

INCREASING PURCHASE INTENTION AND WORD-OF-MOUTH THROUGH HOTEL BRAND AWARENESS

Preliminary communication

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Abstract

Purpose – Mobile applications (apps) have been widely used in many industries as a method for companies to communicate with customers. The hotel industry is one of the top sectors that utilizes mobile apps. The majority of luxury hotels are updating themselves being a part of this new wave. The aim of this study was to investigate the impact of hotel brand awareness from hotel-branded mobile application towards WOM and purchase intention by the travelers based on the theory of consumption values.

Design – A survey was administrated to 453 foreign travelers in Bangkok who used hotel-branded mobile apps in order to evaluate the accuracy and effectiveness of the conceptual model.

Methodology – Structural equation modeling (SEM) was used for model estimation.

Findings – The results revealed that hotel brand awareness acted as a mediator in the relationship between the attributes of mobile applications and travellers' consumer behaviour such as purchase intention and word of mouth. In order to raise brand awareness in mobile apps, it is essential to create value through the mobile apps, have proficient virtual interactivity, and reasonable rewards. **Originality of the research** – Only limited amount of the previous research is available attempting to identify insights into how the value proposition attributes of mobile apps could be better designed to deliver enhanced brand awareness.

Keywords Word-of-mouth, purchased intention, brand awareness, hotel-branded mobile application

INTRODUCTION

Globally, the implementation of smartphone and mobile applications (“app” or “apps” hereafter) is continually increasing and can impact how customers connect with any particular brand. According to the Statista report, the worldwide mobile internet user penetration went beyond half of the world’s population in 2017 (Statista 2018). In the U.S. alone, smartphone penetration has grown constantly from 40% in 2010 to more than 80% in 2017 (comScore 2017). In Asia, countries like Thailand have smartphone adoption of around 67%, in 2017, and it is forecasted to reach around 80% before the end of 2018, as reported by Canalys, a market analyst firm (Leesa-nguansuk 2017). There are numerous types of mobile apps currently available on the market due to the fast pace of mobile technology development. In 2017, the number of apps available for download in prominent application stores was more than 5 million apps. In addition, mobile users downloaded apps more than 190 billion times, and this is forecasted to increase to a staggering 352 billion downloads by 2021 (Statista 2018). In the U.S., the average time spent with digital media on their mobile devices was around 140 minutes of their waking

hour across all age groups. More than half of the digital media time spent was associated with the use of mobile applications (comScore 2018). The National Statistical Office of Thailand revealed that over 90% of internet users in the country go online via a smartphone, which is a rate that is significantly higher than any other device (Kressmann 2017). Stated simply, the everyday lives of smartphone users have been significantly penetrated by mobile applications.

Many companies recognize mobile apps as an additional tool to engage and collaborate with their customers. Moreover, it can support companies in their efforts to attract new customers, while boosting brand awareness and brand loyalty among existing users. Many companies realize that their customers use several mobile app features to perform a variety of tasks, including, but certainly not limited to, searching for information, retrieving data, sharing experiences, paying bills, navigation (Kim, Wang and Malthouse 2015) and making reservations (Wang *et al.* 2016). Consequently, companies try to establish applications to raise brand awareness, which affect consumer choices (Chen, Murphy and Knecht 2016). Brand awareness can increase a customer's capability to identify and recall the brand when a cue is delivered. The mobile app can create opportunities for the hotel industry by strengthening its brand awareness when mobile apps are properly designed and deployed. If the hotel gains strong brand awareness, it can contribute to the brand's market share and increase other brand features such as brand loyalty, brand image and brand equity (Bilgihan, Peng and Kandampully 2014). In turn, investment in information technology can affect financial performance in terms of revenue and gross operating profit. The research outcomes from Hua, Morosan and DeFranco (2015) found that information technology investments significantly and positively impact room revenue in mid-scale and up-scale hotels.

In general, hotels attempt to build brand awareness by employing limited one-way communications. Nevertheless, mobile applications are bi-directional, which develops the destination's brand identity and image. Hotels and app-using travellers normally interact with each other in real-time, which is not common in conventional marketplaces (Jang and Chung 2015). Although the market perspective of mobile apps and the significance of brand awareness are both well known, the improvement and experiential validation of a model that precisely represents the value proposition attributes of the mobile app from a brand-awareness perspective in the hotel industry has not been widely studied.

Mobile applications are increasingly used by travellers as tools for real-time travel information and communications. The deployment of mobile apps by the hotel is one of the many modes of communications that can be used to build its brand awareness. Through literature review, the authors found a gap in current research where the perceived value of hotel-branded mobile apps were not studied as factors to build hotel brand awareness. Furthermore, prior studies have primarily focused on examining the functional features of mobile apps or the role of mobile apps with respect to the relationship with market performance and product sales (Jang and Chung 2015, Kim, Wang and Malthouse 2015). Consequently, this current and original study purposes to fill the gap in the literature by examining the role of hotel-branded mobile app in generating brand awareness. This study approaches this gap by investigating the impact on hotel brand awareness from the perceived value of hotel-branded mobile applications,

as well as information quality, system quality, virtual reality, and rewards as independent factors.

1. LITERATURE REVIEW

1.1. Mobile applications and the hospitality industry

Mobile apps refer to software applications that run on mobile devices, such as mobile phones, tablets, laptops, and iPods, and they have an operating system that supports the standalone software. Users can download mobile apps through various distribution platforms, which are normally operated by the owner of the mobile operating system (MOS) and include the Apple App Store, Windows Phone Store and Google Play (Wang, Liao and Yang 2013). In the past, mobile apps were used to improve supply chain management in the hospitality industry. Hotels benefit from mobile apps as they reduced cost, increased functionality, improved productivity, better efficiency as well as enhanced satisfaction in terms of their logistics (Car, Pilepic and Simunic 2014). Later, mobile apps presented a new capability for marketers to create awareness of the hotel's brand (Kim, Wang and Malthouse 2015, Law, Buhalis and Cobanoglu 2014). Consequently, mobile apps offer opportunities for travel marketers in addition to supporting hotels improve their online marketing efforts. Many hotels groups, such as Marriott, Holiday Inn, Starwood, Hilton, InterContinental, Wyndham, Accor and Choice Hotels aspire to lead this trend in the adoption of mobile apps for travel planning and hospitality services. Gibbs, Gretzel and Saltzman (2016) found that the focus of hotel mobile apps is to move customers from the pre-consumer phase to the consumption stage. In the recent past, a majority of tourists used mobile apps to book their hotel room, search for room information, check the hotel location, and view the restaurant menu. Currently, they use mobile apps during their stay by utilizing functions such as booking hotel room upgrades, making spa and dining reservations, and even controlling the room atmosphere, TV operations, and their access to guest loyalty programs (Adukaite *et al.* 2014, Kim 2016).

1.2. The dominant of brand awareness in mobile applications

A company's brand is essentially the face of the company. It is its name, symbol, logo, and identity. Brand awareness is an essential element of the communication process (Huerta-Alvarez, Cambra-Fierro and Fuentes-Blasco 2020). For tourists to select a hotel and airline, they usually have to be aware of the hotel or airline's name (Casalo *et al.* 2015). To build brand awareness, the marketing strategies of many companies include a plan to make the products and service easily accessible and conveniently accessible through easy-to-use apps. Hotels can provide these services and acquire consumers involved with the brand through the use of such smartphone apps. Brand awareness could be perceived as a way to allow potential customers become informed and acquainted with a brand name so that they quickly identify and remember the brand (Gursoy, Chen and Chi 2014). Talking about the brand or products to friends and family members by customers can be one criterion to ensure a hotels' success. Therefore, word-of-mouth (WOM) is fundamental for various types of companies, including hotels. When comparing companies in the same industry, those that can use WOM for marketing

purposes have a higher degree of success compared to those that do not (Kim, Wang and Malthouse 2015).

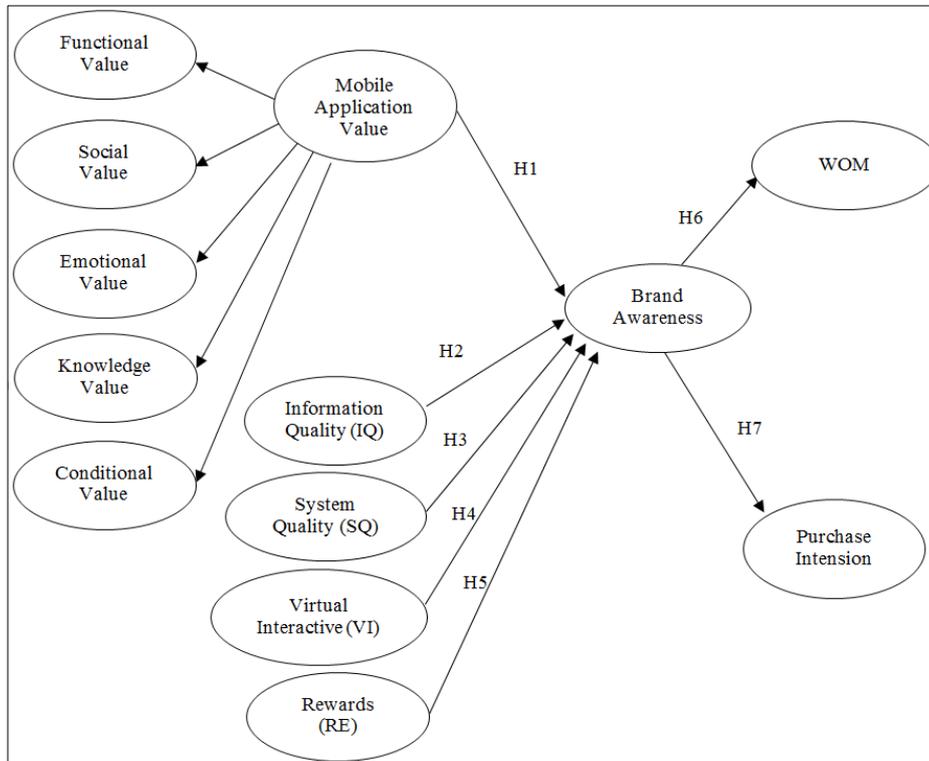
From the industry's perspective, TripAdvisor (2016) revealed that 26% of travellers conducted research on mobile apps, while 47% of worldwide hoteliers interacted with their visitors through mobile apps. A more recent report from TripAdvisor (2018) also disclosed that 89% of travellers usually conduct online research on a destination's activities and restaurants before travel. Moreover, approximately 40% of travellers use the official hotel rating score as the main source of inspiration when researching accommodation and the same percentage of travellers' stay in hotels with a brand name that they know and trust. Interestingly, Asian tourists, specifically those from China (almost 80%) value hotel brands much more than Europeans (TripAdvisor 2018).

2. HYPOTHESIS DEVELOPMENT

This study focuses on the theoretical fundamentals, which are based on three prominent marketing perceptions, including: the brand awareness factor, the purchase intention factor, and the WOM factor. These three concepts are useful in clarifying how travellers who use hotel mobile apps generate brand awareness and how brand awareness may associate with forming purchase intention and WOM. Wang, Liao and Yang (2013) found the positive effect of mobile app engagement on customers' brand awareness and purchase intention decision. In addition, Barreda *et al.* (2015) indicated the positive impact of brand awareness toward WOM by customers. The research outcomes from Viglia, Minazzi and Buhalis (2016) found that electronic WOM by consumer reviews can impact consumers' choice of hotel and thus hotel occupancy rates. With brand awareness being perceived as a necessary constituent of purchase intention and WOM in online situations, the present study also studies the originators of brand awareness in hotel mobile apps.

In the context of mobile applications, brand awareness is generated after using the app because the user is agnostic about the brand and the search for an app does not usually start with the brand or developer of the app, and usually more from the function or broader categories the user is seeking information. For example, in searching for hotel booking apps, one would input "hotel booking" search terms instead of the hotel name. This is consistent with the research by Prata, de Moraes and Quaresma (2012) which found that the majority of users searched for apps by browsing app categories rather than directly for the app name. The primary motive for a user to search for the app is to find the best offer for a type of accommodation and would be open to trying and experimenting with various apps to achieve this primary aim. Also, in the app store, the system uses analytics and algorithms to recommend apps for the user to try (Jang and Chung 2015). This is simply due to zero cost of switching from one app to another app, i.e. the apps are provided free. It is only after trying and using the app, and once it has satisfied the user and proved valuable, that the app gains brand recognition and awareness. These reasons are supported by research from Barreda *et al.* (2015) who found that important precursors of brand awareness in digital platforms comprised both system quality and information quality. Figure 1 shows the conceptual framework based on all hypothesized relationships, as proposed in this study.

Figure 1: Conceptual framework



Source: Own literature search

2.1. Determinants of brand awareness in mobile apps

When compared to lesser-known brands, well-established brands have better chances of being selected. In general, customers prefer to purchase the products and services from brands with which they are familiar. Further, they tend to recommend to others if they were satisfied with the brand's offerings of products and/or services (Sasmita and Suki 2015). Consequently, building strong brand awareness among mobile users impacts the purchase aspiration and WOM (Kim, Wang and Malthouse 2015).

2.1.1. The effect of mobile application value on brand awareness

A review of the current literature on the theory of consumption values suggests that there are antecedents with respect to customers' adoption or usage behaviours of products and services (Sheth, Newman and Gross 1991a). To understand their usage in relation to information technology, prior researchers have suggested not only to consider the utility of the technology, but also take other factors into account (Wang, Liao and Yang, 2013). According to the study by Deng *et al.* (2010), a customer's usage choice was impacted by several consumption value dimensions, and various dimensions have dissimilar roles in the user's decision-making processes. If the users perceive value from the mobile apps,

they will install and use those apps, and subsequently, the app publishing company can use their apps to increase brand awareness and improve the brand experience. To define the mobile application value (MAV), this study adopts the multi-dimensional value approach that includes five values, including functional value, social value, emotional value, knowledge value, and conditional value (Kim, Wang and Malthouse 2015).

The MAV construct constitutes five consumer perceived values in which they are recognized as traits rather than a combination of the indicators in the formative measurement (Fornell and Larcker 1981). The indicators are treated as the measurable variables to measure the existing construct but not as the cause and effect (Rossiter 2002). While some studies found these values to be highly independent (e.g. Sheth, Newman and Gross 1991a), many suggested that the hedonic and utilitarian components of attitude may be related (e.g. Osgood, Suci and Tannenbaum 1957). The product attractiveness can result in an increased favourable emotional as well as a favourable functional response (Sweeney and Soutar 2001). The study of Sheth, Newman and Gross (1991b) also depicted the interrelation between functional and social values as the main dominated values used to measure the product value.

Functional value concerns the capability of the product offering to perform its function and service. It may also pertain to any other salient physical attributes, such as price, performance, design and style (Sheth, Newman and Gross 1991a). A mobile app is information software that offers services to please mobile users' desires. In the hospitality context, travellers can use mobile apps to simplify their travel planning by utilizing search capabilities and information for accommodation, attractions, and activities, as well as contacting the service provider (Chen, Murphy and Knecht 2016). Rivera, Croes and Zhong (2016) also found that hotel branded mobile apps can provide more related data and recommendations to travellers based on their location and personal preferences. For example, information is displayed according to its relevance to travellers' personal interests and online search behaviours. Furthermore, Sun, Law and Schuckert (2020) also found that when travellers make reservations with the hotel, they usually use the mobile payment function. If this function is enabled, it can increase their repurchase intention.

Social value refers to the recognition of usefulness gained from a connection with one or more particular social groups (Sheth, Newman and Gross 1991a). In other words, social value is perceived as social agreement and the enrichment of self-image among other people (Sweeney and Soutar 2001). Using mobile apps can promote user self-image and can be considered as in-trend or fashionable (Wang, Liao and Yang 2013). A study by Lee *et al.* (2011) explored the social impact on e-commerce customers and found that social influence has a vital influence on customers' purchase decision making. Social influence including family members' and friends' suggestions were also found to impact the customers' willingness in accepting and using the hotels mobile app (Kim 2016).

Emotional value is the social-psychological aspect that relies on the ability of the product or service to stimulate feeling (Sheth, Newman and Gross 1991a). Hence, in the mobile app context, the emotional value reflects pleasure, liveliness, and enjoyment of spending time in mobile device. Prior research also supports that emotional value is a key element to effective usage of mobile services (Turel, Serenko and Bontis 2010).

Knowledge value refers to curiosity and novelty in learning new approaches to doing things (Sheth, Newman and Gross 1991a). Wang, Liao and Yang (2013) found that users use mobile apps to satisfy their inquisitiveness for novel content and information yielded through testing new services. Ozturk *et al.* (2016b) also found that many users still use mobile apps because they perceived that it is innovative, useful and convenient when accomplishing travel-related tasks, such as information search, reservation and payment for services and moving around destinations.

Conditional value is described as the perceived usefulness acquired by an alternative as a consequence of a unique condition or some circumstances facing the choice maker (Sheth, Newman and Gross 1991a). The conditional value relies on the setting in which the value decision happens and exists merely within an exact situation. As a result, the conditional value ascends when the situation creates a want. For instance, a winter coat has value in winter but no worth in spring (Sweeney and Soutar 2001). In the hospitality context, mobile apps could be useful in the critical time-limited situation or condition-specific situations. Travellers can use the GPS function in mobile apps to find the right direction when they are lost or to indicate the bus arrival time when they are waiting at a bus station (Gummerus and Pihlstrom 2011).

The five values of MAV may influence users by initially adopt an app, which is expected to generate brand awareness of the company. Additionally, the mobile app could be a powerful brand experience generator for example if it has interactive capabilities to allow users to experience the brand. Unlike PC-based websites, mobile apps provide any-time and any-where interactivity with navigation and control functions that users could simply use in the mobile environment (Adukaite *et al.* 2014). Therefore, the first hypothesis would be:

H1: Mobile application value has an impact on brand awareness.

2.1.2. The effect of Information Quality (IQ) on brand awareness

Information Quality (IQ) refers to the correctness, integrity, clarity, reliability, and comprehensibility of information about the products and services offered on mobile apps (Chen and Chang 2018). High-value information in mobile apps can stimulate customers' understanding of the brand, and it can eventually keep customers loyal to the brand. They often recommend the apps to other users, which increases the number of users. On the other hand, if the apps have low-quality information, customers will certainly not use nor advice others on its use (Pocatilu *et al.* 2015).

Mobile apps that provide important information to users have a clear benefit over the competition, which allows them to attract more users (Bertan *et al.* 2016, Rezaei and Shahijan 2017). Kim, Wang and Malthouse (2015) found that, if a branded app provides information that fulfills customers' needs (e.g. hotel location, check-ins, room rate and review, and attraction), trust will be built with the app, which increases the value of the app, and hence, increase the value to the provider, and consequently, the app user will continue to use that particular app rather than deciding to uninstall it. However, when users are confronted by an overload of information associated with poor quality information associated with mobile apps, the image of the brand can jeopardize the

brand. Information overload is defined as the circumstances when users feel overwhelmed with undesirable data especially when mobile devices have limited screen real estate (Bertan *et al.* 2016). To overcome this issue, app publishers can add a filtering feature that allows filtering of unnecessary information and only displays relevant information for the mobile app users (Wang and Wang 2010). Prior research studies have confirmed over time that the quality of the information influences the level of an individuals' brand awareness (Barreda *et al.* 2015, Chen and Chang 2018), and allows these people to identify and remember the brand through the use of mobile apps. The hypotheses, therefore, would be:

H2: The quality of information has an impact on brand awareness.

2.1.3. The effect of System Quality (SQ) on brand awareness

The simpler the mobile app systems, the more efficient the system is perceived (Ruiz-Molina, Gil-Saura and Šerić 2013). System quality (SQ) refers to the performance of apps in terms of convenience, ease of use, functionality, and security (Koo, Wati and Chung 2013). Higher quality mobile apps are regarded as user-friendly, which means that they are uncomplicated, easy to comprehend, and provide intuitive access. If mobile apps are easy to navigate and have desired functions, users will perceive usefulness and will use the provided functions. In addition, a high level of data security forms high-quality systems that allow the user to trust and accept the apps and finally retain the existing customers (Gibbs, Gretzel and Saltzman 2016).

Many studies on system quality observe the immediate impact on the creation of higher levels of brand awareness (Barreda *et al.* 2015, Muniz and O'guinn 2001). For instance, Barreda *et al.* (2015) reported on US travellers who use online social networks found that system quality has an impact on brand awareness among travellers. Bertan *et al.* (2016) found that when comparing websites to downloadable mobile apps with equivalent system quality, apps have a better chance of establishing the hotel's brand in the consumers' mind and secure their loyalty. Once users download the hotel mobile app, they also tend to use the app for other services. In addition, they will regularly grasp the app on their mobile phone so when they might reserve a hotel room via the app that has already been downloaded and contains pre-loaded user data, including name, address, and credit card information rather than surfing the hotel website and re-entering their information. Furthermore, Wang and Wang (2010) suggested that a mobile app can provide personalized services to their guests, such as utilizing the GPS functionality on the mobile devices for geographical or location-based personalized services. Morosan and DeFranco (2016) studied the customer perspective and found that many customers make use of hotel apps to personalized hotel services as well. Thus, certain hotel apps by luxury hotel groups such as the Ritz-Carlton, offers personalized recommendations to their guests, which are based not only on their location but also on their past experiences and duration of stay (Bertan *et al.* 2016). The recall and recognition of the hotel brand from users may increase if they notice the high quality of the system in mobile apps. Therefore, the hypothesis would be:

H3: System quality has an impact on brand awareness.

2.1.4. The effect of Virtual Interaction (VI) on brand awareness

The definition of virtual interaction (VI) is complex and has multi-dimensional aspects with no established agreement on the definition (Ihamäki 2012). Duncan and Moriarty (1998) refer to VI as the procedure that connects the person to the brand. This definition is in line with Holt (1997) who defined VI as customers and the brand such because the hotel brand and destination could directly connect with one another, not limited by distance or time. Barreda *et al.* (2015) stressed the tools that the company can use for exchanging, inquiring, and providing information on time in a virtual manner. Zailskaitė-Jakštė and Kuvykaitė (2016) proposed that VI affected brand awareness in many cases. These researchers argue that, in the supplemental part of marketing communications aimed at strengthening user interaction objectives, VI facilitates realization in the minds of consumers.

Existing literature on VI examines the influence of VI on brand awareness. Barreda *et al.* (2015) found the positive impact of VI on brand awareness for online social networks. In the context of hospitality, Bertan *et al.* (2016) found that hotel managers viewed mobile apps as efficient tools to connect with their current guests and to gain new ones. Furthermore, they perceived the positive capability of the mobile app in boosting the activities of customer service, and as a result, increased transactions via mobile bookings. Exchanging information through mobile apps can speed up hotel operational processes. For example, guests can contact hotel staff via apps without direct calling, so hotel staff will have the guests' information on hand, guests would not need to introduce themselves, and staffs do not have to ask irrelevant questions. Effective communication via mobile apps can positively impact brand equity (Alhaddad 2015). If travellers efficiently interact with others such as with staff in the hospitality industry, they have a better potential to simply recall and recognize the brand. Consequently, the hypothesis would be:

H4: Virtual interaction has an impact on brand awareness.

2.1.5. The effect of Rewards (RE) on brand awareness

Offering rewards to customers to build brand awareness has been popularly used by many organizations. In some case, when mobile app users check-in at their destinations, they can accumulate reward points that allow users to earn different membership status (Ozturk *et al.* 2016a). The reward for activities that mobile users can receive is not only monetary, but also psychological and additional membership privileges (Jang *et al.* 2008). A significant amount of research on marketing has found a strong correlation between rewards and brand awareness in consumers' minds (Tanford, Shoemaker and Dinca 2016). Tu, Wang and Chang (2012) explained that when customers obtain the reward from a brand, they are inclined to recognize and recall the element of the brand that reflects the outcomes of brand awareness. As a result, this reflection impacts customers' behaviours in selecting specific brands from the competitive set (Barreda *et al.* 2015).

Avram (2017) claims that the existence of mobile apps is essential for the aviation industry. Many airlines continually improve their service through mobile apps such as booking tickets and redeeming their rewards from loyalty programs. Passengers can earn extra reward points through mobile apps from using ancillary services by airlines, such as seat choices, class upgrades and additional luggage, or from airline partners such as hotels, rental car and venue attractions such as museums. In the hotel industry, travellers also perceive the benefits of using mobile apps with the majority agreed that coupons/discounts and the loyalty program management are the most useful features in a hotel mobile app (Qin *et al.* 2017). Combined creatively, mobile apps can enhance the ability of the brand company to service and link customers, which can generate extra revenue but also increase customers' satisfaction and brand awareness. Therefore, the hypothesis would be:

H5: Rewards have an impact on brand awareness.

2.1.6. Word-of-mouth (WOM) and purchase intention as forms of brand awareness

The convenience of mobile apps allows users to access information more quickly compared to mobile websites and mobile apps that provide off-line access to users (Bredican and Vigar-Ellis 2014). In mobile apps, users can share their experiences and review online, which is also known as WOM. WOM is an obvious phenomenon in consumer behaviour. It represents all kinds of interpersonal communication covering positive and negative comments about the enterprise, brand, product or service between parties not directly related to the business transaction between the customer and the brand (Goyette *et al.* 2010). WOM serves as one of the information sources for travellers in the process of purchase decision-making and can also help attract tourists. Some travellers who are more accustomed to the source of WOM consider the received information as more credible, reliable and trustworthy (Abubakar and Ilkan 2016). Most users trust WOM more than traditional marketing, and people readily ignore advertising-related content (Cantalops and Salvi 2014). Fotis, Buhalis and Rossides (2012) stated that more than 80% of US travellers go online to search for information from reviews to decide whether to buy a product or service. This mental decision stage is regarded as purchasing intention, which refers to a possibility that lies in the hands of the customers who expect to buy a specific product (Wells, Valacich and Hess 2011). Dehghani and Tumer (2015) claimed that customers who buy products and services largely focus on the product's value and recommendations and are generally users who consider the brand worthy of consideration. Recent research studies by Liang *et al.* (2020) showed that many online travel agencies use customer reviews to attract new customers to stay in the hotels featured on their mobile apps. Many hotels offer online incentives to encourage customers to provide reviews. Liu *et al.* (2019) found that the greater the number of reviews, the more effort the users exert in making the post which results in high-quality reviews.

Previously conducted research has empirically shown that brand awareness by customers via mobile devices can accelerate WOM and purchase intention (Kim, Wang and Malthouse 2015). According to research on social media by Hutter *et al.* (2013), the engagement with branded Facebook fan pages has a positive impact on the consumers' brand awareness, which leads to WOM activities and purchase decision. On the other

hand, irritation with the fan page from information overload negatively affected brand awareness, leading to decreased WOM activities and less purchase intention. In the hospitality context, Wen *et al.* (2020) found that negative online reviews have a dominating effect on hotel booking intention. Cobos (2017) also asserted that with hotel-branded mobile apps, users who have a high degree of brand awareness have a better chance to recommend the brand to others post-purchase of the brand's products or services. Given these findings, it is expected that brand awareness through using mobile applications will positively influence WOM and purchase intention. The last two hypotheses would therefore be:

H6: Brand awareness has an impact on word-of-mouth.

H7: Brand awareness has an impact on purchase intention.

3. RESEARCH METHODOLOGY

3.1. Measurement

The present study proposed the theoretical model brand awareness in the hotel industry by using hotel-branded mobile apps and tested seven posited hypotheses. Each construct used in this study comprised multiple-items and has been measured using five-point Likert scales. All the constructs have been adopted from prior research studies, and all items under each construct were modified according to the domain of the study by including aspects of mobile apps in hotels rather than general application in the question items. The items are presented in Table 1.

Tables 1: **Eight constructs and items**

Attribute	Source
<i>Mobile Application Value (MAV)</i>	
<i>-Functional value</i>	
1. Hotel mobile apps fulfil my needs with respect to hotel selection.	
2. Hotel mobile apps provide values that affect my decision making.	
3. Hotel mobile apps are reliable and have consistent quality.	
4. The price of hotel mobile apps is not too expensive to use.	
<i>-Social value</i>	
1. Using hotel mobile apps make me acceptable to others.	Sweeney and Soutar (2001),
2. Using hotel mobile apps impress others.	Pihlström and
3. Using hotel mobile apps makes me socially respectable.	Brush (2008),
4. Using hotel mobile apps improves the approach I can access a variety of information.	Wang, Liao and Yang (2013)
<i>-Emotional value</i>	
1. I am interested in using hotel mobile apps.	
2. I feel good when using hotel mobile apps.	
3. I am pleased when using hotel mobile apps.	
4. I feel relaxed when using hotel mobile apps.	
5. I feel joy when using hotel mobile apps.	
<i>-Knowledge value</i>	

Attribute	Source
1. Hotel mobile apps allow me to have more knowledge of new technologies. 2. Hotel mobile apps help me to do something in new ways. 3. Hotel mobile apps stimulate my curiosity. -Conditional value 1. When I am in an unfamiliar place, hotel mobile apps allow me to specify the current location and tell the direction to go. 2. No matter where or what time it is, hotel mobile apps can help me accomplish what I want to do. 3. When I am in an uncertain situation and need more information to make hotel-based decisions, hotel mobile apps can provide relevant real-time information to support my decision.	
Information Quality (IQ) 1. The data quality of hotel mobile apps is excellent. 2. The quality of the information provided by hotel mobile apps is sufficient. 3. Data from hotel mobile apps are up to date. 4. The information obtained from hotel mobile apps is reliable.	Jang <i>et al.</i> (2008)
System Quality (SQ) 1. The hotel mobile apps system is well designed. 2. The hotel mobile apps are easy to use from one step to the next. 3. The hotel mobile apps are stable and do not frequently crash during use.	Hocutt (1998), Muniz and O'guinn (2001)
Virtual Interactive (VI) 1. The hotel mobile apps allow an exchange of information between individuals. 2. I receive fast responses from the hotel mobile apps. 3. There is an exchange of data between service providers and users.	Barreda <i>et al.</i> (2015)
Rewards (RE) 1. Users can earn monetary rewards by using services through hotel mobile apps. 2. There are other prizes besides money from using the services through the hotel mobile apps. 3. There are added special privileges from using services through hotel mobile apps.	Barreda <i>et al.</i> (2015)
Brand awareness 1. I am aware of this particular hotel brand that appeared in mobile apps. 2. I can recognize this particular hotel when comparing it to other competing brands that appeared in the mobile apps. 3. I know what this particular hotel brand looks like. 4. Some characteristics of the hotel brand that appeared in mobile apps come to my mind quickly. 5. I can quickly recall the symbol or logo of the particular hotel brand that appeared in mobile apps.	Sasmita and Suki (2015)
Word of mouth (WOM) 1. After using hotel mobile apps, I have positive thoughts about the hotels. 2. After using hotel mobile apps, I would recommend hotels to people seeking advice on the subject. 3. After using mobile applications, I want my friends and relatives to have the same experience with the hotels.	Sweeney and Swait (2008)
Purchase Intension 1. After some consideration, I decided to purchase the products or use the service, which I have seen on the hotel mobile apps.	Mikalef, Giannakos and Pateli (2013)

Attribute	Source
2. I purchase some of the products or services, which I have seen in the hotel mobile apps.	
3. Some of my recent purchases were based on information, which I found via the hotel mobile apps.	

Source: Own literature search

3.2. Sampling and data collection

Differentiating from prior studies on brand awareness theory in marketing, the present study focuses on a sample frame in the hotel context. Only travellers who use hotel-branded mobile applications were considered as the sample for this study. A quantitative data collection method was applied to analyse the empirical data, which was collected from travellers through the administration of a questionnaire survey. Due to the strength of direct face-to-face survey methodology in achieving high response rates, this method was used to administer the questionnaires (Lee 2013).

The source of data collected was primarily collected via self-administered questionnaires that were distributed to 500 travellers at Don Muang International Airport and Suvarnabhumi International Airport. Visitors were asked to participate, and if an individual declined to answer the questions, the next visitor was engaged and requested to participate. Some 425 fully completed questionnaires were collected from participants. This sample size was adequate to perform the SEM analysis based on studies by Westland (2010).

4. DATA ANALYSIS

The statistical software SPSS AMOS version 22.0 was used to analyse the data in this study. The following are the outcomes of the analysis.

4.1. Descriptive analysis

Of the 425 respondents, 41.9% were male and 58.1% were female. The majority of the respondents (34.4%) were between the ages of 36-45 years old, and the respondents aged above 55 years old formed the smallest proportion (3.5%). As for the education level, a majority had master degrees or above. As for the occupation of the respondents, 45.7% were company employees. Most of the respondents were from North America (31.8%). The full results of the descriptive analysis are shown in Table 2.

Tables 2: **Demographic profile of the respondents**

	Frequency	Per cent (%)
Gender		
Male	178	41.9
Female	247	58.1
Age		
18-25 years old	109	25.6
26-35 years old	126	29.6
36-45 years old	146	34.4
46-55 years old	29	6.8
Above 55 years old	15	3.5
Education		
Less than bachelor	53	12.5
Bachelor	110	25.9
Master or above	262	61.6
Occupation		
Professional	67	15.9
Business entrepreneurs/CEO	61	14.1
Company employees	194	45.7
Students	31	7.3
Government officials	53	12.4
Unemployed/retried	19	4.6
Nationality		
North America (the USA and Canada)	135	31.8
Europe	86	20.3
Latin America	87	20.5
Asia and Oceania	117	27.4
Average Income		
Under 1,000 USD	44	10.4
1,000-2,000 USD	92	21.6
2,001-3,000 USD	129	30.2
Over 3,000 USD	160	37.7

Source: Own tabulation

4.2. Data analysis

Before testing the hypotheses, the data was tested for possible non-response bias. Then, applying the guideline of structural equation modeling (SEM), the measurement model was analysed for suitability.

4.2.1. Measurement model

Confirmatory factor analysis (CFA) was employed to measure the construct validity; concentrating on both convergent and discriminant validity on each construct of interest. Table 3 depicts the standardized factor loading (SFL), squared multiple correlations (SMC), average variance extracted (AVE) and composite reliability (CR). Evidence of convergence validity exists if the SFL, AVE, and CR values are at least 0.7, 0.5 and 0.6, respectively (Hair, 2010). Factor loading was found to be greater than .06, validating the measurement unidimensionality. CR (ranging from .83 to .96) and AVE indices were all above the threshold (>.5). Moreover, the discriminant validity was assessed and was

confirmed. The shared variance between constructs was consistently lower than its AVE, providing the evidence of a construct distinctiveness (Lewis, Templeton and Byrd 2005).

Table 3: Construct Validity: Convergent and Discriminant Validity

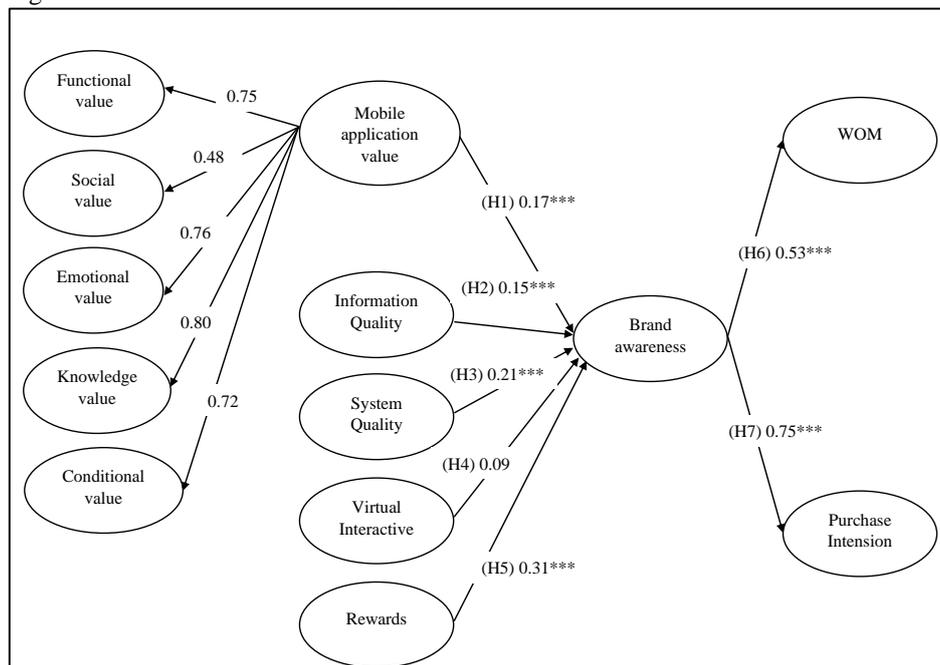
Domain	Construct	Items	SFL ³	SMC	α	CR ¹	AVE ²
Mobile Application Value (MAV)	Functional Value (FV)	A_1	.96	.93	.963	.834	.508
		A_2	.97	.93			
		A_3	.91	.83			
	Social Value (SV)	B_1	.99	.98	.989		
		B_2	.98	.97			
		B_3	.98	.96			
	Emotional Value (EV)	C_2	.96	.93	.970		
		C_3	.97	.94			
		C_4	.94	.88			
	Knowledge Value (KV)	D_1	.98	.96	.985		
		D_2	.99	.97			
		D_3	.97	.94			
	Conditional Value (CV)	E_1	.99	.97	.987		
		E_2	.99	.98			
		E_3	.97	.93			
Information Quality (IQ)	F_1	.90	.80	.946	.946	.814	
	F_2	.93	.86				
	F_3	.91	.82				
	F_4	.88	.77				
System Quality (SQ)	G_1	.96	.92	.968	.968	.909	
	G_2	.97	.94				
	G_3	.93	.87				
Virtual Interactive (VI)	H_1	.87	.76	.944	.943	.848	
	H_2	.95	.90				
	H_3	.94	.88				
Rewarding (RE)	I_1	.86	.74	.926	.928	.810	
	I_2	.94	.89				
	I_3	.90	.80				
¹ CR (.6 or higher), ² AVE (.5 or higher), ³ SFL (.7 or higher), ⁴ SMC (threshold .5 or higher)							
	VI	MAV	SQ	R	IQ		
VI	0.921						
MAV	0.565	0.713					
SQ	0.420	0.384	0.953				
R	0.303	0.352	0.289	0.900			
IQ	0.442	0.456	0.226	0.283	0.902		

Note. n = 425
 *p<.05. **p<.01. ***p<.001.

The bootstrapping technique was employed to determine the model-fit of full SEM. Using the CFA measurement models on both exogenous variables (MAV, IQ, SQ, VI, and RE) and endogenous variables (brand awareness, word-of-mouth and purchase intention), the simulated data sets were generated to examine the stability and precision of parameter estimates. Through bootstrapping, 500 samples were randomly

reassembled, representing the original data set (N = 425). The model-fit was based on the average of parameter estimates and standard errors across the 500 analyses. The acceptability of structural model was measured by the goodness-of-fit indices cut-off value (Lewis, Templeton and Byrd 2005). The hypothesized model provided a good fit to the data, χ^2 (p-value) = .09, χ^2 /df = 1.41, df = 691; a comparative fit index (CFI) = .98; a normed fit index (NFI) = .96; a root mean square error of approximation (RMSEA) = .03; and a standardised root mean square residual (SRMR) = .05. Figure 2 illustrated the causality path of full structural model in corresponding with standardized parameter estimates and GOF indices.

Figure 2: Full Structural Model's Goodness-of-Fit



Source: Authors

4.2.2. Hypothesis Testing

A Bayesian SEM approach is adopted for testing the full structural hypothesized model. H1 to H5 predicted a positive relationship between independent variables and brand awareness. SEM results indicated that mobile application value (MAV), information quality (IQ), system quality (SQ), and rewards (RE) were positively related to brand awareness ($b = .242, p = .001, b = .150, p < .001, b = .206, p < .001, b = .289, p < .001$), excepted virtual interactive that was found to have no significant impact on brand awareness ($b = .088, p = .058$).

The coefficient of determination (R^2) suggested the model explained 44% (.44) of the variation in brand awareness, 29% (.29) in word-of-mouth and 56% (.56) in purchase intention, providing a high degree of explanatory power. The SRMR (.05) was less than the cut-off value of absolute fit indices at .09 (Hair 2010). Taken together, these findings suggested a good fit of the hypothesized model. The results of the analysis are summarized below in Table 4.

Table 4: Tests of Hypotheses via SEM

H	Path Coefficients	<i>b</i>	<i>SE</i>	R^2
H1	MAV -> Brand Awareness	.242***	.076	
H2	Information Quality -> Brand Awareness	.150***	.045	
H3	System Quality -> Brand Awareness	.206***	.043	.44
H4	Virtual Interactive -> Brand Awareness	.088	.047	
H5	Rewarding -> Brand Awareness	.289***	.039	
H6	Brand Awareness -> Word-of Mouth	.543***	.046	.29
H7	Brand Awareness -> Purchase Intention	.818***	.048	.56

Note. $n = 425$. The table provides unstandardized coefficients (*b*), standard errors (*SE*) and corresponding R^2 .

H6 and H7 focused on the mediating role of brand awareness on word-of-mouth and purchase intention. The coefficients were computed at a 95% confidence interval of corresponding percentile-based and bias-corrected values (Preacher and Hayes 2008). The mediation effects analysis was conducted across 500 bootstrap resamples for both direct and indirect paths, which do not assume a certain sampling distribution. As indicated in Table 5, most of independent variables (MAV, IQ, SQ, and RE) have significant indirect paths to word-of-mouth and purchase intention through brand awareness ($p < .001$). Nevertheless, the statistical analysis revealed no significant effect between virtual interactive (VI) and brand awareness ($p > .05$).

Table 5: Results of Mediation Analysis

	Estimates	Indirect Effects	
		Percentile-based 95% CI	Bias-corrected 95% CI
MAV -> WOM -> BA	.131	.029,.162	.030,.161
IQ -> WOM -> BA	.150	.021,.136	.024,.141
SQ -> WOM -> BA	.112	.059,.174	.058,.173
VI -> WOM -> BA	.048	-.007,.111	-.004,.113
RE -> WOM -> BA	.157	.109,.226	.116,.237
MAV-> PI -> BA	.242	.043,.218	.040,.215
IQ -> PI -> BA	.150	.032,.194	.033,.198
SQ -> PI -> BA	.206	.087,.231	.086,.226
VI -> PI -> BA	.88	-.010,.155	-.009,.158
RE -> PI -> BA	.289	.153,.308	.159,.313

Note. IV = independent variables; DV = dependent variable; ME = mediator; LB = Lower bound; UP = Upper bound; WOM = word-of-mouth; BA = brand awareness; PI = purchase intention; CI = confidence interval.

As most of the confidence intervals for independent variables (mobile application value, information quality, system quality, and rewarding) contained nonzero value, the assumed mediating effect of brand awareness was accepted and therefore supporting the proposed research hypotheses (H1, H2, H3, H5, H6, H7). The virtual interactive variable, however, failed to reject null hypothesis and therefore H4 was rejected.

5. DISCUSSION

The data analysis was conducted to examine the role of mobile app brand awareness among travellers. As suggested in the literature, the study assumed the sources of brand awareness as the bundle of mobile application attributes, namely mobile application value, information quality, system quality, virtual interactive and rewarding. Hence, the brand awareness in this study acted as a mediator of the relationships between the hotel mobile-application and both word-of-mouth and purchase intention.

This research added to the understanding of how different mobile-application attributes affect brand performance. Brand awareness was generated by customers' perceived values in terms of mobile application, information quality, system quality and rewards. Clearly, rewards proved to be the major factor influencing brand awareness (Barreda *et al.* 2015, Tu, Wang and Chang 2012), particularly for non-monetary prizes. This finding supported the study of Qin *et al.* (2017), in which the mobile application users are often attracted by non-monetary rewards, including accumulating reward points, loyalty programs and room upgrades.

Added to the work of Kim, Wang and Malthouse (2015), this research adopted the multi-dimensional value approach to measure the value of mobile apps, including functional value, social value, emotional value, knowledge value and conditional value. The study found that the relationship between mobile app value and brand awareness indeed seemed potent in the context of the hotel industry. It can be argued that the application's functionality alone cannot fully promote application value. The findings suggested that knowledge value (e.g. novelty) and emotional value (e.g. playfulness) play a vital role to stimulate mobile application value (Sheth, Newman and Gross 1991a, Wang, Liao and Yang 2013).

The research findings also suggested that mobile apps help enhance brand awareness and translates into favourable behavioural outcomes, such as positive peer-reviews (Solomon *et al.* 2017) and booking intention via a particular brand of hotel mobile application (Cobos 2017). However, the results also supported the mediator role of brand awareness in these relationships. That is, brand awareness was found to mediate the relationship between mobile app attributes and consumer behaviour. In other words, only with the generation of application's brand awareness, the effects of WOM and purchase intention cannot be guaranteed.

In contrast to the findings of previous studies discussed above, the results of this study indicated that virtual interactivity was found to have a trivial impact or no impact at all on brand awareness in Thailand's hotel industry. This taps into the ability to exchange information and get a prompt response through virtual messaging. The potential

explanation is that such virtual information exchange has been made readily available as the common two-way communication platform required in online interactivity (Mollen and Wilson 2010, Kim 2011). The virtual communication saved time and costs (Holt 1997) and helped eliminate the most obvious impediments to consumer self-bookings in travel (Anckar and Walden 2000). This standard feature might not be the consumer's "top-of-mind awareness". Suggested by Woodside and Wilson (1985), the higher the position of the brand in the consumer's mind measured by unaided recall, the higher the relative purchase of the brands.

In additions to issues associated with obtaining prompt responses from the app, Rivera, Croes and Zhong (2016) described the underlying competency of the virtual market environment to enhance customer engagement and product personalization. For example, Dell allowed customers to customize or even design their own computers (Doran and Starr 2010). Different from product development, this benefit is still limited in the hotel business. In many cases, changing bookings, rooms or special requests are still made with traditional personnel contact. Virtual interactivity as compared to other mobile-application attributes (e.g., mobile application value, information quality, system quality, rewarding) was found to have the least influence on travellers' minds when choosing the brands. In addition, the desirability of virtual communication was in fact those related to information quality and price incentives (Noone and McGuire 2014).

CONCLUSION AND LIMITATIONS

The study contributes to marketing and hospitality literatures by establishing the link between brand awareness formulation and behavioural intention to use. Despite the wide use of mobile application, the discussion on how mobile applications can help generate brand awareness in the hotel and tourism industry was rather scarce. While most studies focused on mobile-application's brand awareness and traveller behaviour's relationship (Kim, Wang and Malthouse 2015, Cobos 2017, Hutter *et al.* 2013), this study proposed a structural causal model whereby inputs (mobile application attributes), transformational outputs (brand awareness) and behavioural outputs (word-of-mouth and purchase intention) were captured. Instead of simply assuming that brand awareness will be in place by chance, a bundle of mobile app attributes was identified and recognised as the key enablers of brand awareness. Mobile app attributes represent a set of functions that a mobile app must have to achieve brand awareness. In this study, the concept of mobile application value was reviewed and treated as a multi-dimensional structure by including all important constructs (functional value, social value, emotional value, knowledge value, and conditional value). At the conclusion, this study provided a research-ready instrument with properties that were sufficiently validated.

In a highly competitive market, brand recognition is an important resource contributor to differentiate a brand from its competitors, therefore increasing competitiveness. The study provided hoteliers with a common platform to assess and benchmark of their mobile app development. This also includes the ability to identify the areas that need improvement. To promote brand awareness and enhance intention to use the product or service, it is important that adequate rewards, particularly non-monetary benefits, are offered. Budget should also be allocated to improve the virtual interactivity features. The

basic virtual information sharing was found to be insufficient to generate brand recognition among travellers. The true advantage of interactivity lies with the extent to which users can participate in modifying the form and content of a mediated environment in real time (De Vries, Gensler and Leeftang 2012). Huang (2003) suggested that demonstrability should be presented in website interactivity. This taps into product presentation by incorporating humanlike characteristics. Different from the homogenous products which seem standardized, the heterogeneous services like hotel accommodation rely heavily on detailed information and demonstration (Abdullah, Jayaraman and Kamal 2016). This included the features such as virtual tour and 3D images to stimulate the purchase decision.

The measurement instrument was developed and validated based on data concerning the adoption of mobile application in Thailand. Several technological capabilities are still very limited in Thailand (e.g. virtual tour and 3D), as the country is still developing. The obtained results, therefore, may be different from the mainstream literature conducted in developed economies. The research instrument can then be reapplied in a similar context to test the applicability of the instrument construct.

In addition, a further investigation using a qualitative method would allow an in-depth analysis on the effect of virtual interactivity on brand awareness, as well as intention to use. The different methods, such as personal interviews and group discussions, can be adopted to capture the consumers' perceptions and opinions regarding how virtual interactivity should be applied in the form of mobile apps.

Finally, this research was restricted to a population composition of study participants who were situated in a single geographic location. The study sample comprised travellers who had experience of using mobile application to make a hotel booking in Thailand. While this answers the issue of internal validity, the concern regarding model generalizability remains. Model retesting in different geographical areas would likely enhance the external validity of the current research findings.

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