel and had an account in Prolific. Based on Hibberts et al. (2012), purposive sampling is appropriate when researchers look for certain individuals with specific criteria to participate in a study. Despite some disadvantages of using purposive sampling, such as less generalizability to the population (Lucas, 2003), this sampling method is very practical, and it has widely been used especially for internet surveys (Sue & Ritter, 2012).

Regarding the sample size, based on Hair et al. (2009), to get more accurate results in SEM analysis, the sample size should be between 200 and 400. In addition, it is very common to determine the sample size in SEM based on the model parameters in the research model. Various studies suggested different methods to determine the required sample size. For instance, while Kline (2011) offered at least 20 observations for each observed variable, Stevens (2012) recommended a ratio of 15 observations. According to Bentler and Chou (1987), the minimum responses for each model parameter can be five cases.

The most widely accepted ratio is the ratio of 10 observations for each observed variable recommended by Nunnally (1967). Since we have 54 observed variables in the tested model, a minimum sample size of 540 observations was determined. On the other hand, using Soper's online calculator, since we have 12 latent variables and 54 observed variables, to have a 0.2 effect size and 0.9 power level with a 0.05 probability level, having a

610 sample size would be appropriate. To reach the minimum sample size required for this study, a total of 669 surveys were collected.

3.4. Data Collection and procedure

The data was collected between October 11th and November 4th, 2022. In order to reach out to the target population (tourists who had a trip within three months and used their mobile phones during the travel) and collect data, Prolific was used. Incentives were provided for participants to encourage them to respond to the survey accurately and in a timely manner. Several benefits of using online platforms have been identified by previous studies, including 1) accessing the subject pool, 2) diversity of the subject pool, and 3) low cost (Mason & Suri, 2012). Regarding the validity of data collection by online platforms, several studies compared the results obtained by online platforms with offline data collection (i.e., Buhrmester et al., 2011; Paolacci et al., 2010). They found no significant differences or very slight differences between the quality and reliability of the results, confirming the validity and reliability of data collected with online platforms.

Before asking participants to fill out the questionnaire, three screening questions were asked to ensure that respondents were qualified to participate in the study. The first question asked about the respondent's age which had to be over 18 years old. The second question confirmed that the subject had a trip within three months of completing the survey. And finally, the third question asked whether the participant had used a mobile phone during the travel or not.

3.5. Survey Instrument (Measurements)

The questionnaire was designed based on previous studies on the subject. All the scales were adopted from previous studies, and their validities were checked before. Table 3.1 provides a summary of the selected measurement scales. All the items were measured on a seven-point Likert scale ranging from 1= strongly disagree to 7= strongly agree. The survey consisted of two major parts. In the first part, three screening questions described above were asked. Then, in the second part, demographic questions about age, gender, marital status, education level, nationality, income, and previous travel experience at the destination were asked.

To measure skills and challenges, items were adapted from Wu and Liang (2011), and for tourist-to-tourist interaction, three items from Moore et al. (2005) were used. To measure openness to experience, four items from Soto and John (2009) and to measure self-efficacy, four items from Riggs et al. (1994) were used. For destination authenticity, four items from Kolar and Zabkar (2010) measured the existential authenticity at the destination. Also, destination self-congruence was evaluated by four items in Sirgy et al.'s (1997) study.

Regarding measuring flow, due to the lack of agreement in the conceptualization and operational definitions of flow, there is not a consistent scale. As a result, different studies have used various item scales to measure flow. Choi et al. (2007) stated that "the construct of flow is, however, too broad and ill-defined due to the numerous ways it has been operationalized, tested and applied." (p.227). But all flow measurements in various studies can be classified into two main categories, including unidimensional and multi-dimensional. While due to the ease of administration, several studies considered flow as a unidimensional construct (i.e., Choi et al., 2007; Luna et al., 2002; Novak et al., 2000, 2003), this approach

has several disadvantages. Hoffman and Novak (2009) asserted that in a unidimensional approach, the subject could perceive the concept of flow differently, causing measurement error.

On the other hand, some other scholars considered flow as a multidimensional and a higher-order construct (i.e., Hsu et al., 2012; Skadberg & Kimmel, 2004). However, there is no agreement on the dimensions of flow, and various studies use different dimensions to measure flow. Control, focus attention, time distortion, curiosity, intrinsic interest, enjoyment, and loss of self-consciousness are among the most common dimensions of flow. Based on the definition of flow proposed by Csikszentmihalyi (1992), in this study, focused attention, self-consciousness, time distortion, and enjoyment were considered as the dimensions of flow experience, and their measurements were adapted from An et al. (2021), Jeon et al. (2018), and Jackson and Marsh (1996).

Mobile technology usage was measured by four items adopted by Agnihotri et al. (2009). Finally, for the consequences of flow experience, overall satisfaction was measured by the scales of Lee et al. (2007) and destination loyalty with scales proposed by Wu (2016).

Table 3. 1
Proposed Measurement Items

Constructs	Items	References
Skills	- In general, I was highly skilled at traveling. - I could easily handle the trip. - I was good at doing travel activities (booking hotels, flights, finding tourist attractions, etc.). - I knew more than most people about traveling.	(Wu & Liang, 2011)

Challenges	- Managing the trip challenged me. - Handling the travel was a way to challenge my travel capabilities. - Managing travel activities was a good test of my skills. - The travel activities provided numerous challenges for me to overcome.	(Wu & Liang, 2011)
Tourist-to-Tourist Interaction	- I developed friendships with other tourists I met at the destination. - I enjoyed spending time with other tourists at the destination. - The other tourists in the destination made my time more enjoyable.	(Moore et al., 2005)
Openness to Experience	- I am curious about many different things. - I prefer doing things that are routine. (R) - I like to reflect and play with ideas. - I am ingenious and a deep thinker.	(Soto & John, 2009)
Self-Efficacy	- I have confidence in my ability to do travel activities. - I do not doubt my ability to manage travel activities. - I have all the skills needed to travel very well. - I am proud of my travel skills and abilities.	(Riggs et al., 1994)
Destination Authenticity	- During the visit, I felt the related history, legends, and historical personalities of the destination. - I enjoyed the unique religious and spiritual experiences at the destination. - I felt connected with the human history and civilization of the destination. - This visit provided a thorough insight into the destination.	(Tomaz Kolar & Zabkar, 2010)
Destination Self-Congruence	- Take the destination into consideration. Use one or more personal adjectives (like classy, old, athletic, etc.) to describe that destination and answer the following statement: - This destination personality was consistent with how I see myself. - This destination personality was consistent with how I like to see myself. - This destination personality was consistent with how I believe others see me. - This destination personality was consistent with how I would like others to see me.	(Sirgy et al., 1997)
Tourist Flow Experience	**Focused attention:** - I became absorbed in my trip. - I fully concentrated on the travel activities.	(An et al., 2021), (Jeon et al., 2018)

	- My attention was focused on the travel activities. **Loss of self-consciousness:** - I was not concerned with how I was presenting myself in front of other visitors. - I was not worried about what others may have been thinking of me during the travel. - I was not worried about my performance during the travel. **Time distortion:** - During my trip, time seemed to go by very quickly. - During my trip, the time seemed to pass quickly. - During my trip, I lost track of time. **Enjoyment:** - I enjoyed my trip. - I find my visit exciting. - My trip was not boring.	and (Jackson & Marsh, 1996)
Mobile Technology Usage (travel-related usage)	- I used mobile technology for travel purposes (like booking flights and hotels, check-in and check-out, and GPS) to support my trip. - I used all capabilities of mobile technology for travel purposes (like booking flights and hotels, check-in and check-out, and GPS) in the best fashion to help me on the trip. - Using mobile technology for travel purposes (like booking flights and hotels, check-in and check-out, and GPS) was the best way to support my trip. - During the trip, my use of mobile technology for travel purposes (like booking flights and hotels, check-in and check-out, and GPS) had been integrated and incorporated at the highest potential.	(Agnihotri et al., 2009)
Mobile Technology Usage (personal usage)	- I used mobile technology for personal purposes (like checking texts, emails, phones, and messages) to support my trip. - I used all capabilities of mobile technology for personal purposes (like checking texts, emails, phones, and messages) in the best fashion to help me on the trip. - Using mobile technology for personal purposes (like checking texts, emails, phones, and messages) was the best way to support my trip. - During the trip, my use of mobile technology for personal purposes (like checking texts, emails,	

	phones, and messages) had been integrated and incorporated at the highest potential.	
Satisfaction	- Overall, I am satisfied with my travel experience. - Compared with my expectations, I am satisfied with my travel experience. - Considering my invested time and effort, I am satisfied with my travel experience.	(Lee et al., 2007)
Destination Loyalty	- I would recommend others to visit this destination. - I will visit this destination in the future. - This destination is my first choice among other destinations. - I will say positive things about this destination.	(Wu, 2016)

In the current study, several control variables were included to account for potential confounding effects and verify the robustness of the research model. Demographic variables, such as age, gender, education, and marital status, were statistically controlled for. Previous studies have indicated the influence of personal and sociodemographic characteristics on travel motivation, decision-making, and experience (i.e., Da Costa Mendes et al., 2010; Kastenholz et al., 2016; Ramesh & Jaunky, 2020). Additionally, the influence of travel type (domestic or international trip) and purpose of the trip (leisure, business, or bleisure) have been established in the literature (i.e., Cail et al., 2001; Lichy & McLeay, 2018; Rajaguru & Hassanli, 2018; Unger et al., 2016). Therefore, in order to control these effects on the model, they were included as exogenous variables in the SEM analysis.

3.6. Pilot Study

A pilot study was conducted before the main data collection. For a pilot study, an online questionnaire was designed in Qualtrics and distributed through Prolific. Since the largest latent variable of the study had 12 observed variables, a sample size of 120 was needed to get a reliable result from CFA. This enables accurate measurement of the relationships between

observed variables and the latent variable, as well as assessment of the measurement model's adequacy.

Conducting a mini-study before the actual research is recommended by many scholars, especially when the measurement items are adopted from other studies (i.e., Hair et al., 2009). A pilot study brings some significant benefits:

1. A pilot study can verify the validity and reliability of the measuring instrument, and if there is any problem, it can be solved before the main data collection.
2. A pilot study helps to calculate the average response time.
3. It helps us solve any potential problems regarding the clarity of the survey questions.

For the pilot study, 120 complete questionnaires were collected. Among them, 113 of them were usable for the analysis. CFA was conducted using the Maximum Likelihood (ML) method with a sample size of 113. The following table demonstrates the factor loadings of the measurement model.

Table 3. 2
The Results of the Measurement Model

Constructs	**Items**	**Item Loadings**	**Significance (p)**
Skill	- In general, I was highly skilled at traveling.	.666	***
	- I could easily handle the trip.	.700	***
	- I was good at doing travel activities (booking hotels, flights, finding tourist attractions, etc.).	.770	***
	- I knew more than most people about traveling.	.560	***
Challenge	- Managing the trip challenged me.	.835	***
	- Handling the travel was a way to challenge my travel capabilities.	.863	***
	- Managing travel activities was a good test of my skills.	.730	***
	- The travel activities provided numerous challenges for me to overcome.	.782	***

T2T Interaction	- I developed friendships with other tourists I met at the destination.	.684	***
	- I enjoyed spending time with other tourists at the destination.	.872	***
	- The other tourists in the destination made my time more enjoyable.	.934	***
Destination Authenticity	- During the visit, I felt the related history, legends, and historical personalities of the destination.	.750	***
	- I enjoyed the unique religious and spiritual experiences at the destination.	.473	***
	- I felt connected with the human history and civilization of the destination.	.811	***
	- This visit provided a thorough insight into the destination.	.761	***
Self-Congruence	- This destination personality was consistent with how I see myself.	.947	***
	- This destination personality was consistent with how I like to see myself.	.945	***
	- This destination personality was consistent with how I believe others see me.	.858	***
	- This destination personality was consistent with how I would like others to see me.	.922	***
Destination Loyalty	- I would recommend others to visit this destination.	.872	***
	- I will visit this destination in the future.	.610	***
	- This destination is my first choice among other destinations.	.554	***
	- I will say positive things about this destination.	.861	***
Flow-Focused Attention	- I became absorbed in my trip.	.728	***
	- I fully concentrated on the travel activities.	.961	***
	- My attention was focused on the travel activities.	.844	***
Flow- Loss of Self-Consciousness:	- I was not concerned with how I was presenting myself in front of other visitors.	.853	***
	- I was not worried about what others may have been thinking of me during the travel.	.940	***
	- I was not worried about my performance during the travel.	.817	***
Flow- Time Distortion	- During my trip, time seemed to go by very quickly.	.938	***
	- During my trip, the time seemed to pass quickly.	1.0003	***
	- During my trip, I lost track of time.	.536	***
Enjoyment	- I enjoyed my trip.	.826	***
	- I found my visit exciting.	.887	***

	- My trip was not boring.	.873	***
Mobile Technology Usage (Travel-related Usage)	- I used mobile technology for travel purposes (like booking flights and hotels, check-in and check-out, and GPS) to support my trip.	.754	***
	- I used all capabilities of mobile technology for travel purposes (like booking flights and hotels, check-in and check-out, and GPS) in the best fashion to help me on the trip.	.883	***
	- Using mobile technology for travel purposes (like booking flights and hotels, check-in and check-out, and GPS) was the best way to support my trip.	.877	***
	- During the trip, my use of mobile technology for travel purposes (like booking flights and hotels, check-in and check-out, and GPS) had been integrated and incorporated at the highest potential.	.804	***
Mobile Technology Usage (Personal Usage)	- I used mobile technology for personal purposes (like checking texts, emails, phones, and messages) to support my trip.	.711	***
	- I used all capabilities of mobile technology for personal purposes (like checking texts, emails, phones, and messages) in the best fashion to help me on the trip.	.786	***
	- Using mobile technology for personal purposes (like checking texts, emails, phones, and messages) was the best way to support my trip.	.904	***
	- During the trip, my use of mobile technology for personal purposes (like checking texts, emails, phones, and messages) had been integrated and incorporated at the highest potential.	.870	***
Satisfaction	- Overall, I am satisfied with my travel experience.	.725	***
	- Compared with my expectations, I am satisfied with my travel experience.	.899	***
	- Considering my invested time and effort, I am satisfied with my travel experience.	.962	***
Openness to Experience:	- I am curious about many different things.	.505	***
	- I prefer doing things that are routine (Reverse).	.265	***
	- I like to reflect and play with ideas.	.625	***
	- I am ingenious and a deep thinker.	.718	***
Self-Efficacy	- I have confidence in my ability to do travel activities.	.843	***
	- I do not doubt my ability to manage travel activities.	.911	***

	- I have all the skills needed to travel very well.	.920	***
	- I am proud of my travel skills and abilities.	.862	***

***** p<0.001**

The results of the measurement model in Table 3.2 demonstrated that except for two items (the second item of Destination Authenticity and the second item of Openness to Experience), all the loading factors were statistically significant ($p < 0.01$) and above the threshold of 0.5 suggested by (J. Hair et al., 2010). As a result, two items were removed from the final questionnaire.

3.7. Data Screening

In order to screen and clean data, several procedures were employed. Before collecting data for the main study, a separate screening survey consisting of three screening questions was distributed among 1218 participants. The goal of the screening was to identify eligible participants who were over 18 years old, had a trip within the last three months, and used their mobile phones while traveling. The screening questions were:

1. Are you over 18 years old?
2. Did you travel in the last three months?
3. Did you use your mobile phone on that travel?

Of 1218 participants in the screening study, 920 were qualified to participate in the main study. After distributing the main survey to them, a total of 739 responses were collected. Among 739 collected data, those responses that failed to pass the two attention check questions were removed. The two attention-check questions were:

1. To show us that you are reading this, please select ‘strongly disagree’ here.

2. We would like to know a few details about you as a participant. In particular, we want to know if you are a participant who is reading the study questions thoroughly. Otherwise, the results of the study may be impaired. Thus, in order to demonstrate that you are a participant who reads carefully and thoroughly the study instructions and questions, you need to check below the "other" option and enter the number nine (number only) in the text box of this option.

   - ☐ Online Resources (such as weblogs)
   - ☐ Word of Mouth (Family and Friends)
   - ☐ Travel Guides
   - ☐ Visiting Cultural Places
   - ☐ Local Resources
   - ☐ Other ☐

The analysis showed that 24 participants failed both attention check questions, so they were eliminated from the database. In another stage, missing data were identified. Based on Hair et al.'s (2010) suggestion, subjects with more than 10% missing data were removed from the database. Missing values for those subjects with less than 10% missing data were replaced with the values obtained by the Expectation Maximization algorithm. To replace the remaining missing data, the Little's Missing Completely at Random (MCAR) test was conducted to ensure that the values were missing randomly. Values were calculated by IBM-SPSS 28.0.0.0.

For analyzing the data, both univariate and multivariate outliers should be identified and removed from the data set (Hair et al., 1998). For identifying univariate outliers, z-scores for all the variables were calculated, and based on Tabachnick and Fidell's (2007) suggestion, those variables with a z-score above 3.29 were considered outliers. Mahalanobis

distance (D) test was used to check the multivariate outliers (Tabachnick & Fidell, 2007). As suggested by Kline (2011), a statistical significance of less than 0.001 ($p<0.001$) for the D2 test was considered an outlier and was deleted. After all these screening procedures, a total of 669 cases were retained.

To test the assumption of SEM analysis, univariate normality, multivariate normality, and multicollinearity were investigated. Skewness and Kurtosis were checked to find whether the data followed a normal distribution. The results shown in Table 3.3 suggested that based on Kline's (2011) suggestion, there was no severe deviation from normality because all absolute values of the skewnesses were below three, and all Kurtosis was less than 6. The absolute skewness value ranged from 0.118 to 1.88, and the absolute Kurtosis value ranged from 0.038 to 5.752, indicating that none of the constructs had normality issues.

Table 3. 3
Descriptive Statistics- Skewness and Kurtosis

Constructs	**Skewness**		**Kurtosis**	
	Statistic	Std. Error	Statistic	Std. Error
Loyalty	-1.490	.094	3.209	.189
Satisfaction	-1.884	.094	5.752	.189
Enjoyment	-1.753	.094	4.406	.189
Time Distortion	-1.203	.094	1.238	.189
Self Consciousness	-.422	.094	-.777	.189
Focused Attention	-1.264	.094	2.008	.189
Mobile Usage-Travel	-1.258	.094	2.181	.189
Mobile Usage-Personal	-1.471	.094	3.348	.189
Destination Self Congruence	-.752	.094	.038	.189
Destination Authenticity	-.507	.094	-.444	.189
Self Efficacy	-1.149	.094	1.494	.189
Openness to Experience	-1.200	.094	2.236	.189
T2T Interaction	-.118	.094	-.932	.189
Challenge	-.128	.094	-.515	.189
Skill	-1.059	.094	1.707	.189

To check the multicollinearity issues, as one of the assumptions of multivariate analysis, the variance inflation factor (VIF) and tolerance value were examined. Hair et al. (1998) suggested that tolerance values greater than 0.10 or Variance Inflation Factor (VIF) less than 10 can ensure there is no multicollinearity issue in the dataset. A multiple regression analysis was used to calculate value tolerance and VIFs. As shown in Table 3.4, all the tolerance values were greater than 0.10, and all the VIF values were less than 10, indicating no multicollinearity issue.

Table 3. 4
Coefficients- Tolerance Value and Variance Inflation Factor (VIF) Values

Constructs	**Collinearity Statistics**	
	Tolerance	**VIF**
Loyalty	.253	3.951
Satisfaction	.202	4.960
Enjoyment	.685	1.461
Time Distortion	.888	1.127
Self Consciousness	.557	1.797
Focused Attention	.550	1.817
Mobile Usage-Travel	.573	1.747
Mobile Usage-Personal	.538	1.858
Destination Self Congruence	.670	1.492
Destination Authenticity	.299	3.348
Self Efficacy	.671	1.490
Openness to Experience	.778	1.285
T2T Interaction	.657	1.523
Challenge	.279	3.581
Skill	.253	3.951

In addition, the results showed that the Kaiser-Meyer-Olkin (KMO), which is a measure to test the adequacy of the sample, was 0.878, which is above the threshold of 0.5 suggested by Hair et al. (2010). Furthermore, Bartlett's test of Sphericity was conducted, and the results showed a significant value of χ^2 (df=1378) = 21641.051, and the p-value was

0.000< 0.001. Table 3.5 shows the complete results. Based on these results, the sample size was considered adequate to perform factor analysis.

Table 3. 5
Kaiser-Meyer-Olkin Measures and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.878
Bartlett's Test of Sphericity	Approx.Chi-Square	21641.051
	df	1378
	Sig.	0.000

3.8. Data Analysis

In order to get the result for the research objectives, descriptive analysis, Confirmatory factor analysis (CFA), and Structural Equation Modeling (SEM) was employed. CFA was calculated to evaluate the fit between observed and latent variables and, consequently, verify all the measurements' validity. Cronbach's alpha and Composite Reliability were calculated to determine the reliability of the items. The accepted cutoff point for Cronbach's alpha of the items is 0.70 or above (Cortina, 1993). Several steps were taken to check the validity of the scale items. First, an in-depth literature review was conducted, and validated scales for each variable were selected from peer-review papers. Then, the instrument was checked by two faculty members in the tourism and hospitality field in terms of relevance, readability, or any other possible issues. Finally, a pilot study was conducted using the finalized scale items, and based on the feedback, the final revisions were applied.

After checking SEM assumptions, the model fit was assessed with different goodness of fit tests, including, Chi-Square (χ^2), Comparative Fit Index (CFI), Normal Fit Index (NFI),

Standardized Root Mean Square (SRMS), and Root Mean Square of Approximation (RMSEA). Table 3.6 demonstrates the cut-off points suggested by Hair et al. (2009) and Kline (2011) for fit indices that were used to evaluate the model fit.

Table 3.6
Goodness-of-fit indices and acceptable range

Fit indices	**Acceptable Range**
Chi-square (χ^2)	$p > 0.05$
Comparative Fit Index (CFI)	≥ 0.90
Normal Fit Index (NFI)	≥ 0.90
Standardized Root Mean Square (SRMS)	< 0.08
Root Mean Square of Approximation (RMSEA)	< 0.05

In order to test the moderating effects, a hierarchical multiple regression analysis was performed using several steps. First, z-scores were calculated for all the independent, dependent, and moderation variables. Second, the z-scores of the independent, dependent, and moderator variables were entered into the model. Third, the interaction term, which is the product of the independent and moderator variables, was calculated and added to the model. Finally, the effect of the interaction term and the dependent variable was examined.

CHAPTER IV

RESULTS

4.1. Chapter Overview

This chapter presents the results of the analysis and hypotheses testing. First, the participants' demographic profiles are analyzed and summarized. Subsequently, the prerequisites for performing the Confirmatory Factor Analysis (CFA) are reported, and the measurement model is evaluated by conducting a CFA. Finally, the results of the Structural Equation Model (SEM) and the moderating effects are reported, with path analysis used to test the developed hypotheses.

4.2. Demographic Profile of Participants

The participants' demographic profile is shown in Table 4.1. The gender of participants was distributed almost equally between males and females, with 49.3% and 48.4%, respectively. The majority of participants were aged between 25 to 34 years old and 35 to 44 years old, with a percentage of 38% and 25.6%, respectively. Regarding marital status, 39.8% of the respondents were married, 52.2% were not married, and 4.6% were divorced. The majority of participants had bachelor's degrees (42.8%). Respondents also replied to some questions about their travels within three months. 83% traveled for the purpose of leisure, 6.9% had a business trip, and 10.2% traveled for both

business and leisure (bleisure). In addition, while 85.8% had domestic travel, 14.2% traveled overseas.

Table 4. 1
Respondents' Profile (N=669)

Category	Frequency	Percentage (%)
Gender		
Male	330	49.3 %
Female	324	48.4 %
Non-binary/third gender	12	1.8 %
Prefer not to say	3	0.4 %
Age		
18-24 years old	116	17.3 %
25-34 years old	254	38.0 %
35-44 years old	171	25.6 %
45-54 years old	70	10.5 %
55-64 years old	41	6.1 %
65 years old or older	17	2.5 %
Marital Status		
Married	266	39.8 %
Not married	349	52.2 %
Divorced	31	4.6 %
Separated	9	1.3 %
Widowed	9	1.3 %
Prefer not to say	5	0.7 %
Education		
No formal education	1	0.1 %
High school	55	8.2 %
Some college	132	19.7 %
Vocational training	26	3.9 %
Bachelor's degree	286	42.8 %
Master's degree	122	18.2 %
Doctoral degree	47	7.0 %
Purpose of Travel		
Business	46	6.9 %
Leisure	555	83.0 %
Combination of business and leisure (Bleisure)	68	10.2 %
Type of Travel		
Domestic	574	85.8 %
International (Overseas)	95	14.2 %

4.3. Reliability

The reliability of the scales was evaluated by calculating Cronbach's alpha, which measures the internal consistency or the response consistency across the items within a measure. Table 4.2 indicates Cronbach's alpha coefficients of the constructs. All values of Cronbach's alpha ranged from 0.723 and 0.942, which is above the suggested cut-off point of 0.7 (Kline, 2011), showing that the scales used to measure the constructs are reliable.

Table 4.2
Reliability Test- Cronbach's Alpha

Construct	Number of items	Cronbach's alpha
Loyalty	4	0.796
Satisfaction	3	0.932
Enjoyment	3	0.876
Time Distortion	3	0.813
Self-Consciousness	3	0.869
Focused Attention	3	0.861
Mobile Usage-Travel	4	0.879
Mobile Usage-Personal	4	0.889
Destination Self Congruence	4	0.942
Destination Authenticity	4	0.828
Self-Efficacy	4	0.912
Openness to Experience	3	0.723
T2T Interaction	3	0.899
Challenge	4	0.826
Skill	4	0.824

4.4. Measurement Model

A confirmatory factor analysis (CFA) was conducted to assess the overall measurement model validity. Analyzing the measurement model helps to evaluate the link between the items and the underlying constructs they tend to measure. In other words, it provides information on whether the observed variables reflect the existing latent constructs. Since flow experience is a second-order construct, two separate analyses were done

(Rindskopf & Rose, 1988). In the first analysis, first-order constructs, including skill, challenge, tourist-to-tourist interaction, destination authenticity, destination self-congruence, openness to experience, self-efficacy, satisfaction, and loyalty, were assessed. In the second analysis, flow experience as a second-order construct was validated.

4.4.1. First-Order CFA

A total of 41 items were loaded on 11 factors, including skill (4 items), challenge (4 items), tourist-to-tourist interaction (3 items), openness to experience (3 items), self-efficacy (4 items), destination authenticity (4 items), destination self-congruence (4 items), mobile usage for travel (4 items), mobile usage for personal (4 items), satisfaction (3 items), and loyalty (4 items). Based on the suggestion by Bryne (2010), the overall model fit and path estimates were assessed using the Maximum Likelihood Method. Following Kline's (2011) suggestion, several fitness indices were calculated to evaluate the overall model fit. Based on the results, the model fit for the measurement model was acceptable (CMIN=1934.638; df = 719; CMIN/df= 2.691; Comparative Fit Index (CFI) = 0.933; Root Mean Square Error of Approximation (RMSEA) = 0.050). Other fit indices include Incremental Fit Index (IFI) = 0.934, Tucker-Lewis index (TLI) = 0.924, Normed Fit Index (NFI) = 0.899, and Standardized Root Mean Square Residual (SRMR) = 0.0562. The standardized factor loadings were also calculated. As shown in Table 4.3, all the factor loads were above the cut-off point of 0.5 suggested by Hair et al. (2010).

Table 4.3
Result of CFA for the Measurement Model for the First-Order Constructs

Constructs	Items	Item loading	p
Skill	Skill 1	0.778	***
	Skill 2	0.809	***
	Skill 3	0.747	***

	Skill 4	0.708	***
Challenge	Challenge 1	0.784	***
	Challenge 2	0.790	***
	Challenge 3	0.767	***
	Challenge 4	0.710	***
T2T Interaction	T2T Interaction 1	0.771	***
	T2T Interaction 2	0.928	***
	T2T Interaction 3	0.906	***
Openness to Experience	Openness to Experience 1	0.717	***
	Openness to Experience 2	0.837	***
	Openness to Experience 3	0.584	***
Self-Efficacy	Self-Efficacy 1	0.886	***
	Self-Efficacy 2	0.878	***
	Self-Efficacy 3	0.877	***
	Self-Efficacy 4	0.777	***
Destination Authenticity	Destination Authenticity 1	0.785	***
	Destination Authenticity 2	0.627	***
	Destination Authenticity 3	0.896	***
	Destination Authenticity 4	0.695	***
Destination Self Congruence	Destination Self Congruence 1	0.909	***
	Destination Self Congruence 2	0.932	***
	Destination Self Congruence 3	0.848	***
	Destination Self Congruence 4	0.892	***
Mobile Usage-Personal	Mobile Usage-Personal 1	0.804	***
	Mobile Usage-Personal 2	0.789	***
	Mobile Usage-Personal 3	0.838	***
	Mobile Usage-Personal 4	0.905	***
Mobile Usage-Travel	Mobile Usage-Travel 1	0.726	***
	Mobile Usage-Travel 2	0.830	***
	Mobile Usage-Travel 3	0.847	***
	Mobile Usage-Travel 4	0.866	***
Satisfaction	Satisfaction 1	0.880	***
	Satisfaction 2	0.898	***
	Satisfaction 3	0.947	***
Loyalty	Loyalty 1	0.825	***
	Loyalty 2	0.626	***
	Loyalty 3	0.534	***
	Loyalty 4	0.913	***

***** p < 0.001**

4.4.2. Second-Order CFA

Since the tourist flow experience is a second-order construct, a second-order CFA was conducted to validate its four dimensions, including focused attention (3 items), self-consciousness (3 items), time distortion (3 items), and enjoyment (3 items). The results indicated that the measurement model is satisfactory (CMIN=193.515; df = 50; CMIN/df= 3.870; Comparative Fit Index (CFI) = 0.973; Root Mean Square Error of Approximation (RMSEA) = 0.066). Other fit indices include Incremental Fit Index (IFI) = 0.973, Tucker-Lewis index (TLI) = 0.965, Normed Fit Index (NFI) = 0.964, and Standardized Root Mean Square Residual (SRMR) = 0.0561.

Furthermore, the standardized factor loadings were calculated. As shown in Table 4.4, all the factor loadings, except one item (Time distortion 3, *During my trip, I lost track of time*), were above the cut-off point of 0.5 suggested by Hair et al. (2010). However, Stevens (2012) suggested that for the larger sample size (>300), the absolute value of factor loading greater than 0.4 (explains 16% of the variance) is taken to be important, so item Time distortion 3 still can be considered in the measurement model.

Table 4.4
Result of CFA for the Measurement Model for the Second-Order Construct

Second-order construct	Dimensions	Dimension loading	Items	Item loading	p
Flow Experience	Focused Attention	0.603	Focused Attention 1	0.653	***
			Focused Attention 2	0.940	***
			Focused Attention 3	0.904	***
	Self-Consciousness	0.188	Self-Consciousness 1	0.810	***
			Self-Consciousness 2	0.908	***
			Self-Consciousness 3	0.775	***
	Time Distortion	0.511	Time Distortion 1	0.959	***
			Time Distortion 2	0.978	***

		Time Distortion 3	0.485	***
Enjoyment	0.993	Enjoyment 1	0.927	***
		Enjoyment 2	0.819	***
		Enjoyment 3	0.720	***

***** p < 0.001**

4.5. Reliability and Validity

After evaluating the measurement model, the validity and reliability of the constructs were tested. Average Variance Extracted (AVE) was used to evaluate the discriminant validity. The discriminant validity aims to examine whether measured variables have more similarity with other measurements of the same construct than with the measurements of other constructs. Each construct's AVE value should therefore be greater than the square correlation associated with the construct (Hair et al., 2010). As explained in Table 4.5, most of the constructs showed an acceptable discrimination validity, except for the pair of Loyalty and Enjoyment (AVE= 0.547< 0.754).

In order to solve the discriminant validity problem, exploratory factor analysis was done, and it was found that item 'loyalty 3' had the most common relationship with the 'enjoyment' construct. Thus, after removing the measurement 'loyalty 3', discriminate validity was checked again, and the results showed acceptable discriminant validity (Table 4.6).

Table 4.5
Discriminant Validity

Construct	AVE	MSV	Max R(H)	Skl	Chl	T2T	Opp	Slf-E	D-Auth	D-Cgr	M-P	M-T	F-FA	F-SC	F-TD	F-E	S	L
Skills	0.580	0.567	0.851	0.761														
Challenge	0.583	0.101	0.851	-0.318	0.764													
T2T Interaction	0.759	0.145	0.926	0.093	0.201	0.871												
Openness to Experience	0.519	0.151	0.799	0.323	0.038	0.125	0.721											
Self-Efficacy	0.732	0.567	0.922	0.753	-0.246	0.107	0.389	0.855										
Destination Authenticity	0.574	0.145	0.879	0.157	0.256	0.381	0.259	0.142	0.757									
Destination Self-congruence	0.802	0.352	0.947	0.315	0.118	0.211	0.194	0.309	0.304	0.896								
Mobile Usage-Personal	0.697	0.326	0.911	0.276	0.004	0.107	0.274	0.339	0.136	0.164	0.835							
Mobile Usage-Travel	0.671	0.326	0.899	0.302	0.070	0.088	0.248	0.292	0.175	0.204	0.571	0.819						
Focused Attention	0.709	0.313	0.928	0.287	0.157	0.221	0.322	0.286	0.272	0.389	0.154	0.265	0.842					
Self-Consciousness	0.694	0.039	0.890	0.197	-0.145	-0.089	0.054	0.163	0.037	0.091	0.011	0.072	0.103	0.833				
Time-Distortion	0.704	0.236	0.972	0.188	0.081	0.077	0.214	0.200	0.157	0.196	0.198	0.231	0.292	0.046	0.839			
Enjoyment	0.683	0.625	0.902	0.382	0.017	0.182	0.327	0.314	0.305	0.471	0.197	0.334	0.559	0.173	0.485	0.826		
Satisfaction	0.826	0.625	0.939	0.430	-0.077	0.108	0.350	0.379	0.259	0.373	0.308	0.415	0.465	0.158	0.437	0.790	0.909	
Loyalty	0.547	0.569	0.894	0.364	-0.008	0.169	0.216	0.285	0.295	0.593	0.162	0.247	0.411	0.090	0.292	0.754	0.590	**0.740**

AVE = Average Variance Extracted; MSV = Maximum Shared Squared Variance; Skl = Skills; Chl = Challenges; T2T = t-2-t Interaction; Opp = Openness to Experience; Slf-E = Self Efficacy; D-Auth = Destination Authenticity; D-Cgr = Destination Self-Congruence; M-P = Mobile Usage for Personal Purposes; M-T = Mobile Usage for Travel-Related Purposes; F-FA = Flow-Focused Attention; F-SC = Flow-Self-consciousness; F-TD = Flow-Time Distortion; F-E = Flow-Enjoyment; S = Satisfaction; L = Loyalty.

Table 4.6
Discriminant Validity After Removing Item 'Loyalty 3'

Construct	CR	AVE	MSV	Max R(H)	Skl	Chl	T2T	Opp	Slf-E	D-Auth	D-Cgr	M-P	M-T	F-FA	F-SC	F-TD	F-E	S	L
Skills	0.846	0.580	0.567	0.851	0.761														
Challenge	0.848	0.583	0.101	0.851	-0.318	0.763													
T2T	0.904	0.759	0.145	0.926	0.093	0.201	0.871												
Openness to experience	0.760	0.519	0.151	0.799	0.323	0.038	0.125	0.721											
Self-efficacy	0.916	0.732	0.567	0.922	0.753	-0.246	0.107	0.389	0.855										
Destination authenticity	0.841	0.574	0.145	0.879	0.157	0.256	0.381	0.259	0.142	0.757									
Destination self congruence	0.942	0.802	0.335	0.947	0.315	0.118	0.211	0.194	0.309	0.304	0.896								
Mobile usage personal	0.902	0.697	0.326	0.911	0.276	0.004	0.107	0.274	0.339	0.136	0.164	0.835							
Mobile usage travel	0.890	0.671	0.326	0.899	0.302	0.070	0.088	0.248	0.292	0.175	0.204	0.571	0.819						
Focused attention	0.877	0.709	0.313	0.928	0.287	0.157	0.221	0.322	0.286	0.272	0.389	0.154	0.265	0.842					
Self-consciousness	0.871	0.694	0.039	0.890	0.197	-0.145	-0.089	0.054	0.163	0.037	0.091	0.011	0.072	0.103	0.833				
Time_Distortion	0.869	0.704	0.236	0.972	0.188	0.081	0.077	0.214	0.200	0.157	0.196	0.198	0.231	0.292	0.046	0.839			
Enjoyment	0.865	0.683	0.624	0.903	0.382	0.017	0.182	0.327	0.314	0.305	0.470	0.197	0.334	0.559	0.173	0.485	0.826		
Satisfaction	0.934	0.826	0.624	0.939	0.430	-0.078	0.108	0.350	0.379	0.259	0.373	0.308	0.415	0.465	0.158	0.437	0.790	0.909	
Loyalty	0.838	0.638	0.569	0.890	0.368	-0.014	0.163	0.216	0.286	0.289	0.579	0.161	0.251	0.408	0.090	0.292	0.755	0.591	0.799

AVE = Average Variance Extracted; MSV = Maximum Shared Squared Variance; Skl = Skills; Chl = Challenges; T2T = t-2-t Interaction; Opp = Openness to Experience; Slf-E = Self Efficacy; D-Auth = Destination Authenticity; D-Cgr = Destination Self-Congruence; M-P = Mobile Usage for Personal Purposes; M-T = Mobile Usage for Travel-Related Purposes; F-FA = Flow-Focused Attention; F-SC = Flow-Self-consciousness; F-TD = Flow-Time Distortion; F-E = Flow-Enjoyment; S = Satisfaction; L = Loyalty.

After removing the item 'loyalty 3', the model fit was improved (CMIN=1740.012; df = 681; CMIN/df= 2.555; Comparative Fit Index (CFI) = 0.941; Root Mean Square Error of Approximation (RMSEA) = 0.048). Other fit indices include Incremental Fit Index (IFI) = 0.941, Tucker-Lewis index (TLI) = 0.932, Normed Fit Index (NFI) = 0.906, and Standardized Root Mean Square Residual (SRMR) = 0.0548.

Average Variance Extracted (AVE) scores were calculated to test the convergent validity. Convergent validity shows whether two measures of the same construct are correlated and the extent to which the items measuring a construct have internal consistency with each other (Bagozzi & Yi, 1988; Hair et al., 2009). The AVEs were calculated by dividing the sum of all the squared standardized factor loadings by the total number of items. Based on the results shown in Table 4.6, all the AVE scores ranged from 0.519 to 0.826, which is higher than the cut-off point of 0.5 suggested by Hair et al. (2009). Thus, the results support the convergent validity of the constructs. Composite Reliability (CR) was examined to evaluate the reliability of the indicators of the factors. CRs were calculated by dividing the sum of square factor loadings by the total sum of squared factor loadings and the sum of the error variances of the factor. As shown in Table 4.7, all the CRs ranged from 0.760 and 0.942, which is greater than the recommended value of 0.7 (Hair et al., 2009).

Table 4.7
Composite Reliability (CR)

Constructs	**CR**
Skills	0.846
Challenge	0.848
T2T	0.904
Openness to experience	0.760
Self-efficacy	0.916
Destination authenticity	0.841

Destination self-congruence	0.942
Mobile usage personal	0.902
Mobile usage travel	0.890
Focused attention	0.877
Self-consciousness	0.871
Time-Distortion	0.869
Enjoyment	0.865
Satisfaction	0.934
Loyalty	0.838

4.6. Structural Model Analysis and Hypotheses Testing

The structural equation model was performed to test the proposed model. The results indicate that the model was supported ($\chi 2$ =588.850; df = 114; $\chi 2$ /df= 5.165; Comparative Fit Index (CFI) = 0.925; Root Mean Square Error of Approximation (RMSEA) = 0.079). Other fit indices include Incremental Fit Index (IFI) = 0.928, Normed Fit Index (NFI) = 0.912, and Standardized Root Mean Square Residual (SRMR) = 0.0334. The structural path estimates, standardized coefficients, and significance level of all the hypotheses are shown in Table 4.8.

Table 4.8
Structural Path Estimates

Hypotheses	**Paths**			**Standardized Estimate**	**S.E.**	**p**	**Hypothesis**
H1	Challenge	---->	Tourist Flow Experience	- 0.060	-1.818	0.091	Not Supported
H2	Skills	---->	Tourist Flow Experience	0.248	0.042	***	**Supported**
H3	T2T Interaction	---->	Tourist Flow Experience	0.048	1.057	0.146	Not Supported
H10	Openness to Experience	---->	Tourist Flow Experience	0.194	5.258	***	**Supported**
H11	Self-Efficacy	---->	Tourist Flow Experience	- 0.148	-2.420	0.005	Not Supported
H12	Destination Authenticity	---->	Tourist Flow Experience	0.097	3.413	0.006	**Supported**

H13	Destination Self-Congruency	---->	Tourist Flow Experience	0.368	11,732	***	**Supported**
H14	Flow Experience	---->	Satisfaction	0.842	0.026	***	**Supported**
H15	Flow Experience	---->	Loyalty	0.814	0.086	***	**Supported**

***** p < 0.001**

H_1, H_2, and H_3 proposed the positive relationships between three tourist-related factors, including perceived challenge, perceived skills, and tourist-to-tourist interaction with the tourist flow experience. As shown in Table 4.8, the results indicated that only perceived skills had a significant effect on the flow experience ($\beta=0.248$, $p<0.05$), and that H_1 was supported. Thus, the tourists with a higher level of travel skills were more likely to experience flow during their travel. However, the effects of perceived challenge ($\beta=-0.060$, $p>0.05$) and tourist-to-tourist interaction ($\beta=0.048$, $p>0.05$) were not significant, and the corresponding hypotheses were not supported.

Regarding tourist personality factors, while results showed a significant positive impact of openness to experience on the tourist flow experience ($\beta=0.194$, $p<0.05$), surprisingly, self-efficacy had a significant negative effect on the tourist flow experience ($\beta=-0.148$, $p<0.05$). Based on these results, tourists with a higher level of openness to experience personality are more likely to have a flow experience in travel. On the other hand, the possibility of experiencing flow in travel is lower for tourists with a high level of self-efficacy. As a result, while the results supported H_{10}, H_{11} was not supported.

The results ascertained the positive influence of both destination-led factors, including destination authenticity and destination self-congruence, on the tourist flow experience. In particular, the results proved the positive effect of destination authenticity

(β=0.097, $p<0.05$) and destination self-congruence (β=0.368, $p<0.05$) on the tourist flow experience, and H_{12} and H_{13} were supported. According to these results, tourists were more likely to experience flow in a destination that was perceived as authentic. Those tourists who found a great match between their personality with destination personality were also more likely to have a flow experience.

As expected, the results verified the influence of tourist flow experience on tourist satisfaction (β=0.842, $p<0.05$) and destination loyalty (β=0.814, $p<0.05$). Thus, a tourist who experiences the flow state is more likely to be satisfied and show loyalty toward the destination, so the results supported H_{14} and H_{15}.

The results of squared multiple correlations are shown in Table 4.9. Those show that tourist-related factors, tourist personality, and destination-led factors explained 46.7% of the tourist flow experience variance. Also, 71% of tourist satisfaction and 66.3% of destination loyalty were explained by the factors in the model.

Table 4.9
Squared Multiple Correlations

	Estimate
Tourist Flow Experience	0.467
Satisfaction	0.710
Loyalty	0.663

Figure 4.1 shows the results of the structural model with standardized path estimates and significance.

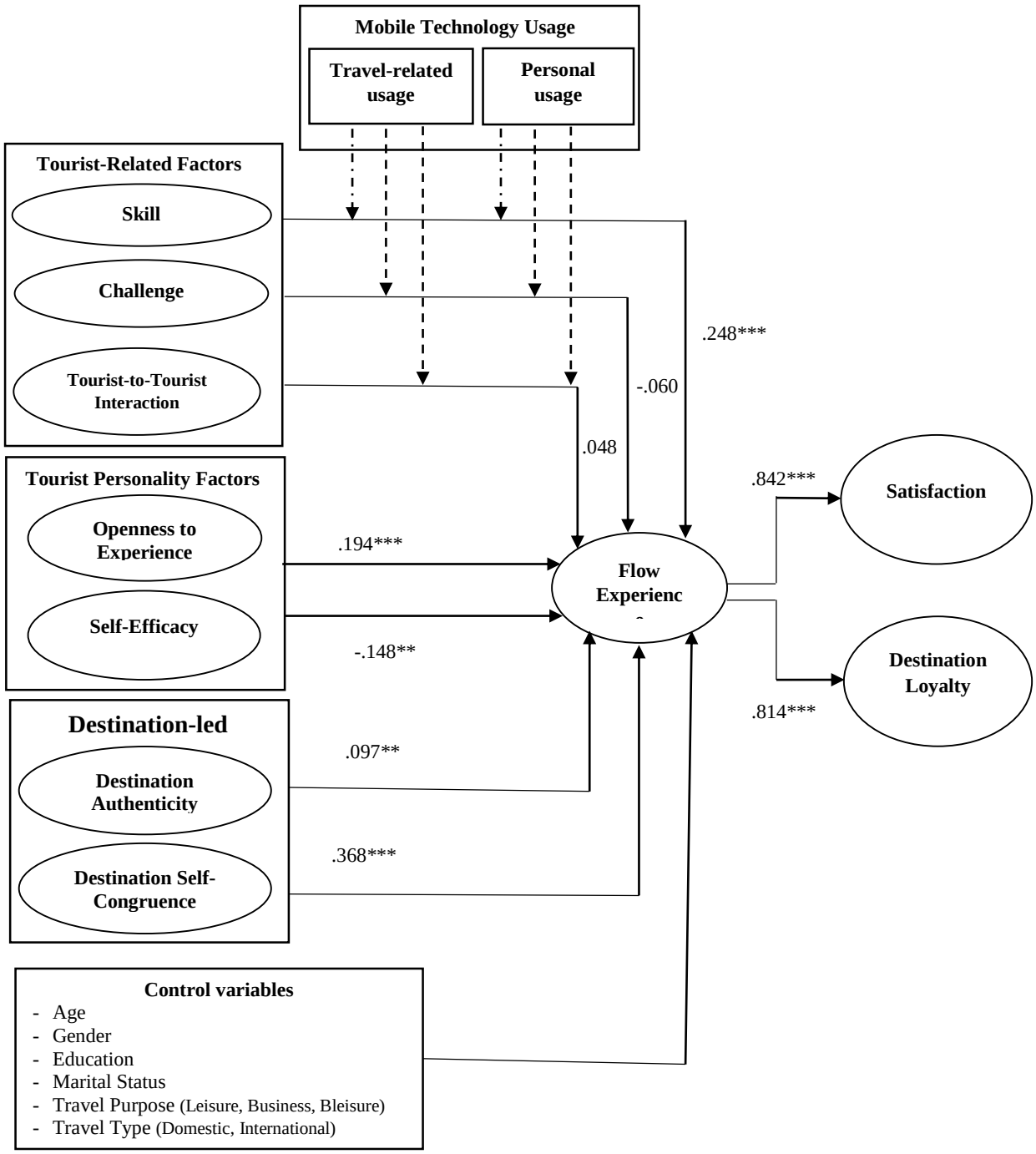

Figure 4.1. Hypothesized Model with Path Estimates

4.7. The Moderating Role of Mobile- Usage for Personal Purposes

H_4, H_6, and H_8 examined the moderating role of mobile usage for personal purposes on the relationships between skills, challenges, and tourist to tourist interaction with the tourist flow experience, respectively. First, the standardized value (z-score) of the independent variables (skills, challenge, and t-2-t interaction) and the moderating variables (mobile usage for personal purposes) were calculated to reduce multicollinearity (Cohen et al., 2013). Then, the interaction values were calculated. The results indicated that mobile usage for personal purposes did not moderate the relationship between skill (β=0.078, $p>0.05$), challenge (β=-0.005, $p>0.05$), and t-2-t interaction (β=0.056, $p>0.05$) with the tourist flow experience. As a result, H_4, H_6, and H_8 were not supported.

4.8. The Moderating Role of Mobile Usage for Travel Purposes

H_5, H_7, and H_9 examined the moderating role of mobile usage for travel purposes on the relationships between skill, challenge, and t-2-t interaction with the tourist flow experience. Again, the independent variables (skill, challenge, and t-2-t interaction) and the moderator variable (mobile usage for travel purposes) were standardized, and then the interaction scores were created. Based on the results, mobile usage for travel purposes moderated the relationship between skills and the tourist flow experience (β=-0.115, $p<0.05$), such that the effect of skills on the tourist flow experience was lower when mobile usage for travel purposes was high. Although the moderating role of mobile usage for travel purposes was statistically significant, it was not in line with the expectation; thus, H_5 was not supported. The simple slope in Figure 4.2 indicates the moderating effect of using mobile technology for travel purposes on the relationships between skill and the tourist flow experience.

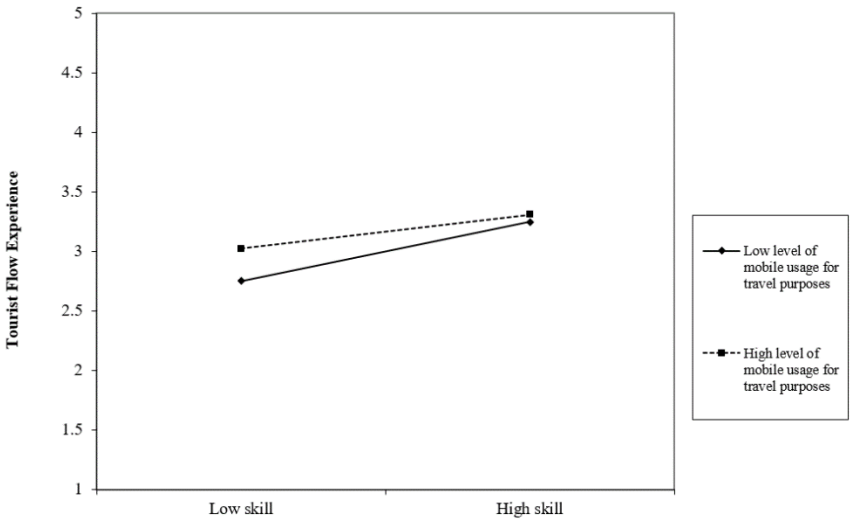

Figure 4.2. Interaction effect of skill and mobile usage for travel purposes on the tourist flow experience

The results also showed that the relationship between challenge and the tourist flow experience was moderated by mobile usage for travel purposes ($\beta=0.085$, $p<0.05$), such that the effect of challenge on the tourist flow experience is higher when mobile usage for travel purposes is high. Despite the existence of a significant moderation effect of using mobile technology for travel purposes, this result was in a different direction from hypothesis $H_{7,}$ and H_7 was not supported. Figure 4.3. shows how the relationship between challenge and the tourist flow experience was moderated by using mobile for travel purposes.

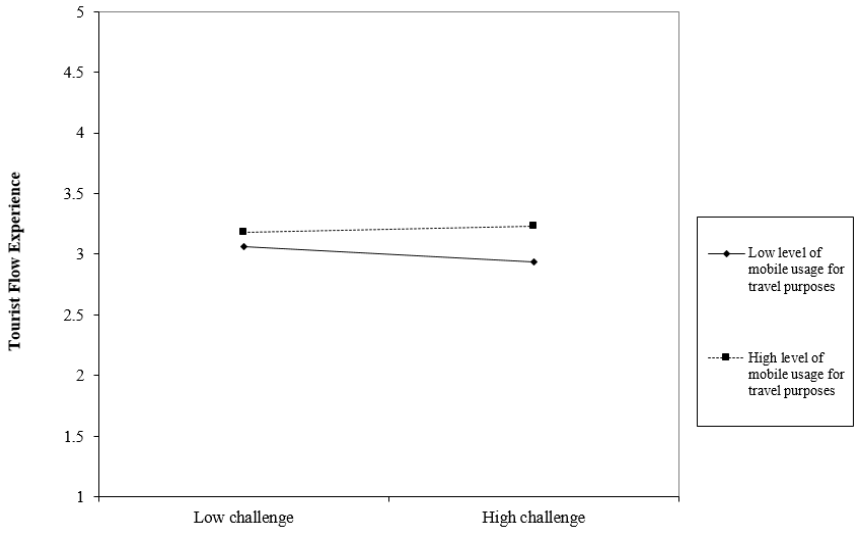

Figure 4.3. Interaction effect of challenge and mobile usage for travel purposes on the tourist flow experience

Finally, in terms of the moderating role of mobile usage for travel purposes on the relationship between t-2-t and the tourist flow experience, the result showed a significant negative impact (β=-0.101, $p<0.05$). This means that a high level of mobile usage for travel purposes weakens the relationship between t-2-t interaction and the tourist flow experience. Although the results demonstrate a moderating effect of mobile usage for travel purposes, since it was opposite to the hypothesized moderation effect, H_7 was not supported. The interaction effect of t-2-t interaction and mobile usage for travel purposes is graphically presented in Figure 4.4.

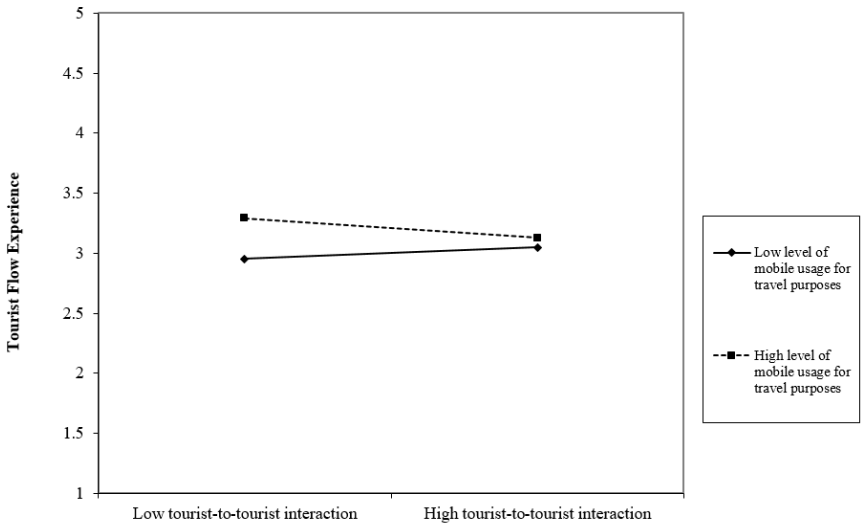

Figure 4.4. Interaction effect of t-2-t interaction and mobile usage for travel purposes on the tourist flow experience

4.9. Summary of Hypotheses Testing Results

Table 4.10
Structural path estimates

Path From		Path to	Standardized Estimate	S.E.	p	Hypothesis
Challenge	---->	Tourist Flow Experience	-0.060	0.024	0.091	Not Supported
Skill	---->	Tourist Flow Experience	0.248	0.044	***	**Supported**
T2T Interaction	---->	Tourist Flow Experience	0.048	0.017	0.291	Not Supported
Openness to Experience	---->	Tourist Flow Experience	0.194	0.040	***	**Supported**
Self-Efficacy	---->	Tourist Flow Experience	-0.148	0.044	0.005	Not Supported
Destomatopm Authenticity	---->	Tourist Flow Experience	0.097	0.028	0.006	**Supported**
Destination Self-Congruence	---->	Tourist Flow Experience	0.368	0.019	***	**Supported**
Mobile Usage-Personal	---->	Tourist Flow Experience	-0.065	0.028	0.095	Not Supported
Mobile Usage-Travel	---->	Tourist Flow Experience	0.210	0.031	***	**Supported**
Moderating Effect of Mobile Usage for Personal Purposes						
Mobile P*Skills	---->	Tourist Flow Experience	0.078	0.030	0.062	Not Supported

Mobile P*Challenge	---->	Tourist Flow Experience	-.005	0.031	0.904	Not Supported
Mobile P*t-2-t	---->	Tourist Flow Experience	0.056	0.028	0.143	Not Supported
Moderating Effect of Mobile Usage for Travel Purposes						
Mobile T*Skills	---->	Tourist Flow Experience	-0.104	0.031	0.013	Not Supported
Mobile T*Challenge	---->	Tourist Flow Experience	0.085	0.032	0.042	Not Supported
Mobile T*t2t	---->	Tourist Flow Experience	-0.129	0.030	***	Not Supported

***** p < 0.001**

CHAPTER V

DISCUSSION AND IMPLICATIONS

5.1. Chapter Overview

This chapter provides the conclusion of the study. First, a summary of the main findings is presented. Then, the findings are discussed and compared with other studies on the subject. In addition, the theoretical and managerial implications are discussed. Finally, the limitations of the study and some suggestions for future studies are explained.

5.2. Summary of findings

The primary purpose of the study was to create a comprehensive model of the tourist flow experience. This comprehensive model consists of tourist-related factors (skill, challenge, and tourist-to-tourist interaction), tourist personality factors (openness to experience and self-efficacy), and destination-led factors (destination authenticity and destination self-congruence). In addition, the moderating effects of mobile technology usage between tourist-related factors and the tourist flow experience were examined. Finally, the outcomes of the flow experience, including satisfaction and loyalty, were examined.

Based on the findings, significant positive effects of skills, openness to experience, self-efficacy, destination authenticity, and destination self-congruence on the

tourist flow experience were identified. However, the effects of challenge and tourist-to-tourist interactions on the tourist flow experience were not significant. In addition, while the results showed no statistically significant moderation effect when mobile technology was used for personal purposes, the moderating effect of mobile usage for travel-related purposes was significant. Specifically, mobile usage for travel-related purposes weakened the relationship between skills and tourist flow experience. Also, this factor moderated the influence of challenge and the tourist flow experience. Lastly, mobile usage for travel purposes weakened the relationship between tourist-to-tourist interaction and tourist flow experience. In the following section, the study's findings will be discussed in more detail.

5.3. The effect of tourist-related factors on the tourist flow experience

The current study examined three tourist-related factors of tourist flow experience: skills, challenges, and tourist-to-tourist interaction. The findings showed that skills positively influenced the tourist flow experience, meaning that tourists are more likely to experience the state of flow when they have a high level of perceived travel skills. In other words, when tourists feel competent about their capability to overcome the difficulties they may face during travel, they are more likely to reach the flow experience.

This finding is in line with previous studies showing the positive impact of skills on the flow experience (Engeser & Rheinberg, 2008; Jin, 2012; Kang et al., 2018; Novak et al., 2000; Ozkara et al., 2017; Wu & Liang, 2011). The impact has been proved in different contexts, such as social networking sites in the restaurant industry (Kang et al., 2018), online environments (Novak et al., 2000; Ozkara et al., 2017b; Shim et al., 2015), video games (Jin, 2012), and adventure tourism (Wu & Liang, 2011).

Wöran and Arnberger (2012) explain that a high level of skills can create a feeling of control over a task, leading to a flow experience. Moreover, in a recent study, Mertena et al. (2022) suggest the new term "tourist skill kit," which is defined as "a complex of skills that emerges to facilitate a given tourism practice." (p.1). This skill kit is an amalgam of commonplace skills, such as using transport, planning a trip, gazing, and sightseeing, as well as specialist skills required for more challenging activities like boating, climbing, rafting, or paragliding. By strengthening their travel skill-kits, tourists are more likely to immerse themselves in the destination and increase their travel enjoyment (Kang et al., 2018; Wu & Liang, 2011).

The findings also indicate that, contrary to expectations, challenge does not significantly impact the tourist flow experience. While many studies identified challenge as one of the antecedents of flow experience (e.g., Csikszentmihalyi, 1975; Fong et al., 2015; Ghani & Deshpande, 1994; Kang et al., 2018; Shin, 2006; Wu & Liang, 2011), others did not (e.g., Engeser & Rheinberg, 2008; Skadberg & Kimmels, 2004). Specifically, Skadberg and Kimmel (2004) examined the effect of skill and challenges on flow experience in a hypermedia environment of the web and found that neither of them contributed to the flow experience. In another study, Ozkara et al. (2017) investigated the effect of challenge on various dimensions of flow experience, including enjoyment, perceived control, concentration, merging of action and awareness, curiosity, and time distortion in online shopping. Their results showed that, while the challenge was an antecedent for most flow dimensions, it did not significantly impact perceived control. In addition, Koufaris et al. (2001) found that the challenge of web-based stores had no significant influence on perceived control as one of the flow dimensions.

The lack of a causal relationship between challenge and flow may be explained by the fact that having a trip to a destination involves many activities, such as searching for information, planning the trip, booking flights and hotels, checking in and checking out, navigating, transportation, finding restaurants and tourist attractions, etc. As a result, traveling can be considered a multi-activity medium, and having a clear idea about skills, challenges, and flow experience is harder compared to specific activities with explicit, clear skills and challenges, such as rafting or paragliding (Pace, 2004).

Furthermore, the findings failed to detect statistically significant relationships between tourist-to-tourist interaction and tourist flow experience. This finding was in contrast with the previous studies, which showed that interactions between customers, users, or tourists positively affected the flow experience (e.g., Chang, 2013; Ding & Hung, 2021; Jackson, 1995; Liu et al., 2016). One of the causes of such discrepancy may be due to the fact that interaction involves two elements, time and space, and often there is a limited opportunity for tourists to interact during their travels.

The studies that reported the significant effects between social interactions and flow experience among customers or visitors were conducted in a context that could provide sufficient time and space, such as sports games (Jackson, 1995), social network games (Chang, 2013), social commerce (Liu et al., 2016), and music festivals (Ding & Hung, 2021). However, this issue is different in a journey where there are several activities in various environments and disparate periods, such as flights, hotels, museums, tourist attractions, and restaurants in disparate periods. Consequently, interaction opportunities are limited among tourists.

5.4. The effect of tourist personality factors on the tourist flow experience

The current study also examined how self-efficacy and openness to experience (two personality factors) affected the state of flow. Surprisingly, the results showed the negative impact of self-efficacy on the flow experience, meaning people with a high level of self-efficacy are less likely to experience flow while traveling. Several theories can explain this finding. Based on the Social-Cognitive Theory, having a certain level of self-doubt can motivate individuals to obtain the necessary knowledge and skills to overcome challenges (Albert Bandura & Locke, 2003). On the other hand, people with a high level of self-efficacy sometimes are too confident in their abilities, and in the absence of self-doubt, they do not put a lot of effort into preparing themselves, leading to a higher possibility of failure (Vancouver & Kendall, 2006). As a result, in these cases, the possibility of reaching a flow state will be lower for people with high self-efficacy.

The negative relationship between self-efficacy and the tourist flow experience can also be explained by the Perceptual Control Theory suggested by Powers (1973). According to this theory, motivation for doing an activity arises from the comparison between a person's current and desired states. Since individuals with high self-efficacy are confident about their abilities and skills, they may predict higher current states. As a result, the difference between the current and desired state will be lower, resulting in lower motivation to devote resources to the task at hand and ultimately undermining goal achievement (Vancouver et al., 2001). Thus, people with high self-efficacy may have diminished ambition to engage in the activity, which can result in a lower possibility of experiencing flow.

Furthermore, people with high self-efficacy may face failures and not experience flow due to their excessive self-confidence (Baumeister et al., 1993). People with high self-esteem

are associated with high aspirations, but this can lead to overly high goals and increase the likelihood of failure. Their overconfidence can cause them to select goals that are too difficult, increasing the chances of failure. Some scholars name overconfidence as “hubris” (e.g., Hayward et al., 2010; Hiller & Hambrick, 2005; Karriker & Hartman, 2019) or “false pride” (e.g., Karriker & Hartman, 2019; Miceli et al., 2017).

An overly optimistic assessment of one’s self-efficacy can blind a person to difficulties and risks, leading to negative effects (Salanova et al., 2012). Furthermore, people with high self-efficacy may take reckless risks as they are less likely to fear failure (Kontos, 2004). For example, in the context of tourism, since tourists with high self-efficacy are completely familiar with the airports and boarding processes, they may assign less time to these processes. In contrast, those with low self-efficacy tend to arrive earlier to account for unexpected issues. As a result, if unforeseen challenges arise, such as a long security line at the airport, tourists with high self-efficacy are more likely to face a problem and may experience greater stress and anxiety compared to those with low self-efficacy who arrive with ample time before their flight. Therefore, tourists with high self-efficacy are less likely to experience flow in this scenario.

The current study’s findings prove the positive effect of openness to experience on the tourist flow experience. The concept of openness to experience, as one of the primary personality traits introduced in the Big Five personality model, is very close to the concept of the autotelic personality (Nakamura & Csikszentmihalyi, 2002; Tse et al., 2020). Both concepts emphasize the importance of being receptive to new challenges and having the active qualities necessary to engage and persist in high-challenge activities. The flow model, proposed by Bevan-Roberts et al. (1994), recognizes the significance of autotelic personality

in flow experiences. Autotelic personality is comprised of qualities such as curiosity, interest in life, imagination, and inventiveness, all of which contribute to an individual's openness to new challenges. As a result, people with a higher level of openness to experience are more likely to experience flow.

The current study's findings align with previous studies that found people with creativity, imagination, curiosity, and willingness to try new and unconventional ideas tend to seek new challenges and experiences, which can create an ideal environment for a flow state (i.e., Annalakshmi et al., 2020; Bassi et al., 2014; Glisky et al., 1991; He et al., 2021; Keller & Karau, 2013; Khoi et al., 2020; Kim et al., 2019; Tavitiyaman et al., 2022; Weibel et al., 2010).

5.5. The effect of destination-led factors on the tourist flow experience

The findings prove that both destination authenticity and destination self-congruence have positive impacts on the tourist flow experience. These findings align with the Appraisal Theory of Emotions outlined by Arnold (1960), which posits the importance of an individual's evaluation of situations and environments in shaping their emotions, behaviors, and experiences. The findings demonstrated a significant positive effect of destination authenticity on the tourist flow experience. In other words, tourists are more likely to achieve a state of flow when visiting destinations that embody qualities of authenticity, such as being unique, real, reliable, original, and trustworthy.

This result is consistent with previous studies that found the crucial role of authenticity in fostering the flow experience (i.e., Aykol et al., 2017; Bryce et al., 2014; Özdemir & Seyitoğlu, 2017; Zhang et al., 2019). When tourists perceive a destination as

authentic, they are likely to view it as unique and culturally intriguing, encouraging them to explore the destination and become more actively engaged (Gao et al., 2017; Özdemir & Seyitoğlu, 2017; Yi et al., 2018). Another study by Zhang et al. (2019) further supports these findings by demonstrating that the authenticity of a cultural tourism destination leads to visitors' flow experience through increasing perceived value and involvement (Zhang et al., 2014).

The results pointed to destination self-congruence as another destination-led factor in creating the tourist flow experience. Destination-self congruence contributed more to the tourist flow experience than destination authenticity. Destination self-congruence means that when tourists find a match between the destination's personality and their own self-concept, they are more likely to express positive emotional responses, be completely engaged in the activity, not understand the passing of time, and ultimately have an optimal experience at the destination (Choi et al., 2007; Ding & Hung, 2021; Fu et al., 2017, 2020; Kumar & Iyer, 2001; Murphy et al., 2007b). This finding is in line with Fu et al.'s (2017), which reported the influence of self-congruence on several flow dimensions, including focused attention, absorption, and time distortion.

This finding supports previous theories, such as Katz's Functional Attitude Theory (1960), which suggests that individuals seek out certain products or brands that reflect their self-image. As a result, they are more likely to prefer destinations that align with their self-image and gain positive emotions and a favorable perception. Additionally, Self-Congruence Theory, proposed by Sirgy (1982), posits that people engage in activities that are congruent with their personalities. Therefore, the greater the congruence between a destination's

personality and an individual's self-image, the more likely the individual is to engage at the destination, resulting in a flow experience.

5.6. The moderating effect of mobile usage for personal purposes on the relationships between skill, challenge, and tourist-to-tourist interaction with the tourist flow experience

In order to have a clear understanding of the role of mobile technology usage on the tourist flow experience, in this study, two different mobile usage purposes were considered, including personal usage and tourist-related usage. While the findings showed no significant moderating effect of mobile usage for personal purposes on the relationship between skills, challenges, and tourist-to-tourist interaction with the flow experience, mobile usage for travel-related tasks had a significant moderating effect on all three relationships.

Several reasons can explain why mobile usage for personal purposes, such as checking emails, calling or texting friends and family, listening to music, browsing the internet, and checking social networks, did not have moderating effects. First, although some of the previous studies found that using mobile technology for personal purposes could serve as a source of distraction, reducing tourist engagement (Ayeh, 2018; Egger et al., 2020), due to the frequent use of mobile devices, using smartphones has become so habitual, routine, and automatic they might not require much attention. As a result, mobile usage may not have distracting effects on the tourist flow experience, especially among young people who are more skillful at using new technologies. Second, it is possible that many tourists are more knowledgeable about managing their mobile usage during travel in a way that does not negatively impact their engagement with the travel environment (Mujeri, 2021). One of the strategies travelers may use is setting some limitations for mobile usage in a way that they

restrict using mobile for personal usage at certain times of the day. Therefore, they can stay engaged and focused on the travel experience. Another strategy is maintaining a balance between the personal use of mobile devices and social interaction, such that it helps tourists to be fully present and engaged in the travel environment.

In addition, for some travelers, using mobile technology for personal purposes can serve as a means of emotional regulation by providing social support (Hoffner & Lee, 2015; Rettie, 2008). When travelers stay in touch with their friends and family, they can better manage their emotional states and keep a positive mood throughout the travel experience, creating an appropriate environment for experiencing flow. In conclusion, the negative impact of using mobile technology for travel-related purposes may be offset by other factors, such as the habitual effect, setting usage limitations to a certain time and situation, or finding a balance between personal usage and social engagement (Dickinson et al., 2016; Lalicic & Weismayer, 2018; Tussyadiah, 2014).

5.7. The moderating effect of mobile usage for travel-related purposes on the relationships between skill, challenge, and tourist-to-tourist interaction, with the tourist flow experience

According to the results, mobile use for travel-related purposes moderates the relationships between antecedents of flow (skill, challenge, and tourist-to-tourist interaction) and the tourist flow experience. Specifically, contrary to expectations, mobile usage for travel-related purposes moderates the effect of skills on the tourist flow experience, such that higher utilization of mobile devices for travel-related purposes is associated with a lower effect of skills on the tourist flow experience.

This result can be justified by the fact that mobile technology has provided abundant information and resources to tourists, empowering them to make wise decisions and overcome challenges. In other words, smartphones have enabled tourists to compensate for their lack of individual travel skills, leading to a convergence between highly skilled travelers and those with lower travel skills. Hence, when tourists have a high level of mobile usage for travel purposes, the effect of individual travel skills on the flow experience is diminished, compared to when they use their mobile phones less frequently. For instance, when it comes to navigating and finding local attractions, smartphones, by providing location-based services and GPS, can be more beneficial for tourists with limited individual travel skills compared to the ones who can find places with their individual navigation skills. Consequently, using mobile phones has reduced the need for self-reliance and problem-solving skills (Tussyadiah & Wang, 2016; Zolfagharian & Yazdanparast, 2017) so that tourists can overcome travel-related challenges and achieve a state of flow, regardless of their individual travel skills and abilities.

The findings demonstrated a significant moderation effect of mobile technology for travel-related purposes on the relationship between challenge and the tourist flow experience. Incorporating mobile usage as a moderator variable flipped the negative association between challenge and flow experience, ultimately leading to a positive relationship where challenging tasks contribute to a more immersive flow experience. In other words, the higher the level of mobile usage for travel-related purposes, the greater the potential for challenges to become a positive factor in creating a flow experience.

Using mobile devices gives tourists convenient and instant access to real-time information while traveling, such as connecting with local guides, mobile electronic tourist

guides, app-based mobile tour guides, travel agents, and support teams. As a result, tourists are more equipped to explore their destinations and overcome potential challenges, such as unforeseen weather conditions, language barriers, and flight delays, which can reduce frustration, stress, and anxiety and, ultimately, create a more optimal experience. Also, mobile technology empowers tourists to be more proactive and well-prepared, resulting in a better understanding of the itinerary and potential challenges. Therefore, by leveraging tourists' capabilities to conquer obstacles, they are more likely to experience flow in travel. In addition, tourists can use their mobile phones to call for assistance in case of emergencies (Berger et al., 2008), giving them a sense of safety and encouraging them to explore new and unfamiliar local areas and unknown places, leading to more enjoyment and flow experience (Wang et al., 2016).

Finally, the findings highlighted the moderating effect of mobile usage for travel-related purposes on the relationship between tourist-to-tourist interaction and the tourist flow experience, such that the high level of mobile usage for travel-related activities weakened the relationship between t-2-t interaction and the tourist flow experience. The possible reasons behind this finding may include, first, using modern technologies, like smartphones, has replaced interpersonal interaction and human contact to a large extent (Pencarelli, 2020). For example, due to information technology, visitors can check into their rooms online and receive a digital key through their smartphones without contacting hotel employees or other tourists. Second, tourists can gain most of the information about the tourist places, restaurants, transportation, and things to do at the destination by using their mobile phones and may perceive interaction with other tourists or even locals as unnecessary. For example, when a tourist has to wait in line, they may prefer to use their mobile phones to pass the time

instead of engaging in a conversation with another tourist in line. Also, tourists who constantly glance at their mobile devices may appear unapproachable, hindering other tourists from initiating a conversation. Thus, by diminishing the level of t-2-t interaction, mobile technology weakens the relationship between t-2-t interaction and the tourist flow experience.

5.8. The outcomes of the tourist flow experience

The findings supported two outcomes of the tourist flow experience: tourist satisfaction and destination loyalty. These findings are consistent with previous studies that found a positive effect of the tourist flow experience on tourist satisfaction (i.e., An et al., 2021; Cater et al., 2021; Chen et al., 2017; Karasakal & Albayrak, 2021; Kim & Thapa, 2018; Wu & Liang, 2011; Zhang & Abd Rahman, 2022). Additionally, prior studies have also provided evidence of the favorable impact of the flow experience on loyalty, repurchase intentions, and revisit intentions (Bilgihan, 2016; Jeon et al., 2018; Kim & Thapa, 2018; Tomaž Kolar & Čater, 2018; Tomaz Kolar & Zabkar, 2010; Zhang & Abd Rahman, 2022; Zhou et al., 2010).

5.9. Theoretical Implications

The findings have several theoretical contributions to tourism literature. First, while previous studies have primarily explored the flow experience in specific adventuristic tourism activities, such as white water rafting (Wu & Liang, 2011), paragliding (Arslan & Ayazlara, 2015), surfing (Cheng et al., 2015), mountain climbing (Tsaur et al., 2013), hiking (Cheng et al., 2016), and mountain hiking (Wöran & Arnberger, 2012), this study took a broader and more comprehensive approach by examining the flow experience within a multi-

faceted travel experience. Since risk-taking, challenges, and emotional stimulation are the primary components of adventurous activities, the way tourists experience a flow differs from a regular journey. In addition, traveling to a destination typically involves various components, activities, and experiences, such as transportation, accommodation, dining in a restaurant, cultural immersion, and outdoor exploration, etc. Each of these aspects can contribute to the overall flow experience while traveling. For example, tourists may experience optimal feelings when exploring the destination but may also experience flow while relaxing in a hotel room after a busy day. Compared to focusing on flow in adventuristic activities, studying flow in a regular journey to a destination can help to identify broader factors that contribute to flow in travel, such as visiting a destination, engaging with a new culture, or discovering unknown local areas.

Second, most studies about flow experience in the tourism domain have mainly focused on tourist-related factors (e.g., Arslan, Ayazlara, 2015; Kang et al., 2018; Ozkara et al., 2017b; Wu & Liang, 2011), and the role of personality and destination-led factors in the tourist flow experience have been overlooked. By examining self-efficacy and openness to experience as two tourist personality factors and destination authenticity and destination self-congruence as two destination led-factors, this study provides a more thorough and transparent understanding of how to engage tourists at a destination and enables them to become fully immersed in their journey.

Finally, this study offers pioneering empirical evidence enhancing the understanding of how mobile technology impacts flow experience. Due to the dynamic nature of the tourism industry, how tourists experience a trip is changing persistently. One of the factors that constitute this considerable change is the mobile technology that has altered the way

tourists make decisions, experience a destination, and share the experience with others (Law et al., 2018). Previous studies in the tourism and hospitality domain mostly focused on the influence of mobile technology on the overall tourist experience (e.g., Dickinson et al., 2016; Wang et al., 2014). However, the current study contributes to the theoretical understanding of the effect of mobile usage on the tourist flow experience. Specifically, the study's findings expand our understanding of the Flow Theory by suggesting that mobile technology usage for travel-related purposes does not necessarily strengthen the impact of tourist-related factors on the tourist flow experience. While mobile technology positively moderates the relationships between challenge and tourist flow experience, it weakens the effect of skills and t-2-t interaction on the flow experience.

5.10. Practical Implications

From a practical standpoint, the study's findings may help tourist companies, travel agencies, and tourist attraction managers to use flow experience as a way to create memorable travel experiences for their visitors and, by creating a competitive advantage, differentiate themselves from competitors. By doing so, they can generate such desirable outcomes as tourist satisfaction and destination loyalty among their visitors. In addition, by identifying the factors leading to the flow experience, including tourist-related factors (skills, challenges, and tourist-to-tourist interaction), tourist personality factors (openness to experience and self-efficacy), and destination-led factors (destination self-congruence and destination authenticity), this study offers several pragmatic recommendations for DMOs about the factors that influence flow experience.

Only perceived skills positively influenced the tourist flow experience, while the effects of challenges and t-2-t interaction on the flow experience were not statistically

significant. Therefore, managers in the tourism industry should focus on strategies to escalate tourists' perceived skills. For example, it is recommended that practitioners provide informative materials about the destination's history, attractions, transportation, local places, restaurants, and hotels through guidebooks, brochures, websites, and social media. Also, tourism companies should help tourists to anticipate potential challenges they may encounter at the destination and offer solutions to empower them and facilitate their flow experience. Another suggestion stemming from the findings is that offering personalized itineraries and activities matching tourists' skill levels can help tourists to have a memorable experience with less stress, leading to a flow experience. Furthermore, the results showed that t-2-t interaction does not play an important role in creating a flow experience on vacation, so investing in providing environments or activities that foster face-to-face interactions among tourists may not be the most effective approach.

Following the results of the influence of tourists' personality factors on the flow experience, destination marketing managers should consider individual differences when designing travel experiences. The results suggested that tourists with a high level of self-efficacy were less likely to achieve a flow experience. Consequently, tourism companies and DMOs should design diverse experiences with various levels of difficulty and complexity for visitors to help them build their confidence and facilitate flow at the destinations.

Furthermore, according to the findings, those tourists with openness to experience personality experience flow more frequently. As a result, tourism companies should offer activities and experiences that provide positive challenges and push tourists outside their comfort zone, such as outdoor activities like hiking, kayaking, and camping. Also, designing experiences in which tourists have the opportunity to explore the destination and engage in

new and unique opportunities. Destination marketing managers should encourage tourists to participate in cultural immersion experiences such as interacting with locals, trying new foods, and learning more about the destination's history and traditions.

Regarding destination led-factors, the results proved the significant positive role of destination authenticity and destination self-congruence on the tourist flow experience. Thus, destination managers should emphasize and promote the unique and authentic characteristics of the destination through various activities. Highlighting the local culture and heritage in museums and historical sites and holding various cultural events and traditional festivals are some strategies destination managers may use to promote destination authenticity. Destination managers can promote greater perceived destination authenticity and enhance the flow experience by organizing cultural exchange programs and social events that facilitate interactions between tourists and local people.

Moreover, to increase destination self-congruence, destination managers should tailor the tourism experience based on the tourists' interests, preferences, and self-efficacy. They may use technology to collect visitors' data and develop customized itineraries and activities that reflect tourist self-concept.

The study's findings may assist tourism companies, especially those that have not yet embraced technology in their services, to have a clearer idea about the impact of mobile technology usage on the flow experience. These tourism companies should take advantage of the different capabilities of mobile technology and develop more efficient marketing strategies so that tourists can get immersed in the destination, spend more time there, and create a unique, tailored flow experience. Specifically, the results showed that mobile technology for travel-related purposes negatively modifies the relationship between skills and

the tourist flow experience. This implies that mobile technology is particularly beneficial for individuals with low travel skills. In response, tourism companies should design their mobile application in a way that accommodates this group. For example, providing step-by-step guidance and clear instructions instead of complex information can be more helpful. Additionally, user-friendly platforms and clear language can encourage users with low skill levels to use their mobile phones to create a more immersive travel experience.

The study found a positive moderation effect of using mobile technology for travel-related purposes on the relationship between challenge and the tourist flow experience. Following this result, tourism companies should actively promote the use of mobile technology for travel-related purposes and develop mobile applications that help tourists navigate challenging activities at the destination. Using mobile technology to introduce and encourage travelers to participate in challenging tasks, such as exploring unfamiliar local places or trying new activities, and simultaneously providing support through mobile technology can increase the likelihood of experiencing an immersive travel experience.

5.11. Limitations and suggestions for future research

This study has several limitations that point to potential avenues for future studies. First, a convenience sampling method was used in the current study, limiting the generalizability of the findings. Also, this sampling method can introduce a bias since the participants who volunteered to participate in the survey may possess certain characteristics compared to those who declined to participate. Additionally, using an online platform like Prolific to recruit participants may introduce a bias, as users of this kind of platform are often experienced in using mobile technology and the internet. This issue is even more important in this study because mobile technology usage has been investigated as one of the

antecedents of the tourist flow experience. Future studies can consider employing multiple sources for data collection to ensure more representative samples.

Second, despite having a screen question to ensure the respondent had taken a trip within the previous three months, recall bias may still be a concern. Previous studies showed that the self-reported emotion in a post-visit survey differs from the real emotions felt on-site (Lee & Kyle, 2012; Smith et al., 2015). To better capture tourists' emotions during travel, future studies can measure the constructs immediately after the travel experience. Furthermore, while this study employed a cross-sectional design, future studies can use longitudinal studies to identify causal relationships and determine how variables change over time.

Third, while this study examined several tourist personality factors and their influence on the tourist flow experience, it did not explore the full range of personality traits. Following Csikszentmihalyi's (1975) suggestion that an individual's personality plays a key role in the structure of the flow experience, future studies should examine the effects of different tourist personality traits in shaping an optimal experience. Moreover, by examining other destination-led factors, researchers could further enrich the literature on flow in the context of tourism.

Fourth, this study only explored the moderating role of mobile technology usage both for personal purposes and travel-related purposes. Future studies can delve into specific types of mobile technology usage for travel purposes, including social media, navigation apps, mobile electronic tourist guides, and app-based mobile tour guides, to understand their influence on the tourist flow experience. Finally, while this study investigates the antecedents of the tourist flow experience in a journey, future studies can investigate these factors in

different types of destinations, including rural or urban areas and natural or cultural destinations. This can provide valuable insights into the role of destination types on the tourist flow experience.

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