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# What triggers the use of mIM service provider's sequel O2O service extensions? ☆

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## I. Introduction

Advancements in mobile technology have created a new paradigm that transform people's daily lives. Through smart wireless devices that provide Internet access anytime and anywhere, users have more opportunities for real-time communication, entertainment, and information consumption. One of the most widely accepted and experienced application is the mobile instant messaging (mIM) service that enables users to exchange highly synchronized one-on-one or one-to-many communication (Wallace, 2012). The benefits of mIM are seen through the large user bases that mIM service providers hold. As of January 2017, WhatsApp and Facebook Messenger had 1,000 million monthly active users (MAU) followed by QQ mobile (877 million MAUs) and WeChat (846 million MAUs). Indeed, Korea's mIM applications, Line and KakaoTalk, are also listed as one of the top ten most used mIM applications with 218 million MAUs and 49 million MAUs, respectively (Statista, 2017). Although mIM services experience sluggish growth in active monthly users, the saturated market is still anticipated to possess a total of 3.8 billion registered mIM users by the end of 2019 (Radicati Group, 2016).

In order to maintain mIM retention rates and ultimately establish an ecosystem, mIM service providers are extending their business models to deliver end-to-end services on the mobile platform. Recent trend is to combine the mobile Internet with offline vendors. The new ecommerce model commonly referred to as online-to-offline commerce (O2O) or on-demand service attracts mobile Internet consumers to experience services offline. An oscillatory journey is created whereby consumers

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explore products online, purchase and consume the services offline, and return back to the online platform to share experiences with others via the messenger service (Du & Tang, 2014). By merging digital and offline platforms to provide convenient services, the O2O industry is perceived as a crucial sector that benefits both consumers and vendors. In China, the top three Internet companies – Baidu, Alibaba, Tencent – have each invested in offering a range of O2O services. South Korean based mobile messenger service provider, LINE, a subsidiary of Naver, delivers O2O services in Southeast Asia; and Kakao the service provider of Korea's dominant mobile messenger application KakaoTalk, provides notable O2O services to domestic users. From its roots of providing mIM service, mobile service firms have now evolved into a mobile operator or a mobile platform.

Positive experiences of O2O services encourage these mIM-based service providers to continue offering qualitative O2O services and attract users to the mobile platform. Besides enhancing the quality of the existing O2O service, mobile service providers are sequentially extending their O2O services to taxi-hailing, food-delivery, ticket reserving, travelling, and dining service sectors. Based on the large user base and preexisting brand familiarity, firms have the advantage of easily promoting new services to consumers. By launching service extensions as mini apps located on the mIM platform or as separate applications, users can conveniently request on-demand services based on their needs. This trend is expected to increase as mIM based service providers continuously develop life enhancing services to “stick” users to their comprehensive mobile platform.

In contrast to the ambitious brand extensions conducted by mIM service providers, there has been little research on how consumers perceive sequel extensions of renowned mIM service providers. Research on mIM services are primarily on user loyalty (Deng, Lu, Wei & Zhang, 2010; Ogara, Koh, & Prybutok, 2014; Zhou & Lu, 2011) and post-adoption intentions (Oghuma, Libaque-Saenz, Park, & Rho, 2015; Oghuma, Libaque-Saenz, Wong, & Chang, 2016). For O2O services, most approaches are made towards analyzing the characteristics that influence user satisfaction and loyalty towards the new service (Wu, Zhao, & Tzeng, 2015; Zhang, 2014; Zhang & Lee, 2014). Significant amount of studies on brand extensions prevail, yet research on sequel extensions from IT companies are still limited (Song, Zhang, Xu, & Huang, 2010). To fill the gap in literature, this study aims to examine the characteristics that affect people's intentions in using the sequel O2O service extensions launched by the mIM service provider.

## **II. Literature Review**

### **2.1. Brand extensions**

A brand refers to a name, symbol, design, or a combination of these special effects that distinguishes the product or seller from other competitors. Through a mix of marketing strategies and consumption experience, consumers are anticipated to accumulate a series of images related to the brand. Firms strive to establish a positive image of a brand or enable users to easily recognize the brand as it creates a premium effect on the value of the firm and its services. Horppu Kuivalainen, Tarkiainen, and Ellonen (2008) thus claim that positive brand image is a crucial asset to the firm as it guarantees a certain level of consumer trust, satisfaction, and loyalty.

Firms with established brand names may seek to expand their businesses to different industries or markets. One important strategy is brand extension where firms anchor on strong and healthy brands to enter a new product or service category (Aaker & Keller, 1990). Instead of taking the risk of launching new innovations from scratch, extensions promise greater profits and lower costs in promoting the new product (Taylor, 2004). For consumers, familiarity and trust towards the brand helps reduce any risks or anxieties accompanied with using the new innovation. Consumer's perception of a brand is especially important when firms launch brand extensions in the service sector. Since experience goods require actual consumer consumption, consumer's prior image of the brand serve as the key motivator in influencing people to use the service (Van Riel, Lemmink, & Ouwersloot, 2001). For example, Basuroy and Chatterjee's (2006) study find that people's positive perception of a movie positively enhances people's intentions to watch the next movie sequel even before its release.

In the context of mIM service providers, brand extension is an ideal strategy for firms to promote new services and survive in the competitive market. So far, mIM service providers have successfully launched prominent services such as webtoons, mobile payment, mobile games, news, music streaming, video streaming, and browser search. As mIM service providers continue to explore new service opportunities that permeate user's lifestyles, analysts from Andreessen Horowitz, a private US venture capital firm, describe mIM applications as a "portal, platform, and even a mobile operating system [...] complete with its own proprietary app store" (Clover, 2016). The remaining of this study will particularly focus on mIM service provider's extension strategy in the O2O sector.

## **2.2. Online-to-Offline Commerce (O2O)**

### **2.2.1. Definition**

O2O is the abbreviation of online-to-offline commerce which was first mentioned in 2010 by Trialpay's CEO Alex Rampell. As the terminology implies, O2O refers to an ecommerce business model that matches offline vendors to the Internet (Weisfeld, 2015). The unique value of O2O is that consumers research and request the service on the online platform but physically experience the reserved service at an offline site. Services consumed are usually perishable in nature and provide real-time fulfillment by taking advantage of smart connected devices, the GPS system, big data technology, and online payment services (PWC, 2015).

The essence of O2O strategy is to enhance consumer awareness on online channels and drive consumers to visit offline stores. Advantages in satisfying instant needs have attracted various retailers, financial institutions, and other service providers to adopt O2O services within their existing marketing and distribution channels. For example, Internet companies like Facebook, Amazon, and Yelp have adopted daily deal O2O services that enable users to make reservations online and experience the reserved service offline at one's time of preference. Firms have also adopted "click-and-collect" O2O services where consumers make orders on the application and claim the product at a physical store or receive it by delivery (eMarketer, 2016, Yuk, 2016). As various service providers deliver O2O services, some view O2O as an "omnichannel" strategy of the firm (Banker, 2014; PWC, 2015). Regardless of whether it is perceived as a distinct business model or a firm's comprehensive marketing strategy, O2O has its unique strength and value in gratifying online consumer's instinct needs by connecting them to offline vendors (Chia, 2015). Agrawal (2017) perceives O2O as a market worth trillion dollars, and iResearch Consulting Group projects China's O2O market to sustain an annual growth rate of over 20% until 2018 (eMarketer, 2016). The future benefits of O2O remain promising as Internet and media companies continue adopting O2O as part of their revenue-generating strategies.

### **2.2.2. O2O as the new brand extension strategy**

The success of O2O services has led many new and existing firms to both adapt and extend O2O services. Most notably, existing O2O service providers have extended their O2O services into other markets and industries. With an established brand name and recognition for being the first to deliver on-demand services, transportation O2O

services like Uber and Grab are extending their services to deliver freshly made food to people's desired locations. By closely examining people's unmet demands and local cultures, O2O service providers are likely to continue in extending their O2O services.

O2O services delivered by mIM service providers range from taxi-hailing to fast-delivery services and is anticipated to provide more localized convenient services within the near future. Among Chinese firms, Tencent has developed WeChat into a gateway to China's service economy (Clover, 2016). Korea-based mIM application LINE also has a taxi-hailing O2O service in Japan, a quick-delivery O2O service in Thailand, and a motorbike taxi-hailing service in Indonesia (Russell, 2016). Korea's dominant mIM service provider, KakaoTalk, also pursues in creating an ecosystem that "connects everything" (Tay, 2014). After launching the taxi-hailing service, KakaoTaxi, Kakao has introduced sequel O2O service extensions such as hair-salon reservation O2O service (KakaoHairshop), driver-for-hire service (KakaoDriver), local food-delivery service (KakaoTalk Order), and a grocery shopping service (KakaoTalk Grocery Shopping). This service extension strategy is not only observed among Asian mIM firms. Apple last year announced that iMessage will start building other services onto its iMessage platform. Beginning with an in-app food delivery O2O service, iMessage is anticipated to join the new O2O service extension trend (Solomon, 2016). As global mIM service providers show ambitions to build O2O service extensions, the study seeks to understand what factors trigger current O2O users to use new O2O sequel services launched by mIM application firms in the near future.

### **III. Research Hypothesis**

#### **3.1. Attitude, trust, and behavioral intentions**

##### **3.1.1. Attitude and behavioral intentions**

Theory of Reasoned Action (TRA) provides a fundamental framework in understanding people's adoption intentions to use certain technologies or services. TRA model asserts that people's volitional behaviors are directly influenced by behavioral intentions which are a result of attitudes and subjective norms. Attitude in TRA refers to user's beliefs concerning a particular behavior and subjective norms relate to influences that significant others make. Specifically, Keller (1993) defines attitude as a comprehensive evaluation of people's salient beliefs toward a specific product or service. The relationship between attitude and consumer's behavioral intentions is studied in various fields such as banking, education, and information technologies. For

example, Suh and Han (2003) affirm that attitude toward using e-commerce is positively related to people's intentions and actual usage of Internet banking. Hsu and Lu (2007) assert that positive attitudes or preferences toward the online gaming community positively influence consumer's constant use of the online service.

By applying the basic framework of the TRA model, this study will also define attitude as an overall impression of people's beliefs concerning the behavior toward an object. Attitude in other words will be interpreted as people's beliefs in using the sequel O2O extension. Positive overall judgement of using the service is anticipated to result in influencing behavioral intentions. Thus, the following hypothesis is suggested.

**H1:** Attitude toward using the proposed sequel extension has a positive effect on one's intentions to use the proposed sequel extension.

### **3.1.2. Attitude and trust**

Trust is a fundamental requisite in assuring people to use the online service (McKnight, Choudhury, & Kacmar, 2002). Even though there is no promise on whether the service will actually fulfill one's expectations, trust has the power to dismiss uncertainties and even make one completely vulnerable and reliant to the service provider (Mayer, Davis, & Schoorman, 1995). As noted in the uncertainty reduction theory, uncertainties accompanied with a certain service are anticipated to gradually decrease as users obtain information and experience with the certain service provider. Through consistent information exchanges and familiarity with the brand, a positive relationship of trust may be developed between the brand and the consumer. Delgado-Ballester and Hernandez-Espallardo (2008) mention that attitudes are constantly modified as people receive new information or increase interactions with a partner. Even without prior experiences or knowledge of a specific vendor, users may show trust in using the service based on the positive impression and overall evaluation of the website.

Ravald and Gronroos (1996) assert that brand affinity and satisfaction with prior services develop positive attitudes and eventually increase one's reliability or trust towards the brand. As this study focuses on users that already have experiences with the service provider's mIM and O2O services, the study will assume that people have reduced uncertainties and have developed a certain level of brand relationship. Thus, for people who already have experiences with the brand, a favorable attitude toward using toward using the new sequel O2O service is anticipated to spill over and enhance

trust toward the new service extension. Therefore, the following hypothesis is proposed.

**H2:** Attitude toward using the proposed sequel extension has a positive effect on trust in the proposed sequel extension.

### **3.1.3. Trust and behavioral intentions**

Zand (1972) asserts that trust is the “salient factor in determining the effectiveness of many relationships” (p. 229). Mutual feeling of trust is a necessary precondition in economic and social interactions as it requires the disclosure of personal and financial information. Existing literature emphasize the importance of trust as it helps firms sustain long term buyer-seller relationships and consumer loyalty (Gefen, 2000; Horppu et al., 2008; Schurr & Ozanne, 1985). Trust is also significant as it influences consumers’ intentions in accepting new technologies (Gefen, 2000) and engaging in online transactions (Jarvenpaa, Tractinsky, & Saarinen, 1999; Pavlou, 2003). Failure to build consumer trust will discourage people from revealing their personal information or making purchases online due to infrastructure-related concerns and fears of seller opportunism (Van der Heijden, Verhagen, & Creemers, 2003).

Lu, Yang, Chau, and Cao (2011) find that people who have initial trust toward mobile payment services directly and indirectly show intentions in using the service. Initial trust is expected to alleviate people’s concerns in disclosing information and positively embrace the benefits of the new technology or system. This study focuses on the perceptions of consumers that have prior experiences with the service provider. Trust is described as a catalyst that motivates people to perform certain behaviors. If consumers demonstrate trust in the brand’s sequel O2O service extensions, it implies that people will have reduced any uncertainties or distrust toward using the service. Trust in the O2O sequel extension is therefore anticipated to increase consumer intentions in using the new service extension.

**H3:** Trust in the proposed sequel extension has a positive effect on one’s intentions to use the proposed sequel extension.

### **3.2. Brand characteristics**

Literature on brand extension usually examines the characteristics of the corporate, the parent brand, the proposed extension, and service users (Reast, 2005; Reddy, Holak,



& Baht; 1994). Keller and Aaker (1992) emphasize corporate credibility, perceived service quality of the parent brand, and perceived fit of the proposed extension as crucial indicators that determine the success of sequel extensions. Volckner, Sattler, Hennig-Thurau, and Ringle's (2010) empirical study also highlight parent brand service quality and perceived fit between the extension and the parent brand as crucial indicators in determining the success of the service brand extension. For mIM service providers that have stretched their brands to provide various content services, this study will follow Keller and Aaker's (1992) indicators along with several consumer characteristics. Corporate credibility and perceived service quality of the parent brand will be labeled as brand characteristics. The study will therefore examine the antecedents to user's intentions in using sequel O2O services based on the following categories: brand characteristics, extension characteristic, and consumer characteristics.

### **3.2.1. Corporate Credibility**

Keller and Aaker (1992) define corporate credibility as the "extent to which consumers believe that a company can deliver products and services that satisfy customer needs and wants" (p. 72). Based on the source credibility theory (SCT) which posits that consumer's level of persuasion is determined in part by perceived credibility of the source, a firm's perceived credibility is a critical determinant in deciding the use of services or products. Existing literature highlight perceived trustworthiness and expertise of the firm as the two influential dimensions of source credibility (Berlo, Lemert, & Mertz, 1969; Reast, 2005). Keller and Aaker (1992) also indicate trustworthiness and expertise as the core attributes that influence people's judgment of brand extensions. Trustworthiness is an important dimension of credibility which portrays honesty and perceived integrity of the source (Berlo et al., 1969; McKnight & Choudhury, 2002). Expertise is evaluated based on how the firm is experienced, knowledgeable, and informed (Berlo et al., 1969). Sources with high credibility in the dimensions of trustworthiness and expertise are believed to effectively persuade consumers and trigger positive attitudes than sources with less credibility (Sternthal, Dholakia, & Leavitt, 1978).

mIM service providers have strived to increase corporate credibility. Besides the mIM service, service providers deliver numerous features such as music, shopping, mobile payments, games, and O2O services to fulfill user's unmet needs. mIM service providers use strategic marketing techniques by attaching the suffix to the salient brand name when a new service is launched. As in the case of KakaoTaxi, LINEMAN, and UberEats, companies increase the visibility of the firm. Comprehensive delivery of

services is anticipated to influence consumer's credibility in expertise and trustworthiness of the firm (Selnes, 1993). Therefore, the following hypothesis is proposed.

**H4a:** Perceived trustworthiness of the firm has a positive effect on attitude towards using the proposed sequel extension.

**H4b:** Perceived expertise of the firm has a positive effect on attitude toward using the proposed sequel extension.

### **3.2.2. Perceived service quality of the parent O2O service**

For services that accompany various systematic risks and uncertainties, consumers rely on available signals to make inferences about an unknown brand. Signaling theory supports this behavior and posits that people depend on various cues to determine whether to trust the brand or not. In the context of brand extensions, parent brand service quality is an important reference point that influences consumer's attitudes toward using the extension (Boush & Loken, 1991).

Many studies discuss and examine ways to evaluate service quality. One prominent, widely used instrument is SERVQUAL (Parasuraman, Zeithaml, & Berry, 1988) which measures service quality by focusing on the distinction between customer's expectations and perceived quality or performance. SERVQUAL's five dimensions (reliability, responsiveness, assurance, empathy, and tangibles) have been applied in extensive studies to analyze consumer's evaluation of services provided both online and offline. Recently there has been strenuous effort from researchers to propose dimensions that best evaluate the quality of online services. For example, Zeithaml, Parasuraman, and Malhotra (2002) build on the traditional SERVQUAL model and propose the E-SERVQUAL which is composed of seven attributes: efficiency, fulfillment, reliability, privacy, responsiveness, compensation, and contact. Parasuraman, Zeithaml, and Malhotra (2005) provide a concise yet comprehensive approach in measuring service quality through the four dimensions in efficiency, fulfillment, system availability, and privacy.

For O2O services that require service quality evaluations for both online and offline services, the study specifically focused on the O2O service quality delivered on the mobile application. In other words dimensions were selected from previous literature based on how the mobile platform facilitates efficient shopping, purchasing, and delivery of O2O services. The study therefore selected responsiveness, reliability,

privacy, navigability, convenience, and empathy as the six core dimensions in evaluating the quality of O2O services. Responsiveness relates to the promptness in delivering real-time services and responding to consumer requests. Reliability refers to the promise in providing secure network connectivity without any systematic interference. Privacy is the assurance in protecting personal and financial information. Navigability, a component within the visual aesthetic dimension of E-SERVQUAL, refers to the functional ease in navigating the application. Convenience is perceived as the benefit in efficiently saving time and effort by using the O2O service. This dimension was chosen as it is frequently emphasized as one of the core values in delivering O2O services (Tiansheng & Jiong, 2015). Empathy is the service provider's ability to deliver caring and personalized services that suffice consumers' needs. Examples of empathy may relate to services related to assuring consumer's safety and providing information of the service vendor. Through positive evaluations of the six service quality dimensions, the study will assume that consumers will show behavioral intentions in showing favorable attitudes toward using the sequel O2O extension.

**H5a:** Responsiveness of the parent O2O service has a positive effect on attitude toward using the proposed sequel extension.

**H5b:** Reliability of the parent O2O service has a positive effect on attitude toward using the proposed sequel extension.

**H5c:** Privacy of the parent O2O service has a positive effect on attitude toward using the proposed sequel extension.

**H5d:** Navigability of the parent O2O service has a positive effect on attitude toward using the proposed sequel extension.

**H5e:** Convenience of the parent O2O service has a positive effect on attitude toward using the proposed sequel extension.

**H5f:** Empathy portrayed in the parent O2O service has a positive effect on attitude toward using the proposed sequel extension.

### **3.3. Extension characteristic**

#### **3.3.1. Perceived fit**

Perceived similarity in brand extension literature refers to the perceived imagery or categorical fit between the parent and proposed extension (Park, Milberg, & Lawson,

1991). Previous literatures appoint congruity between parent brand and extension as the most significant factor in determining the extension's success (Keller & Aaker, 1992; Volckner & Sattler, 2006). Based on the categorization theory, consumers are believed to use their prior experience and knowledge to conceptualize the new product or service into cognitive categories within one's memory. High levels of similarity are believed to transfer positive images and beliefs of the parent brand to the extension (Park et al., 1991) and even increase loyalty towards the brand (He & Li, 2010).

As Internet media firms extend their services on the mobile platform, consumer's perception of fit is important in motivating users to easily recognize and adopt new services. Song et al.'s (2010) study on Baidu's service extensions (news portal and virtual community service) find perceived fit as an important variable that influences the success and quality perception of the extension. However, the concept of perceived fit is difficult to define as service providers launch services that seem to be related to the overall image of the brand, but not in the type of services delivered. For instance, even though KakaoTaxi and KakaoHairshop are similar in delivering O2O services, the service type is completely distinct. In light of this difficulty, some studies examine perceived similarity in two dimensions: one related to product category fit and the other related to the brand image fit (Bhat & Reddy, 2001). Product category fit relates to consumer's evaluation of the similarity in product categories between the extension and the parent brand. Brand image fit focuses on the perceived image similarity between the parent and extension brand. Bhat and Reddy (2001) find that brand image fit has a stronger effect in determining the success of brand extensions in comparison to product category fit. In light of how mIM service providers are continuously launching O2O brand extensions on its mobile platform, the current study will examine how product category fit and brand image fit influences people's perceptions toward using the extension.

**H6a:** The perceived product category fit between parent and sequel O2O service has a positive effect on attitude towards using the proposed sequel extension.

**H6b:** The perceived brand image fit between parent and sequel O2O service has a positive effect on attitude towards using the proposed sequel extension.

### **3.4. Consumer characteristics**

#### **3.4.1. mIM dependency**

Dependence on technology and media is a developing construct that focuses on individual's degree of dependence based on the help received. This concept is different from simply measuring people's technology usage as it includes people's cognitive awareness and perception of technology use. Several theories such as the media system dependency theory (Ball-Rokeach & DeFleur, 1976) and individual media dependency (IMD) theory interpret people's dependency on technology as a "relation where the individual's capacity to reach his or her objectives depends to a certain extent on the medium's information resources" (Ball-Rockeach, Rokeach, & Grube, 1984, p. 3). In other words, people increase dependency on media when they believe that the media provides functional, social, and emotional benefits. Positive experiences of using the media are believed to trigger user's flow experiences (Kim, Lee, Nho, & Park, 2014). However, there are negative consequences where excessive dependency on computer-based technology creates computer-related technostress and addictive behaviors (Shu, Tu, & Wang, 2011).

mIMs have become an essential communication tool that enables users to exchange near synchronous messages. This study seeks to understand how people's degree of mobile messenger dependency influences their attitudes toward O2O extension services. As people depend more on the mIM service, positive attitudes toward using the new service may increase due to the ease in accessibility and familiarity with the mIM service provider. Previous literature on Internet dependence and online shopping infers that greater dependence on the Internet leads to positive behavioral intentions in purchasing the product (Patwardhan & Yang, 2003). Building on previous studies, this research will propose the following hypothesis.

**H7:** mIM dependency has a positive effect on consumer's attitude toward using the proposed sequel extension.

### **3.4.2. User involvement**

User involvement is a psychological state that motivates people to believe that a certain object or system is important and personally relevant. Users that consider themselves as "highly involved" are projected to demonstrate favorable attitudes and form a strong correlation between user involvement and positive attitudes. Hartwick and Barki (1994) find that personal belief and relevance in the system are critical attributes that motivate users to participate and even perform certain behaviors that fit with one's beliefs and attitudes.

As mIM service providers expand their mobile platform into a smart portal, various services are launched to meet consumer's unmet needs. mIM services that began with the taxi-hailing O2O service have now extended its O2O business into food-delivery, grocery shopping, hairshop, and other service sectors. The study believes that people will form positive attitudes toward using the new O2O service based on people's level of involvement. Consumers that perceive the new service to be important and relevant are anticipated to show positive attitudes concerning the new service usage. Positive attitudes are further predicted to influence people's behavioral intentions in using the new O2O service. Thus, the following hypothesis is proposed.

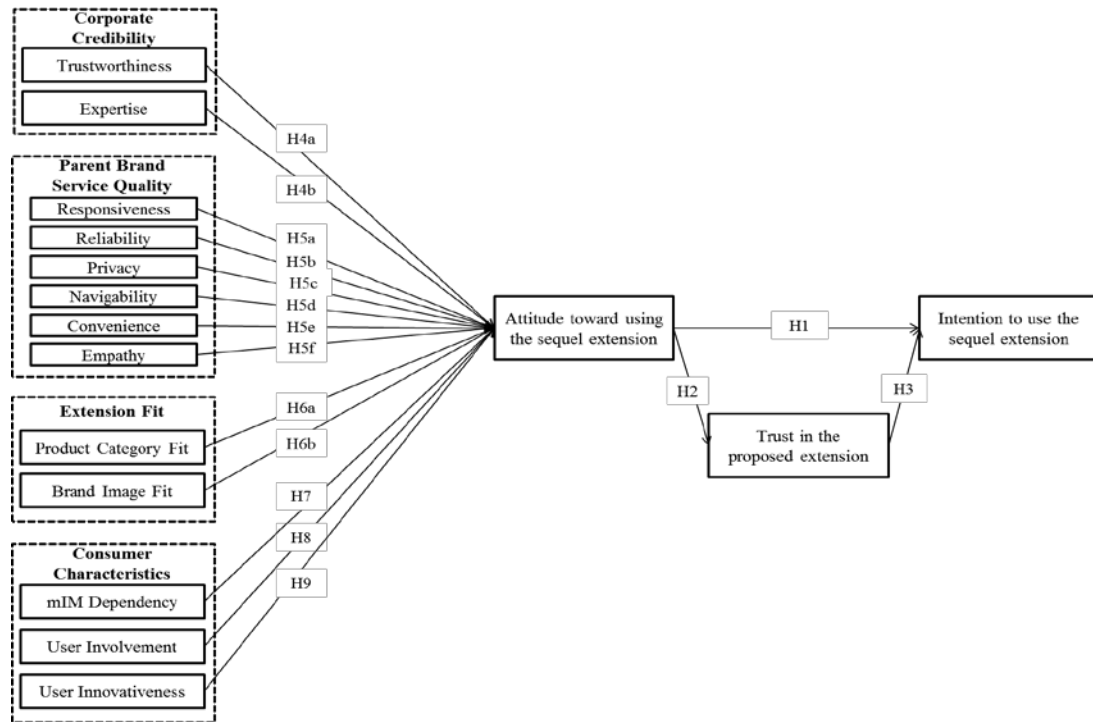
**H8:** User involvement has a positive effect on attitude toward using the proposed sequel extension.

#### **3.4.3. User innovativeness**

Consumer innovativeness is one's propensity to explore and try product or services that seem relatively new to the consumer. Consumer's willingness to try new products is known to provide market dynamism and contribute to brand extension success (Hirschman, 1980). Rogers (1976) perceive innovators as early adopters that are more receptive in using new products and services. With a higher tolerance for risks, early adopters are more likely to adopt new products or services.

In this study, consumer innovativeness is a critical variable in explaining consumer's attitudes and intentions in using the brand extension. Even though consumers have experience with the mIM service provider's services, user innovativeness is necessary in motivating users to use brand extensions that may seem new and incongruent with the firm's previous O2O services. Klink and Smith (2001) claim that users with less innovative traits show reluctance in adopting new services. However, high innovative users are perceived as demonstrating more tolerance in taking the risk of using unfamiliar and low-fit extension services. Chang and Chan-Olmsted (2010) find that consumers with high innovativeness are likely to accept cable network and brand extensions easily regardless of its level of fit. The study therefore suggests the following hypothesis.

**H9:** User innovativeness has a positive effect on attitude toward using the proposed sequel extension.



**Figure 1.** *Proposed model*

## IV. Methodology

### 4.1. Overview

To understand the variables that determine the use of brand extensions, a quantitative approach was employed using an online survey. Among the mIM service providers that provide O2O service extensions, Korea's renowned media company, Kakao, was selected for this study. Kakao's mIM service, KakaoTalk, is the nation's dominant mIM service with more than 97 percent of active domestic users. In order to continuously retain users to the Kakao platform, the company has strived to deliver various service features such as music, live TV, webtoons, games, and payments that are available either on the KakaoTalk platform or as separate downloadable applications.

This study was designed to understand which variables influence people's intentions in using the sequel O2O service extensions launched by the mIM service provider. From the initial O2O service launch of KakaoTaxi, Kakao offers various O2O service extensions that range from transportation to beauty and fast delivery. In light of this divergent O2O service portfolio, the study decided to examine which characteristics trigger favorable consumer behaviors when extensions are perceived to be in the same

industry as the parent O2O service and when the extension is operated in a different service sector. As Kakao's first O2O service, KakaoTaxi was labeled as the parent O2O service. KakaoDriver was perceived as an O2O service that is similar to KakaoTaxi in delivering transportation related services. KakaoHairshop was understood as a dissimilar service to KakaoTaxi as it is the first non-transportation related O2O service of Kakao. Thus, KakaoTalk and KakaoTaxi user's attitudes toward using KakaoDriver and KakaoHairshop services were reported.

#### **4.2. Data collection and analysis**

A pretest was first conducted among college students before collecting the actual data. Survey results were collected in cooperation with Macromill Embrain Co., a professional research firm in Korea. The online questionnaires were distributed to a total of 322 valid participants. To qualify for this study, participants had to use KakaoTalk and had to have experience using the KakaoTaxi service at least once, within the past year. Subjects were selected using stratified sampling based on the proportion of age groups in Korea. Survey sample was evenly balanced with 160 (49.7%) male and 162 female (50.3%) respondents. For mIM usage, 40.1% of participants reported an average daily use of 1 to 3 hours. 80.4% of users reported to have used the KakaoTaxi service for at least 10 times over the past year. Table 1 summarizes the descriptive statistics of respondents.

The online survey used a seven-point Likert scale ranging from "1-strongly disagree" to "7-strongly agree." Survey items were drawn mostly from brand extension, service quality, and TRA related literature. Questions for corporate credibility were adopted from Keller & Aaker (1992). Service quality items were measured using studies from Parasuraman et al. (1988) and McKnight et al. (2002). Items for perceived fit were derived from Baht and Reddy (2001), and items for user involvement were built on Kim et al.'s (2014) study. User innovativeness was based on Klink and Smith's (2001) and involvement was measured using items from Hartwick and Barki (1994). Attitude, trust, and intentions to use were also measured using items from Aaker and Keller (1990) and Hwang and Choi (2015). All items were adapted to fix the context of the study.

Data results were analyzed using the partial least squares (PLS) form of structural equation modelling (SEM). The study applied the PLS-SEM model due to the benefits in exploratory research and low sample size requirement (Wong, 2013). PLS-SEM is also suggested for research models that include both formative and reflective variables



(Lowry & Gaskin, 2014). In consideration of how this study is one of the first to explore the elements that lead to the use of O2O service extensions, the PLS form of SEM was applied to assess the data results.

**Table 1.** *Descriptive Statistics*

Demographic variable	Item	Frequency	Percentage (%)
Gender ( <i>N</i> = 322)	Male	160	49.7
	Female	162	50.3
Age ( <i>M</i> = 44.29)	20–29	62	19.3
	30–39	65	20.2
	40–49	62	19.3
	50–59	66	20.5
	60 and over	67	20.8
Education	Graduate level	38	11.8
	University (4 years)	198	61.5
	Community College	44	13.7
	High school	42	13.0
Daily KakaoTalk Usage by Time (Hours)	Less than 1	116	36.0
	1–3	129	40.1
	3–5	43	13.4
	5 or more	34	10.6
Daily KakaoTalk Usage by Frequency (Times)	Less than 10	66	20.5
	10–20	111	34.5
	20–30	56	17.4
	30–40	27	8.4
	40 or more	62	19.3
KakaoTaxi Usage over the Past 12 Months (Times)	Less than 5	146	45.3
	5–10	113	35.1
	10–15	34	10.6
	15–20	10	3.1
	20 or more	19	5.9
Total		322	100

## **V. Results**

### **5.1. Test of measurement model**

This study examined two models based on the type of extension. One model was designed for extension services that seemed to be similar with the parent O2O service (KakaoTaxi – KakaoDriver). The other model analyzed user intentions and behaviors when the extension was perceived to be less congruent with the parent O2O service (KakaoTaxi – KakaoHairshop).

Internal consistency, convergent validity, and discriminant validity were examined for the two measurement models. Extensions that are perceived to be similar with the parent O2O brand were first assessed. Reliability was checked using Cronbach's alpha and composite reliability (CR) to validate internal consistency within the constructs. Construct measurements were beyond the threshold of 0.7 (Wong, 2013) for both Cronbach's alpha and CR. Convergent validity confirms that each indicator is strongly correlated to its constructs. Correlation between indicator and constructs are examined through the average variance extracted (AVE). As seen in A.2, AVE for all constructs was shown to have greater values than the minimum threshold of 0.5 (Chin, 1998). Discriminant validity assures that constructs are positioned appropriately to each construct. This validity was affirmed by checking whether the construct's square root of AVE is higher than the construct's correlations with other constructs (Ryu, Kim, & Lee, 2009). All items of the first model met the criteria.

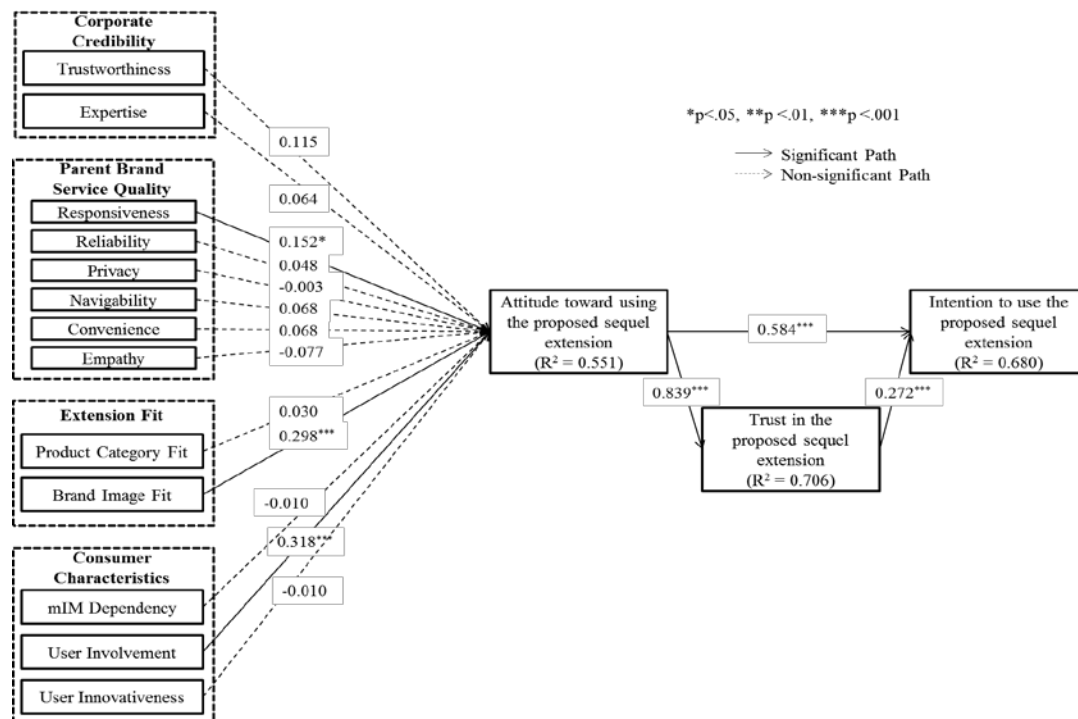
Consistency and validity were also examined for the second model on extensions that are less similar to the parent O2O brand. Reliability was checked using the Cronbach's alpha and composite reliability (CR). All construct measurements reported values higher than 0.7. Convergent validity was assessed by making sure that the average variance extracted (AVE) had values higher than the threshold of 0.5. Discriminant validity was also confirmed by measuring the square root of AVEs and comparing the values to the construct's correlations.

To further examine the convergent and discriminant validity, item loadings and cross-loadings were reviewed to make sure that the values exceed the threshold of 0.7 (Wong, 2013). For the second model, one item from the parent brand O2O service quality dimension did not meet the threshold. Hence, an item from responsiveness (Resp\_2 = .685) in the service quality dimension was deleted from the actual path analysis. All other items met the criteria.

## 5.2. PLS-SEM Path Analysis

### 5.2.1. Extensions similar to the parent O2O service

Nine hypotheses were tested to see how corporate credibility, parent brand O2O service, perceived fit of the extension, and consumer characteristics contribute to user's attitudes and behaviors. The research model for service extensions (i.e., KakaoDriver) that operate in the same industry as the parent O2O service (KakaoTaxi) was assessed through the PLS analysis. A bootstrapping procedure was made to evaluate the significance of hypothesized relationships (Wong, 2013). The model explains 68.0% of variance in people's intentions to use the sequel O2O service, 70.6% of variance in trust, and 55.1% of the variance in people's attitudes toward using the sequel O2O service. Results of the study are visually summarized in Figure 2 and Table 2.



**Figure 2.** Structural model and path coefficients of brand extensions similar to parent brand

The study reaffirmed the theory of reasoned action framework where attitude is highly related to user's intentions in using a certain system or service. Statistical significance was found between attitude and behavioral intentions in using the proposed O2O extension ( $\beta = 0.584$ ,  $p < 0.001$ ). Attitude was perceived to enhance trust toward

the service extension ( $\beta = 0.004, p < 0.001$ ), and trust was shown to have a direct effect on user intentions ( $\beta = 0.145, p < 0.01$ ). The core structure of the model explaining the relationship between people's attitude and behaviors were all found to be significant. Thus, H1, H2, and H3 were consistent with the data.

The study hypothesized that characteristics of the brand, extension fit, and consumer attributes would affect people's attitudes toward using the proposed O2O service. For extensions that deliver similar services as the parent O2O brand, corporate credibility did not have significant influence in affecting people's attitudes toward using the new extension. Corporate trustworthiness ( $\beta = 0.115, p = \text{n.s.}$ ) and corporate expertise ( $\beta = 0.064, p = \text{n.s.}$ ) all showed low statistical significance in affecting people's attitudes. The data was therefore inconsistent with H4a and H4b.

Service quality of the parent O2O brand was evaluated to find whether there were any spillover effects that affect people's attitude and behaviors in using the new extension. Responsiveness, reliability, privacy, navigability, convenience, and empathy were each examined. Among the six dimensions of service quality, only responsiveness ( $\beta = 0.152, p < 0.05$ ) was found to be statistically significant in positively influencing people's attitudes toward using the proposed O2O service extension. Therefore, while H5b, H5c, H5d, H5e, and H5f showed insufficient statistical significance, H5a was consistent with the data.

The study hypothesized that similarity in service category and similarity in brand image will both affect users to positively evaluate the proposed extension. For KakaoTaxi and KakaoDriver services which are both in the transportation sector, the study assumed that similar category fit (H6a) and image extension fit (H6b) will both have significant relationships. However, only brand image fit ( $\beta = 0.298, p < 0.001$ ) had a significant relationship with attitude. Categorical image fit ( $\beta = 0.030, p = \text{n.s.}$ ) had no statistical significance in affecting people's attitudes toward using the extension service. Hence, only H6b was sufficiently explained by the data.

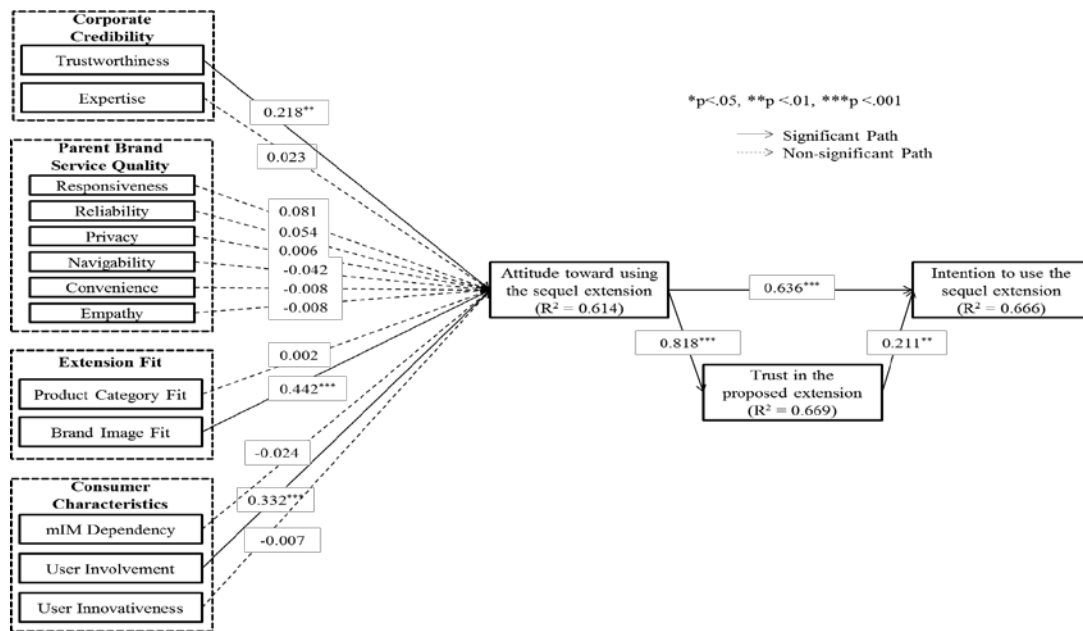
Consumer characteristics were believed to trigger people's attitudes and behaviors in using the brand extension. Consumer's dependence on mIMs (H7), personal involvement or relatedness to the O2O service extension (H8), and innovativeness (H9) were each examined. While mIM dependency ( $\beta = -0.010, p = \text{n.s.}$ ) and consumer innovativeness ( $\beta = -0.010, p = \text{n.s.}$ ) had no statistical significance, consumer's perception of involvement or relatedness to the service ( $\beta = 0.318, p < 0.001$ ) was found to be an important variable that influenced people's attitudes toward using the proposed O2O service. Therefore, while H7 and H9 were not statistically significant, only H8 was found to be sufficiently explained by the data.

**Table 2.** *Hypotheses test results*

Hypothesis	Relations	Coefficient	<i>t</i> -value	Result
H1	Attitude → Intention to use	0.584	9.349	<b>Accepted</b>
H2	Attitude → Trust	0.839	39.423	<b>Accepted</b>
H3	Trust → Intention to use	0.272	4.108	<b>Accepted</b>
H4a	Corporate Trustworthiness → Attitude	0.115	1.172	Rejected
H4b	Corporate Expertise → Attitude	0.064	0.824	Rejected
H5a	Responsiveness → Attitude	0.152	1.973	<b>Accepted</b>
H5b	Reliability → Attitude	0.048	0.777	Rejected
H5c	Privacy → Attitude	-0.003	0.129	Rejected
H5d	Navigability → Attitude	0.068	1.126	Rejected
H5e	Convenience → Attitude	0.068	0.964	Rejected
H5f	Empathy → Attitude	-0.077	1.177	Rejected
H6a	Product Fit → Attitude	0.030	0.393	Rejected
H6b	Brand Image Fit → Attitude	0.298	4.168	<b>Accepted</b>
H7	mIM Dependency → Attitude	-0.010	0.232	Rejected
H8	Involvement → Attitude	0.318	6.044	<b>Accepted</b>
H9	Innovativeness → Attitude	-0.010	0.192	Rejected

### 5.2.2. Extensions dissimilar to the parent O2O service

The second model evaluated user's behaviors and attitudes on an O2O service extension that is not delivered in the transportation industry. Nine hypothesis were again tested to see how brand characteristics, extension fit characteristics, and consumer characteristics influence people's attitudes and intentions toward using the sequel O2O service (KakaoHairshop) that is dissimilar to the parent O2O service (KakaoTaxi). The model explains 66.6% of variance in people's intentions to use the sequel O2O service extension, 66.9% of variance in trust, and 61.4% of variance in people's attitudes toward using the sequel O2O service. Results of the study are visually summarized in Figure 3 and Table 3.



**Figure 3.** Structural model and path coefficients of brand extensions dissimilar to parent brand

The theory of reasoned action was also supported in the second model. Attitude and behavioral intention to use the sequel O2O service extension showed a statistically positive relationship ( $\beta = 0.636$ ,  $p < 0.001$ ). The direct effect of attitude on trust towards using the new O2O service was statistically significant ( $\beta = 0.818$ ,  $p < 0.001$ ). Trust also showed a statistically significant relationship with intention to use the sequel O2O service ( $\beta = 0.211$ ,  $p < 0.01$ ). Thus, H1, H2, and H3 were consistent with the data.

Corporate credibility, composed of trustworthiness and expertise, was examined. Even though expertise did not have a significant effect ( $\beta = 0.023$ ,  $p = \text{n.s.}$ ), people's perception of the firm as being trustworthy was shown to have statistical significance in affecting people's attitudes toward using the new sequel O2O extension ( $\beta = 0.218$ ,  $p < 0.05$ ). Therefore, H4a was consistent with data while H4b was not.

Service quality of the parent O2O service was hypothesized to have a positive effect on people's attitudes toward using the new service. Six dimensions of responsiveness, reliability, privacy, navigability, convenience, and empathy were examined, respectively. However, all six variables were found to have no significant relationship with attitude. Thus, H5a, H5b, H5c, H5d, H5e, and H5f were all insufficiently explained by the data.

Perceived extension fit was also presumed to have a positive effect on people's attitudes toward using the sequel O2O service extension. Evaluations on the categorical fit and brand image fit were examined. While product category fit did not have a direct

relationship with attitude ( $\beta = 0.002$ ,  $p = \text{n.s.}$ ), brand image fit was found to be statistically significant in influencing people's attitudes ( $\beta = 0.442$ ,  $p < 0.001$ ). Therefore, H6a was not sufficiently supported whereas H6b was consistent with the data.

Consumer characteristics were hypothesized to have a direct effect on people's attitudes toward using the sequel O2O service. mIM dependency, user involvement or relatedness with the service type, and innovativeness were selected for measure. While mIM dependency ( $\beta = -0.024$ ,  $p = \text{n.s.}$ ) and innovativeness ( $\beta = -0.007$ ,  $p = \text{n.s.}$ ) had low statistical significance, user involvement appeared to have a direct relationship with attitude ( $\beta = 0.332$ ,  $p < 0.001$ ). The analysis showed that H8 was consistent with the data while H7 and H9 were not.

**Table 3.** *Hypotheses test results*

Hypothesis	Relations	Coefficient	<i>t</i> -value	Result
H1	Attitude → Intention to use	0.636	9.569	<b>Accepted</b>
H2	Attitude → Trust	0.818	29.285	<b>Accepted</b>
H3	Trust → Intention to use	0.211	2.794	<b>Accepted</b>
H4a	Corporate Trustworthiness → Attitude	0.218	2.330	<b>Accepted</b>
H4b	Corporate Expertise → Attitude	0.023	0.312	Rejected
H5a	Responsiveness → Attitude	0.081	1.086	Rejected
H5b	Reliability → Attitude	0.054	0.876	Rejected
H5c	Privacy → Attitude	0.006	0.077	Rejected
H5d	Navigability → Attitude	-0.042	0.632	Rejected
H5e	Convenience → Attitude	-0.008	0.102	Rejected
H5f	Empathy → Attitude	-0.048	0.880	Rejected
H6a	Product Fit → Attitude	0.002	0.061	Rejected
H6b	Brand Image Fit → Attitude	0.442	5.472	<b>Accepted</b>
H7	mIM Dependency → Attitude	-0.024	0.613	Rejected
H8	Involvement → Attitude	0.332	6.910	<b>Accepted</b>
H9	Innovativeness → Attitude	-0.007	0.152	Rejected

## **VI. Discussions and conclusion**

### **6.1. Summary of findings**

The study was designed to find which variables trigger the use of O2O service extensions launched by mIM service providers. To understand whether there are differing intentions and attitudes based on the type of service extension, the study specifically designed two models: one represented O2O service extensions that operated in the same industry as the parent O2O service (KakaoTaxi and KakaoDriver); and the other signified service extensions that operate in different industries as the parent O2O service (KakaoTaxi and KakaoHairshop).

For both models, the study first found that positive attitudes toward using the proposed extension increase user's intentions in using the new service. This finding is in line with the fundamental assumption of theory of reasoned action (TRA) which asserts that user's behavioral intent is influenced by two components, of which one is the attitude toward using the service. Thus, once people have positive attitudes toward using the service the study supports that users may use the service in the near future. Second, positive attitudes are shown to increase trust toward using a new service. Despite risks accompanied with using experience goods (Van Riel et al., 2001), accumulation of favorable impressions were depicted to enhance trust in using the service. Establishment of trust is important as it serves as an important threshold to positive behavioral intentions, user satisfaction, and loyalty (Chen, 2012; Cyr, 2008).

Study results also assert that users show positive behavioral intentions when the proposed extension is related to one's interests. This implies that users are not too keen on the category of the new service. Rather, they highly evaluate services that fit one's interests and have similar images as the parent brand. This finding is in line with Salinas and Perez's (2008) study which also discovered that brand extension success is determined by similarity in brand images rather than similarity in category of services.

Specific differences were seen from the two models. When the proposed extension is in the same industrial sector as the parent O2O service, parent brand service quality was an important determinant in influencing user's attitude. Specifically, responsiveness was identified as the critical service quality attribute that leads to user's intentions in using the driver-for-hire O2O service. For proposed extensions that are incongruent with the parent brand, users were found to rely on the credibility of the firm rather than the service quality of the parent brand. In particular, credibility built from user's accumulated trust toward the firm's services was found to alleviate any concerns and motivate users to establish positive attitudes toward using the proposed extension.



## **6.2. Implications**

The study is unique as it focuses on O2O service extensions launched by mIM service providers. Rather than a hypothetical experiment, the study explored user attitudes and behaviors using existing services launched by Korea's dominant mIM service provider, Kakao. As a viable business model that is under constant development, the results of this study provide empirical evidence on consumer's perceptions toward O2O extensions that are congruent and incongruent with the parent O2O service.

The current study aimed to approach O2O services in an academic perspective by combining variables from brand extension literature to the TRA model. User intentions to use the service were evaluated based on the key dimensions supported from extensive brand extension literature. In addition, the means to evaluate parent brand's service quality were determined from the E-SERVQUAL model and other related studies especially on O2O service quality.

Despite the wide and heavy use of instant messaging, the study results emphasize that O2O is perceived as a distinct service that is part of the firm's service portfolio. Positive behavioral intentions and attitudes towards using the proposed extension were not influenced by user's mIM usage but from the overall image of the brand and the user's level of involvement. Firms are therefore encouraged to create sequel O2O service extensions in various sectors to satisfy the unmet needs of users. However, it is reminded that the brand essence of the firm must be transmitted from one market to another to enhance user's credibility and trust towards the firm (Kim, 2003). Through persistent efforts in adhering to the needs of users, it is more likely that mIM firms will secure its sustainability in the competitive market.

## **6.3. Limitations**

The study has its limitations, which suggest avenues for future research. First, the study focused on Korea's mIM service provider, Kakao. Future studies can explore service providers in different regional markets. For instance, LINE is a Korean mIM service provider that is prominently used in Southeast Asian countries. The success of LINE's O2O strategies abroad is in part due to partnerships with local startups that are already renowned in the country. By including other variables such as the firm's origin and familiarity of the O2O service prior to partnership with the mIM service provider,

more studies on consumer attitudes toward mIM service provider's brand extensions can be made.

Second, the study examined user's intentions to use the sequel O2O extension. The study's dependent variable is not the actual use of the service. Even though a year has passed since KakaoHairshop and KakaoDriver has been launched, the service is not widely adopted as in the case of KakaoTaxi. Future updates can be made on whether users actually use the service, and what factors contribute in the continued use of sequel O2O extensions. In addition to the suggested topics, more research is needed on the business strategies and consumer attitudes toward mIM service providers as they strive to survive in the dynamic mobile industry.

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