

EXAMINING SPORT TOURISTS' INFORMATION-PROCESSING STRATEGIES
FOR SMARTPHONE APPS ACCEPTANCE

A Dissertation

by

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ABSTRACT

The evolution of the smartphone continues. The rapid rise in the number of applications (apps) means that sport consumers can now truly enjoy a 24/7 experience during which they are able to communicate, socialize, entertain, and make purchases. Smartphone apps are also commonly used in marketing strategies in the sport and tourism industry, but there has been very little academic research on sport consumers' technology acceptance processes. Specifically, several questions must be answered, such as how sport consumers use information processing and decision making in order to accept new and existing technology, and how an individual's involvement level influences the process. The purpose of this study was to: (1) gain an understanding of sport tourists' information processing as it relates to the use of smartphone apps; (2) examine the effects of different types of advertising messages on sport tourists' smartphone apps acceptance; and (3) investigate the potential moderating role of sport tourists' levels of involvement with sporting events [on the relationship between persuasive messaging and perceptions of the use of smartphone apps](#).

This research proposes a new conceptual model, integrating three theoretical frameworks: the elaboration likelihood model, technology acceptance model, and involvement theory. To test the proposed hypotheses, a 2 (argument quality: strong vs. weak) x 2 (source credibility: high vs. low) analysis of variance and partial least squares structural equation modelling were employed through an online experiment. Two role-playing scenarios were used to measure respondents' degrees of involvement.

Additionally, four advertising messages with different manipulation conditions and manipulation checks were successfully conducted. A total of 333 participants were recruited from Amazon's Mechanical Turk (MTurk).

The results show that both argument quality (i.e., the central route) and source credibility (i.e., the peripheral route) effectively persuaded sport consumers to accept information presented in a smartphone app. Other results indicate that persuasive messages in the smartphone app were able to extensively affect sport consumers' perceptions of that app and their behavioral intention to use the app to consume sports. The findings provide both theoretical and practical implications for sport teams and event managers in terms of creating effective mobile advertising strategies.

DEDICATION

To my parents, Tae Won Yun and Dul E Sung.

To my sibling, Hyun Ji Yun.

In loving memory of my grandmother, Seung Nam Shin (1919–2006).

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All work for the dissertation was completed interdependently by the students and four professors.

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CHAPTER I

INTRODUCTION

1.1 Background of the Study

The smartphone has become an indispensable part of our daily lives. Its rise has made a significant impact on how cutting-edge technology is used to share information, distribute news, purchase goods and services, and make reservations (Farnham, Blanke, Stone, Puhan, & Hatz, 2016). This evolution has allowed people to be reachable nearly anywhere, at any time. Because of this convenience, the smartphone ownership rate for Americans has skyrocketed from 35% in 2011 to 77% in 2017 (Pew Research Center, 2017). The more the technology becomes available, affordable, and easier to use, the more consumers accept and rely upon it.

Smartphones have also changed the paradigm of fans' experiences of sporting events (Hur, 2007; Kang, 2015; Inversini, Sit, & Pyle, 2016). Sport fans have considered as a unique group of individuals who identify and affiliate themselves with their favorite sports, players, and teams (Shank & Beasley, 1998; Wann, Grieve, Zapalac, & Pease, 2008). Smartphones allow such individuals to engage in a variety of sport-consumptive behaviors, such as live streaming events on their devices and instantly sharing updated news and information with other fans via mobile web browsers or sport-related applications (hereinafter referred to as "apps"). In addition, sport fans use smartphone technologies to consume entertainment and engage in e-commerce, regardless of the

time of day or the user's physical location. It is clear that smartphones are integral to sport fans' daily lives.

Also clear is how smartphone technology has influenced sport tourists inclined to travel far and frequently as a means of engaging with their favorite sports teams (Smith & Stewart, 2007). According to Schetzine (2013), ski travelers, considered one of the most avid groups of leisure tourists, tend to spend more of their time on skiing and less on traveling. This research also indicated that ski travelers are heavy mobile phone users, and smartphones play a pivotal role in serving this group's particular travel needs. In other words, smartphones are constantly at sport tourists' fingertips; they provide an essential source of information that affects their decisions and overall behaviors.

With recent advances in smartphone technology, sport fans now frequently download and use various smartphone apps to watch games, purchase merchandise, and plan travel related to sporting events. For example, ticket apps such as Stubhub and Ticketmaster allow sport fans to purchase and download paperless tickets; sport consumers are able to enter the venue in a completely paper-free fashion. Given the current convenience of connectivity, this service affords sport consumers the opportunity to make easy-to-use, safe, and secure ticket purchases, and reduces the possibility of losing tickets or forgetting to bring them to the event. Furthermore, it offers a wider selection of tickets to consumers through national marketing programs and various partnerships, creating opportunities for increased revenue (Drayer, Stotlar, & Irwin, 2008).

The business opportunities and general potential of smartphones also extend to tourists. The ubiquitous use of smartphone technology to connect people to information repositories, location-based social networks, and the media has also made it a powerful tool for tourists (Dickinson et al., 2014). The plethora of unique smartphone apps that have emerged in recent years include those that are travel-specific, transportation-related, and generally applicable to tourism; ultimately, most should be considered social networking apps because their primary goal is to allow users to share travel information with one another. The ever-expanding number of users of these apps are greatly influenced with regards to their travel decisions and behaviors (Wang, Xiang, & Fesenmaier, 2014) at all levels of their travel consumption (Höpken, Fuchs, Zanker, & Beer, 2010).

Although many sport organizations consider smartphones a necessary and effective marketing tool, very few academic studies have investigated ways of enhancing our understanding of smartphone use in the sport management context. Some studies have developed a fundamental framework for the adoption of smartphones (Ha, Kang, & Ha, 2015) and identified the motives and benefits of sport-related mobile apps (Kang, Ha, & Hambrick, 2015). Similarly, other research in the travel and tourism area has examined the relevance of smartphones by exploring the following: (a) an examination of the mechanisms of adoption, use, and impact of smartphones for travel (No & Kim, 2014; Wang & Fesenmaier, 2013; Wang, Xiang, & Fesenmaier, 2014); (b) an analysis of smartphone apps (Dickinson et al., 2014; Wang & Xiang, 2012); and (c) an investigation of the role of smartphones in tourists' experiences and behaviors (Wang, Park, &

Fesenmaier, 2012). These prior studies have shown that smartphones can generate new business opportunities (e.g., mobile payments, mobile advertising, contents diversification) for sport and tourism marketers, including cost reduction and the improvement of customer experiences in the sports and tourism marketplace.

It has widely been acknowledged that a large range of firms and organizations have utilized information technology (IT) to execute various operational, tactical, and strategic processes (Li, 2015). For example, to leverage fans' technology experiences, all 30 National Football League (NFL) teams have official smartphone apps, with 27 (approximately 84.4%) offering merchandise and 87.5% (28, in total) providing ticket sales (Goss, 2014). Cutting-edge technology provides a promising new avenue to sport fans for interacting and engaging with and otherwise enjoying their teams and associated services and facilities. Although technology adoption focuses on the technology or system itself, mainstream acceptance also involves the willingness of smartphone users to partake in the services offered (Bhattacharjee & Sanford, 2009). Persuasive strategies are likely to increase user willingness, and thus they must be studied as a way of understanding sport tourists' acceptance behaviors. This would help marketing managers not only to motivate their target consumers, but also to shift prospective customers' behavioral intentions toward sport consumption.

The current study examines the effects of different types of persuasive messages as external motivational factors on sport tourists' intentions to use smartphone apps for consuming sport-related entertainment and products. In the marketing literature, internal and external factors are considered determinants of a consumer's decision-making

process (Theodosiou & Katsikeas, 2001). Internal factors include intrinsic states and various individual user characteristics such as a person's motivation to use and general involvement with a product or service. External factors denote marketing stimuli and product features controlled by marketers (Dawson & Kim, 2009). Despite the importance of both, Kader, Mohamad, and Ibrahim's (2009) study found that external factors are more prominent than internal factors in contributing to business success. For example, external elements have the potential to stimulate consumers to engage in purchase behavior and provide opportunities to marketers to encourage consumers' consumption behavior (Youn & Faber, 2000). Thus, this study is focused primarily on external factors as a means of thoroughly understanding whether persuasive messages (as external factors) affect sport tourists' smartphone acceptance behavior during their sport consumption.

1.2 Objectives and Hypotheses

The main purpose of this dissertation is to: (1) identify an understanding of sport tourists' information processing pertaining to the usage of smartphone apps, (2) investigate the effects of different types of advertising messages on sport tourists' smartphone apps acceptance, and (3) examine the potential moderating role of sport tourists' levels of involvement with sporting events [on the relationship between persuasive messaging and](#) perceptions of the use of smartphone apps. That is, this study presents an improved model for predicting how sport tourists perceive advertising messages presented via a smartphone app, and will contribute to creating appropriate

marketing strategies related to the information-processing patterns and attitude formation of sport consumers who use such apps. Although some researchers have attempted to develop conceptual frameworks for sport consumers' technology adoption (Kang et al., 2015; Kim, Kim, & Rogol, 2016), the current study is different from previous work in this area in three key ways. It:

- Examines technology acceptance from a dual-process theory and model,
- Empirically tests the moderating effects of event involvement on information-processing, and
- Uses role-playing scenarios and experiments in a sport tourism context to complete the investigation.

In line with the above-mentioned purpose of this dissertation, this study has three main objectives: (1) to establish a theoretical structure of the acceptance process for potential sport consumption, (2) determine what kinds of advertising messages affect sport tourists' information processing, and (3) identify how sport tourists' levels of event involvement moderate their information processing of smartphone app advertisements. Thus, it is postulated that:

H₁: Sport tourists receiving higher quality arguments in their persuasive messages are more likely to perceive the use of smartphone apps.

H_{1a}: Sport tourists receiving higher quality arguments in their persuasive messages are more likely to perceive the usefulness (PU) of using smartphone apps.

- H_{1b}:** Sport tourists receiving higher quality arguments in their persuasive messages are more likely to perceive the ease of use (PEU) of smartphone apps.
- H_{1c}:** Sport tourists receiving higher quality arguments in their persuasive messages are more likely to perceive enjoyment (PE) in using smartphone apps.
- H₂:** Sport tourists receiving more credible persuasive messages are more likely to perceive the use of smartphone apps.
 - H_{2a}:** Sport tourists receiving more credible persuasive messages are more likely to perceive the usefulness (PU) of smartphone apps.
 - H_{2b}:** Sport tourists experiencing more credible persuasive messages are more likely to perceive the ease of use (PEU) of smartphone apps.
 - H_{2c}:** Sport tourists receiving more credible persuasive messages are more likely to feel enjoyment (PE) when using smartphone apps.
- H₃:** The perceived usefulness (PU) of smartphone usage will positively influence users' intention to use smartphone apps.
- H₄:** The perceived ease of use (PEU) of smartphones will positively influence users' intention to use smartphone apps.
- H₅:** The perceived enjoyment (PE) of smartphones will positively influence users' intention to use smartphone apps.
- H₆:** Event involvement will positively influence the relationship between argument quality and perceptions of smartphone apps.
 - H_{6a}:** Event involvement will positively influence the relationship between argument quality and perceived usefulness (PU).
 - H_{6b}:** Event involvement will positively influence the relationship between argument quality and perceived ease of use (PEU).
 - H_{6c}:** Event involvement will positively influence the relationship between argument quality and perceived enjoyment (PE).

H₇: Event involvement will positively influence the relationship between source credibility and perceptions of smartphone apps.

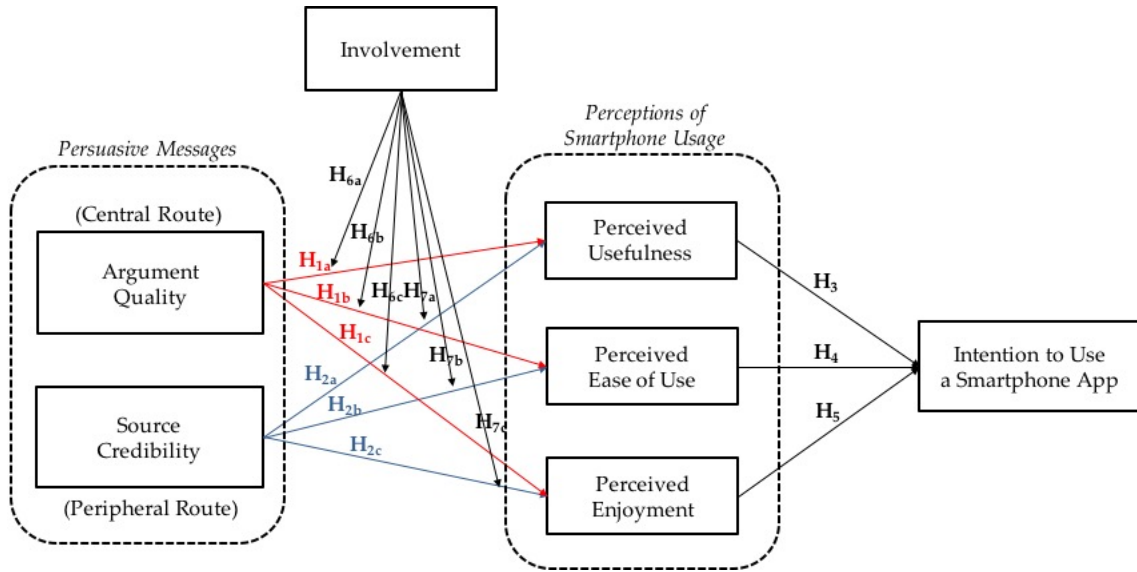
H_{7a}: Event involvement will positively influence the relationship between source credibility and perceived usefulness (PU).

H_{7b}: Event involvement will positively influence the relationship between source credibility and perceived ease of use (PEU).

H_{7c}: Event involvement will positively influence the relationship between source credibility and perceived enjoyment (PE).

The hypothesized relationships associated with the objectives are visualized in Figure 1. A more detailed discussion of the hypotheses is presented in Chapter IV.

Figure 1 The Proposed Research Model



1.3 Delimitations

Delimitations are external conditions that may threaten the external validity or generalizability of a study (Creswell, 2011). Several delimitations exist for the current study:

1. This research was delimited to American residents.
2. The sample included sport tourists who only use smartphones, and not other electronic mediums (e.g., laptops, tablets, desktop computers).
Also, the sampling criteria included MTurk workers with a 95% approval rating.
3. This study focused on determining sport tourists' perceptions of and intention to use smartphone apps.
4. This research focused on involvement as it relates to an advertising message and event rather than a particular team (e.g., New York Yankees, Pittsburgh Penguins, Green Bay Packers) or fan loyalty to a specific sport (e.g., golf, football, baseball).
5. Based on the elaboration likelihood model (ELM; Petty & Cacioppo, 1986), persuasive messages were analyzed via two components: the argument quality (i.e., the superiority of good over bad arguments) and source credibility (i.e., expertise and trustworthiness) of the advertising information.

6. This study used Sporting Events A and B and SE to describe the sporting events and smartphone app, respectively. These fictitious brands were employed to eliminate any unexpected effects from prior knowledge of or familiarity with sporting events and smartphone app brands.

1.4 Limitations

Limitations are internal conditions that are out of control of the research and might affect internal validity of the investigation (Creswell, 2011). Following the definitions, this study was subject to the following limitations:

1. Even though this study was defined to recruit solely from American residents via Amazon's Mechanical Turk (MTurk), only MTurk participants located in the U.S. were targeted for this study. Thus, the findings may not be generalizable to other populations in different settings;
2. This study employed the fictitious scenarios related to a sporting event. Therefore, it may not completely remove any respondent experience bias based on "real" situations.
3. This research included the stimuli (i.e., advertising messages) with the only textual statements, not dynamic videos, rich motion graphics, or other types of data.

4. The sample of this study was potentially limited due to subject attentiveness and the prevalence of habitual survey takers in MTurk.

1.5 Definitions of Terms

A list of key terms discussed in this dissertation and their definitions are presented in Table 1.

Table 1 Definitions of Terms

Constructs & Key Terms	Definitions
Advertising	“A paid form of mediated communication from an identifiable source, designed to persuade the receiver to take some action now or in the future” (Richards & Curran, 2002, p. 74)
Argument Quality	“The persuasive strength of arguments embedded in an informational message” (Bhattacharjee & Sanford, 2006, p. 811)
Source Credibility	“The perceived ability and motivation of the message source to produce accurate and truthful information” (Li & Zhan, 2011, p. 4)
Perceived Usefulness	“The degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989, p. 320).
Perceived Ease of Use	"The degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320).
Perceived Enjoyment	“The extent to which the activity of using the computer (technology) is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated” (Davis, Bagozzi, & Warshaw, 1992, p. 1113)
Behavioral Intentions	“The person’s subjective probability that he/she will perform the behavior in question” (Fishbein & Ajzen, 1975, p. 12).
Involvement	“A person's perceived relevance of the object based on inherent needs, values, and interests” (Zaichkowsky, 1985, p. 342).

1.6 Overview of Chapters

This dissertation consists of six sections. Following the introduction is a literature review that offers an overview of the relevant research on the acceptance of the technology and a general theoretical foundation. Chapter III outlines the conceptual framework and models for the proposed hypotheses. The methodology for the study is discussed in Chapter IV. The results of the research are presented in Chapter V. The final chapter, Chapter VI, concludes by summarizing the findings, discussing theoretical and managerial implications, and providing several suggestions for future research.

CHAPTER II

LITERATURE REVIEW

This chapter provides a comprehensive literature review of the variables analyzed in this research, mainly from sport, tourism, and marketing contexts. This section reviews and synthesizes the current literature in terms of the most relevant existing findings. First, smartphone usage in general and the use of smartphones specifically in the sport and tourism context are described. Second, persuasive communication is conceptualized and reviewed, as well as the constructs related to the elaboration likelihood model (ELM) used in this research. Finally, key antecedents of technology acceptance (i.e., perceived usefulness, ease of use, and enjoyment) are discussed.

2.1 Smartphone Usage

A smartphone can be defined as a mobile device containing a hand-held or pocket-sized computer, and offering Internet access, e-mail capability, a touchscreen, data storage, and location-based support (Kukulska-Hulme, 2007). According to the comScore report (2016), 79.1 percent of the U.S. smartphone-using population (198.5 million users) now access news and information via their mobile devices. Among these users, millennials (a group commonly known as Generation Y, whose members were born between 1980 and 1991) are more likely to embrace the use of smartphones and the Internet than are older generations (Poushter, 2016). Millennials have also been found to

have more unregulated, habitual, and addictive smartphone activity than older users (van Deursen, Bolle, Hegner, & Kommers, 2015). Several studies (Nyheim, Xu, Zhang, & Mattila, 2015; van Deursen et al., 2015) have focused on millennials' smartphone usage, determining that this group's behavior is a good indicator of long-term usage patterns.

The increasing number of smartphone users and wide range of emerging apps are changing the patterns of consumers' online behaviors (O'Regan & Chang, 2015). By employing touchscreen technology, built-in sense, downloadable apps, and Internet access, modern smartphone users are able to exploit various functions such as web browsing, video streaming, downloading, mapping, e-mail, voice commands, and GPS navigation.

Recent research has revealed that smartphones are an imperative part of consumers' lives. Wang et al. (2014) explored the adoption and diffusion of smartphones, and found that they allow people to: (1) increase communication with family and friends via video or social network sites; (2) fill downtime such as workplace breaks, waiting in line, or commuting to work by engaging in activities like responding to emails, reading newspapers or books, or watching videos; (3) enhance their information search activities by accessing various websites; (4) seek out unique apps or learning outlets through app stores; and (5) engage in simple online tasks that would otherwise require a desktop or laptop computer.

Furthermore, Wang (2016) determined the smartphone to be a powerful tool for interacting with others in advanced modern society, and concluded that the convenience of the smartphone could influence consumers' purchasing behaviors. Similarly, Coiffe

(2015) indicated that the development of the smartphone was changing how and where consumers accessed entertainment, news, and other sources of information.

A considerable number of studies have identified and addressed factors that affect smartphone usage patterns. For example, Falaki et al. (2010) investigated four dimensions that impact smartphone usage: user interaction, app use, network traffic, and remaining battery level. Park, Kim, Shon, and Shim (2013) found five psychological factors that affect usage: motivation, innovativeness, behavioral activation system (BAS), locus of control, and perceived relationship control. Further, Kim, Chun, and Lee (2014) associated six aspects (affiliation, ethnicity, personal innovativeness, perceived popularity, perceived price, and perceived value) with the utilization of smartphone apps.

In sum, based on the four key features suggested by Siau, Ee-Peng, and Shen (2001) – ubiquity, flexibility, personalization, and dissemination – smartphones have become an indispensable part of our lives. Thus, an understanding of how this usage enhances or detracts from various behaviors is likely an important area of inquiry.

2.2 Smartphone Use in the Sport Management and Tourism Fields

Recent advances in smartphones have inspired a number of studies examining smartphone usage. Research in this area has explored a wide range of fields and settings, such as business (Kim, 2008), technology (Carroll & Heiser, 2010; Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013), health care (Gill, Kamath, & Gill, 2012; Payne, Wharrad, & Watts, 2012), and psychology (Ehrenberg, Juckes, White, & Walsh,

2008; Lockman & Schwartz, 2014). However, only a few works published in the last 10 years have addressed the smartphone as a potential marketing tool in sport or tourism settings.

Ha et al. (2015) developed fundamental groundwork for conceptualizing sport fans' decision-making processes about sport consumption using personal smartphones. Additionally, Kang (2015) explored the motivations, constraints, and technological perceptions of smartphone usage related to sport consumers' fan identification. He concluded that personal intrinsic motivations, constraints, and hedonic or utilitarian perceptions were all related to sport consumption.

Kang (2015) also discussed specialized smartphone apps for business, marketing, and sponsorship opportunities. For instance, the 2015 U.S. Open Championship launched a smartphone app that enabled users to look for local restaurants, shops, and other information associated with local businesses. According to a study commissioned by the United States Golf Association, the app significantly benefited local restaurants, bars, and liquor stores near the Chambers Bay golf course, generating \$43.2 million in business while the event is on for a week. This was a more significant economic impact than what was felt by accommodations (\$25.2 million), transportation (\$16.9 million), or retail shopping (\$9.7 million) (Fleisher, 2016).

Understanding the sport consumption behaviors of online users has been argued to be an important issue for sport marketers, sporting organizations, and advertising partners (Ha, Ha, & Han, 2013). As proposed by Kim and Trail (2010), sport consumption can be divided into three aspects of interest. First, increasing attendance at

sporting events is one of the most important goals for sporting organizations. Several studies have found that sport consumer/team relationships can be linked to a positive determination of purchase intention and actual purchases (Hennig-Thurau & Klee, 1997; Palmatier, Dant, Grewal, & Evans, 2006). Second, sport media consumption has attracted much attention from sporting organizations because media consumption can have a significant impact on the financial success of sporting organizations (Larkin, Fink, & Trail, 2015). Finally, licensed merchandise sales can also be essential for sporting organizations, since it is one of the largest revenue sources for sport teams, organizations, and leagues. Moreover, merchandise consumption can assist in enhancing the team's brand identity with fans (Andrew, Kim, O'Neal, Greenwell, & James, 2009).

Meanwhile, most relevant approaches to the acceptance of smartphones in a travel and tourism context have considered how smartphones and associated apps assist tourists with their travel experiences and decisions, concluding that smartphones have the ability to contribute to more dynamic and collaborative travel choices (Dickinson et al., 2014). Similarly, Wang, Park, and Fesenmaier (2011) analyzed how smartphone apps enabled travelers to influence their travel experiences, and found that apps allowed tourists to streamline their information processing activities such as navigation and connections, and facilitated pre- and post-consumption activities. Furthermore, Wang and Xiang (2012) suggested that smartphone apps could serve as "a perfect concierge," influencing tourists to change their behavior or prompting them to make particular decisions about a destination or event.

The studies reviewed above reinforce the notion of the smartphone as a potential agent of regional economic impact and a useful marketing tool, and propose future opportunities for both academics and practitioners. These recent studies also illustrate a growing interest in the smartphone as an important tourism tool from the perspective of destination management organizations (DMOs), marketers, or other tourism bodies. So far, however, there has been very little discussion about sport tourists' smartphone usage, despite the growing popularity of sport tourism in the past decade (Gibson, 2004; Hinch & Higham, 2011). It is believed that the examination of smartphone usage could assist academics and practitioners in better understanding the phenomena, and in better providing experiences for sport tourists.

Thus, with sport consumers' increased engagement with smartphone technology, it is believed that the development of a theoretical framework for understanding behaviors related to technology consumption is both timely and relevant. Indeed, it is necessary for practitioners to recognize smartphone technology as a marketing strategy and suggest future directions in terms of online sport consumer behaviors.

2.3 Persuasive Communications and Messages

The popularity of smartphones and their apps are undeniable. In accordance with the rapid advancement of social media and user-generated content (e.g., Facebook, Twitter, blogs), mobile marketing now offers direct communication with consumers in almost any place and at any time (Li, 2015). Touch screens and persuasive messages on mobile devices have been found to change users' attitudes and encourage interactions

with others (Bhattacharjee & Premkumar, 2004). Yet, although academics and practitioners have suggested smartphones should be used to assist marketing efforts, there is scant research in a sport tourism context that has examined how messages affect mobile usage. This research argues that persuasive messages distributed over technological devices have a measurable effect on consumers' perceptions of and intentions toward using that technology. Persuasion has been suggested to refer to active attempts to change attitudes, behaviors, or both (without using coercion or deception) that result from exposure to information received from other sources (Fogg, 2002; Olsen & Zanna, 1993; Petty & Cacioppo, 1981). Persuasion is likely to lead to change of individuals' beliefs based upon informational arguments, which involve trust, reputation, and negotiation (Paglieri & Castelfranchi, 2004). Beliefs have been shown as primary or immediate determinants of the ability to change individuals' attitudes and perceptions (Ajzen, 1991; Salleh & Laxman, 2014). Thus, understanding how to persuade customers to change their beliefs/attitudes toward a product/service has been considered as one of the most effective marketing strategies for affecting behaviors (Chang, Yu, & Lu, 2015; Kotler, 1984; Zhao et al., 2006).

For example, Ajzen (1998) stated that persuasive communications can be a key strategy for changing attitudes and behaviors. This concept has been defined as any message intended to shape, reinforce, or change another's responses (Miller, 1980). It has also been argued to be an intentional act causing a response in others. Perloff (2003) provided a more comprehensive definition: a symbolic procedure in which communicators seek to persuade receivers to form, sustain, or change their attitudes or

behaviors related to “a specific issue through the transmission of messages, in an atmosphere of free choice” (p. 8).

Persuasive messages have consistently been found to influence individuals’ beliefs and attitudes about a behavior, and subsequently, the behavior itself (Petty & Cacioppo, 1981). Petty and Cacioppo (1981) explained that factors such as the message’s content, source, recipient, contextual features, and channel are all likely to affect its level of persuasion. For instance, when potential consumers accept information from others’ travel reviews posted online, they tend to develop impressions and beliefs related to the review contents (Sparks, Perkins, & Buckley, 2013).

Petty and Cacioppo (1979, 1981) asserted that a message’s content and source are the most significant determinants of persuasion. They stated that content offers arguments for a specific position, intentionally affecting individuals’ attitudes through belief formation (Petty & Cacioppo, 1981). For example, online travel reviews related to accommodations for attending a sporting event might include references to the event organizer’s commitment to providing quality lodging, leading potential sport consumers to form beliefs about the event’s management.

In addition, persuasion theory posits that perceptions about a message’s source can also influence individuals’ beliefs and attitudes (Petty & Cacioppo, 1981). For instance, people tend to be more motivated to consider information from highly credible sources, revealing that people are more inclined to be persuaded by experts (Hass, 1981; Petty & Cacioppo, 1984). All of these variables are closely linked to consumer beliefs regarding the information provided.

Messages in persuasive communications commonly include belief-targeted missives designed to change attitudes regarding three key belief categories: (a) questions of advantages or disadvantages related to performing actual behaviors (behavioral beliefs), (b) individuals or groups who crucially affect participants (normative beliefs), and (c) components that may hamper performance of behavior (control beliefs) (Bright, Manfredo, Fishbein, & Bath, 1993). Ajzen and Fishbein (1980) explained that belief-targeted messages contain arguments supporting the target behavior, such as new technology usage for sport-related consumption (e.g., ticketing, merchandizing).

The above also describes salient benefits from and effective strategies for overcoming relevant obstacles to beliefs regarding the use of a new technology should also be emphasized. Additionally, the literature suggests that the credibility of sources should be emphasized and actual evidence included. Enhancing the argument quality and the source credibility makes it more likely that the receiver will accept the persuasive message and change their beliefs and attitudes.

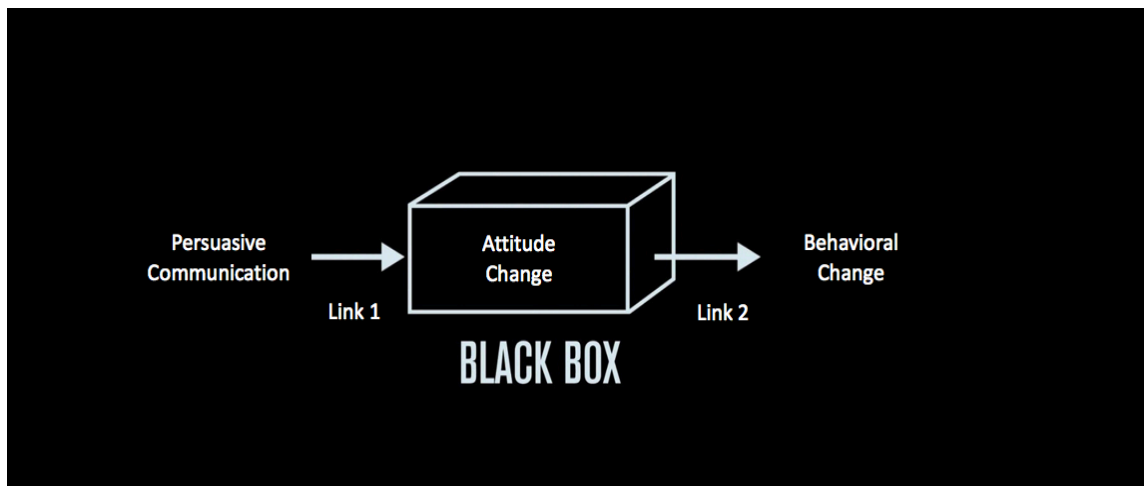
As recommended by Latimer, Brawley and Bassett (2010), in their review of persuasive messages and associated strategies, future research should investigate optimal message content in persuasive messages designed to change intentions and actual behaviors. In the current research, persuasive messages will be designed with the intent to encourage the intention to use smartphones for sport consumption.

2.4 Changes in Attitude

Persuasion has been referred to as “an attitude change resulting from exposure to

information from others” (Olson & Zanna, 1993, p. 135). For this study, attitude will be regarded as a unidimensional construct in which an evaluation is central. This is in contrast to the traditional perspective of a trichotomous construct consisting of affective, cognitive, and conative sub-dimensions (Tesser & Shaffer, 1990). This approach to attitude is in line with earlier work in underlying theoretical research (Petty & Cacioppo, 1986; Eagly & Chaiken, 1993). In addition, it is consistent with previous research that identified beliefs regarding and determinants for using new technology (Ha et al., 2015), as well as work determining the attitudes that develop from an acceptance of new technology (Hur, Ko, & Claussen, 2012; Kang, 2015). Thus, the current research treats the formation of attitudes that develop from an evaluation of the acceptance of new technology as a “black box” process that tests the relationship between an input (i.e., persuasive communication) and output (i.e., behavioral change) (see Figure 2).

Figure 2 The Black Box Process of Attitude Change



As seen in Figure 2, Link 2 represents attitude change as a key stage in behavioral variations, during which people alter their actions in response to newly internalized information. The theory of reasoned action (TRA) (Ajzen & Fishbein, 1980) includes Link 2 as a central tenet, and is limited to a relatively simple process that targets behaviors. Other research on the relationship between attitude and behavior has also focused on simple behaviors, but excluded most of the actions performed in everyday life (Eagly & Chaiken, 1993). The present study combines Link 1, for its well-organized process of attitude, with behavioral changes made from the influence of information. Although many scholars have investigated changes in resultant behaviors, most of the work has been limited to investigating attitudes toward persuasive messages that generate cognitive and affective responses (Watts, 1998).

2.5 Information Processing

Over the past three decades, the importance of information to consumers' decision-making processes has received much scholarly attention. Researchers have examined a variety of aspects of consumer behavior and psychology and have advanced theories and models of information processing in an attempt to understand how consumers accept, process, and store information in their memories (Chaiken & Maheswaran, 1994; Petty, Cacioppo, & Schumann, 1983; Reinhard, & Sporer, 2008; Trope & Liberman, 2000). Particularly in the fields of advertising and psychology, dual-process models such as the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1981, 1986) and the Heuristic-Systematic Model (HSM) (Chaiken, 1980) have

commonly been adopted to explain how consumers process information.

Both models posit that consumers tend to evaluate persuasive messages (e.g., publicity, advertising campaigns, etc.) in two distinct ways – the first is a central route in which individuals exert a high level of cognitive efforts to elaborate on the information provided or issue referenced. The other is a more peripheral route by which individuals accept a simple and heuristic set of rules to quickly interpret information and shape judgements. The consequences of such evaluations influence the formation of and changes to their attitudes and behaviors. The present study will attempt to apply the ELM in order to examine sport consumers' smartphone-related information processing behaviors related to persuasive messages.

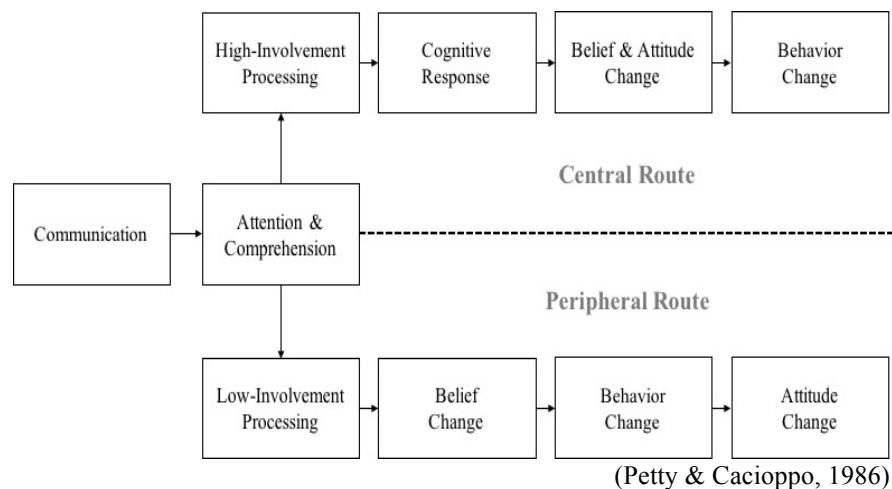
2.6 Elaboration Likelihood Model

Arguably the most recognized dual process theory is Petty and Cacioppo's (1986) ELM, which has been instrumental in theoretically describing how and under what circumstances messages influence recipients. Their model posits that individuals automatically utilize a cognition process that is a continuum of elaborated stimuli when they come upon a product, service, or communication. As shown in Figure 3, this model further suggests that two information processing routes exist (central and peripheral), exist, depending on an individual's level of involvement with the information. Moreover, the posited the information source (i.e., sport-specific mobile apps or websites) can change one's perceptions and attitudes.

The central route appears when recipients carefully and considerably regard the

arguments relevant to the issue that are presented by the message. This route suggests that the content quality of the persuasive argument is likely to affect a receiver's adoption (Bhattacharjee & Sanford, 2006; Sussman & Siegal, 2003). Conversely, the peripheral route happens as a consequence of simple cues, rather than consideration of information relevant to the issue. These simple cues (such as source credibility) have been revealed to have a substantial effect on the adoption of information (Sussman & Siegal, 2003).

Figure 3 Elaboration Likelihood Model



Petty et al. (1981) argued that the personal relevance of an issue is a pivotal factor in determining the best route to follow to accomplish persuasion. They argued that when people are highly involved they are more likely to take a central route and seek out and process the available information. In contrast, lower levels of involvement often direct individuals to engage in a more peripheral thought process, which means they

engage in shallower thinking and attach themselves to ancillary attributions of a product and/or service, such as an endorser or brand (Petty & Cacioppo, 1984). Consequently, individuals who have higher levels of involvement are more active information seekers whose decisions are more predictable and reliable than those with lower levels of involvement (Cacioppo, Petty, Kao, & Rodriguez, 1986).

Bhattacharjee and Sanford (2006) further argued that this central route has a more significant impact on technology acceptance. They found that individuals with high levels of elaboration likelihood were likely to be significantly affected by the ambiguity of the decision setting (argument quality; i.e., a central cue). Those with low levels of elaboration likelihood tended to be influenced by the perceived credibility of a system developed by expert(s) (source credibility; i.e., a peripheral cue) (Mak, Schmitt, & Lyytinen, 1997).

Sussman and Siegal (2003) proposed an information adoption model, with hopes of combining the technology acceptance model (TAM) (Davis et al., 1989) and the ELM. The TAM suggests that users' internal beliefs and attitudes regarding perceived usefulness and ease of use reciprocally determine their behavioral intentions. However, Sussman and Siegal (2003) focused only on perceived usefulness. Their main goal was to examine how computer-mediated communication affects whether consultants accept information extracted from knowledge obtained through communication. Two of their key empirical implications were: (1) the perceived usefulness of information plays a significant mediating role in information processing, and (2) the likelihood of elaboration can successfully serve a moderating role in the relationships among

information variables (i.e., argument quality and source credibility) and perceived usefulness.

As Petty and Cacioppo (1986) and Sussman and Siegal (2003) have suggested, argument quality and source credibility are pivotal determinants of persuasion outcomes in the ELM. Thus, the current study operationalizes both antecedents (i.e., argument quality and source credibility) in persuasive messages for two different routes of influence (i.e., central and peripheral) to examine variations in persuasion.

Argument Quality

Argument quality has commonly been used in the literature to reveal systematic processes, but differences in its conceptualization and operationalization persist (Angst & Agarwal, 2009; Stiff & Mongeau, 2003). Argument quality has been defined as “the strength or plausibility of persuasive argumentation” (Eagly & Chaiken, 1993, p. 325). This definition is similar to Petty and Cacioppo’s (1981, 1986), which refers to the receiver’s subjective perceptions of whether or not the arguments presented in a persuasive message are strong.

Similarly, Bhattacharjee and Sanford (2006) operationalized argument quality by emphasizing “the persuasive strength of arguments embedded in an informational message” (p. 811). Additionally, Cheung et al. (2009) employed the concept to determine if informational messages could persuade individuals to change their beliefs or perform particular behaviors. Finally, Kim and Benbasat (2009) argued that strong

arguments were those highlighting favorable thoughts, while weak arguments elicited unfavorable views.

Even though argument quality commonly signifies a systematic processing in the existing literature (Bohner, Moskowitz, & Chaiken, 1995; Zhang & Watts, 2008), it is conceptualized and operationalized inconsistently (Angst & Agarwal, 2009; Stiff & Mongeau, 2003). In an attempt to reconcile these differences, the present study will focus on the association between the argument quality of positive persuasive messages and smartphone apps. Following Sussman and Siegal (2003), this research will include perceived informativeness and persuasiveness in the construct for argument quality. Perceived informativeness represents the overall perceptions of consumers in relation to the information quality of the messages, whereas perceived persuasiveness refers to a general understanding of the persuasiveness of the message. Park and Lee (2008) argued that online reviews could serve as informants and recommenders for consumers. Thus, strong arguments will be more powerful and influential than weak arguments. Additionally, due to the significance of argument quality in persuasion when a central processing route is used, the current study will also examine the effects of argument quality on sport consumers' acceptance of smartphone apps for their sport consumption.

Source Credibility

Source credibility has been extensively studied in marketing research, and refers to the extent to which the information source of a persuasive message is perceived to be believable, competent, and trustworthy by the message's recipients (Petty & Cacioppo,

1986). The concept has been found to include both the perceived expertise and trustworthiness of the message (Petty & Cacioppo, 1986; Pornpitakpan, 2004). In earlier literature on source credibility, research revealed that statements provided by experts can be considered trustworthy, and the notion that “experts know best” is generally accepted as a heuristic cue (Chaiken & Ledgerwood, 2012; Chen & Chaiken, 1999). Such research has postulated that the role of source credibility in the decision-making process can be presumed to be available in consumers’ knowledge systems (Petty & Cacioppo, 1986).

As mentioned above, source credibility is likely to affect an individual’s attitudes via a peripheral route, since peripheral cues have been found to appeal to human affects and sense of social interaction rather than rational judgment (Bhattacharjee & Sanford, 2006).

Source credibility has been found to be a major determinant of consumers’ decision-making processes and users’ acceptance of persuasion when messages or evidence is ambiguous and thus open to interpretation (Chaiken & Maheswaran, 1994; Mak et al., 1997). Evidence has shown that a source’s credibility can directly develop or change a recipient’s attitude towards a topic, and information from a highly credible source is more likely to yield a crucial impact on an individual’s perception than ne from a less credible source (Cheung et al., 2009). Due to the significance of source credibility as a peripheral cue for persuasive messages, the present study will investigate its impact on perceived usefulness, ease of use, and enjoyment as they relate to sport consumers’ acceptance of smartphone apps for consuming sport-based entertainment.

Given that the main focus of the ELM is information processing and persuasion, persuasive messages related to smartphone-based sporting apps are operationalized. The goal of the present study is to enhance consumers' intentions and behaviors toward sport consumption (e.g., purchasing merchandise). Although this practice has often been attempted in the sporting and tourism industries, empirical support related to the impact of persuasive messages is scarce. As reviewed earlier, persuasive messages are a key component of attitude formation (Raihan, Hasan, & Shamim, 2013), and the effective communication of persuasive messages is a critical aspect of organizational messaging (Wells & Spinks, 1996). Thus, it is believed sporting organizations and tourism marketers should concentrate their efforts on creating persuasive messages that bridge consumers' intention-behavior gap. Accordingly, this study will attempt to address the issue of determining the needed efficacy of messages to affect consumers' intention to use smartphone apps to consume information related to sports. It will also explore the best ways of communicating with the target audience, as well as the benefits such communication might offer.

2.7 Involvement

Involvement has been defined as “an unobservable state of motivation, arousal, or interest, that is evoked by a particular stimulus or situation and has driven properties” (Havitz, Dimanche, & Bogel, 1994, p. 39). The term typically refers to personally relevant perceptions of a product or event (Zaichkowsky, 1985), stages of psychological connection (Funk, Ridinger, & Moorman, 2004), and/or the extent to which an

individual is devoted to an activity, experience, or place (Gross & Brown, 2008).

Previous findings suggested that the level of involvement associated with a particular product or event influences an individual's preference, behavior, and satisfaction in pursuing leisure, sports, and travel (Ritchie, Tkaczynski, & Faulks, 2010; Havitz & Dimanche, 1997). Additionally, involvement has been revealed to behave as a moderator for both central and peripheral route processing (Petty & Cacioppo, 1986). Similar to Petty and Cacioppo (1986), involvement will be conceptualized in the current study as personal relevance that promotes self-interest and induces an increased emotional information-processing event in the ELM.

Literature in the marketing and consumer behavior fields have represented scales of involvement to be either unidimensional (e.g., Zaichkowsky, 1985) or multidimensional constructs (Laurent & Kapferer, 1985). Zaichkowsky (1985) conceptualized involvement as unidimensional, and developed a measurement scale of the same type. Conversely, Laurent and Kapferer (1985) furthered a multidimensional view and developed a four-dimensional measurement scale. Although recent literature on involvement has adopted Zaichkowsky's (1985) unidimensional approach, both scales incorporate measures of involvement within them, and thus are useful (Mittal, 1989).

The concept of involvement has widely been adapted to the sport and tourism fields (Bee & Havitz, 2010; Bennett, Ferreira, Lee, & Polite, 2009; Gursoy & Gavcar, 2003; Havitz & Dimanche, 1997; Iwasaki & Havitz, 2004), and has been found to be an essential component that affects leisure, sport, and tourism-related behaviors such as

attending games (Funk et al., 2004), watching TV (Gantz & Wenner, 1995), participating in events (Bennett, Mousley, Kitchin, & Ali-Choudhury, 2007), and general personal commitment (Iwasaki & Havitz, 2004).

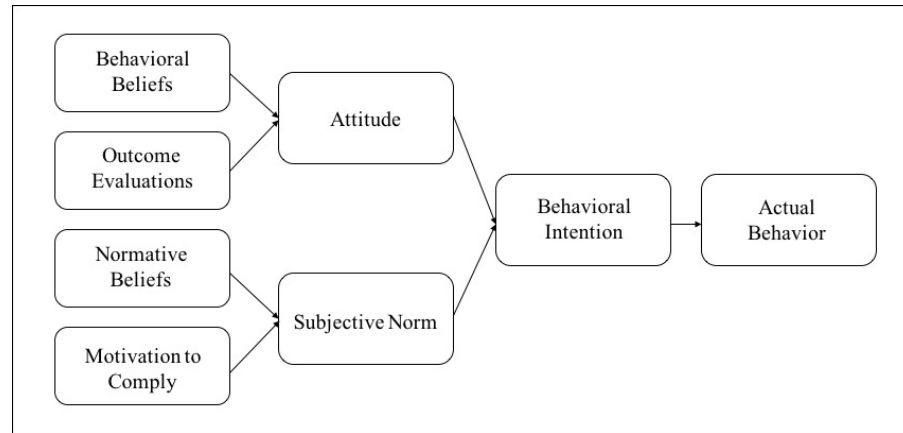
Ryan and Trauer (2005) used involvement in the context of sport tourism to investigate major participant-based and multi-sport events. For example, international tennis games and the Masters tournament appeal to sport fanatics who spend heavily on their pursuits, including financing travel (Getz & McConnell, 2014). Particularly, these researchers postulated that “participants form a degree of involvement with games participation that in part is a confirmation of self-identity as an exponent of a particular sport” (Ryan & Trauer, 2005, p. 179). Thus, it seems natural that highly involved fans willing to travel for their teams are likely to critically evaluate their team’s likelihood of success at particular sporting events. Bennett et al. (2009) found that individuals with high levels of involvement conducted more detailed information searches and spent more time gathering information, and that they read and analyzed the information collected more thoroughly than those with lower levels of involvement. Moreover, highly involved fans may have higher expectations regarding the means by which such information is accessed. Therefore, this study posits that determining the level of personal involvement with particular sporting events could be important to understanding sport tourists’ related to smartphones and website-related behaviors.

2.8 Theory of Reasoned Action

The TRA, proposed by Fishbein and Ajzen (1975), has led to a considerable amount of research attention directed towards consumer behavior (e.g., Bright, 2003; Fitzmaurice, 2005; Sheppard, Hartwick, & Warshaw, 1988). With the use of the TRA, marketers and managers are able to predict consumers' intentions and actual behaviors, as well as investigate how and why consumers' behaviors change and how they can best be targeted (Sheppard et al., 1988). The TRA has been described as insightful, intuitive, and parsimonious in its ability to predict behavior (Bagozzi, 1982). The theory posits that individuals tend to be rational and regard the results of their actions before making decisions about performing actions (Ajzen & Fishbein, 1980). The theory depends on the proposition, indicating that individuals' behavioral intention affect their action to perform that action, which offers an indication of the actual behavior and that behavioral intentions are predicted by individual's attitudes and social norms toward the intended behavior (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980) (see Figure 4).

The TRA postulates that most individuals' behaviors are within the actors' volitional control, and thus can be expected from their intentions (Ajzen & Fishbein, 1980). Because diverse external factors can influence the stability of intention, the theory proposes that the relationship between an intention and a behavior is based on two factors: (a) the measurement of intention must link with the behavioral criterion in terms of context, target, time, and action; and (b) the intention must not change prior to the behavior is detected (Ajzen & Fishbein, 1980).

Figure 4 Theory of Reasoned Action



(Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980)

Based on the above review, it is believed the TRA offers a useful theoretical framework for answering questions about the way individuals use their smartphone apps to make decisions related to visiting sport tourism settings.

Attitude

According to Fishbein and Azjen (1975, p. 12), an attitude is “a person’s favorable or unfavorable evaluation of an object,” and the nature of an attitude is “learned; it predisposes action, and such actions are consistently favorable or unfavorable toward the object” (p. 11). Eagly and Chaiken (1993) suggested what may be the most typical contemporary definition of attitude: "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (p. 1). Earlier research has defined attitude as a person’s reasons for performing a behavior, including the attributes of performing that behavior (behavioral beliefs) and the person’s

understanding of the outcomes, as weighted by evaluations of those attributes or outcomes (Ajzen, 1988; Ajzen & Fishbein, 2000; Finlay, Trafimow, & Villarreal, 2002; Fishbein & Ajzen, 1975). In sum, the evaluative aspects of attitude have received significant attention because they comprise some of its essential elements.

A significant number of scholars have considered both affective and evaluative attitudes (Bagozzi, Lee, & van Loo, 2001). Fishbein and Ajzen (1975) argued that attitude can be measured by locating subject on either bipolar affective or evaluative dimension. Fishbein (1967) and Fishbein and Ajzen (1975) emphasized the significance of the difference between an individual's attitudes and beliefs. They argued that attitudes reflect a broad evaluation of an observation of a certain item and/or idea, while beliefs are used to assess an evaluation. However, Eagly and Chaiken (1993) implied that affect may not be synonymous with attitude.

To distinguish attitude from belief, Fishbein and Ajzen (1975) divided attitude into three constructs: affective, cognitive, and conative components. They argued that affect is a vital part of an attitude because it represents an individual's feelings toward a particular object, issue, or event, which can be favorable, unfavorable, or neutral (Fishbein, 1967). Gartner (1994) suggested that affect commonly occurs at the evaluation stage in destination decision-making, while Pike and Ryan (2004) believed that the cognitive component is the sum of what is known about a destination, which may or may not be understood from a previous visit (Pike & Ryan, 2004). Conation denotes a person's behavioral intentions toward and actions regarding the object

(Fishbein & Ajzen, 1975); it is also considered to be the tendency to visit a destination during a certain time period (Pike & Ryan, 2004).

Subjective Norms (Social Influence)

With rapid advancements taking place in the Internet and social media, the impact of social influence on individuals' behaviors has become important. Social influence refers to "perceived external pressures to use (or not use) (a) system" (Liker & Sindi, 1997, p. 152). Social influence has been suggested to be pivotal in understanding how individuals make decisions about adopting and using new technologies (Venkatesh & Morris, 2000). In the TRA model, social influence is referred to as subjective norms. Fishbein & Ajzen (1975, p. 302), defined subjective norms as "a person's perception that most people who are important to him think he should or should not perform the behavior in question." Ajzen and Fishbein (1980) believed that either approval or disapproval of relevant others on an individual's behaviors determines the person's subjective norms, which also depends on how much they are motivated to accept it. In other words, normative beliefs reflect interpersonal pressures. In terms of the TRA, subjective norms are postulated to have a direct effect on behavioral intentions because individuals perform behaviors in response to valuable referents, irrespective of their personal attitudes toward the behavior.

However, other researchers have argued that subjective norms do not have significant effects on behavior. Karahanna, Straub, and Chervany (1999) demonstrated that consumers tend to utilize their own cognitive assessments (e.g., perceived

usefulness) of prior experiences over other people's assessments (e.g., social norms) when they visit an online site to make a purchase. In addition, many studies have found that subjective norms are the least-decisive TRA predictor for determining behavioral intentions and actual behaviors (Armitage & Conner, 2001; Hagger, Chatzisarantis, & Biddle, 2002).

Behavioral Intentions

Behavioral intentions indicate "a person's intention to perform various behaviors." The intensity of the intention can be described as "the person's subjective probability that he/she will perform the behavior in question" (Fishbein & Ajzen, 1975, p. 12). Intention has been suggested to be "a psychological construct distinct from attitude, which represents the person's motivation in the sense of his or her conscious plan to exert effort to carry out a behavior" (Eagly & Chaiken, 1993, p. 168). In the TRA model, behavioral intentions are identified as elements conative with attitude that posited to be influenced by both attitudes and subjective norms (Fishbein & Ajzen, 1975).

2.9 Technology Acceptance Model

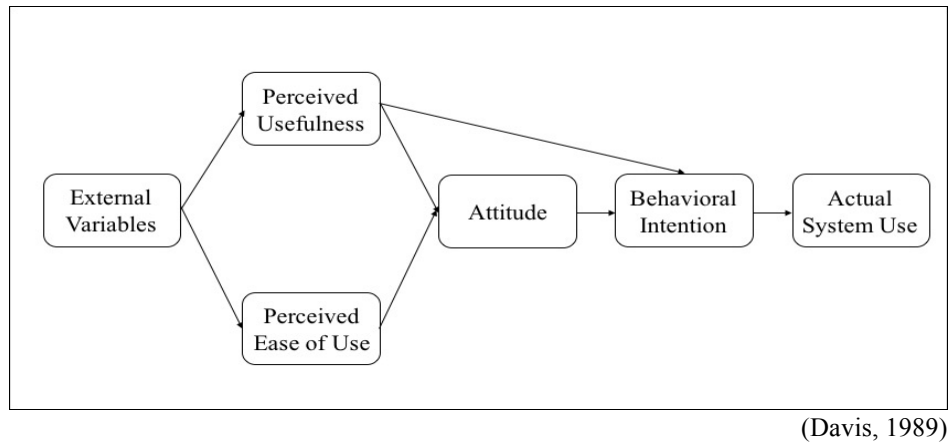
Adapted from TRA, the TAM was originally intended to improve the ability to understand users' intentions to accept information technology, and specifically behaviors related to computer usage (Davis, 1989). The primary purpose of the TAM has thus been to provide a theory-based explanation of the antecedents of users' technology acceptance

and other related behaviors, and to serve as the basis for attempts to determine: “What causes people to accept or reject information technology?” (Davis, 1989, p. 320).

The TAM highlights two determinants of the behavioral intention to use a type of technology: perceived ease of use (PEOU) and perceived usefulness (PU) (see Figure 5). PEOU refers to “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989, p. 320). That is, it indicates the extent to which the individual perceives the technology as easy to use. For instance, it proposes that if sport tourists perceive purchasing game tickets via a smartphone app as simple and not something that requires them to learn time-consuming functions, they will be more likely to accept and use the smartphone technology than those who perceive the smartphone function to be difficult to use.

As mentioned above, PU is “the degree to which an individual believes that using a particular system” would enhance their productivity (Davis, 1989, p. 320). For example, a smartphone user is more likely to believe their device is useful if it aids them in being more productive (Davis, 1989). Notably, in the TRA model, beliefs only incline an attitude toward a behavioral construct, while in the TAM they directly affect both attitude and behavioral intention (Davis, 1989; Davis et al., 1989). Davis and Venkatesh (1996) pointed out that in the TAM model, the direct effect of a belief (e.g., perceived usefulness) regarding the intention to utilize a system is validated by the fact that individuals may still use a system that helps their performance, even if they have a negative attitude towards it.

Figure 5 Technology Acceptance Model



Perceived Usefulness

PU has also been referred to as the degree to which an individual believes that a specific technology system can facilitate a transaction process (Davis, 1989). It has been associated with outcome expectations, extrinsic motivations, and instrumentality (Davis, 1989, 1993; Davis, Bagozzi, & Warshaw, 1989; Davis et al., 1992). Previous studies related to the TAM have revealed that PU is a powerful determinant of users' acceptance, adoption, and actual usage (e.g., Davis, 1989; Davis et al., 1989; Taylor & Todd, 1995; Venkatesh & Davis, 1996, 2000). Accordingly, sport tourists using a sport-related mobile app would likely perceive it as useful if the app provides rich and relevant information about events, news, and scores for their favorite teams. Furthermore, several studies have revealed that PU has a positive effect on the behavioral intention to use an online retailer (e.g., Koufaris, 2002; Lin & Lu, 2000). Thus, in this study PU can be regarded as the extent to which a sport tourist believes that using a sport-related mobile app would accomplish his or her goal to obtain desired information.

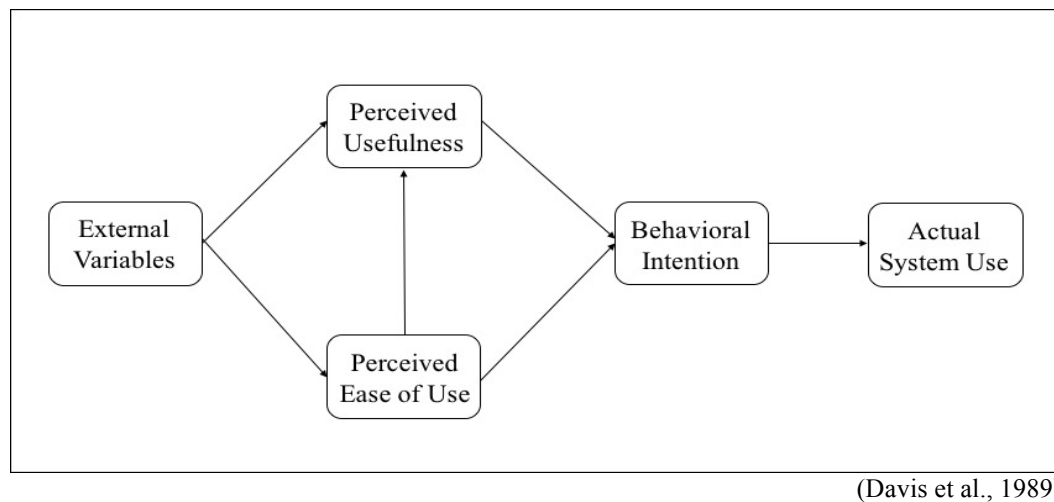
Perceived Ease of Use

PEOU refers to the degree to which an individual believes that using something will be free of effort (Davis, 1989). According to Davis (1989, p. 320), “free of effort” indicates the ease of finding what is being looked for and generally navigating around a site. Davis et al. (1989) viewed PEOU as an antecedent of attitudes toward and intentions to use technology. PEOU has also been suggested to affect perceived usefulness since the easier a technology system is to use, the more useful a user perceives it to be (Davis, 1989; Davis et al., 1989). Thus, in the current study, PEOU can be considered as the extent to which a sport tourist trusts that using a sport-related mobile app will be free of effort.

In the original TAM model (Davis, 1989), PEOU was proposed to have a direct influence on attitude. The revised TAM proposed by Davis et al. (1989) eliminated attitude towards a behavior because it was not found to fully mediate the relationship between PU and PEOU with behavioral intention (see Figure 6). In other words, a user’s attitude does not always completely influence his or her behavioral intentions (Guo & Barnes, 2007). As a result, scholars (e.g., Ketikidis, Dimitrovski, Lazuras, & Bath, 2012; Venkatesh & Davis, 1996, 2000; Wu & Wang, 2005) modified the revised TAM (eliminating the attitude construct) and applied it in various contexts to understand users’ perceptions of and intentions toward the use of distinct forms of developing technology. This model has further been employed to examine different uses of technology such as mobile consumption (Jiang, 2009; Lee, Ryu, & Kim, 2010; Li, Dong, & Chen, 2012),

information technology (Tseng, Hsu, & Chuang, 2012), motivations for online sport consumption (Ha et al., 2013; Hur et al., 2011; Hur, Ko, & Valacich, 2011), and team-related mobile apps (Kang et al., 2015; Kim et al., 2016).

Figure 6 Revised Technology Acceptance Model



Some researchers have argued that both constructs (i.e., perceived usefulness and perceived ease of use) have positive effects on the intention to utilize a technology (Davis, 1989; Davis et al., 1989; Jiang, 2009; Shih, 2004). Consequently, the TAM has been furthered as a powerful and valid framework for comprehensively understanding and assessing users' intentions to adopt technology at the individual level (Leong, 2003; Mun & Hwang, 2003). Multiple empirical studies have underscored how the TAM can help explain the intention to adopt a technology by examining the mechanisms and determinants that influence such decisions, as well as how they are perceived (Taylor & Todd, 1995; Venkatesh & Davis, 2000). This includes the belief that the means of

adoption affects whether a particular technology will be successfully employed (Liao, Palvia, & Chen, 2009).

Using the TAM as a conceptual framework, Kang et al. (2015) explored why college students use sport-related mobile apps and what resulting benefits they gain. They found that fan-ship, convenience, and information obtained from sport-related mobile apps were all motivation to use them. They further found that users' beliefs also affected adoption intention. In addition, their research revealed that supporting and expressing fan-ship through sport-related mobile apps had a positive influence on users' lifestyles. This suggests that positive beliefs and expressions likely help determine if an individual will adopt innovative technology.

While the TAM is a well-established framework for representing user acceptance of information technology in relation to various utilitarian forms, the model has been suggested to be limited in explaining adoption of pleasure, or hedonically oriented systems such as social networking services (SNS; e.g., van der Heijden, 2004) and online games (e.g., Okazaki, Skapa, & Grande, 2008). van der Heijden (2004), stated that for hedonic (or pleasure-based) systems, intrinsic motivation conceptualized as perceived enjoyment would likely be the dominant predictor of intention to employ, at the expense of extrinsic motivation. Sport-related smartphone apps are primarily for entertaining users and giving enjoyment outside the purpose of business. Thus, it is believed to be important to consider using perceived enjoyment as a predictor of users' intention to adopt smartphone apps for sport consumption.

Perceived Enjoyment

Davis and colleagues (1992) argued that perceived enjoyment (PE), in addition to the two original constructs (i.e., perceived usefulness and perceived ease of use), was also a determinant affecting users' acceptance of a technology. PE refers to "the extent to which the activity of using a computer is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated" (Davis et al., 1992, p. 1113). It has further been suggested that people tend to engage in activities from which they receive enjoyment and pleasure (Teo & Lim, 1997). In the current research, enjoyable moments may include buying event e-tickets and team merchandise, and booking hotels through the smartphone app. Hence, PE denotes the degree to which fun can be stemmed from the activity of using a smartphone app.

PE, along with PU and PEOU, have all been shown to be significant antecedents of a user's attitudes toward technology acceptance (Davis et al., 1992), website perusal (Hur, Ko, & Claussen, 2011), and smartphone use (Kim et al., 2016). As previous studies have suggested, PE is an example of intrinsic motivation and plays an important role in users' attitudes and behaviors (Teo & Lim, 1999; Wexler, 2001; Mun & Hwang, 2003). Hsu and Lin (2008) suggested that PE, similar to perceived playfulness, has the most critical influence on attitudes regarding the use of personal websites. Additionally, Hur et al. (2011) suggested that PE was a key factor in determining a user's acceptance of sport-based websites. Therefore, in this research, PE is considered an important predictor of sport consumers' intention to use smartphone apps.

2.10 Synopsis of the Chapter

This section reviewed the existing literature on the variables employed in the hypotheses presented in the following chapter. First, smartphone usage in general, and in particular the use of smartphones in a sport and tourism context, were explained. Next, persuasive communication was conceptualized and reviewed, along with the ELM. Finally, each construct (i.e., perceived usefulness, ease of use, and enjoyment) in relation to technology acceptance was discussed. The following chapter integrates all of the aforementioned variables and proposes the conceptual model for this study. The conceptual model represents the relationships among the variables reviewed. Hypotheses about these relationships are based on the theoretical background and empirical findings of the prior literature.

CHAPTER III

CONCEPTUAL DEVELOPMENT

This chapter develops a conceptual model for technology acceptance that is in line with the literature review of the preceding section. It also provides research hypotheses by integrating consumer behavioral and psychological constructs derived from earlier work on the elaboration likelihood model (Petty & Cacioppo, 1986), involvement (Shank & Beasley, 1998; Zaichkowsky, 1985), the theory of reasoned action (Fishbein & Ajzen, 1975), and the technology acceptance model (Davis, 1989; Davis et al., 1989).

3.1 Alternative Model

Dual-Process Theory and the Elaboration Likelihood Model (ELM)

The term “duality” has long been employed in studies of how humans process information (Moskowitz, Skurnik, & Galinsky, 1999). Moskowitz et al. (1999) argued that the term is based on two key assumptions: (1) people tend to invest significant effort in developing their beliefs and making decisions, and (2) people are likely to expend relatively little cognitive effort on processing information, depending on certain heuristics. Multiple sport and tourism studies have examined the decision-making processes employed by sport consumers, basing their analyses on two prevalent models used in dual process theories, including: the elaboration likelihood model (ELM) (Petty & Cacioppo, 1981) and the heuristic systematic model (HSM) (Chaiken, 1980). The

former is a dichotomous approach best suggested by the ELM of persuasion, whereas the latter is an interactive approach best described by the HSM.

Dual process theory presents an all-inclusive discussion of how people process information, determine its validity, and shape their decision consequences (Eagly & Chaiken, 1993). Dual process models rest on three primary assumptions. First, that there are two different information processing routes employed when making judgments: effortful processing (i.e., the central route in ELM and systematic processing in HSM) and effortless processing (i.e., the peripheral route in ELM and heuristic processing in HSM). It suggests individuals tend to process systematically, and with more effort under conditions of high motivation or involvement. However, they are inclined to process heuristically, which is more effortless and typically employed in conditions of low motivation or involvement. Next, each processing route can have a substantial impact on persuasion and attitude change. Third, situational involvement, which is of temporary importance for products in particular situations, has a significant impact as a moderator in persuasion and changes in attitude (Chaiken, 1980; Petty et al., 1983).

As mentioned above, one notable assumption of dual process models to consumer research is the moderating role of involvement (Chaiken, 1980; Jun & Vogt, 2013; Petty et al., 1983). The moderating effects of involvement would be demonstrated by the moderated regression analytic procedure for significant statistical interactions (Stone & Hollenbeck, 1984). For example, the moderating effects of dual processing modes should be construed as assessing unimodally (e.g., “I believe in trusting my hunches” and “I enjoy intellectually challenging problems”) rather than bimodally (e.g.,

“I am more of a thinking person than a feeling person”) (Epstein, Pacini, Denes-Raj, & Heier, 1996). Involvement in dual process models refers to the amount of perceived personal attention individuals focus on product-related information while evaluating each purchase, and the related decisions that are made (Jun & Holland, 2012). In turn, the level of involvement can differ according to the decision-making process.

It has been suggested that the ELM is more pertinent to understanding users’ acceptance behavior with regards to information technology (IT) than the HSM is, because IT acceptance is fundamentally a problem of social influence (Rogers, 2003). As described above, the notion of social influence is considered in part a social norm construct in the TRA (Fishbein & Ajzen, 1975) and TPB (Ajzen, 1991), even though it has not been investigated in depth in the literature on technology acceptance (Bhattacharjee & Sanford, 2006). Thus, it is believed the literature on ELM offers a theoretical foundation and empirical support for systematically delving into alternative influence processes, the effects of those processes, and certain moderating factors.

ELM is likely the most identified and utilized dual process model in sport and tourism research; however, multiple studies have revealed hedonic and/or experiential products or services associated with sport tourism that do not include the bifurcated approach, due to the unique characteristics of both areas (Jun & Holland, 2012; Oh & Jasper, 2006). For instance, hedonic benefits that appear through exploration and entertainment are commonly recognized as part of sport and travel-related products because they are hedonic by nature.

The use of pictures is also likely an influential aspect of the information promoting for (in)tangible and experiential products. According to Petty and Cacioppo (1980), the level of attractiveness of a photograph of a product has significant impact on individuals' attitudes toward that product, not only as a central cue under high-involvement conditions, but also as a peripheral cue in low-involvement circumstances.

In short, in the sport and tourism context, the ELM posits a dual process theory capable of changing a sport consumer's attitudes, beliefs, and intentions regarding new technology acceptance (Jang, 2012; Jun & Vogt, 2013). It further postulates that changing attitudes and resultant behaviors is a consequence of the message's level of associated effort, including the argument quality as a central cue and source credibility as a peripheral signal (Petty, Brinol, & Priester, 2008; Petty, Cacioppo, Sedikides, & Strathman, 1988). In addition, involvement within the dual process model has been suggested to play a significant role in explaining and moderating variables within the model (Park, Lee, & Han, 2007; Petty et al., 1983). A detailed discussion of involvement's role within the model will be presented in the next section.

Involvement Theory and Event Involvement

Involvement theory, which was initially introduced in the field of social psychology, has frequently been applied in the consumer research, marketing, and advertising fields. Involvement theory assumes that a person will be more interested in or committed to a product if its selection involves extensive information processing, complex choice processes, and extended brand evaluation (Assael, 1987). Many scholars

have provided a theoretical foundation for explaining some of the behavioral changes affected by repeat visitation (Gursoy & Gavcar 2003; Kapferer & Laurent, 1985; Lehto, O’Leary, & Morrison, 2004) and increases in involvement (Kapferer & Laurent, 1985; Ratchford & Vaughn, 1989). Involvement has historically been found to play a significant role in explaining and moderating variables related to behavior. The assumption is that differences in behaviors are relatively associated with the degree of the actor’s involvement (Poiesz & Bont, 1995). Additionally, a number of consumer decisions have been found to be influenced by their level and extent of that involvement (Zaichkowsky, 1986).

In general, involvement can be divided into two types: situational and enduring (Celsi & Olson, 1988; Mittal, 1989). Situational involvement has been suggested to be the temporary perception of a product’s relevance at the time a purchase decision is made (Chandrashekar, 2004; Chandrashekar & Grewal, 2003). In contrast, enduring involvement has been defined as a stable state that represents an individual’s interest in a product over a significant period of time (Chandrashekar, 2004; Chandrashekar & Grewal, 2003). Kim and Morris (2007) suggested that situational involvement is more effective for predicting consumers’ actual behavior, since consumers may have a high level of situational involvement even in the absence of any enduring involvement (Mittal, 1989). Situational involvement can be provoked by a situation or stimulus such as an appealing attribute of a destination, exciting leisure activity, or unique event (Kaplanidou & Havitz, 2010; Richins, Bloch, & McQuarrie, 1992). Based on the aforementioned literature (Kim & Morris, 2007), this study operationalizes involvement

as a situational factor and defines event involvement as a sport tourist's sense of personal relevance related to and level of interest in a sporting event.

Event involvement refers to a strong and solid interest in an event that is based on emotional or esthetic appeals associated with that event (Mao & Zhang, 2013). In a sport context, event involvement can be recognized via team identification, which is the state of psychological commitment felt by a sports fan towards his or her favorite team (Branscombe & Wann, 1992). For example, when one perceives team attributes as important when judging that team's value, this typically enhances team identification and can lead to increased participation in sporting events.

Several researchers have argued that event involvement can substantially assist in predicting individuals' information processing and decision making activities (Gursoy & Gavcar, 2003; Havitz & Dimanche, 1997). Pham (1992) contended that high levels of event involvement lead to greater attention being paid to messages and other stimuli related to an event, while low levels of event involvement garner relatively less attention. Thus, highly involved sport tourists are likely to invest cognitive effort in searching for sport or tourism-related information in order to facilitate their decision making processes (McGehee, Yoon, & Cardenas, 2003). For example, Samuelsen and Olsen (2010) found that in high situational event involvement conditions, recreational skiers appeared to develop more favorable attitudes towards a ski resort when they were exposed to information-based appeals. Geuens, de Pelsmacker, and Faseur (2011) extended this finding to persuasive messages, determining that high-quality advertising using informational appeals and focusing on detailed functions were more effective

when targeting highly involved individuals. Thus, the current study uses event involvement as a theoretical underpinning because involvement with sporting events has been found to result in positive effects on individuals' active information searching and information processing.

Technology Acceptance Theory and the Technology Acceptance Model

An issue why people accept or reject new technologies has been one of the most challenging topics of inquiry in information systems studies (Swanson, 1988). First conceptualized by Davis (1989), Technology Acceptance Theory (TAT) suggests that understanding a user's attitudes toward a particular technology can assist in comprehending their acceptance and use of applications related to that technology. The theory has been used to explain technology-related usage behavior, and to determine the factors influencing the acceptance of new technologies (Barnes & Huff, 2003; Otieno, Liyala, Odongo, & Abeka, 2016).

TAT is derived from the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). It postulates that a user's technology acceptance is determined by their perceptions of the technology's usefulness (PU) and ease of use (PEOU). PU is a consumer's perception of the outcome of an experience, while PEOU indicates an individual's belief that the use of a technology will be free from effort (Davis, 1989). By assessing these determinants, TAT explains a person's or group's "demonstrable willingness to employ information technology for the tasks it is designed to support" (Dillon & Morris, 1996, p. 16).

In the earlier existing literature, several prominent models have been conducted in an attempt to understand users' acceptance of new technologies. Of these, the Technology Acceptance Model (TAM) has been regarded as the most parsimonious and influential in explaining users' behaviors related to technology use (Ayeh, 2015; Venkatesh & Davis, 2000). The TAM model, which was proposed by Davis et al. (1989), assumes that an individual's acceptance of information systems in relation to new technology. The underlying assumption of TAM is that an individual's behavior is under volitional control, which is to say voluntary or at the discretion of the user (Adams, Nelson, & Todd, 1992; Davis et al., 1989). TAM model consists of two major cognitive factors: perceived usefulness (PU) and perceived ease of use (PEOU). Both factors can influence an individual's attitudes and behavioral intentions, as well as actual behavior. Nevertheless, researchers have not generally investigated all of the constructs in a single study. Many have, however, extended the TAM model by applying new constructs and various contexts to fit specific conditions, therefore improving the model's explanatory ability (Wu, Zhao, Zhu, Tan, & Zheng, 2011).

The TAM has widely been employed in research on users' acceptance of different types of technology, including e-learning (Persico, Manca, & Pozzi, 2014), mobile advertising (Wu & Wang, 2005), online shopping websites (Gefen, Karahanna, & Straub, 2003), smartphones (Joo & Sang, 2013), and technology-based services (Zhu & Chan, 2014). Research on hospitality and tourism-related settings has applied TAM to various modes of IT acceptance, including hotel front office systems (Kim, Lee, & Law, 2008), travelers' mobile phone usage (Kim, Park, & Morrison, 2008), airline B2C e-

Commerce websites (Kim, Kim, & Shin, 2009), and restaurant computing systems (Ham, Kim, & Forsythe, 2008). Additionally, in a sport tourism context, several studies have explored settings such as sport-related web portals (Hur et al., 2012), sport fans' smartphone adoption (Ha et al., 2015), and the use of team apps (Kim et al., 2016). The findings of these studies have consistently revealed that PU and PEOU are key determinants of users' acceptance of technology-relevant applications.

Since PU and PEOU were originally employed to reveal the more utilitarian constructs of technology use, many recent studies of technology applications have addressed hedonic (or pleasure-based) components such as the perceived enjoyment received from using a type of technology (Butler & Sagas, 2007; Moon & Kim, 2001; van der Heijden, 2004; Venkatesh, Thong, & Xu, 2012). Thus, to examine sport tourists' use of smartphone apps, this study will also include a measure of perceived enjoyment.

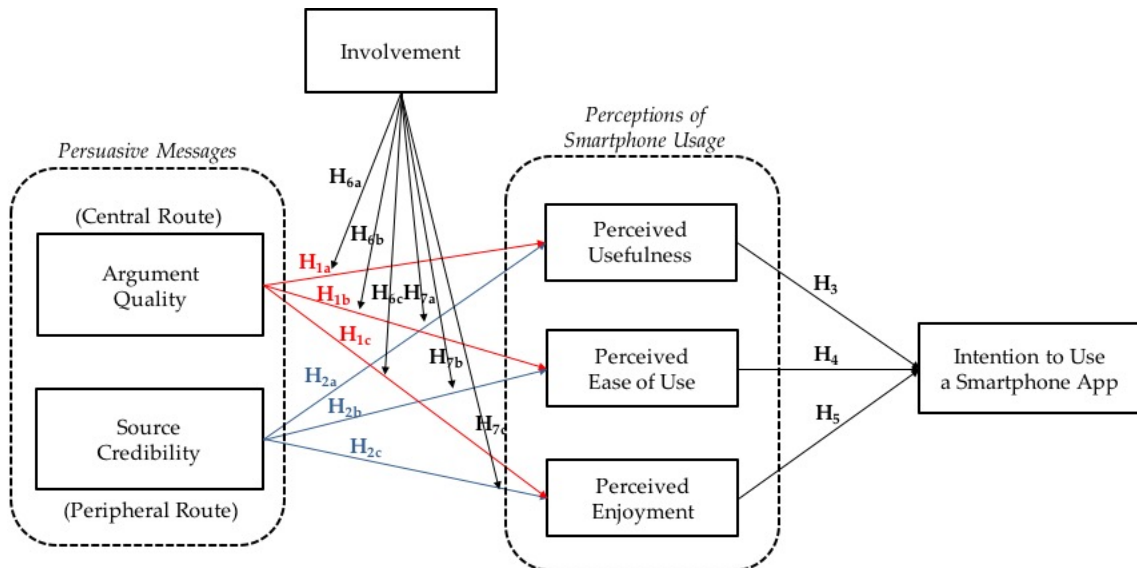
As reviewed above, there has long been research into the decision-making processes related to the use of new technology. However, it can be argued that an appropriate model in sport tourism studies has yet to be established to explain sport tourists' smartphone usage for consuming sport-related material. In sport management, very little research has been done on the predictors of fans' intentions and behaviors related to technology usage for sport consumption (Ha et al., 2015; Hur et al., 2007; Kim et al., 2016). Furthermore, it is believed there has been no attempt to investigate information adoption and advertising effects in relation to technology used in a sport tourism setting. Therefore, this study will examine how persuasive messages influence

sport tourists' acceptance of technology used for sport consumption, as well as how event involvement moderates this acceptance.

3.2 Proposed Research Model and Hypotheses Development

Based on the literature review and study objectives, the following model is proposed (see Figure 7). The theoretical foundations can be found in Eagly and Chaiken's dual process theory (1993), Assael's involvement theory (1987), and Davis's technology acceptance theory (1989). The proposed model was also developed from the ELM (Petty & Cacioppo, 1981, 1986) and TAM (Davis, 1989; Davis et al., 1989), which are rooted in the above-mentioned theories. The current study is situated in a sport tourism context.

Figure 7 The Proposed Conceptual Model



The proposed conceptual model examines the effect of persuasive messages as an external variable, in order to determine users' intention to use smartphone apps for sport consumption within the context of sport tourism. Over the last two decades, a considerable number of studies have concentrated on individuals' acceptance of new information or technology systems (Agarwal & Prasad, 1998; Burton-Jones & Hubona, 2006; Gao, Krogstie, & Siau, 2011; van der Heijden, 2003; Moon & Kim, 2001; Sun & Zhang, 2006). In particular, the TAM has been consistently found to be an appropriate theoretical baseline, suitable for explaining the phenomenon (Schepers & Wetzels, 2007; Davis et al., 1989). However, one of the major criticisms of the TAM is that PU and PEU constructs do not include individual emotional variables (e.g., enjoyment, fun, or playfulness), although they do reflect the functional and utilitarian dimensions of personal perceptions (Tzou & Lu, 2009). Additionally, the TAM does not describe how and why external variables exert an influence (Li & Ku, 2011). For this reason, researchers have developed other models such as the extended technology acceptance model (TAM2) (Venkatesh & Davis, 2000), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003), and UTAUT2 (Venkatesh et al., 2012) to provide better explanations for individuals' perceptions of technology devices or systems. TAM2 extended the original TAM model to explicate perceived usefulness (PU) and usage intention with regards to social influence and the cognitive instrumentation processes. TAM2 differs from the original TAM model in its incorporation of three external variables, such as "subjective norm," "voluntariness," and "image" (Venkatesh & Davis, 2000, p. 187). However, TAM and TAM2 have been

criticized as being remnants, lacking a unified structure that explains the various factors influencing technology use. For this reason, Venkatesh et al. (2003) compiled a comprehensive chronicle and review of the proposed theories and variables proposed as useful for predicting the adoption of technology.

These researchers developed the UTAUT by reviewing and combining eight representative user acceptance models. These eight main models included: the TRA, TPB, TAM, decomposed TPB (DTPB) (Taylor & Todd, 1995), motivational model (MM) (Davis et al., 1992), model of PC utilization (MPCU) (Thompson, Higgins, & Howell, 1991), innovation diffusion theory (IDT) (Rogers, 2003), and social cognitive theory (SCT) (Compeau & Higgins, 1995a, 1995b). They focused on integrating pivotal constructs from these eight models into their single structural model. If so doing, they contributed substantially to a stronger clarification of the users' acceptance of information technology in multidimensional situations. The UTAUT has been applied to examine emerging technologies, providing valuable insights for comprehensively understanding users' intentions toward new technologies.

Venkatesh et al. (2012) extended the UTAUT model by incorporating three additional constructs. They proposed the addition of hedonic motivations, habit, and price value, based upon the findings of prior studies (Brown & Venkatesh, 2005; Coulter & Coulter, 2007; Davis & Venkatesh, 2004). Hedonic motivation was first suggested by Hirshman and Holbrook (1982) to be a significant factor in predicting consumer behavior. Venkatesh et al. (2012) conceptualized hedonic motivation as being similar to perceived enjoyment, since using technology can be fun and/or pleasurable. For

example, if a user believes a technology system to be pleasurable, their intention to utilize that technology system is likely to increase.

Although previous studies have recognized that external variables play a significant role in shaping an individual's perceptions of new technology, they do not explicate how the processes or routes of external variables influence a personal system acceptance. For instance, they have not asked questions such as: "What types of messages or information are most effective for affecting individuals' perceptions and emotions?" Thus, external variables' routes of influence to an individual's technology acceptance deserve further validations.

The proposed conceptual model will also attempt to integrate the TAM and ELM. Consequently, the present study will examine the effect of persuasive messages as an external factor, including argument quality and source credibility, on three aspects of perception (i.e., PU, PEU, and PE), as well as on the behavioral intention to use smartphone apps to consume sport-related material.

Based on the underlying assumptions, the following section describes the three aspects that were considered when formulating the hypotheses and developing the conceptual model for this study: (1) the effect of persuasive messages (i.e., argument quality and source credibility) on the perception of smartphone apps (Aspect 3-1); (2) the relationship between the perception of a smartphone apps and the behavioral intention to use that app (Aspect 3-2); and (3) the moderating role of involvement in information acceptance and the decision-making process related to smartphone app usage (Aspect 3-3).

Aspect 3-1. The Effect of Persuasive Messages

Mak et al. (1997) observed that argument quality and source credibility provide two alternative routes for persuasive messages seeking to affect recipients' system acceptance. They found that Individuals with higher levels of elaboration likelihood were disposed to process information carefully and to further scrutinize arguments related to that information. They thus found that message acceptance was determined by argument quality (Ajzen, Brown, & Rosenthal, 1996).

Similarly, Schroeder (2005) argued that informational messages are associated with individuals' rational judgments. Individuals who consider argument quality have been found to be inclined to have heavy perceptions toward the information, carefully evaluate the data provided, and consider the available information via their perceptions (Li, 2015; Schroeder, 2005). Stephenson, Benoit, and Tschida (2001) found that an individual who closely paid attention to and cautiously inspected a message was likely to have more ideas, thoughts, or arguments about that message. In addition, higher quality arguments been found to provide individuals with the opportunity to learn message content, create cognitive responses, and perform dissonance-induced reasoning (Petty & Wegener, 1998).

Argument quality thus affects individuals' perceptions, especially with regards to changing or reinforcing their existing beliefs related to system acceptance (Bhattacharjee & Sanford, 2006). Accordingly, quality arguments in persuasive messages offer individuals more opportunities to understand the usefulness and ease of use of a piece of

technology. Additionally, argument quality as a specific feature of a persuasive message may influence the level of an enjoyment gained from using the related technology. Thus:

H_{1a}: Sport tourists receiving higher quality arguments in their persuasive messages are more likely to perceive the usefulness (PU) of using smartphone apps.

H_{1b}: Sport tourists receiving higher quality arguments in their persuasive messages are more likely to perceive the ease of use (PEU) of smartphone apps.

H_{1c}: Sport tourists receiving higher quality arguments in their persuasive messages are more likely to perceive enjoyment (PE) in using smartphone apps.

Source credibility has been found to have positive effect on persuasion because it can alter or strengthen message processing (Stephenson et al., 2001). As suggested by the ELM, peripheral cues motivate and enhance the experience of individuals who engage in relatively lower levels of elaboration. Similarly, Bhattacharjee and Sanford (2006) found that when designing an expert system, peripheral cues such as source credibility tend to influence users with low levels of participation. Thus, it has been found that a person who obtains information from a credible source generally has positive cognition in relation to their acceptance of the associated system (Chaiken & Maheswaran, 1994).

Source credibility may also have a positive effect on individuals' cognitive evaluations, such as PU and PEU. Message recipients who receive information from

expert sources have been found to consider critically the message, thus provoking either more favorable or unfavorable thinking (Stephenson et al., 2001). Similarly, Sussman and Siegel (2003) identified that source credibility generates positive effects for users' PU of an information system. It has further been found that a reliable expert's recommendation regarding the PEOU of a new system may shift an individual's thinking on the topic (Bhattacharjee & Sanford, 2006). Thus, persuasive messages from credible sources are likely to inspire message receivers to perceive an enhanced level of usefulness and ease of use in the related technology. Hence it is postulated:

H_{2a}: Sport tourists receiving more credible persuasive messages are more likely to perceive the usefulness (PU) of smartphone apps.

H_{2b}: Sport tourists experiencing more credible persuasive messages are more likely to perceive the ease of use (PEU) of smartphone apps.

Additionally, more credible sources have been found to be more likely to stimulate individuals' curiosity and arouse their imagination and interest in exploration (Ahn, Ryu, & Han, 2007). In other words, persuasive messages from credible sources likely encourage more enjoyable smartphone experiences. Therefore:

H_{2c}: Sport tourists receiving more credible persuasive messages are more likely to feel enjoyment (PE) when using smartphone apps.

Aspect 3-2. Perceptions of Smartphones

The literature on information systems has found that the TAM model is a key conceptual framework that outlines explanations for and predicts system use and adoption of technology. Recently, within more general settings, TAM-based models have been utilized to users' intentions to accept and adopt innovative technology (Gao et al., 2012; Thong, Hong, & Tam, 2006; Lee, Kozar, & Larsen, 2003). The TAM model fundamentally contains two constructs – perceived usefulness (PU) and perceived ease of use (PEU) – that predict behavioral intention to and actual usage of a new technology. Several researchers have incorporated additional constructs such as perceived enjoyment (PE; Davis et al., 1992; Moon & Kim, 2001) into the existing model. They have suggested that this extension is needed to better explain the adoption of hedonic technology systems (e.g., offering entertainment value to consumers; van der Heijden, 2004) and acceptance of online consumption behavior (Bart, Shankar, Sultan, & Urban, 2005). According to Ha et al. (2015) and Kim et al. (2016), three perceptions (i.e., PU, PEU, and PE) of technology are likely to exist and occur simultaneously in response to smartphone-specific features. For example, a sport fan tends to concurrently perceive smartphones as useful, easy, and enjoyable when considering smartphone functions. Accordingly, this study will explore if the above-mentioned constructs' (i.e., PU, PEU, and PE) influence on sport tourists' intention to use smartphone apps in a sport tourism setting. Thus, the follow hypotheses will be investigated:

H₃: The perceived usefulness (PU) of smartphone usage will positively influence users' intention to use smartphone apps.

H₄: The perceived ease of use (PEU) of smartphones will positively influence users' intention to use smartphone apps.

H₅: The perceived enjoyment (PE) of smartphones will positively influence users' intention to use smartphone apps.

Aspect 3-3. The Moderating Role of Involvement

A consistent finding in dual-process studies is the moderating role of involvement on persuasion, indicating that the level of involvement is likely to moderate the effects of specific information attributes on a message's ability to persuade (Jun, 2009). As mentioned above, a personal level of involvement toward an object has been found to be affected by the degree to which that individual identifies the object to be related to themselves (Celsi & Olson, 1988). Thus, involvement can be considered the amount of attention an individual gives a piece of information related to an object while evaluating that object for use in personal decision-making (Oh & Jasper, 2006).

Depending upon the level of involvement, individuals have been found to differ considerably in their decision-making processes (Havitz & Dimanche, 1990). High-involvement situations have been found to be likely to have greater levels of personal relevance and outcomes, or evoke more personal links than low-involvement circumstances (Chaiken, 1980; Krugman, 1965; Petty et al., 1983). In general, an individual who perceives high personal relevance in a product pays more attention to information related to that product, and puts more effort into the associated information processing. This is likely because an individual considers their judgement related to this

type of information to have significant consequences for themselves. Under high-level conditions, individuals commonly understand what they need and evaluate the enjoyable and informational merits of arguments contained in messages or commercials accordingly (Bloch, Sherrell, & Ridgway, 1986). In other words, the degree of an attitude change is generally contingent on the quality of the claim (Petty & Wegener, 1998).

Conversely, under low-level conditions, individuals have consistently been found to be more likely to feel that their judgement regarding a piece of information is not important (Chaiken, 1980; Petty et al., 1983; Petty, Unnava, & Strathman, 1991). Accordingly, their motivations are relatively lower with regards to information-processing (Petty et al., 1991). In turn, individuals with lower involvement have been found to employ simple, quick, and easy ways of processing the information (Petty & Wegener, 1998). For instance, low-involvement individuals spend less time scrutinizing a message's argument, or they default to a simple rule (e.g., "a recommendation referencing a survey is credible in product advertising") to more efficiently process the information (Maheswaran & Meyers-Levy, 1990). Consequently, their attitudes are typically influenced by external factors such as product endorsers or the attractiveness of pictures in the advertisement (Oh & Jasper 2006).

As suggested by the theoretical groundwork of involvement, the current study postulates that product involvement and ongoing participation in an event moderate the effect of behavioral intention to use a smartphone app. Intentions in the high-involvement group is predicted to be significantly greater than in the low-involvement

group. Compared to tourists who are less involved with a particular sporting event, tourists who are highly involved are postulated to be embedded with a strong sense of emotion before, during, and after their sport consumption, which influences their behavioral intentions related to re-visitation and repurchase. Conversely, highly involved visitors who receive comparatively more excitement and enjoyment from a sporting event may consider revisiting the event or others like it to gain additional enjoyable experiences. When revisiting an event or destination, they are more likely to use smartphone apps or websites. Thus, it is assumed that the behavioral intention to use smartphone apps may differ depending on tourists' involvement with an event. As a result, the related hypotheses are:

- H_{6a}:** Event involvement will positively influence the relationship between argument quality and perceived usefulness (PU).
- H_{6b}:** Event involvement will positively influence the relationship between argument quality and perceived ease of use (PEU).
- H_{6c}:** Event involvement will positively influence the relationship between argument quality and perceived enjoyment (PE).
- H_{7a}:** Event involvement will positively influence the relationship between source credibility and perceived usefulness (PU).
- H_{7b}:** Event involvement will positively influence the relationship between source credibility and perceived ease of use (PEU).
- H_{7c}:** Event involvement will positively influence the relationship between source credibility and perceived enjoyment (PE).

3.3 Synopsis of the Chapter

The current chapter presented the proposed conceptual model and discussed relationships among the predictable variables, based on the theoretical background presented earlier. It seems that a current gap in the research includes a theoretical understanding of information processing in relation to the use of technology in a sport tourism context. Thus, a conceptual model was structured by integrating the ELM with the TAM, grounded in dual-process and technology acceptance theories, respectively. It was determined that the moderating role of involvement with a product or event may be a key variable in sport tourism settings for explaining sport tourists' behavioral intention to use smartphone apps. Chapter IV discusses the research methodology used in the present study.

CHAPTER IV

METHODOLOGY

This chapter reviews the research methods used to explore the impact of persuasive messages and the moderating effect of event involvement on sport tourists' intention to use sport-related smartphone apps. It consists of five sections: (a) research design and participant description, (b) procedures, (c) stimuli development, (d) measurements, and (e) data analyses.

4.1 Research Design and Participant Description

A factorial 2 (argument quality: strong vs. weak) x 2 (source credibility: high vs. low) between-subject design and partial least squares (PLS) structural equation modeling were conducted for this research. Four persuasive messages with different manipulation conditions, dependent variables, and manipulation check measurements was developed. The experiment recruited approximately 333 participants (approximately 80 subjects for each of the four cells) from Mechanical Turk (MTurk), operated by Amazon. All participants were selected from only within the United States over the age of 18. Each participant received \$0.40 for completing the survey, and randomly exposed to only one condition. MTurk was chosen as it has been suggested to enable quick and accurate online data collection from specialized populations (Crump, McDonnell, & Gureckis, 2013), which can run experiments quickly and inexpensively (Amir & Rand, 2012). For this reason, MTurk was believed to be an appropriate recruitment tool.

4.2 Procedures

Each website for this experimental survey consisted of six sections: (a) an informed consent form approved by the institutional review board (IRB) and the related instructions; (b) a written role-playing scenario for measuring involvement manipulation, (c) a persuasive message related to argument quality and source credibility manipulations; (d) dependent and manipulation check measurements; (e) demographic questions; and (f) a debriefing. Respondents were approached through MTurk via a Qualtrics survey link, and asked to indicate their willingness to participate in the survey by clicking on the link to the online experiment. On the first page participants were greeted and introduced to the purpose of the research. Once the potential participants clicked “I agree to participate in this survey,” they received a consent form that asked if they voluntarily agreed to participate.

In the instruction section, survey participants were asked to read a scenario describing involvement with a sporting event and to imagine that it was happening to himself or herself. This role-playing approach has been widely employed in marketing and consumer behavior research (e.g., Bitner, 1990; Dabholkar, 1996; Wirtz & Bateson, 1999). In general, individuals’ beliefs are considered relatively rigid and impervious to change, but the role-playing approach has been found to be effective in creating variations in such beliefs (Petty et al., 1991). This approach is also able to reduce the problems stemming from differences in reactions and personal circumstances associated with research settings (Wirtz, Mattila, & Tan, 2000). This advantage was imperative in this study, as the subjects were asked to respond to a specific situation. Dabholkar

(1996) explained that the role-playing technique is most successful when there is a high congruency between the subjects' actual experiences and the fictitious situations they are asked to role play. Hence, this study attempted to ensure that respondents were familiar with situations with which they were presented. In order to assist in this, participants were required to spend a minimum of 30 seconds reading their scenario. The "force time" technique that Qualtrics provides helped to focus participants' attention and improve the quality of their responses. Additionally, participants were not allowed to return to previous pages to change their answers.

The subsequent pages offered two versions of a role-playing scenario (one each for high and low involvement) related to a sporting event. The first scenario offered strong arguments for a high-involvement situation, and the second showed weaker arguments for a low-involvement set of circumstances. Each scenario described fictional intangible events called "Sporting Event A" (for the first scenario) and "Sporting Event B" (for the second). The contents of both scenarios were originated in and were modified from real advertisements. After reading each of the scenarios, participants were asked to look at the four advertisement messages embedded in the persuasive communications. The persuasive messages presented two versions of argument quality (i.e., strong or weak) and two versions of source credibility (i.e., high or low). All four advertisements were displayed to each participant. Detailed information regarding these messages is provided in the following section.

After examining the persuasive messages, survey participants were asked about the dependent variables and offered the manipulation check questions. They were also

asked to answer demographic questions addressing their gender, age, level of education, and ethnicity. The participants were then debriefed and thanked for their participation. The online survey was open for two weeks after the e-mail invitation was sent, and the duration of participation in each session was automatically recorded.

4.3 Stimuli Development

Types of Persuasive Messages

Four types of persuasive messages were developed. The four versions of the persuasive messages were: 1) strong argument quality and high source credibility, 2) weak argument quality and high source credibility, 3) strong argument quality and low source credibility, and 4) weak argument quality and low source credibility. The messages that were given to the participants are presented in Table 2. Also, a fictitious team brand name of a smartphone app, *SE*, was utilized to hinder bias against existing sport-related brands. All stimuli were pretested to confirm the manipulations. The manipulation checks are presented in Chapter V.

Argument Quality

Argument quality was addressed by the persuasive strength embedded in the message and classified as either strong or weak. Strong arguments employed the use of verifiable and objective statements with relevant facts. When forming the intention to use a smartphone app, prospective consumers often use criteria such as customer

satisfaction ratings and reviews, price, and sales promotions. Thus, in this study, these criteria were utilized in the strong-argument statements as follows:

- 15% Discount: Buy Tickets and Merchandise
- 10% Discount: In-Seat Delivery & Express Pickup Service

Conversely, in consumer research, weak arguments have been suggested to be often formed with negative messages (Cohen & Areni, 1991). However, marketers do not typically advertise their own products or services through negative information. The weak-argument messages employed in this research included insignificant, dubious, or subjective content such as quotations and personal opinions (Jun & Vogt, 2013). In this study, the weak-argument statements were slightly modified from those used by real smartphone apps in mobile devices, but they were not related to the criteria employed by the strong-argument statements. The weak-argument statement was as follows:

- Enjoy benefits provided only to mobile users

Source Credibility

Source credibility includes expertise-related content, the goal of which is to give honest and fair messages (Tormala, Briñol, & Petty, 2006). They can be categorized as either high or low. High source credibility messages often feature excerpts from well-known consumer reporting services (e.g., experts, celebrities) (Wu & Shaffer, 1987). In

this study, the advertisements were created from real examples of existing companies (e.g., Nielsen, ESPN, CBS Sports) so that the message recipient's perception of the message would be perceived to incorporate the sender's expertise and trustworthiness. The high source credibility statements were as follows:

- The #1 Sports App as Ranked by the 2018 US Nielsen Sports Survey
- The Most Downloaded Sports App from 2015 to 2018 According to ESPN and CBS Sports

By contrast, low source credibility is commonly framed by a particular consumer (i.e. non-expert) review (Chaiken & Maheswaran, 1994). In the current study, low source credibility was constructed via a statement with no expert review, since more credible sources are difficult to distinguish from less credible sources in realistic situations (Tucher, 1997). The statement employed was as follows:

- Download the Free APP Today!

Table 2 Research Stimuli for the Study

AQ SC	Strong	Weak
High	<p>a. High SC x Strong AQ</p> <p>The #1 Sports App as Ranked by the 2018 US Nielsen Sports Survey</p> <p>The Most Downloaded Sports App from 2015 to 2018 according to ESPN and CBS Sports</p> <ul style="list-style-type: none"> • 15% Discount: Buy Tickets and Merchandise • 10% Discount: In-Seat Delivery & Express Pickup Service 	<p>b. High SC x Weak AQ</p> <p>The #1 Sports App as Ranked by the 2018 US Nielsen Sports Survey</p> <p>The Most Downloaded Sports App from 2015 to 2018 according to ESPN and CBS Sports</p> <p>Enjoy benefits provided only to mobile users.</p>
Low	<p>c. Low SC x Strong AQ</p> <p>Download the Free APP Today!</p> <ul style="list-style-type: none"> • 15% Discount: Buy Tickets and Merchandise • 10% Discount: In-Seat Delivery & Express Pickup Service 	<p>d. Low SC x Weak AQ</p> <p>Download the Free APP Today!</p> <p>Enjoy benefits provided only to mobile users.</p>

Note. AQ: argument quality, SC: source credibility.

Involvement Scenario

The level of an individual's involvement has been found to be influenced by the amount of personal relevance the information has to the subject and the subject's overall level of interest, perceived importance and motivation, and quantity of attention paid to the information (Chaiken, 1980; Petty et al., 1983; Oh & Jasper, 2006; Zaichkowsky, 1985). Thus, one's level of involvement may lead to very different consequences for information-processing. Although numerous involvement scales have been employed to understand the relationship between consumers' involvement and their behavior, situational involvement such as purchasing participation or decisions has rarely been employed (Mittal, 1989). Thus, based on this background, involvement was defined as a state of motivation that reflects a strong interest in the event, an intention to secure information about the event, and a willingness to spend money on it. This study also adapted arguably the most widely used involvement measure related to situational purchasing: purchase-decision involvement (PDI) (Mittal, 1989).

Based on these concepts and criteria, involvement was operationalized on two levels (i.e., high and low) and developed into two scenarios. In a high-involvement situation, participants might feel that their judgement regarding the sporting event in the scenario message is significant. It can be assumed that individuals who are highly involved tend to pay more attention and expend greater effort to provide information than are people with low involvement (Petty et al., 1983). Thus, the first scenario (see Figure 8) was created as follows:

Figure 8 Scenario for High-Involvement Condition

Please read the following scenario very carefully and imagine that you are in this situation.

A sporting event (**SPORTING EVENT A**) that matches your interests will be held at ABC stadium from June 15 - June 24, 2018. You have been **a huge fan of the team for a long time** and it has always been **your dream to attend this event**. This year, you decide to go to the event for very first time.

You think it is **worth spending significant time and effort searching for information** about the event. You decide to read the related news and study about the teams and players in order to keep yourself updated about the event. Also, you are **willing to spend up to \$500 to buy gifts and merchandise** related to the event.

Imagine that you are searching for information on a smartphone app for SPORTING EVENT A.

The advertising flyer will be provided on the following page.
Please take a few minutes to look at the ad.

Conversely, in low-involvement situations, participants tend to consider their perception of the sporting event as unimportant (Shank & Beasley, 1998). Thus, it was assumed that participants' attention would be distracted from the target event, since they would likely be focused on something different. The second scenario (see Figure 9) was created as follows:

Figure 9 Scenario for Low-Involvement Condition

Please read the following scenario very carefully and imagine that you are in this situation.

You heard that a sporting event (**SPORTING EVENT B**) will be held at ABC stadium from June 15 - June 24, 2018. **You do not have a strong interest in the teams. The event is not a strong interest.** You also do not intend to secure additional information about things to do at the event, and you **hope to spend as little money as possible at the event.**

Imagine that you are searching for information on a smartphone app for SPORTING EVENT B.

The advertising flyer will be provided on the following page.
Please look at the ad.

Instructions for the involvement manipulation stage were offered for both involvement levels, in order to encourage high-involvement participants to focus greater attention on and expend more effort in the service of information-processing than would the low-involvement participants. High-involvement participants were asked to read the expressions in the scenario and “take a few minutes” to review the advertisement, while low-involvement participants were asked only to read the scenario and look at the advertisement.

A pilot test was conducted to validate the scale reliability and validity of the questionnaire, and to ensure the readability and feasibility of the scenarios and stimuli provided. The main purposes of this pilot study were to determine whether: (1) two different scenarios associated with a sporting event had been successfully manipulated to

elicit the participants' distinct levels of involvement, and (2) the four kinds of advertising messages were properly designed to distinguish and measure respondents' distinct perceptions. The sample for the pilot test consisted of 42 participants in the U.S. who completed an online survey via MTurk. When completing the original questionnaire, participants of the pilot study were asked to provide suggestions and recommendations at several intervals. Based upon the findings, a number of modifications were made to the scenarios and stimuli (see Table 3).

Table 3 Corresponding Actions of Pilot Study

Contents in Pilot Test	Revision
<i>Scenario Sample for High Involvement Condition</i>	
Please read the following scenario very carefully three times and imagine that you are in this situation.	Please read the following scenario very carefully imagine that you are in this situation.
<p>Imagine that you are searching for information on a smartphone app for a AAA sporting event.</p> <p>You have searched for the AAA sporting event that best matches your interests, and finally found one that you would like to attend.</p> <p>Because you are interested in attending a AAA sporting event in the future, it is important for you to spend sufficient time and effort searching for information about that event.</p> <p>These experiences and opportunities will significantly influence your future AAA sporting event choices.</p> <p>Assume that this AAA sporting event is your final choice among many events available on the smartphone app.</p>	<p>A sporting event (SPORTING EVENT A) that matches your interests will be held at ABC stadium from June 15 - June 24, 2018. You have been a huge fan of one of the teams for a long time and it has always been your dream to attend this type of event. This year, you decide to go to the event for the very first time.</p> <p>You think it is worth spending significant time and effort searching for information about the event. You decide to read the related news and study the teams and players in order to keep yourself updated about the event. Also, you are willing to spend up to \$500 to buy gifts and merchandise related to the event.</p> <p>Imagine that you are searching for information on a smartphone app for SPORTING EVENT A.</p>
<i>Scenario Sample for Low Involvement Condition</i>	
<p>Imagine that you just saw an advertisement for a BBB sporting event posted on your smartphone while you were searching for information on other sporting events.</p> <p>The BBB event is a pleasant experience but not a high priority for you, you are not overly interested in attending it and it will not influence your future in a significant manner. In addition, you do not generally care to spend substantial time and effort searching for information about BBB sporting events.</p>	<p>You heard that a sporting event (SPORTING EVENT B) will be held at ABC stadium from June 15 - June 24, 2018. You do not have a strong interest in the teams. The event is not a strong interest. You also do not intend to secure additional information about things to do at the event, and you hope to spend as little money as possible at the event.</p> <p>Imagine that you are searching for information on a smartphone app for SPORTING EVENT B.</p>

Table 3 Continued

Contents in Pilot Test	Revision
<i>Advertising Messages</i>	
<p>The #1 Sports App Ranked by a US sports fan digital survey</p> <p>The Most Downloaded Sports App in 2015 and 2016 by Sport Association</p>	<p>The #1 Sports App as Ranked by the 2018 US Nielsen Sports Survey</p> <p>The Most Downloaded Sports App from 2015 to 2018 according to ESPN and CBS Sports</p>
<p>Help your team save up to \$50,000 in annual expenses with mobile tickets!</p>	<p>Delimited</p>

Note. Emphasis in red was for the participants' benefit.

4.4 Measurements

The questionnaire consists of the following three parts: 1) attitudes toward smartphone apps usage, 2) intention to use smartphone apps, and 3) manipulation checks. All measures are adapted from the existing literature have reliability and validity checks.

Dependent Variables

Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)

PU and PEOU, proposed by Davis (1989), were initially comprised of 28 candidate items (14 items for each construct) and used to validate the key predictors of users' attitudes regarding and intention to use technology. After testing the reliability and the convergent, discriminant, and factorial validities, Davis (1989) refined the scales and proposed a measure of only 12 items (six for each construct). A factor analysis revealed the six items per construct had high levels of reliability and validity. Davis et al. (1989) further reduced the scales to four items per construct, and the resulting eight items have been used widely by a number of scholars (e.g., Bhattacharjee & Premkumar, 2004; Davis & Venkatesh, 1996; Koufaris, 2002; Venkatesh & Morris, 2000) due to their parsimonious representation of the constructs. Based on the previous literature, the present study employed four questionnaire items for each construct for the data analysis (see Table 4). Similar to Davis et al. (1989), the items were rated on a seven-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

Perceived Enjoyment (PE)

PE, as a measure of intrinsic motivation, was added to the TAM model by Davis et al. (1992). Several researchers (e.g., Lee, Cheung, & Chen, 2005; van der Heijden, 2004; Venkatesh, 2000) have utilized PE to measure users' intrinsic motivation. The current study integrated PE into the proposed model because it has been found to be a predictor of attitudes and intentions related to the use of new technology (Eighmey & McCord, 1998). The four PE items were adapted from Davis et al. (1992) and Moon and Kim (2001) (see Table 4). Thus, PE was measured with four items on a seven-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

Behavioral Intentions

A substantial number of scholars (e.g., Davis et al., 1989; van der Heijden, 2003; Venkatesh & Davis, 1996, 2000) have found that the intention to use new technology positively affects the actual use of that technology. The current study utilized four items for intention to use, adapted from statements developed by Bhattacharjee and Premkumar (2004) (see Table 4). A seven-point Likert-type scale was used for all seven items of this construct's measurement, ranging from 1 (strongly disagree) to 7 (strongly agree).

Manipulation Checks

Involvement

After measuring the dependent variables, the effectiveness of the involvement manipulation will be assessed. All three items adapted from Kim and Morris (2007) will be used for each scenario (see Table 4). Kim and Morris's (2007) scale is a modified version of Mittal's (1989) Purchase Decision Involvement (PDI) measure. Using a seven-point Likert-type scale, the three items included: "Based on the situation you were given, in selecting this sporting event from the many other choices available on the market, would you say: I would not compare at all / I would compare a great deal;" "Based on the situation you were given, how important would it be for you to make the right choice regarding this sporting event? Not at all important / Extremely important;" and "Based on the situation you were given, how concerned would you be about the outcome of your selection of this sporting event? Not at all concerned / Very much concerned."

Argument Quality

A total of four items, adopted from Sussman and Siegal (2003), were employed to measure argument quality (see Table 4): "The information provided in the ad for SE's mobile app is accurate;" "The information provided in the ad for SE's mobile app is relevant;" "The information provided in the ad for SE's mobile app is comprehensive;" and "The information provided in the ad for SE's mobile app is timely." These items

were examined with a seven-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

Source Credibility

All four items adopted from Sussman and Siegal (2003) were utilized in this study. The measurement was based on four dimensions, including a source's knowledgeability, expertise, credibility, and trustworthiness (see Table 4). The items included: "The source provided in the ad for SE's mobile app is knowledgeable on this topic;" "The source provided in the ad for SE's mobile app appears to be an expert on this topic;" "The source provided in the ad for SE's mobile app is trustworthy;" and "The source provided in the ad for SE's mobile app is credible." All items were measured on a seven-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

Table 4 Research Variables and Measurements

Variables	Scale Items
<i>Persuasive Message (Manipulation Checks)</i>	
Argument Quality (Sussman & Siegal, 2003)	<ol style="list-style-type: none"> 1. The information provided in the ad for SE's mobile app is accurate. 2. The information provided in the ad for SE's mobile app is relevant. 3. The information provided in the ad for SE's mobile app is comprehensive. 4. The information provided in the ad for SE's mobile app is timely.

Table 4 Continued

Variables	Scale Items
Source Credibility (Sussman & Siegal, 2003)	<ol style="list-style-type: none"> 1. The source provided in the ad for SE's mobile app is knowledgeable on this topic. 2. The source provided in the ad for SE's mobile app appears to be an expert on this topic. 3. The source provided in the ad for SE's mobile app is trustworthy. 4. The source provided in the ad for SE's mobile app is credible.
<i>Involvement (Manipulation Checks)</i>	
Purchase-Decision Involvement (Mittal, 1989; Kim & Morris, 2007)	<ol style="list-style-type: none"> 1. How does the sporting event described in the situation you were given compare with other sporting events available on the market? 2. Based on the situation you were given, how important would it be for you to make the correct choice with regards to this sporting event? 3. Based on the situation you were given, how concerned would you be about the outcome of your choice with regards to this sporting event?
<i>Perceptions of Smartphones (Dependent Variable)</i>	
Perceived Usefulness (Davis et al., 1992; Moon & Kim, 2001; Hur et al., 2012)	<ol style="list-style-type: none"> 1. The SE's mobile app is useful when searching for sport-related information. 2. The SE's mobile app improves my knowledge of the sport. 3. The SE's mobile app makes me more effective at sport-related information searches. 4. The SE's mobile app increases my productivity when searching for sport-related information.
Perceived Ease of Use (Davis et al., 1992; Moon & Kim, 2001; Hur et al., 2012)	<ol style="list-style-type: none"> 1. SE's mobile app is easy to use. 2. Learning to operate SE's mobile app was easy. 3. My interaction with SE's mobile app is clear and understandable. 4. It is easy to interact with SE's mobile app.
Perceived Enjoyment (Davis et al., 1992; Moon & Kim, 2001; Hur et al., 2012)	<ol style="list-style-type: none"> 1. Using SE's mobile app gives me enjoyment. 2. Using SE's mobile app entertains me. 3. It is fun to use SE's mobile app. 4. It is interesting to use SE's mobile app.
<i>Behavior Intention (Dependent Variable)</i>	
Intentions to Use (Bhattacharjee & Premkumar, 2004; Hur et al., 2012)	<ol style="list-style-type: none"> 1. In the future, I will use SE's mobile app on a regular basis. 2. In the future, I will frequently use SE's mobile app. 3. Assuming that I have access to the internet, I intend to use SE's mobile app. 4. Assuming that I have access to the internet, I predict that I will use SE's mobile app.

4.5 Data Analysis

The data analysis for this study included: (1) descriptive analyses; (2) an examination of attitudes toward advertisements, perceptions of smartphone apps, and the intention to use such apps; and (3) an evaluation of the moderating effect of involvement on information processing related to advertisements. The SPSS 23.0 statistical program and SmartPLS 3.2.7 software package were employed for the interpretation and analysis of the data.

Assumption Tests

ANOVA

Three of the primary assumptions of ANOVA (i.e., normal distribution, independence of observations, and the homogeneity of variance), were reviewed and found to be satisfied. Normality is the assumption that each variable and all linear combinations of variables are normally distributed. The Shapiro-Wilk test (Shapiro & Wilk, 1965) is widely recognized as the most powerful for examining univariate normality hypotheses (Villasenor Alva, & Estrada, 2009). However, this study could not meet this assumption, since the sample sizes across the sessions were not consistently equal. The observations were random, independent samples from the population. Hair et al. (2006) postulated that violation of the independence assumption (i.e., that the responses in each group are not made independently of the responses in other groups) may cause biased parameter estimates or a violation of other assumptions. It has been

argued that this assumption can be satisfied through an appropriate study design and randomization (Yockey, 2017).

The assumption of homogeneity of variance examines whether or not the variance within each population is equal. For verifying this assumption, a Levene's test (Levene, 1961) has been considered fairly robust and has typically been used to verify the plausibility of homoscedasticity for datasets of three or more samples (Granato, de Araújo Calado, & Jarvis, 2014). In sum, ANOVA is normally robust to such assumptions, given the unequal variances with uneven sample sizes. The most important assumptions relating to ANOVA are independence of observations and homogeneity of variance. Each of these assumptions will be addressed before the main statistical tests described in Chapter V.

PLS-SEM

A key argument for employing PLS-SEM is its ability to handle both reflective and formative indicators. Theoretically, reflective indicators are caused by a latent construct (i.e., the arrows point from the construct to the indicators), whereas formative indicators cause the latent construct (i.e., the arrows point from the indicators to the construct). Both technically and implicitly, researchers have accepted the underlying assumptions of the PLS-SEM approach. They argue that this is because it allows for the possibility of formative measurement models and assists in avoiding the identification problems that routinely occur when covariance-based (CB) SEM is applied (Bentler & Huang, 2014; Hair, Hult, Ringle, & Sarstedt, 2014; Vinzi, Trinchera, & Amato, 2010).

Another PLS-SEM assumption is the focus on maximizing the explained variance (PLS-SEM) rather than reproducing the empirical covariance matrix (CB-SEM) of the dependent latent constructs (Hair et al., 2014). A significant characteristic of this methodology is that it estimates latent variable scores as systematic portions of linear regression combinations of associated manifest variables (Fornell & Bookstein, 1982). Thus, the scores lead to the correlations among the latent variables being underestimated and the loadings overestimated for the structure models. In all, PLS-SEM is robust in the face of several data inadequacies such as non-normal data points, skewness and multicollinearity in the indicators, and misspecification of the structural model (Bentler & Huang, 2014). Each of these assumptions was preliminarily tested before the main statistical tests described in Chapter V.

Statistical Tests

To test the proposed hypotheses, analysis of variance (ANOVA) and partial least squares structural equation modelling (PLS-SEM) were employed (Hair, Ringle, & Sarstedt, 2011). The PLS-SEM approach was performed to analyze the causal effects of the categorized independent variables and the attributes of persuasive messages (i.e., argument quality and source credibility), on sport tourists' responses. The PLS approach, like other structural equation modeling such as AMOS, LISREL, and EQS, has meaningful objectives, including: (1) simultaneously accessing the measurement model parameters and structural path coefficients, (2) handling collinearities among the variables, and (3) maximizing prediction accuracy through explained variance (Chin, 1998). A statistical experimental design combined with PLS-SEM has been considered

to be the most suitable approach for prediction-oriented studies (Dang & Pheng, 2015). Further, to determine the moderating effects of involvement on the relationships among persuasive messages and PU, PEOU, and PE, PLS-SEM was also examined.

CHAPTER V

RESULTS

This chapter is divided into the following seven sub-sections: (a) respondent profiles, (b) check of sampling bias, (c) descriptive statistics, (d) pilot test, (e) assumption tests, (f) manipulation checks, and (g) hypothesis testing.

5.1 Respondent Profiles

Participants ($N = 333$) were recruited via Amazon's Mechanical Turk (MTurk), which has been argued to provide valid and anonymous data for online experiments (Crump et al., 2013). Each participant was paid \$0.40 to complete the survey and all respondents were required to be located in the United States and have an acceptance rate of 95% or better from previous MTurk surveys. They also had to successfully complete an instructional manipulation (Oppenheimer, Meyvis, & Davidenko, 2009) in order to be included in the final dataset. Each participant was automatically assigned an individual respondent ID, internet protocol (IP) address, and survey code number. Duplicate responses were prevented by their numerical identifiers (i.e., respondent IDs and IP addresses) and excluded from the main study. From the 367 individuals who participated in the online survey, 34 people completed the questionnaire in less than 1 minute; these were screened and removed before the actual data analysis. Accordingly, a total of 333 responses were eventually accepted and used for data analysis purposes.

Of the 333 participants, 69.4% ($n = 231$) were males and 30.6% ($n = 102$) were females. The participants' ages ranged from 18 to 71 ($M = 32.69$, $SD = 10.29$) and the two largest groups (80.4%) of participants were 20 to 29 years old (45.6%) or 30 to 39 years old (34.8%). Almost half (48.6%) were White/Caucasian, followed by Asian (37.8%), African American (5.4%), and Hispanic (4.8%). Four-year college graduates comprised 42.9%, followed by those who completed some college (18.3%), had earned a master's degree (16.2%), or obtained a two-year college degree (9.9%). The median household income was \$35,000 to \$44,999. Detailed demographic information is provided in Table 5.

As shown in Table 5, a majority of respondents (97.9%) were identified as sports fans. When asked whether they had ever used any sport-related smartphone apps, the majority (88%) answered yes and 12% indicated no. Nearly a third of the respondents (31.5%) claimed that they checked their smartphones between 10 and 19 times a day. Fewer checked their smartphones between 20 and 29 times (25.8%), more than 40 times (21.6%), between 30 and 39 times (15.6%), and less than 10 times (5.4%) in a single day. Nearly a third of the respondents (30.9%) spent between 1 and 2 hours a day on their smart phones, followed by between 2 and 3 hours (24.6%), 3 or more hours (23.7%), 30 mins to 1 hour (17.7%), and less than 30 mins (3.0%).

Table 5 Respondent Profiles (N = 333)

Variable	Frequency (n)	Percentage (%)	Variable	Frequency (n)	Percentage (%)
Gender			Household Income		
Male	231	69.4	Under \$25,000	65	19.5
Female	102	30.6	\$25,000 – 34,999	66	19.8
Total	333	100	\$35,000 – 44,999	45	13.5
			\$45,000 – 54,999	40	12.0
Age			\$55,000 – 64,999	35	10.5
Under 20 years	6	1.8	\$65,000 – 74,999	20	6.0
20 to 29 years	152	45.6	\$75,000 – 84,999	25	7.5
30 to 39 years	116	34.8	\$85,000 – 94,999	8	2.4
40 to 49 years	41	12.3	\$95,000 – 104,999	5	1.5
50 to 59 years	10	3.0	\$105,000 – 114,999	11	3.3
60 to 69 years	5	1.5	More \$125,000	13	3.9
More than 70 years	3	0.9	Total	333	100
Total	333	100			
Marital Status			Sports Fan		
Married	144	43.2	Yes	326	97.9
Separated	2	0.6	No	7	2.1
Divorced	9	2.7	Total	333	100
Widowed	1	0.3			
Single	172	51.7	Have you used any sport-related smartphone apps?		
Would rather not say	5	1.5	Yes	293	88.0
Total	333	100	No	40	12.0
			Total	333	100
Ethnicity					
White/Caucasian	162	48.6	How many times a day on average do you check your smartphone?		
African American	18	5.4	Less than 10	18	5.4
Hispanic	16	4.8	10 - 19	105	31.5
Asian	126	37.8	20 - 29	86	25.8
Native American	9	2.7	30 - 39	52	15.6
Pacific Islander	-	-	More than 40	72	21.6
Other	2	0.6	Total	333	100
Total	333	100			
Education			How many hours a day do you spend using your smartphone?		
Less than High School	2	0.6	Less than 30 mins	10	3.0
High School/GED	26	7.8	30 mins – 1 hour	59	17.7
Some College	61	18.3	1 – 2 hours	103	30.9
2-year College	33	9.9	2 – 3 hours	82	24.6
4-year College	143	42.9	3 or more	79	23.7
Master's Degree	54	16.2	Total	333	100
Doctoral Degree	4	1.2			
Professional Degree (JD, MD, etc.)	10	3.0			
Total	333	100			

5.2 Check of Sampling Bias

MTurk samples tend to be more representative of the American internet-using population than samples taken from college students (Berinsky, Huber, & Lenz, 2012). It is widely considered to be an inexpensive, reliable, and convenient tool for recruiting survey participants from diverse human subject pools (Buhrmester, Kwang, & Gosling, 2011). However, MTurk samples are likely to be young and Internet-savvy, which may present skewed responses on certain subjects and an increasing likelihood of demand effects (Krupnikov & Levine, 2014). Despite these concerns, a number of researchers have noted that the tool offers relatively good-quality data with practical advantages, including a supportive structure, subject anonymity or identifiability, cultural diversity, and longitudinal studies (Paolacci, Chandler, & Ipeirotis, 2010). Thus, MTurk was utilized here to collect a diverse sample, one that might not have been possible with a single-site survey.

In order to verify the representativeness of the sample with regards to the greater U.S. population, chi-square tests were used to analyze the independence of two probability distributions in four categories: gender, age, education, race/ethnicity, and household income. For each variable, an expected percentage was derived from the 2017 U.S. Census data. The expected percentage of each group (e.g., gender: male and female) was multiplied by the number of individuals responding to each question, in order to calculate an expected value. The expected value was then compared to the observed value using the chi-square test. The results are shown below.

Table 6 illustrates that the sample in this study was over two thirds (69.4%) male. According to the 2017 U.S. Census database, the percentages of males and female in the U.S. population were 49.2% and 50.8%, respectively. These were used as the expected percentages for male and female respondents. The expected values for the male and female groups were estimated by multiplying each expected percentage by the sample size of the current study; the expected values were determined to be 164 and 169, respectively. Based on the results of the chi-square test (chi-square = 49.973; $df = 1$; $p < .001$), the gender sample was not sufficiently homogeneous with the U.S. population.

Table 6 Demographic Comparison: Gender

Gender	Observed value	Observed %	Expected % ^a	Expected value ^b
Male	231	69.4	49.2	164
Female	102	30.6	50.8	169
Total	333	100	100	333

Chi-square = 49.973; $df = 1$; $p < .001$

^a Expected percentages from 2017 U.S. Census data
(<https://www.census.gov/quickfacts/fact/table/US/PST045217>)

^b Expected values were calculated by the following formula: sample size (333)*expected %

Age differences between the study sample and the U.S. population were also compared using the 2017 U.S. Census database (see Table 7). As mentioned above, the survey population was defined as individuals aged 18 years or older in the U.S. at the time of data collection. Table 7 indicates that the majority (82.0%) of respondents were either between the ages of 20 and 29 (46.5%) or 30 and 39 (35.5%). Fewer respondents were between the ages of 40 and 49 ($n=41$, 12.5%), 50 and 59 ($n=10$, 3.1%), 60 and 69 ($n=5$, 1.5%), and over 70 ($n=3$, 0.9%). According to 2017 U.S. Census data, the

proportions for each age group were as follows: 20 to 29 years old, 18.3%; 30 to 39 years old, 17.3%; 40 to 49 years old, 17.3%; 50 to 59 years old, 18.1%; 60 to 69 years old, 15.1%; and 70 years old or older, 13.9%. The chi-square test demonstrated that the age groups of the sample were not homogeneous with the ages of the greater population (chi-square = 297.931; $df = 43$; $p < .001$). The survey sample had more respondents in the 20 to 29 ($n=152$) and 30 to 39 ($n=116$) age groups, compared to the expected values ($n=60$ and $n=57$, respectively). Thus, the sample was younger than the U.S. population.

Table 7 Demographic Comparison: Age

Age	Observed value	Observed %	Expected % ^a	Expected value ^b
20-29	152	46.5	18.3	60
30-39	116	35.5	17.3	57
40-49	41	12.5	17.3	57
50-59	10	3.1	18.1	59
60-69	5	1.5	15.1	49
Over 70	3	0.9	13.9	45
Total	327	100	100	327

Chi-square = 297.931; $df = 43$; $p < .001$

^a Expected percentages from 2017 U.S. Census data ([https://data.census.gov/cedsci/results/tables?q=age &g=0100000US&tab=ACSST5Y2016.S0101&ps=app* page@1\\$app*from @RESULTS_ALL](https://data.census.gov/cedsci/results/tables?q=age&g=0100000US&tab=ACSST5Y2016.S0101&ps=app*page@1$app*from@RESULTS_ALL))

^b Expected values were calculated by the following formula: sample size (227)*expected %* Respondents under 20 were excluded from this test

The sample's education was also compared to the U.S. population is to consider education. Based on the 2017 U.S. Census data, three categories were renamed: high school, college, and graduate or professional degree. Table 8 shows that a majority of respondents (92.1%) attended some form of higher education (college: $n=237$, 71.6%; graduate school or professional degree: $n=68$, 20.5%), while fewer (7.9%) only

graduated from high school. According to the census data, the expected percentage for each group was as follows: 46.8% for college, 34.6% for high school, and 18.6% for graduate or professional degree. The results of the chi-square test revealed that the sample differences between this study and the U.S. population were not homogenous in terms of education (chi-square = 363.00; $df = 7$; $p < .001$). The survey sample had more than the expected number of respondents in the categories of college and graduate or professional degree, and less than expected in the high school education group. Therefore, the sample was more educated than the U.S. population.

Table 8 Demographic Comparison: Education

Education	Observed value	Observed %	Expected % ^a	Expected value ^b
High School	26	7.9	34.6	115
College	237	71.6	46.8	155
Graduate or Professional Degree	68	20.5	18.6	61
Total	331	100	100	331
Chi-square = 363.00; $df = 7$; $p < .001$				
^a Expected percentages from 2017 U.S. Census data (https://data.census.gov/cedsci/results/tables?q=education&t=Education&g=0100000US&ps=banner*show@false)				
^b Expected values were calculated by the following formula: sample size (331)*expected %				

Table 9 presents the differences between the research sample and the U.S. population in terms of race/ethnicity. It was determined that 48.6% of the sample was White/Caucasian, while the U.S. population is 60.6% White (U.S. Census, 2017). Notably, the percentage of Asian respondents (37.8%) was even more substantially skewed beyond the national average (5.5%). The results of the chi-square test showed that the survey sample and U.S. population were not homogenous in terms of ethnicity

(chi-square = 437.901; $df = 5$; $p < .001$). Compared to the U.S. population, the research sample was greatly skewed towards the Asian demographic. Thus, the sample did not seem to closely reflect the U.S. population. However, race/ethnicity was not the focus of this study.

Table 9 Demographic Comparison: Ethnicity

Education	Observed value	Observed %	Expected %^a	Expected value^b
White/Caucasian	162	48.6	60.6	202
African American	18	5.4	12.3	41
Hispanic	16	4.8	18.1	60
Asian	126	37.8	5.5	18
Native American	9	2.7	0.7	2
Pacific Islander	-	-	0.2	1
Other	2	0.6	2.6	9
Total	333	100	100	333

Chi-square = 437.901; $df = 5$; $p < .001$

^a Expected percentages from 2017 U.S. Census data ([https://data.census.gov/cedsci/results/tables?q=ethnicity&ps=banner*show@false\\$table*currentPage@1](https://data.census.gov/cedsci/results/tables?q=ethnicity&ps=banner*show@false$table*currentPage@1))

^b Expected values were calculated by the following formula: sample size (333)*expected %

Table 10 shows the differences in household income between the research sample and U.S. population. More than half (186 or 55.8%) of the survey sample made between \$25,000 and \$64,999 annually, while 69 respondents reported between \$65,000 and \$104,999 (20.7%), 65 earned less than \$25,000 (19.5%), and 13 described household incomes of more than \$125,000 per year (3.9%). According to the 2017 U.S. Census dataset, the expected percentages in those groups were as follows: 114 or 34.3% for \$25,000 to \$64,999; 83 or 24.7% for \$65,000 to \$104,999; 71 or 21.4% for less than \$25,000; and 65 or 19.6% for more than \$125,000. The results of the chi-square test indicated that the survey sample and U.S. population were not homogenous in terms of

household income (chi-square = 157.045; $df = 10$; $p < .001$). Compared to the U.S. population, the research sample had relatively lower household incomes.

Table 10 Demographic Comparison: Household Income

Education	Observed value	Observed %	Expected % ^a	Expected value ^b
Under \$25,000	65	19.5	21.4	71
\$25,000 – 34,999	66	19.8	9.7	32
\$35,000 – 44,999	45	13.5	9.2	30
\$45,000 – 54,999	40	12.0	8.3	28
\$55,000 – 64,999	35	10.5	7.1	24
\$65,000 – 74,999	20	6.0	6.2	21
\$75,000 – 84,999	25	7.5	5.8	19
\$85,000 – 94,999	8	2.4	4.8	16
\$95,000 – 104,999	5	1.5	4.4	15
\$105,000 – 114,999	11	3.3	3.5	12
More \$125,000	13	3.9	19.6	65
Total	333	100	100	333

Chi-square = 157.045; $df = 10$; $p < .001$

^a Expected percentages from 2017 U.S. Census data

(<https://www.census.gov/data/tables/time-series/demo/income-poverty/cps-hinc/hinc-01.html>)

^b Expected values were calculated by the following formula: sample size (333)*expected %

In sum, the results of the chi-square tests showed that the research sample was not homogeneous in terms of five aspects (i.e., gender, age, education, race/ethnicity, and household income). The sample was also younger and better educated than the general U.S. population. Particularly, the research sample was mainly comprised of individuals between 20 and 39 years old (82.0%), whereas the same group comprised 35.6% of the greater U.S. population. In addition, while a little more than a third (34.6%) of the U.S. population had high school diplomas in 2017, a majority (71.6%) of the survey sample had attended college.

Even though the Internet has typically been seen as a legitimate tool for data collection (Chen, Petrick, & Shahvali, 2016), the potential for sampling errors and biases

still exists (Duffy, Smith, Terhanian, & Bremer, 2005). Previous studies have noted that online sampling is more likely to include highly educated (Hwang & Fesenmaier, 2004) and younger participants in online surveys (Morrison & Gore, 2010). Additionally, people who have higher incomes are less likely to participate in online surveys (Litvin & Kar, 2001). Therefore, even though a sampling bias and certain errors may be observed in this study due to the nature of online sampling, the selection procedure appears to successfully reach survey participants with different demographic backgrounds. Also, the survey sampling may appear to have been slightly skewed compared to the 2017 U.S. census data, but the population of this study was relatively similar to the demographic profiles related to IT usage. Due to the differences between the sample and the U.S. population, caution should be made when attempting to generalize to the U.S. population.

5.3 Descriptive Statistics

This section presents the descriptive statistics for each variable, including the means, standard deviations, and skewness and kurtosis values. They are grouped together for each response item. Each was measured using a seven-point Likert-type scale and regarded as a continuous variable.

Event involvement was determined by asking respondents a series of three items (see Table 11). All three items adapted from Kim and Morris (2007) had mean values larger than 4.5 on a seven-point Likert-type scale. The results revealed that survey participants commonly had high levels of involvement in the specific situations they

were given (i.e., high or low condition) from each scenario related to a sporting event. As can be seen in Table 11, respondents exposed to the high-condition scenario were likely to be more highly involved than participants offered the low-condition scenario. The “not at all important/extremely important” item had the highest mean score ($M=5.18$; $SD=1.396$), while the “does not compare/substantially compares” item received the lowest mean score ($M=4.87$; $SD=1.368$). All items had high standard deviations (i.e., all were greater than 1). The skewness and kurtosis indices for each variable fell within the recommended range, between -1 and 1, following Kline's (2015) suggestions.

Table 11 Descriptive Statistics: Event Involvement

Items	Types of Scenarios	Mean	<i>SD</i>	Skewness	Kurtosis
How does the sporting event described in the situation you were given compare with other sporting events available on the market?	High-condition	5.01	1.312	-.854	.914
	Low-condition	4.73	1.412	-.395	-.110
	Total	4.87	1.368	-.610	.249
Based on the situation you were given, how important would it be for you to make the correct choice with regards to this sporting event?	High-condition	5.53	1.209	-.487	-.382
	Low-condition	4.83	1.481	-.700	.199
	Total	5.18	1.396	-.714	.363
Based on the situation you were given, how concerned would you be about the outcome of your choice with regards to this sporting event?	High-condition	5.31	1.329	-.848	.427
	Low-condition	4.56	1.667	-.551	-.438
	Total	4.93	1.552	-.755	.266

The descriptive statistics of the items measuring persuasive messages, adopted from Sussman and Siegal (2003), are shown in Table 12. The results indicate that all eight items had mean values larger than 5 on a seven-point Likert-type scale. With regards to argument quality and source credibility as attributes of advertising-focused persuasive messages, respondents typically believed that the persuasive messages were reliable (5.04 to 5.27 for argument quality) and trustworthy (5.24 to 5.40 for source credibility). The eight items listed in Table 12 had high standard deviations (i.e., all were greater than 1). Additionally, the skewness and kurtosis values for all eight items ranged between -1 and 1, indicating that the assumption of normality was not violated across the eight items.

Table 12 Descriptive Statistics: Persuasive Messages

Items	Mean	SD	Skewness	Kurtosis
<i>Argument Quality</i>				
The information (e.g., discount rate) provided in the ad for SE's mobile app is accurate.	5.09	1.266	-.550	.210
The information (e.g., discount rate) provided in the ad for SE's mobile app is relevant.	5.24	1.323	-.604	.013
The information (e.g., discount rate) provided in the ad for SE's mobile app is comprehensive.	5.04	1.460	-.711	.168
The information (e.g., discount rate) provided in the ad for SE's mobile app is timely.	5.27	1.195	-.759	.905
<i>Source Credibility</i>				
The source (e.g., ESPN, CBS sports) provided in the ad for SE's mobile app is knowledgeable on this topic.	5.40	1.312	-.931	.860
The source (e.g., ESPN, CBS sports) provided in the ad for SE's mobile app appears to be an expert on this topic.	5.28	1.348	-.675	.214
The source (e.g., ESPN, CBS sports) provided in the ad for SE's mobile app is trustworthy.	5.24	1.281	-.665	.337
The source (e.g., ESPN, CBS sports) provided in the ad for SE's mobile app is credible.	5.36	1.292	-.748	.513

Participants were also asked to describe their usage of smartphone apps, as indicated by 12 items from an existing measure of perceptions of smartphone usage (see Table 13). All 12 items, adopted from Davis (1989) and Davis et al. (1992), had mean values greater than 5 on a seven-point Likert-type scale; the item “it is interesting to use SE’s mobile app,” which appeared in the original measure, was not employed in this research. These results indicate that survey participants generally believed that smartphone apps are useful, easy, and enjoyable. The standard deviations of all items were greater than 1, which was high. In addition, the skewness and kurtosis indices for all 12 items listed in Table 13 were between -1 and 1, suggesting that the assumption of univariate normality was not violated by any of the 12.

Table 13 Descriptive Statistics: Perceptions of Smartphones

Items	Mean	SD	Skewness	Kurtosis
<i>Perceived Usefulness</i>				
The SE’s mobile app is useful when searching for sport-related information.	5.21	1.319	-.707	.414
The SE’s mobile app improves my knowledge of the sport.	5.11	1.346	-.515	-.009
The SE’s mobile app makes me more effective at sport-related information searches.	5.12	1.322	-.559	.058
The SE’s mobile app increases my productivity when searching for sport-related information.	5.17	1.282	-.596	.194
<i>Perceived Ease of Use</i>				
SE’s mobile app is easy to use.	5.25	1.225	-.674	.479
Learning to operate SE’s mobile app was easy.	5.28	1.246	-.712	.507
My interaction with SE’s mobile app is clear and understandable.	5.26	1.254	-.711	.617
It is easy to interact with SE’s mobile app.	5.26	1.202	-.471	.115
<i>Perceived Enjoyment</i>				
Using SE’s mobile app gives me enjoyment.	5.08	1.273	-.509	-.008
Using SE’s mobile app entertains me.	5.21	1.341	-.693	.175
It is fun to use SE’s mobile app.	5.38	1.240	-.613	.375
It is interesting to use SE’s mobile app.	4.92	1.240	-.794	.624

The descriptive statistics for the four items measuring behavioral intentions are presented in Table 14. All items, adopted from Bhattacharjee and Premkumar (2004), for behavioral intention had mean values larger than 4.5 on a seven-point Likert-type scale. These results revealed that the respondents seemed to be interested in using a smartphone app in the future. All four items had high standard deviations (i.e., greater than 1.4). Moreover, the skewness and kurtosis indices for the four items fell within the suggested range, between -1 and 1, indicating that the data evidenced univariate normality.

Table 14 Descriptive Statistics: Behavioral Intention

Items	Mean	SD	Skewness	Kurtosis
In the future, I will use SE's mobile app on a regular basis.	4.92	1.479	-.646	-.045
In the future, I will frequently use SE's mobile app.	4.91	1.483	-.536	-.250
Assuming that I have access to the internet, I intend to use SE's mobile app.	5.00	1.540	-.657	-.099
Assuming that I have access to the internet, I predict that I will use SE's mobile app.	5.11	1.534	-.788	.102

5.4 Pilot Test

Two scenarios and four advertising messages were pretested to ensure that they were perceived as intended, and were both realistic and believable. For this pilot test, a total of 42 participants (31 males and 11 females) in the U.S. completed the online survey via MTurk. ANOVA statistics were used to test for significant differences

between high and low levels of involvement, strong and weak argument quality, and high and low source credibility (see Tables 15 and 16). The results reveal that the manipulation checks were significantly different for the two conditions of each factor ($F_{\text{Involvement}}(1, 40) = 7.275, p < .05$; $F_{\text{Argument_Quality}}(1, 40) = 0.195, p < .001$; and $F_{\text{Source_Credibility}}(1, 40) = 0.03, p < .001$). Indeed, the online system randomly assigned participants to one of four experiment conditions: strong argument quality/high source credibility ($n = 11$), weak argument quality/high source credibility ($n = 10$), strong argument quality/low source credibility ($n = 9$), and weak argument quality/low source credibility ($n = 12$). The results of the manipulation check indicate that there were significant differences among the four advertising messages ($F(1, 45) = 2.175, p < .001$) (see Table 16). Thus, the persuasive message manipulations of the stimuli were successfully employed in the main experiment.





Table 15 Means and ANOVA Statistics for Manipulation Checks of Scenarios (Involvement) and Persuasive Messages (Argument Quality and Source Credibility) for Pilot Test

	Cronbach's Alpha	F (df)	p	Mean (SD)	
Involvement	.857	7.275 (1, 40)	.01**	High 5.55 (0.78)	Low 4.30 (1.54)
Argument quality	.756	0.195 (1, 40)	.00***	Strong 5.71 (1.03)	Weak 4.70 (1.26)
Source credibility	.821	0.03 (1, 40)	.00***	High 5.64 (1.36)	Low 4.70 (1.42)

Note. a. Scores represent the average rating on a seven-point Likert-type scale anchored at 1 (negative meaning) and 7 (positive meaning), standard deviations are in parentheses.

b. * $p < .05$; ** $p < .01$; and *** $p < .001$

Table 16 Means and ANOVA Statistics for Manipulation Checks of Persuasive Messages (Argument Quality and Source Credibility) for Pilot Test

	Cronbach's Alpha	Mean	SD
1. Strong AQ/ High SC			
	.875	5.95***	1.05
2. Weak AQ/ High SC			
	.864	5.52***	1.20
3. Strong AQ/ Low SC			
	.832	5.23*	1.34
4. Weak AQ/ Low SC			
	.825	4.25**	1.45

Note. a. AQ: argument quality, SC: source credibility.

b. Scores represent the average rating on a seven-point Likert-type scale anchored at 1 (negative meaning) and 7 (positive meaning), standard deviations are in parentheses.

c. * $p < .05$; ** $p < .01$; and *** $p < .001$

5.5 Assumption Tests

Prior to the main analysis, assumption tests were performed to determine whether two-way ANOVA and PLS-SEM would be suitable for manipulation checks and hypotheses testing. The use of Qualtrics to present scenarios and stimuli to the research participants made it unlikely that one person's response would affect another's. Accordingly, the assumption of independence of observation was met. A normality test was conducted to check if the data was normally distributed. As shown in the previous section, the test results indicated that all skewness and kurtosis values were between +1 and -1, thus, the data was deemed to be normally distributed (see Chapter 5.3).

To test the homogeneity of variance, Levene's test was performed. The results of Levene's tests revealed that the assumption of the homogeneity of variances was observed for argument quality ($F(7, 125), p = .113$), source credibility ($F(7, 125), p = .125$), PU ($F(7, 126), p = .185$), PEOU ($F(7, 126), p = .350$), PE ($F(7, 126), p = .315$), and intentions to use ($F(7, 126), p = .679$). All results were not significant ($p > .05$), thereby the assumption of homogeneity was not violated. Additionally, the most significant assumption of PLS is to present a reliable linear relationship between the predictors and responses (Rosipal, 2011). The results of linearity assumption tests revealed that all paths were significant ($p < .05$), thus the linearity assumption test was met. In sum, the data was deemed to be appropriate for ANOVA and PLS-SEM.

5.6 Manipulation Checks

As in the pilot test, manipulation checks were conducted to confirm the robustness of the manipulation of the stimuli (i.e., the scenarios and advertising messages). A total of 333 participants in the U.S. completed the online survey via MTurk. ANOVA statistics were employed to test for significant differences in the conditions between high and low levels of involvement, strong and weak argument quality, and high and low source credibility (see Tables 17 and 18).

Involvement manipulation

The three following questions were used to measure respondents' degrees of involvement after reading sporting event-related scenarios: "Based on the situation you were given, in selecting this sporting event from the many other choices available on the market, would you say: I would not compare at all / I would compare a great deal;" "Based on the situation you were given, how important would it be for you to make the right choice regarding this sporting event? Not at all important / Extremely important;" and "Based on the situation you were given, how concerned would you be about the outcome of your selection of this sporting event? Not at all concerned / Very much concerned." In response to the high-involvement condition, 166 participants were expected to perceive the sporting event as a great deal, consider it important, and be more concerned about it than were the individuals (n=167) receiving the low-involvement condition. The three-item scale was reliable, as indicated by a Cronbach's alpha value of .818. Additionally, the level of involvement was higher for participants

receiving the high-involvement condition ($M=6.28$) than for those with the low-involvement condition ($M=4.70$). The level of involvement was significantly different for the two conditions ($F_{\text{Involvement}}(1, 22) = 27.864, p < .001$) (see Table 17). Thus, the manipulation indicated that the scenarios were understood by the participants.

Argument quality manipulation

The effects of argument quality in advertising messages were measured using four items modified from Sussman and Siegal's (2003) scale. A set of manipulation check questions were included for each characteristic of argument quality evidenced in the advertisement's information; accuracy, relevance, comprehensiveness, and timeliness. The scale was deemed reliable and suitable, with a Cronbach's alpha coefficient of .810. Participants ($n=170$) exposed to strong arguments rated the arguments as more persuasive ($M=6.41$) than did participants ($n=163$) receiving weak arguments ($M=4.89$). The results indicate that there was a significant difference between the strong and weak arguments, as was expected ($F_{\text{Argument_Quality}}(1, 22) = 22.420, p < .001$) (see Table 17). Hence, the argument quality manipulations were found to function as intended.

Source credibility manipulation

Four items from Sussman and Siegal's (2003) scale were also used to check the source credibility manipulation. The four questions were asked with regards to each characteristic of source credibility in the advertisement: knowledgeability, expertise,

credibility, and trustworthiness. The scale was reliable, with a Cronbach's alpha of .883. Participants (n=168) exposed to the highly credible source rated the source as more persuasive (M=6.50) than did participants (n=165) exposed to the low-credibility source (M=5.14). Further results revealed that there was a significant difference between the high and low credibility sources, as was expected ($F_{\text{Source_Credibility}}(1, 11) = 10.828, p < .01$) (see Table 17). Accordingly, the source credibility manipulations were successful.

Table 17 Means and ANOVA Statistics for Manipulation Checks of Scenarios (Involvement) and Persuasive Messages (Argument Quality and Source Credibility) for Main Study





	Cronbach's Alpha	F (df)	p	Mean (SD)	
Involvement	.818	27.864 (1, 22)	.00***	High 6.28 (0.95)	Low 4.70 (1.26)
Argument quality	.810	22.420 (1, 22)	.00***	Strong 6.41 (0.87)	Weak 4.89 (1.15)
Source credibility	.883	10.828 (1, 11)	.01**	High 6.50 (1.06)	Low 5.14 (1.17)

Note. a. Scores represent the average rating on a seven-point Likert-type scale anchored at 1 (negative meaning) and 7 (positive meaning), standard deviations are in parentheses.

b. * $p < .05$; ** $p < .01$; and *** $p < .001$.

Additionally, the online system randomly assigned participants to one of four experiment conditions: strong argument quality/high source credibility (n=85), weak argument quality/high source credibility (n=84), strong argument quality/low source credibility (n=85), and weak argument quality/low source credibility (n=79). The results of the manipulation check indicated that there were significant differences among the four advertising messages ($F(1, 25) = 4.127, p < .001$) (see Table 18). Overall, the manipulations were found to be successful.

Table 18 Means and ANOVA Statistics for Manipulation Checks of Persuasive Messages (Argument Quality and Source Credibility) for Main Study

	Cronbach's Alpha	Mean	SD
1. Strong AQ/ High SC			
	.868	6.45***	0.80
2. Weak AQ/ High SC			
	.835	5.47***	1.00
3. Strong AQ/ Low SC			
	.832	5.37**	0.91
4. Weak AQ/ Low SC			
	.813	4.13**	1.00

Note. a. AQ: argument quality, SC: source credibility.

b. Scores represent the average rating on a seven-point Likert-type scale anchored at 1 (negative meaning) and 7 (positive meaning), standard deviations are in parentheses.

c. * $p < .05$; ** $p < .01$; and *** $p < .001$

5.7 Hypothesis Testing

Assessing Reliability, Convergent, and Discriminant Validity

Following Anderson and Gerbing's (1988) suggestion, the data analysis portion of this study was conducted via a two-stage approach to test a full SEM model using a PLS-based SEM (Hair et al., 2011). Initially, a measurement model employing a confirmatory factor analysis (CFA) was used to estimate convergent, discriminant, and constructed composite reliability. An assessment of the structural model was then employed to test the research hypotheses. As suggested by Hair et al. (2011), the results of the CFA revealed that the overall fit statistics for the six-factor model provided an acceptable level of fit to the data ($\chi^2 = 1236.89$, $df = 167$, $p < .001$, SRMR = .043, NFI = .864).

Scale reliability is defined as the proportion of a scale item's variance that is attributable to the true variable (DeVellis, 1991, 2016). When measuring reliability, Cronbach's alpha is one of the most commonly used reliability coefficients for determining the internal consistency (i.e., interrelatedness of items) of the measurement scale (DeVellis, 2003). As shown in Table 19, all six factors of the overall group revealed satisfactory values (> 0.7) ranging from .810 to .936 (high-involvement group: from .843 to .923; low-involvement group: from .753 to .953). Nunnally (1978) recommended that a reliability coefficient of .70 or higher be considered acceptable. Additionally, several researchers (Chin, 1998; Netemeyer, Bearden, & Sharma, 2003) have suggested that a combination of other criteria such as Cronbach's alpha, composite

reliability (CR), and Average Variance Extracted (AVE) be utilized to assess reflective construct properties.

Composite reliability, which is analogous to coefficient alpha, also reflects the internal consistency of the indicators measuring each factor (Fornell & Larcker, 1981). Hair et al. (1998) recommended higher than a minimum cutoff score of 0.7 be considered acceptable, while Bagozzi and Yi (1988) suggested a minimum cutoff of 0.6. All scales demonstrated acceptable levels of composite reliability for the constructs, ranging from .875 to .954 (see Table 19).

AVE is considered to be a criterion for convergent validity, and has been argued to be the most stringent test of internal structure/stability (Netemeyer et al., 2003). To be desirable, AVE values must be greater than 0.50; this means that the overall amount of variance due to measurement error is less than the variance extracted by the construct (Fornell & Larcker, 1981). For this study, all six constructs exceeded the cutoff value of .50, ranging from .636 (argument quality) to .839 (source credibility). The results are presented in Table 19 and suggest adequate convergent validity. Discriminant validity can be tested by examining correlations between pairs of constructs, using a chi-square difference test (Fornell & Larcker, 1981). Satisfactory discriminant validity, as suggested by Chin (1998), was observed for all six indicators (see Table 20).

Table 19 Reliability, Factor Loading, and Related Information for Model

Model and construct		Cronbach's Alpha	Composite reliability (CR)	AVE	Factor loading
Overall group	(1) Argument quality	.810	.875	.636	
	The information provided in the ad for SE's mobile app is accurate.				.775
	The information provided in the ad for SE's mobile app is relevant.				.816
	The information provided in the ad for SE's mobile app is comprehensive.				.805
	The information provided in the ad for SE's mobile app is timely.				.794
	(2) Source credibility	.936	.954	.839	
	The source provided in the ad for SE's mobile app is knowledgeable on this topic.				.863
	The source provided in the ad for SE's mobile app appears to be an expert on this topic.				.853
	The source provided in the ad for SE's mobile app is trustworthy.				.850
	The source provided in the ad for SE's mobile app is credible.				.874
	(3) Perceived usefulness	.858	.904	.702	
	The SE's mobile app is useful when searching for sport-related information.				.815
	The SE's mobile app improves my knowledge of the sport.				.854
	The SE's mobile app makes me more effective at sport-related information searches.				.842
	The SE's mobile app increases my productivity when searching for sport-related information.				.827
	(4) Perceived ease of use	.893	.926	.757	
	SE's mobile app is easy to use.				.770
	Learning to operate SE's mobile app was easy.				.859
	My interaction with SE's mobile app is clear and understandable.				.879
	It is easy to interact with SE's mobile app.	.855	.902	.697	.840
	(5) Perceived enjoyment				
	Using SE's mobile app gives me enjoyment.				.858

Table 19 Continued

Model and construct		Cronbach's Alpha	Composite reliability (CR)	AVE	Factor loading
Overall group	Using SE's mobile app entertains me.				.864
	It is fun to use SE's mobile app.				.881
	It is interesting to use SE's mobile app.				.877
	(6) Behavioral intentions	.883	.919	.740	
	In the future, I will use SE's mobile app on a regular basis.				.903
	In the future, I will frequently use SE's mobile app.				.927
	Assuming that I have access to the internet, I intend to use SE's mobile app.				.916
	Assuming that I have access to the internet, I predict that I will use SE's mobile app.				.918
Low Involvement group	(1) Argument quality	.753	.844	.574	
	The information provided in the ad for SE's mobile app is accurate.				.739
	The information provided in the ad for SE's mobile app is relevant.				.758
	The information provided in the ad for SE's mobile app is comprehensive.				.762
	The information provided in the ad for SE's mobile app is timely.				.771
	(2) Source credibility	.945	.960	.857	
	The source provided in the ad for SE's mobile app is knowledgeable on this topic.				.871
	The source provided in the ad for SE's mobile app appears to be an expert on this topic.				.847
	The source provided in the ad for SE's mobile app is trustworthy.				.854
	The source provided in the ad for SE's mobile app is credible.				.843
	(3) Perceived usefulness	.863	.907	.709	
	The SE's mobile app is useful when searching for sport-related information.				.832

Table 19 Continued

	Model and construct	Cronbach's Alpha	Composite reliability (CR)	AVE	Factor loading
Low Involvement group	The SE's mobile app improves my knowledge of the sport.	.911	.937	.789	.865
	The SE's mobile app makes me more effective at sport-related information searches.				.837
	The SE's mobile app increases my productivity when searching for sport-related information.				.847
	(4) Perceived ease of use				
	SE's mobile app is easy to use.				.785
	Learning to operate SE's mobile app was easy.				.851
	My interaction with SE's mobile app is clear and understandable.				.889
	It is easy to interact with SE's mobile app.				.840
	(5) Perceived enjoyment				
	Using SE's mobile app gives me enjoyment.				.881
	Using SE's mobile app entertains me.				.869
	It is fun to use SE's mobile app.				.895
	It is interesting to use SE's mobile app.				.908
	(6) Behavioral intentions				
	In the future, I will use SE's mobile app on a regular basis.				.909
	In the future, I will frequently use SE's mobile app.				.931
	Assuming that I have access to the internet, I intend to use SE's mobile app.				.939
	Assuming that I have access to the internet, I predict that I will use SE's mobile app.				.924
High Involvement group	(1) Argument quality	.853	.901	.694	
	The information provided in the ad for SE's mobile app is accurate.				.815
	The information provided in the ad for SE's mobile app is relevant.				.862

Table 19 Continued

	Model and construct	Cronbach's Alpha	Composite reliability (CR)	AVE	Factor loading
High Involvement group	The information provided in the ad for SE's mobile app is comprehensive.				.842
	The information provided in the ad for SE's mobile app is timely.				.812
	(2) Source credibility	.923	.946	.813	
	The source provided in the ad for SE's mobile app is knowledgeable on this topic.				.855
	The source provided in the ad for SE's mobile app appears to be an expert on this topic.				.859
	The source provided in the ad for SE's mobile app is trustworthy.				.849
	The source provided in the ad for SE's mobile app is credible.				.905
	(3) Perceived usefulness	.853	.901	.695	
	The SE's mobile app is useful when searching for sport-related information.				.806
	The SE's mobile app improves my knowledge of the sport.				.841
	The SE's mobile app makes me more effective at sport-related information searches.				.848
	The SE's mobile app increases my productivity when searching for sport-related information.				.804
	(4) Perceived ease of use	.866	.908	.713	
	SE's mobile app is easy to use.				.750
	Learning to operate SE's mobile app was easy.				.869
	My interaction with SE's mobile app is clear and understandable.				.872
	It is easy to interact with SE's mobile app.				.840
	(5) Perceived enjoyment	.843	.895	.680	
	Using SE's mobile app gives me enjoyment.				.824
	Using SE's mobile app entertains me.				.860

Table 19 Continued

Model and construct		Cronbach's Alpha	Composite reliability (CR)	AVE	Factor loading
High Involvement group	It is fun to use SE's mobile app.				.861
	It is interesting to use SE's mobile app.				.832
	(6) Behavioral intentions	.890	.924	.752	
	In the future, I will use SE's mobile app on a regular basis.				.892
	In the future, I will frequently use SE's mobile app.				.921
	Assuming that I have access to the internet, I intend to use SE's mobile app.				.884
	Assuming that I have access to the internet, I predict that I will use SE's mobile app.				.909

Table 20 Discriminant Validity Assessment

Model and construct		(1)	(2)	(3)	(4)	(5)	(6)
Overall group	(1) Argument quality	.798					
	(2) Source credibility	.578	.916				
	(3) Perceived usefulness	.625	.652	.838			
	(4) Perceived ease of use	.545	.664	.636	.870		
	(5) Perceived enjoyment	.581	.693	.642	.636	.835	
	(6) Behavioral intentions	.563	.509	.549	.497	.509	.860
Low Involvement group	(1) Argument quality	.758					
	(2) Source credibility	.590	.926				
	(3) Perceived usefulness	.691	.635	.842			
	(4) Perceived ease of use	.632	.661	.660	.889		
	(5) Perceived enjoyment	.666	.672	.666	.628	.845	
	(6) Behavioral intentions	.593	.522	.532	.496	.696	.854
High Involvement group	(1) Argument quality	.833					
	(2) Source credibility	.582	.902				
	(3) Perceived usefulness	.571	.673	.834			
	(4) Perceived ease of use	.472	.666	.605	.844		
	(5) Perceived enjoyment	.511	.622	.615	.652	.825	
	(6) Behavioral intentions	.542	.511	.579	.516	.531	.867

Note. Diagonal elements (in bold) in the correlation of constructs matrix are the square root of the AVE.

Attitude towards and Intention to Use Smartphone Apps

Table 21 presents the means for each stimulus with regards to perception of and intention to use smartphone apps. The attitude measurement scale was reliable as the Cronbach's alpha score was .91 ($\alpha_{\text{perceived_usefulness}} = .86$; $\alpha_{\text{perceived_ease_of_use}} = .86$; $\alpha_{\text{perceived_enjoyment}} = .89$; and $\alpha_{\text{intention}} = .94$). Under the high-involvement condition, strong argument quality with high source credibility had a significant positive effect on perceptions ($M_{\text{perceived_usefulness}} = 6.30$; $M_{\text{perceived_ease-of_use}} = 6.32$; and $M_{\text{perceived_enjoyment}} = 6.43$) and intention ($M_{\text{intention}} = 6.18$), while weak argument quality with low source credibility showed no effect on perceptions ($M_{\text{perceived_usefulness}} = 5.08$; $M_{\text{perceived_ease-of_use}} = 5.16$; and $M_{\text{perceived_enjoyment}} = 5.21$) or intention ($M_{\text{intention}} = 4.94$). Interestingly, there was no difference between advertising messages with strong argument quality and low source credibility ($M_{\text{perceived_usefulness}} = 5.43$; $M_{\text{perceived_ease-of_use}} = 5.46$; $M_{\text{perceived_enjoyment}} = 5.29$; and $M_{\text{intention}} = 5.16$) and advertising messages with weak argument quality and high source credibility ($M_{\text{perceived_usefulness}} = 5.34$; $M_{\text{perceived_ease-of_use}} = 5.27$; $M_{\text{perceived_enjoyment}} = 5.33$; and $M_{\text{intention}} = 5.19$). Conversely, perception and intentions in low-involvement conditions produced similar findings as those in high-involvement conditions. Consequently, argument quality and source credibility were found to be more effective in high-involvement conditions than in low.

Table 21 Means of Perception of and Intention to Use Smartphone Apps

Involvement	Persuasive Messages		Perception			Behavioral Intentions
	Argument Quality	Source Credibility	Perceived Usefulness	Perceived Ease of Use	Perceived Enjoyment	
High	Strong	High	6.30 (1.06)	6.32 (1.02)	6.43 (0.98)	6.18 (1.10)
High	Strong	Low	5.43 (1.14)	5.46 (0.80)	5.29 (1.10)	5.16 (1.32)
High	Weak	High	5.34 (1.09)	5.27 (1.18)	5.33 (1.07)	5.19 (1.27)
High	Weak	Low	5.08 (1.00)	5.16 (1.03)	5.21 (0.87)	4.94 (1.38)
Low	Strong	High	5.40 (0.92)	5.39 (0.88)	5.33 (1.03)	6.11 (1.22)
Low	Strong	Low	5.15 (1.11)	5.36 (1.08)	5.20 (1.34)	4.79 (1.60)
Low	Weak	High	5.14 (1.20)	5.20 (1.00)	5.22 (1.37)	4.92 (1.43)
Low	Weak	Low	4.63 (1.18)	4.84 (1.26)	4.68 (1.37)	4.42 (1.65)

Note. Scores represent the average rating on a 7-point Likert-type scale anchored at 1 (negative meaning) and 7 (positive meaning), standard deviations are in parentheses.

Hypotheses Testing

Generalized Linear Model ANOVA

To test H_{1a} to H_{2c} , a generalized linear model analysis of variance (GLM ANOVA) was performed to determine the differences among the experiment groups. As shown in Table 22, Levene's tests for homogeneity of variances were not significant ($p = .562$ for perceived usefulness; $p = .339$ for perceived ease of use; $p = .362$ for perceived enjoyment; and $p = .126$ for behavioral intentions) in the experiment, thereby confirming that the equality of variances assumption was met. Table 22 indicates that all independent variables were significant. Based on the results of the GLM ANOVA tests, this study found strong evidence, supporting H_{1a} to H_{2c} . Therefore, the current study demonstrates that the interaction of argument quality and source credibility influenced

sport tourists' perceptions pertaining to smartphone apps. Specifically, this process appeared to have been driven by strong and high information characteristics (argument quality and source credibility, respectively) rather than by weak and low levels of the same.

PLS Structural Equation Modeling

Next, Figure 10 presents the PLS results for the overall group. The research hypotheses were all supported, except for the relationship between perceived ease of use and behavioral intentions (H_4), since it did not reflect statistical significance ($\beta = .088$, $p = .340$). H_{1a} , H_{1b} , and H_{1c} showed that the argument quality of persuasive messages in smartphone apps affected the perceived usefulness ($\beta = .662$, $t\text{-value} = 6.534$, $p < .001$), ease of use ($\beta = .638$, $t\text{-value} = 6.937$, $p < .001$), and enjoyment ($\beta = .389$, $t\text{-value} = 4.178$, $p < .001$), respectively.

Results of H_{2a} , H_{2b} , and H_{2c} indicated that the source credibility of persuasive messages in smartphone apps affected perceived usefulness ($\beta = .412$, $t\text{-value} = 5.947$, $p < .001$), ease of use ($\beta = .359$, $t\text{-value} = 4.384$, $p < .001$), and enjoyment ($\beta = .619$, $t\text{-value} = 5.234$, $p < .001$), respectively. Additionally, results of the examination of H_3 and H_5 indicated that the intention to use a smartphone was influenced by perceived usefulness ($\beta = .538$, $t\text{-value} = 5.106$, $p < .001$) and enjoyment ($\beta = .517$, $t\text{-value} = 6.773$, $p < .001$). However, examination of H_4 revealed that the path between perceived ease of use and intention to use smartphone apps was not significant ($\beta = .088$, $t\text{-value} =$

1.338, $p = .125$). Table 23 lists the resulting standardized parameter estimates and results for H_1 to H_5 .

In addition, Figure 11 shows the PLS results for the treatment groups. This analysis was the comparison of the combined four groups of the types of advertising messages. There were two striking results on: (1) a path between source credibility and perceived ease of use; and (2) a path between perceived usefulness and behavioral intentions. In comparing the first and third message type groups to the second and fourth on the path between source credibility and perceived ease of use, the comparison observed that the effects of message types including weak argument regardless of the source credibility. It assumes that sport tourists who were exposed to strong arguments have already lots of information to process, thus smartphone apps being easy to use appears to be irrelevant, whereas those exposed to weak arguments appears to be affected more because they process less information. Also, in comparing the first and second message type groups to the third and fourth on the path between perceived usefulness and behavioral intentions, high source credibility affected the relationship between perceived usefulness and behavioral intentions in spite of the quality of the argument. It seems that using high credibility of source related to apps' usefulness (e.g., sport stars' recommendations and suggestions) is more likely to increase behavioral intentions for a smartphone app usage.

Table 22 Results of the Two-Way GLM ANOVA

Independent Variables	Treatment	Dependent Variables							
		Perceived Usefulness		Perceived Ease of Use		Perceived Enjoyment		Behavioral Intentions	
		M(SD)	F	M(SD)	F	M(SD)	F	M(SD)	F
Argument Quality (AQ)	Strong	6.25(1.05)	2.926*	6.36(.94)	5.412*	6.37(1.01)	2.731*	6.07(1.31)	1.700*
	Weak	5.05(1.13)		4.41(.93)		4.26(1.20)		4.88(1.44)	
Source Credibility (SC)	High	6.22(1.16)	5.507*	6.24(1.08)	.569*	6.26(1.03)	3.153*	6.10(1.26)	2.750*
	Low	4.87(1.10)		5.01(1.15)		4.96(1.16)		4.85(1.49)	
AQ x SC	Strong AQ x High SC	6.36(.97)	.252*	5.36(.94)	1.567*	6.38 (1.00)	.532***	6.17(1.17)	.494*
	Weak AQ x High SC	5.14(1.12)		5.41(.93)		5.25 (1.21)		5.05(1.35)	
	Strong AQ x Low SC	5.22(1.16)		5.24(1.10)		5.26 (1.03)		5.00(1.46)	
	Weak AQ x Low SC	4.57(1.10)		5.01(1.15)		4.96 (1.16)		4.70(1.52)	
Levene's Test (Sig.)		.684(.562)		1.124(.339)		1.071(.362)		1.923(.126)	
Error		1.189		1.050		1.215		1.215	
R ²		.55		.32		.59		.54	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

Figure 10 Path Estimates based on PLS Analysis for Overall Group

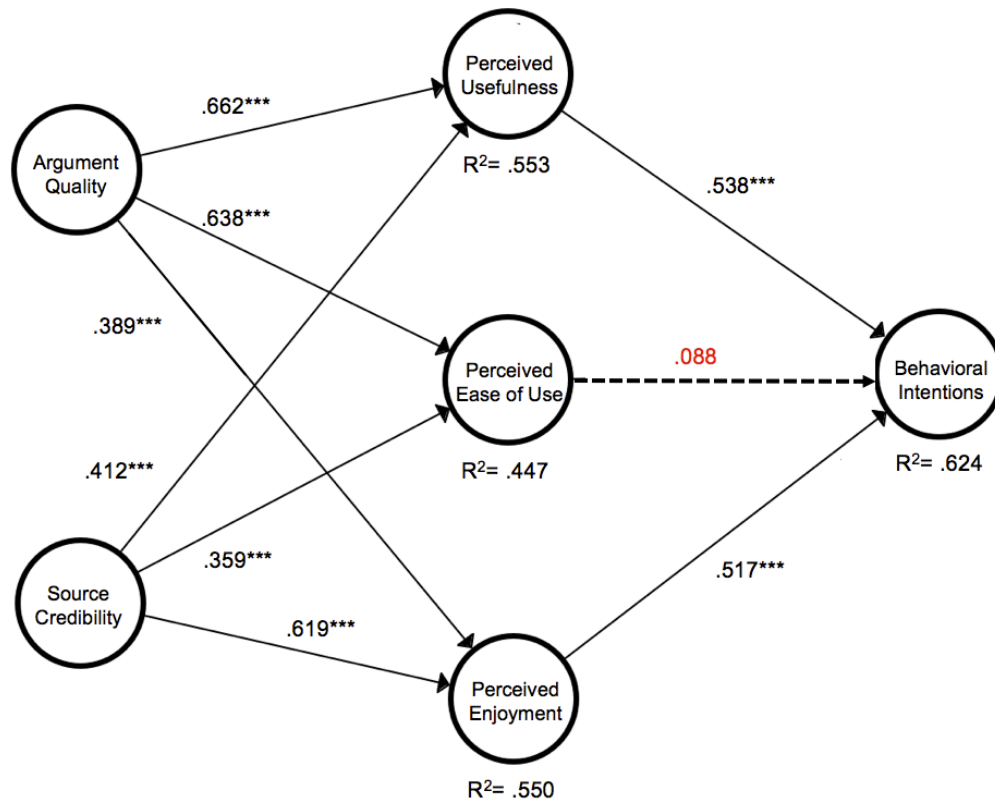


Figure 11 Path Estimates based on PLS Analysis for Treatment Groups

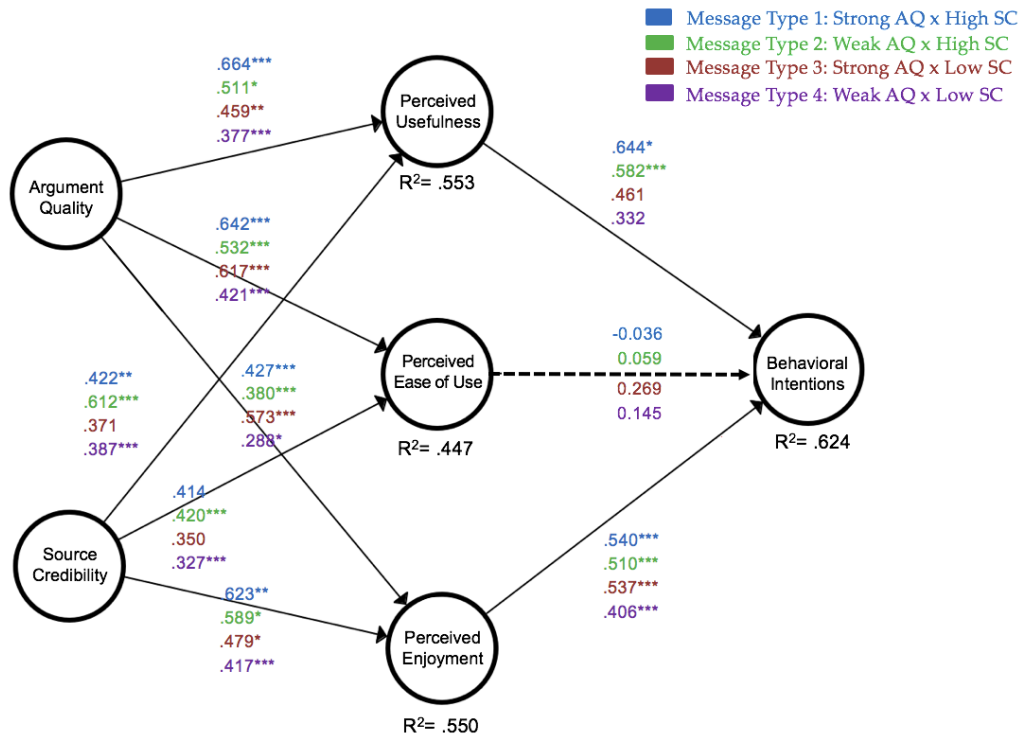


Table 23 Standardized Structural Estimates and Tests of Main Hypotheses

Hypotheses	Path	Group	Estimates (Sig.)	t-value	Test of hypothesis
H _{1a}	Argument quality → Perceived usefulness	Overall	.662 ***	6.884	Supported
		Message Type 1	.664 ***	6.485	
		Message Type 2	.511 *	5.057	
		Message Type 3	.459 ***	2.584	
		Message Type 4	.377 ***	2.646	
H _{1b}	Argument quality → Perceived ease of use	Overall	.638 ***	7.093	Supported
		Message Type 1	.642 ***	5.742	
		Message Type 2	.532 ***	4.640	
		Message Type 3	.617 ***	5.979	
		Message Type 4	.421 ***	2.971	
H _{1c}	Argument quality → Perceived enjoyment	Overall	.389 ***	6.328	Supported
		Message Type 1	.427 ***	4.325	
		Message Type 2	.380 ***	3.238	
		Message Type 3	.373 ***	5.733	
		Message Type 4	.288 *	2.050	
H _{2a}	Source credibility → Perceived usefulness	Overall	.412 ***	6.207	Supported
		Message Type 1	.422 **	4.550	
		Message Type 2	.612 ***	6.593	
		Message Type 3	.371	3.301	
		Message Type 4	.387 ***	3.350	
H _{2b}	Source credibility → Perceived ease of use	Overall	.359 ***	4.342	Supported
		Message Type 1	.414	3.700	
		Message Type 2	.420 ***	3.230	
		Message Type 3	.350	3.265	
		Message Type 4	.327 ***	2.771	
H _{2c}	Source credibility → Perceived enjoyment	Overall	.619 ***	6.102	Supported
		Message Type 1	.623 **	5.455	
		Message Type 2	.589 *	5.358	
		Message Type 3	.479 *	4.583	
		Message Type 4	.417 ***	3.517	
H ₃	Perceived usefulness → Behavioral Intentions	Overall	.538 ***	5.293	Supported
		Message Type 1	.644 *	6.031	
		Message Type 2	.582 ***	6.200	

Table 23 Continued

Hypotheses	Path	Group	Estimates (Sig.)	t-value	Test of hypothesis
H ₄	Perceived ease of use → Behavioral Intentions	Message Type 3	.461	4.986	Not Supported
		Message Type 4	.332	2.617	
		Overall	.088	1.411	
		Message Type 1	-.036	0.229	
		Message Type 2	.059	0.493	
		Message Type 3	.269	2.352	
H ₅	Perceived enjoyment → Behavioral Intentions	Message Type 4	.145	0.809	Supported
		Overall	.517 ***	10.024	
		Message Type 1	.540 ***	4.768	
		Message Type 2	.510 ***	5.984	
		Message Type 3	.537 ***	5.576	
		Message Type 4	.406 ***	2.961	

Note. a. Message Type 1: Strong AQ x High SC, Message Type 2: Weak AQ x High SC, Message Type 3: Strong AQ x Low SC, Message Type 4: Weak AQ x Low SC.

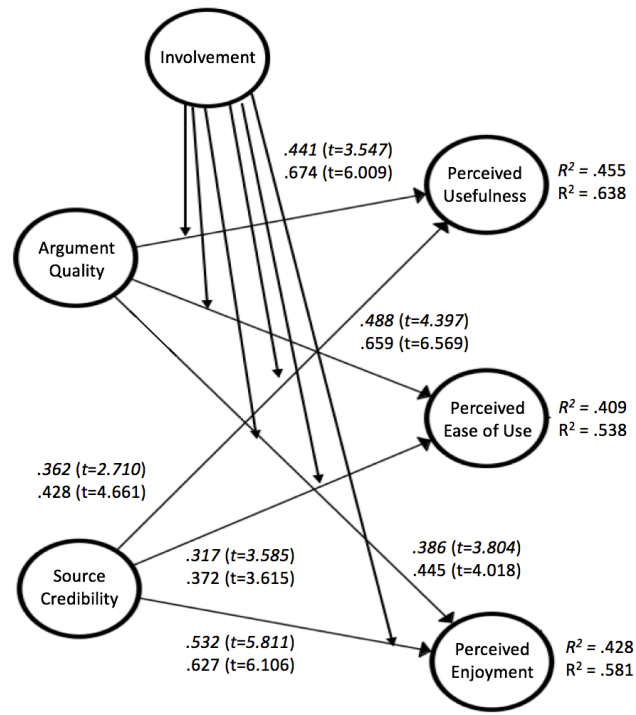
b. * $p < .05$; ** $p < .01$; *** $p < .001$.

Next, the moderating effects of involvement on the relationships between persuasive messages and perceptions of smartphone usage was examined. Figure 12 depicts the additional analysis that tested H_{6a} to H_{7c}. As reported by Hair et al. (2006), the models' explained variances (R^2) with the associated regression results were employed when comparing differences among the groups. The structural model predicted 63.8%, 56.9%, and 48.1% of the variances in the high-involvement group in terms of perceived usefulness (PU), perceived ease of use (PEOU), and perceived enjoyment (PE), respectively. These R^2 values were relatively higher than those of the low involvement group. In the structural model, the estimated standardized path coefficients indicated that argument quality affected each group's PU, PEOU, and PE

related to smartphone app usage. Additionally, source credibility influenced these three factors (i.e., PU, PEOU, and PE) differently for each group.

To compare the research models across all involvement groups, a multi-group analysis using PLS was conducted the differences of path coefficients for two research models, as suggested by Chin (1998) and Keil et al. (2000). The results indicated that the standardized coefficients of each path for the low and high involvement groups were significantly different from the corresponding path coefficients in the structural model (see Table 24). Specifically, argument quality in the high involvement group influenced the perceived usefulness (low involvement: .441 < high involvement: .674, $p < .001$), ease of use (low involvement: .488 < high involvement: .659, $p < .01$), and enjoyment (low involvement: .386 < high involvement: .445, $p < .05$) more than in the low involvement group. Thus, the results support H_{6a} to H_{6c}. Further, for the high involvement group, source credibility affected the perceived usefulness (low involvement: .362 < high involvement: .428, $p < .01$), ease of use (low involvement: .317 < high involvement: .372, $p < .05$), and enjoyment (low involvement: .532 < high involvement: .627, $p < .001$) more than in the low involvement group. Hence, the empirical data supported H_{7a} to H_{7c}. Therefore, the results suggest that high-involved sport tourists toward a sporting event have more intentions to use a smartphone app in order to consume sport through both a central route of argument quality and peripheral route of source credibility.

Figure 12 Comparison of Low and High-Involvement Groups



Note. Italicized coefficients denote the low involvement group and roman (non-italicized) coefficients denote the high involvement group.

Table 24 Comparison of Path Coefficients between Low and High Involvement Groups

Moderator	Hypotheses	Path	Estimates		t-value (B-A)	Test of hypothesis
			Low group (A)	High group (B)		
Involvement	H _{6a}	Argument quality → Perceived usefulness	.441	.674	3.462	Supported
	H _{6b}	Argument quality → Perceived ease of use	.488	.659	2.171	Supported
	H _{6c}	Argument quality → Perceived enjoyment	.386	.445	0.214	Supported
	H _{7a}	Source credibility → Perceived usefulness	.362	.428	1.951	Supported
	H _{7b}	Source credibility → Perceived ease of use	.317	.372	0.030	Supported
	H _{7c}	Source credibility → Perceived enjoyment	.532	.627	0.295	Supported

CHAPTER VI

SUMMARY AND CONCLUSIONS

In this chapter, the findings of the current research are presented and several significant results are discussed. Then, the theoretical and managerial implications of this study are described. Finally, the limitations of this work are assessed and topics for future research suggested.

6.1 Review of the Findings

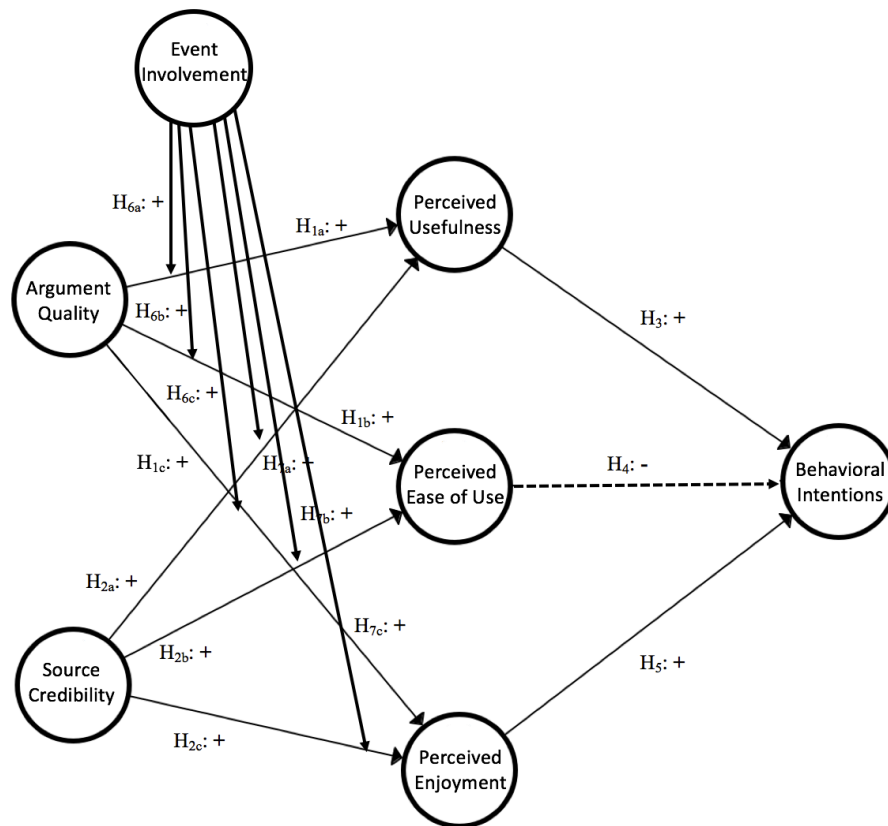
The primary objective of this study was to gain an understanding of sport tourists' information processing as it relates to the use of smartphone apps. This research examined a dual-process model using a dichotomous (ELM: Petty & Cacioppo, 1981) rather than interactive approach (HSM: Chaiken, 1980), in order to analyze the decision-making process related to sport consumption via the use of smartphone apps. In the field of persuasion research, numerous scholars have widely applied dual-process models and TAM (Kim, Chung, Lee, & Preis, 2016; Li & Ku, 2011; Tseng & Wang, 2016) to theoretically explain how individuals make decisions when accepting IT systems. The present study adopted the ELM as its theoretical base, incorporating the TAM (Davis, 1989; Davis et al., 1989) to predict and explain users' behaviors related to IT usage, specifically before obtaining experience with the IT system. This study also attempted to integrate involvement theory (Assael, 1987), since situational involvement has been

found to be a moderator when determining the amount and type of information processing one uses (Petty et al., 1983).

Another objective of this study was to investigate the effects of different types of advertising messages on sport tourists' smartphone apps acceptance. The results presented that embedded advertising messages including both strong arguments and high credibility of sources are more likely to affect sport tourists' perceptions for smartphone apps than the inclusion of only one or nothing. Thus, this study suggested the guideline for design of particular advertising messages based on the identified treatments and target groups.

Finally, the objective of this study was to examine the moderating effects of involvement on the relationship between persuasive messaging and perceptions of smartphone usage. The results indicated that persuasive messages in smartphone apps can extensively affect sport tourists' attitude formation and their behavioral intention to consume sports. Accordingly, the current study proposed a new model that is believed to be more suitable for predicting sport consumers' behavioral intentions pertaining to the use of smartphone apps in the sport tourism field. Based on the empirical findings discussed in the previous section, a new conceptual framework is proposed, as depicted in Figure 13.

Figure 13 Results of Proposed Conceptual Model



Note. All paths are statistically significant at $p < .001$, except for H_4 .

This research, based on a review of the literature, established a conceptual model for the study of how individuals apply information judgement and decision-making processes to the use of smartphone apps as a means of assessing the information-based attributes (i.e., argument quality, source credibility) of advertising messages presented in different involvement situations. Consistent with prior research (Kim et al., 2016; Teng, Wei Khong, Wei Goh, & Yee Loong Chong, 2014), the results of this study indicate that

both argument quality (central route) and source credibility (peripheral route) effectively persuade sport consumers to accept information presented through a smartphone app. This was found to occur via the app's perceived usefulness (PU), perceived ease of use (PEOU), and perceived enjoyment (PE), supporting H_{1a} to H_{2c}. This result is compatible with the basis of Sussman and Siegal's (2003) information adoption model and echoes the IT acceptance process suggested by Bhattacharjee and Sanford (2006). Additionally, PU was found to be a significant factor in explaining the intention to use technology (H₃), while PEOU was shown not to influence respondents to intend to use technology (H₄).

It was further found that PE has a positive impact on the intention to use technology (H₅), which is consistent with the argument presented by Teo et al. (1999). These findings suggest that cognitive (PU) and emotional (PE) responses may be key determinants in motivating IT acceptance and the adoption of advertising messages on smartphone apps. An app's superior usefulness and incorporation of significant enjoyment should thus notably increase an individual's technology adoption and intention to use the app for sport consumption.

This study also revealed that personal involvement with an event is a significant moderator of the relationship between dual-route (central and peripheral) persuasive processes and perceptions of IT usage, supporting H_{6a} to H_{7c}. The findings pertaining to PU are consistent with Kim et al. (2016), though this research is one of only a few studies in the sport tourism realm to employ involvement as a moderator for PEOU and PE factors.

Further, the findings of the current study confirmed the notion that highly-involved individuals (as compared to low-involvement persons) use more “elaborate” approaches to information processing, as suggested by Celsi and Olson (1988). It was found that highly-involved individuals tended to consider available information to compensate for insufficient detail in advertising messages. It was further revealed that strong arguments of persuasive messages tended to counterbalance the negative impacts of weak arguments.

Additionally, high source credibility was seen to offset the negative impacts of low source credibility. Previous research supporting these offsetting roles has shown that under high-involvement situations, strong argument quality and high source credibility play pivotal roles in treating messages as equally capable of conveying critical meaning (Chung, Han, & Koo, 2015; Ha & Ahn, 2011). These findings have both theoretical and practical implications.

6.2 Theoretical Implications

One of the general implications of this study is that utilizing ELM as a dual-process theory can be appropriate when evaluating sport consumers’ information processing. It was further revealed that technology acceptance theory can be suitable for examining consumers’ perceptions and intention to use smartphone apps. The above was shown as significant relationships between persuasive messages (their argument quality and source credibility) and perceptions of IT usage were found (PU, PEOU, and PE). The findings lay a theoretical foundation for dual-route (central and peripheral)

information processing to explain smartphone app usage. That is, central and peripheral processing routes were found to not be mutually exclusive when processing advertising messages (Coulter & Punj, 2004). This is pertinent since mobile tourism shoppers at times use both processes simultaneously when considering continuing to use mobile tourism shopping apps (Kim et al., 2016).

Sport tourists may also employ both processing routes at the same time when purchasing additional game tickets or merchandise via smartphone apps. This finding is the opposite of that presented by Petty and Cacioppo (1986). Thus the current study revealed that PU can be established by both argument quality and source credibility (Bhattacharjee & Sanford, 2006). PEOU (Li, 2013) and PE (Hsu & Lin, 2008) can be shaped by both factors in persuasive messages, eventuating a mixed-mode model. Consequently, it is believed that such extensions proffer a more comprehensive explanation of persuasive information processing in terms of IT usage. The evolution of theories can be expected when theories are adopted from discipline, and applied to another. It is hence believed that the resultant adaptations aid in the growth of the theories examined and a better understanding of the phenomena studied.

It is also believed that the current findings help fill a gap in the existing literature on persuasive processes that develop consumers' perceptions and use intentions. Particularly, most preceding studies have started with individual perceptions such as PU, PEOU, and PE in their attempts to understand the acceptance of IT usage (Hsu & Lin, 2008; Moon & Kim, 2001). However, these studies did not explicitly investigate how those perceptions can be affected by advertising messages, including aspects such as

argument quality and source credibility, which can influence the intention to use IT. By accessing the effectiveness of the ELM in understanding persuasive mechanisms important to smartphone app usage, it is believed the present study contributes to the understanding of online shopping related to sport products on smartphone apps designed for sport tourists.

As suggested by previous studies utilizing a dual-process perspective (Chaiken & Maheswaran, 1994; Petty et al., 1983), this research confirms that the level of a consumer's involvement plays a crucial role in their information processing, decision making, and attitude formation. It was found that highly-involved consumers formed their beliefs and attitudes by using a cognitive thinking system, which can be referred to as the central route. They are likely to respond favorably to informational advertising appeals that emphasize the merits and benefits of the product or service (Samuelsen & Olsen, 2010). In contrast, low-involvement consumers tended to focus on simple and executional elements such as attractive endorsers to facilitate processing of the message, similar to the findings of Sojka and Giese (2006).

Additionally, this study devoted considerable theoretical attention to the sport tourism literature to help understand the moderating effect of involvement on information processing. Consistent with earlier studies (Bhattacharjee & Sanford, 2006; Hsu & Lin, 2008; Li, 2013), for groups with high levels of involvement, the influence of argument quality on PU, PEOU, and PE was found to be greater than those with lower levels of involvement. Contrary to prior studies (Bhattacharjee & Sanford, 2006), for groups with high levels of involvement, the effects of source credibility on PU, PEOU,

and PE were more substantial than for those with low levels of involvement. It is possible that this is due to mobile tourism shoppers with high levels of involvement tending to be more frequently exposed to personal recommendations, statistical ratings, pictures, and videos of other consumers through social network sites (SNS) than are those with low levels of involvement (Kim et al., 2016). In this manner, it is believed that involvement as a moderator provides a significant contribution to an integrated model, bridging the gap between development of the ELM (Petty & Cacioppo, 1986) and recent trends in IT usage (Internet, smartphones, tablets, and SNS).

6.3 Managerial Implications

The findings of the present study also provide several managerial implications for sporting event and tourism managers working to develop effective and efficient advertising strategies. This research suggests that a number of key attributes of information (e.g., argument quality, source credibility) that should be employed when communicating advertising messages. Notably, an effort was made to find the applicability of advertising messages to online consumers' information-processing patterns and attitude formation within the context of information technology, beyond decision making via a traditional persuasion process (e.g., non-online shopping). Particularly, sport consumers were found to be more likely to be drawn to apparent or tangible benefits of products associated with a sporting event (Stafford & Day, 1995). Therefore, marketers of sporting event should be aware of their potential customers' involvement levels and the effects these will have on their mobile advertising strategies,

as well as services and products provided at the particular sporting event, in order to enhance their advertising's effectiveness. It is thus believed mobile marketing strategies should focus on "mobile optimization," to help ensure relevant, informational, engaging, and unique messages for targeted sport tourists. Based on the findings of the current study, it would suggest that a couple of options for the optimization create such as an advertising type of a native mobile site or an advertising of a responsive site (i.e., ESPN, StubHub, CBS Sports, etc.).

The findings indicate that mobile advertising businesses should clearly communicate strong arguments and improve source credibility in their marketing strategies. Mobile advertising messages should thus be brief and easy to read, and utilize sport organizations and stars' recommendations as credible sources. Notably, the results show that the central route is more salient than peripheral routes for sport tourists who use smartphone apps. This implies that mobile businesses should focus more on the central route by inspiring strong cognitive processing such as by providing factual information (Kim et al., 2016). Thus, the wording used in mobile advertising messages should be presented simply, such as through visible call-to-action (CTA) buttons and A/B testing, which will drive advertisements and positively affect conversion rates.

Peripheral routes can convey affective impressions that have been found to be important for persuasion (Petty et al., 1983). Marketers should therefore enhance low-involvement sport tourists' perceptions of smartphone apps through emotional appeals such as vivid pictures and live videos. Mobile advertising messages should also develop

user interface (UI) and user experience (UX) testing processes to improve their ability to attract sport tourists in ways beyond celebrity recommendations.

The results also revealed that when sport tourists feel that the information obtained from their smartphone is useful, easy to access, and enjoyable to digest, they are more likely to use apps. Consequently, from a long-term perspective, sport event marketers should concentrate on increasing sport consumers' perceptions of the usefulness, ease of use, and enjoyableness of their smartphone apps. This could be accomplished through social media, video games, and mobile-specific banner ads with gamification aspects (e.g., e-learning, bonus/membership systems, etc.). The use of multiple effective mediums will likely assist sport tourists in being more likely to engage in building positive perceptions of smartphone apps and spend more time thereby engaged.

Another recommendation is that for sport event marketers, smartphone apps should play a significant role in their attempts to reach sport consumers and build relationships. Consistent with the research findings associated with IT usage (Brady, Saren, & Tzokas, 2002; Pescher, Reichhart, & Spann, 2014), marketing is a dominant field in information-processing (i.e., ELM) studies. Marketing practitioners should clearly note that smartphone apps can employ online advertising strategies with persuasive messages. Specifically, this study provides marketers with direction and guidelines for answering questions regarding how to develop persuasive advertising and approach targeted consumers with a variety of preferences. For example, designing effective persuasive messages requires numerous sorting criteria that may affect

recipients' perceptions and attitudes, such as argument quality and source credibility. In order to achieve maximum effectiveness in persuasive communication, sport event marketers should consider the combination of creative advertising messages and cutting edge technology to be fundamental to appealing consumers. Mobile messages should hence be displayed via the latest cutting-edge technology, such as augmented reality (AR) and virtual reality (VR).

Next, marketers should employ new and different advertising strategies based on consumers' distinct involvement levels. For instance, highly-involved consumers (using the central route) tend to prefer mainstream content (e.g., online sport magazines, statistical facts), whereas consumers who are less involved (employing the peripheral route) are likely to favor user-generated content (e.g., personal blogs, podcasts, video sharing) (Kwak, Kim, & Zimmerman, 2010). Accordingly, the findings of this study suggest that marketers should persuade low-involvement sport consumers by providing user-generated content (UGC; i.e., the peripheral route) that is equally trustworthy, reliable, and likeable as mainstream content. Messages targeted at low-involvement consumers should focus on personal UGC such as product reviews and customer feedback.

Conversely, when potential sport-related mobile app consumers are highly interested in products or services associated with a sporting event (a highly involved group), marketers should promote their beliefs and attitudes by highlighting advertisements featuring expert endorsers that guarantee products/services and explain how they differ from competitors. Thus, recommendations from famous athletes and

sports celebrities (e.g., Michael Jordan, Tiger Woods) associated with services and products should be embedded in mobile advertising, possibly through headlines displayed on the initial screen. In short, it has become increasingly significant for mobile marketing professionals to understand how and when sport consumers pay attention in advertising and on what types of stimuli, and develop strategies for determining their patterns of information processing.

In summary, the findings of this study suggest the applications of advertising message types (see Figure 14). For example, if a mobile marketer wants to enhance sport tourists' perceived usefulness and ease of use related to their smartphone app, the marketers should employ the message type 2, emphasizing high credibility of source such as sports stars' or sports organizations' recommendations or suggestions. Also, the following types of messages should be the first choice for the following different targets (see Table 25).

Figure 14 Applications of Advertising Message Types

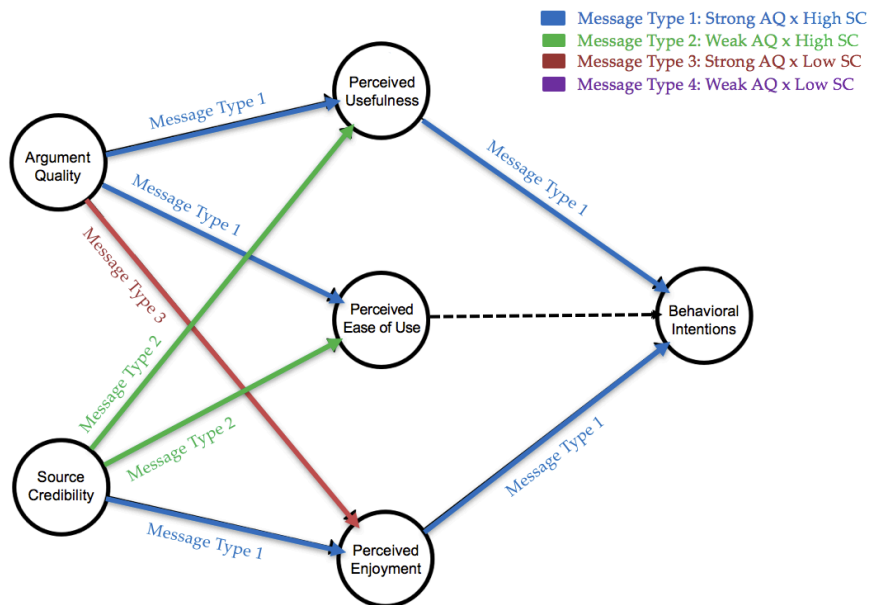


Table 25 Advertising Messages for Different Targets

Target Consumer		Type of Advertising Message
Involvement	Message Characteristics	
High-involvement sport tourists	Argument Quality	<ul style="list-style-type: none"> Make messages simpler and easier to read Integrate augmented reality (AR) and virtual reality (VR)
	Source Credibility	<ul style="list-style-type: none"> Present a wide range of credibility through user-generated content (UGC)
Low-involvement sport tourists	Argument Quality	<ul style="list-style-type: none"> Develop the user interface (UI) and user experience (UX) Use social media, video games, and mobile-specific banners Use visible call-to-action (CTA) buttons and A/B testing
	Source Credibility	<ul style="list-style-type: none"> Provide highly credible sources such as well-known athletes' or sport celebrities' (e.g., Michael Jordan, Tiger Woods) recommendations

6.4 Limitations and Recommendations for Future Research

Despite the methodological and practical implications of this study, several limitations should be acknowledged. First, the findings may not be generalizable to other populations in different settings. The experiment sample was collected solely from American consumers. Although MTurk was utilized to recruit a wide range of respondents, only MTurk participants located in the U.S. were targeted. In other words, the research sample are likely not representative of all sport tourists around the world. Therefore, future research should expand the scope of the population to enhance the generalizability of the findings.

The findings of this study are further limited as the sample did not accurately approximate the U.S. population. In particular, the sample was more likely to be young, male, educated, and Asian, and less likely to be wealthy. These differences limit the current study's ability to be generalized to the greater population. Future studies should attempt to recruit more diverse samples from different settings.

Another area for further inquiry includes the necessity of additional components (e.g., perceived behavioral control, perceived trustworthiness) of belief to build a robust framework for explaining individual's technology acceptance. Previous studies (Davis et al., 1989; Venkatesh & Davis, 2000) have shown that adding the antecedents of belief to the TAM leads to a significant increment in the explained variance for predicting users' behavioral intentions. For instance, perceived behavioral control (PBC) of the theory of planned behavior (TPB) is individual's evaluations or beliefs that may facilitate (e.g., information given by peer) and/or constrain (e.g., time, money) the performing of the IT

acceptance. Thus, future research should explore more predictable variables that could have been identified for the IT acceptance.

The fictitious sporting event scenarios are another limitation of this study. These were used to approximate the involvement levels of sport consumers for the experiment. Although the survey participants were asked to imagine themselves in the particular scenarios, it would be helpful to remove the possibility of participants bringing in “real world” knowledge (Lalljee, 1981). Fictional scenarios may not completely eliminate any respondent experience bias. Also, it is not feasible to examine individuals’ respective psychological statuses through these scenarios. Hence, future studies should design fictitious scenarios that reflect reality and control for pre-existing beliefs and attitudes. Future studies should also examine these phenomena in actual real-world scenarios.

Next, the stimuli (i.e., advertising messages) in this study were related to the length and quality of the textual statements. To classify the central and peripheral routes, this study concentrated on the amount of effort spent on information processing. Consistent with previous studies, in this research it was determined that those following the central route tended to pay greater attention to concise advertising messages than those following a peripheral route. Conversely, message recipients using a peripheral route were likely to consider the short messages to be easier and quicker for information-processing than those following the central route. However, the succinct messages described with bullet points produced easier and quicker processing, even for participants following the central route. It is important to note that the advertising messages did not contain dynamic videos, rich motion graphics, or other types of data;

they used only text messages and pictures. Since video clips provide one of the biggest impacts in online advertising (Parise & Guinan, 2008), future studies should use a mixed mode of advertising that incorporates both written and animated contents in order to effectively stimulate persuasive communication based in reality.

Finally, this study is potentially limited due to the use of MTurk to recruit subjects and conduct research, particularly with regards to subject attentiveness and habitual survey takers (Berinsky et al., 2012). As an online platform for data collection, MTurk subjects tend to be younger and more liberal than the general public. In addition, MTurk offers complete freedom (e.g., time, place) to respondents participating in experimental research, but those participants may not fully concentrate on the study's stimuli and questions. One concern is that it is possible MTurk participants habitually respond in order to earn survey awards; thus, there may be an issue of external validity. In future research, a lab setting where respondents could be provided with identical environments, controlling for distractions would be useful for collecting higher quality data and enhancing the validity of the findings.

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APPENDIX A

MANIPULATION

1) Scenario for High-Involvement Condition

Please read the following scenario very carefully and imagine that you are in this situation.

A sporting event (**SPORTING EVENT A**) that matches your interests will be held at ABC stadium from June 15 - June 24, 2018. You have been **a huge fan of the team for a long time** and it has always been **your dream to attend this event**. This year, you decide to go to the event for very first time.

You think it is **worth spending significant time and effort searching for information** about the event. You decide to read the related news and study about the teams and players in order to keep yourself updated about the event. Also, you are **willing to spend up to \$500 to buy gifts and merchandise** related to the event.

Imagine that you are searching for information on a smartphone app for SPORTING EVENT A.

The advertising flyer will be provided on the following page.
Please take a few minutes to look at the ad.

2) Scenario for Low-Involvement Condition

Please read the following scenario very carefully and imagine that you are in this situation.

You heard that a sporting event (**SPORTING EVENT B**) will be held at ABC stadium from June 15 - June 24, 2018. **You do not have a strong interest in the teams. The event is not a strong interest.** You also do not intend to secure additional information about things to do at the event, and you **hope to spend as little money as possible at the event**.

Imagine that you are searching for information on a smartphone app for SPORTING EVENT B.

The advertising flyer will be provided on the following page.
Please look at the ad.

3) Advertising Messages

i) Strong Argument Quality/ High Source Credibility



The advertisement features a background image of a large, modern sports stadium filled with spectators. The text is overlaid on this image. At the top center, it says "The #1 Sports App" in large, bold, red letters, followed by "as Ranked by the 2018 US Nielsen Sports Survey" in smaller black text. To the right, the "SE MOBILE APP" logo is displayed in large, bold, orange and grey letters. Below the main title, it says "The Most (downloaded) Sports App" in large, bold, red letters, followed by "from 2015 to 2018 according to ESPN and CBS SPORTS" in smaller black text. A list of benefits is shown in red text: "- 15% Discount: Buy Tickets and Merchandise" and "- 10% Discount: In Seat Delivery & Express Pickup Service". On the right side, a hand holds a smartphone displaying the app's interface. At the bottom right, the text "DOWNLOAD THE FREE APP TODAY" is written in bold, black letters.

The #1 Sports App
as Ranked by the 2018 US Nielsen Sports Survey

SE MOBILE APP

The Most (downloaded) Sports App
from 2015 to 2018 according to ESPN and CBS SPORTS

- **15% Discount:** Buy Tickets and Merchandise
- **10% Discount:** In Seat Delivery & Express Pickup Service

DOWNLOAD THE FREE APP TODAY

ii) Strong Argument Quality/ Low Source Credibility



This advertisement is identical to the one above, featuring the same background image of a sports stadium and the same text elements. The text includes "The #1 Sports App" as ranked by the 2018 US Nielsen Sports Survey, "The Most (downloaded) Sports App" from 2015 to 2018 according to ESPN and CBS SPORTS, and a list of benefits: "- 15% Discount: Buy Tickets and Merchandise" and "- 10% Discount: In Seat Delivery & Express Pickup Service". It also features the "SE MOBILE APP" logo and a hand holding a smartphone displaying the app's interface. The call to action "DOWNLOAD THE FREE APP TODAY" is at the bottom right.

SE MOBILE APP

DOWNLOAD THE FREE APP TODAY

DOWNLOAD THE FREE APP TODAY

- **15% Discount:** Buy Tickets and Merchandise
- **10% Discount:** In Seat Delivery & Express Pickup Service

iii) Weak Argument Quality/ High Source Credibility

The #1 Sports App
as Ranked by the 2018 US Nielsen Sports Survey

The Most (downloaded) Sports App
from 2015 to 2018 according to ESPN and CBS SPORTS

Enjoy benefits provided only to mobile users!

SE
MOBILE APP

DOWNLOAD THE FREE APP TODAY

iv) Weak Argument Quality/ Low Source Credibility

SE
MOBILE APP

DOWNLOAD THE FREE APP TODAY

Enjoy benefits provided only to mobile users!

APPENDIX B

SURVEY QUESTIONNAIRE

EXAMINING SPORT TOURISTS' SMARTPHONE ACCEPTANCE: THE EFFECT OF PERSUASIVE MESSAGES AND THE MODERATING EFFECTS OF EVENT INVOLVEMENT

You are invited to take part in a research study being conducted by Sukjoon (SJ) Yoon and Dr. James Petrick, a researcher from Texas A&M University. The information in this form is provided to help you decide whether or not to take part. If you decide you do not want to participate, there will be no penalty to you, and you will not lose any benefits you normally would have.

Why Is This Study Being Done?

The purpose of this study is to measure whether persuasive messages influence sport consumers' smartphone acceptance behavior for their sport consumption. The current study also examines the moderating effect of event involvement on sport tourists' intention to use sport-related smartphone applications (apps).

Why Am I Being Asked to Be in This Study?

All participants must be over 18 years old and a member of MTurk.

How Many People Will Be Asked to be in This Study?

250 people (participants) will be invited to participate in this study. Among the total participants, 200 people will be target sample.

What Are the Alternatives to being in this study?

The alternative to being in the study is not to participate.

What Will I Be Asked to Do in This Study?

You will be asked to complete the survey. Your participation in this study will last up to 10-15 minutes. You will read a role-playing scenario and advertisement messages in a smartphone app at first and respond to questions about the scenario and ad messages. And then, you will answer questions relating to perceptions of the smartphone app and smartphone usage intentions.

Are There Any Risks to Me?

There are no sensitive questions in this survey that should cause discomfort. However, you can skip any question you do not wish to answer, or exit the survey at any point.

Will There Be Any Costs to Me?

Aside from your time, there are no costs for taking part in the study.

Will I Be Paid to Be in This Study?

You will receive \$0.40 for completing the questionnaire.

(Continue)

Will Information from This Study Be Kept Private?

The records of this study will be kept private. No identifiers linking you to this study will be included in any sort of report that might be published. Research records will be stored securely and only the Office of Human Research Protections (OHRP) at Texas A&M University will have access to the records.

Who may I Contact for More Information?

You may contact Sukjoon (SJ) Yoon or Prof. James Petrick to tell them about a concern or complaint about this research.

For questions about your rights as a research participant; or if you have questions, complaints, or concerns about the research, you may contact the Texas A&M University Human Subjects Protection Program at 979.458.4067, toll-free at 1.855.795.8636, or email at irb@tamu.edu.

What if I Change My Mind About Participating?

This research is voluntary and you have the choice whether or not to be in this research study. You may decide to not begin or to stop participating at any time. If you choose not to be in this study or stop being in the study, there will be no effect on your student status. Any new information discovered about the research will be provided to you. This information could affect your willingness to continue your participation.

By completing the survey, you are giving permission for the investigator to use your information for research purposes.

Thank you very much for taking your time.

Respectfully,

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TAMU IRB:	2017-0549D
Issued Date:	09/04/2017
Expiration Date:	09/03/2018

PART I: General Questions

1. Are you a sports fan?

- ☐ Yes
- ☐ No

2. How many times a day on average do you check your smartphone?

- ☐ Less than 10
- ☐ 10-20
- ☐ 20-30
- ☐ 30-40
- ☐ More than 40

3. How many hours a day do you spend using your smartphone?

- ☐ Less than 30 mins
- ☐ 30 mins – 1 hour
- ☐ 1-2 hours
- ☐ 2-3 hours
- ☐ 3 or more

4. Have you used any sport-related smartphone apps?

- ☐ Yes
- ☐ No

PART II: Involvement

Thinking about the sporting event scenario you just read, please indicate your opinions on the following scales:

5. How does the sporting event described in the situation you were given compare with other sporting events available on the market?

I would not compare at all						I would compare a great deal
1	2	3	4	5	6	7

6. Based on the situation you were given, how important would it be for you to make the right choice regarding this sporting event?

Not at all important						Extremely important
1	2	3	4	5	6	7

7. Based on the situation you were given, how concerned would you be about the outcome of your selection of this sporting event?

Not at all concerned						Very much concerned
1	2	3	4	5	6	7

PART III: Persuasive Messages

Thinking about the messages in the advertisement you read, please express to what extent you feel each of the following feelings right now, that is, at the present moment:

	Strongly disagree					Strongly agree	
The information (e.g., discount rate) provided in the ad for SE's mobile app is accurate.	1	2	3	4	5	6	7
The information (e.g., discount rate) provided in the ad for SE's mobile app is relevant.	1	2	3	4	5	6	7
The information (e.g., discount rate) provided in the ad for SE's mobile app is comprehensive.	1	2	3	4	5	6	7
The information (e.g., discount rate) provided in the ad for SE's mobile app is timely.	1	2	3	4	5	6	7
The source (e.g., ESPN, CBS sports) provided in the ad for SE's mobile app is knowledgeable on the topic.	1	2	3	4	5	6	7
The source (e.g., ESPN, CBS sports) provided in the ad for SE's mobile app appears to be an expert on the topic.	1	2	3	4	5	6	7
The source (e.g., ESPN, CBS sports) provided in the ad for SE's mobile app is trustworthy.	1	2	3	4	5	6	7
The source (e.g., ESPN, CBS sports) provided in the ad for SE's mobile app is credible.	1	2	3	4	5	6	7

PART IV: Perception of a Smartphone App

Listed below are statements about the usage of a sport-specific smartphone app. Please mark the appropriate response how strongly you agree or disagree with the following statements.

	Strongly disagree					Strongly agree	
The SE’s mobile app is useful when searching for sport-related information.	1	2	3	4	5	6	7
The SE's mobile app improves my knowledge of the sport.	1	2	3	4	5	6	7
The SE's mobile app makes me more effective at sport-related information searches.	1	2	3	4	5	6	7
The SE's mobile app increases my productivity when searching for sport-related information.	1	2	3	4	5	6	7
SE's mobile app is easy to use.	1	2	3	4	5	6	7
Learning to operate SE's mobile app was easy.	1	2	3	4	5	6	7
My interaction with SE's mobile app is clear and understandable.	1	2	3	4	5	6	7
It is easy to interact with SE's mobile app.	1	2	3	4	5	6	7
Using SE's mobile app gives me enjoyment.	1	2	3	4	5	6	7
Using SE's mobile app entertains me.	1	2	3	4	5	6	7
It is fun to use SE's mobile app.	1	2	3	4	5	6	7
It is interesting to use SE's mobile app.	1	2	3	4	5	6	7

PART V: Intention to Use a Smartphone App

Please rate how strongly you agree or disagree with each of these statements.

	Strongly disagree				Strongly agree		
In the future, I will use SE's mobile app on a regular basis.	1	2	3	4	5	6	7
In the future, I will frequently use SE's mobile app.	1	2	3	4	5	6	7
Assuming that I have access to the internet, I intend to use SE's mobile app.	1	2	3	4	5	6	7
Assuming that I have access to the internet, I predict that I will use SE's mobile app.	1	2	3	4	5	6	7

PART VI: Demographic Questions

Please tell us a little about yourself by checking or filling out the appropriate response:

1. What is your gender?

- ☐ Male
- ☐ Female

2. What year were you born?

19 ____

3. Where is your permanent residence?

State _____

4. What is your marital status?

- ☐ White / Caucasian
- ☐ African American
- ☐ Hispanic
- ☐ Asian
- ☐ Native American
- ☐ Pacific Islander
- ☐ Other

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

- ☐ Less than High School
- ☐ High School/GED
- ☐ Some College
- ☐ 2-year College Degree
- ☐ 4-year College Degree
- ☐ Master's Degree
- ☐ Doctoral Degree
- ☐ Professional Degree (JD, MD, etc.)
- ☐ Other

6. What is your total household income?

- ☐ Under \$25,000
- ☐ \$25,000 to \$34,999
- ☐ \$35,000 to \$44,999
- ☐ \$45,000 to \$54,999
- ☐ \$55,000 to \$64,999
- ☐ \$65,000 to \$74,999
- ☐ \$75,000 to \$84,999
- ☐ \$85,000 to \$94,999
- ☐ \$95,000 to \$104,999
- ☐ \$105,000 to \$114,999
- ☐ \$115,000 to \$124,999
- ☐ Over \$125,000

DEBRIEFING

This is the end of the survey. We really appreciate your participation!

**** IMPORTANT ****

The next page will give you a respondent ID number. This is your completion survey code.

You must copy this ID and paste it into the Mechanical Turk HIT
in order to confirm you've done the study and to receive payment.

