

# **USER'S ADOPTION OF MOBILE O2O APPLICATIONS: PERSPECTIVES OF THE USES AND GRATIFICATIONS PARADIGM AND SERVICE DOMINANT LOGIC**

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## **Abstract**

*The rapid adoption of smart phones and mobile Internet usage is now changing the way consumers shop. With the emerging application of SOLOMO (social, location, mobile) concept, O2O (online to offline) application has become the unique and major attribute for mobile commerce. Consumers can use O2O application not only for pure consuming purpose, but they can act as opinion providers, idea creators or the roles of marketing and sales representatives for online retailers as well. Though the above important and unique O2O application features can be well-recognized from the many practical retailing evidences, academic attention paid to understand the impacts of seamless and mobile O2O features on the formation of the degree of perceived customer participation, relationship quality toward O2O application and subsequent behavioural outcomes is still relatively sparse. In order to address the above research gaps, the objectives of this study are to investigate the effects of the unique attributes of O2O smart phone application on customer participation, relationship quality and subsequent behavioural outcomes through the lens of the uses and gratifications (U&G) and service-dominant logic. The research context of our study focused on the O2O application platform or hub combining internal and external resources from both a single supply chain and a set of supply and demand networks, such as the O2O app of Starbucks coffee, Mos Burger, or AccuPas, an integrated platform for external companies and it allows these external companies to create any marketing or sales activities across pre-purchase, purchase and post-purchase stages. The online survey yielded a total of 196 completed questionnaires. Results confirmed that user participation and relationship quality are two significant determinants to facilitate user's behavioural loyalty toward the usage of O2O application and impulse buying intention. Besides, we also confirmed that user's O2O application adoption motivation is a second-order composite assessment, in terms of information, convenience, entertainment and social interaction, and such motivation has positive effect both on user participation and relationship quality. Theoretical and practical implications were also addressed in this study.*

*Keywords: Online-to-offline Application, Uses and Gratification Perspective, Service Dominant Logic, Customer Participation, Relationship Quality, Behavioural Loyalty.*

# 1 INTRODUCTION

Despite online shopping has become a mainstream activity in most countries, the rapid adoption of smart phones and mobile Internet usage is now changing the way consumers shop. For example, people used mobile devices more than PCs to get online in 2014, the first time that has ever happened, and nearly two out of three shoppers use at least one device to reach, interact and purchase while shopping (CNN Money 2014). Besides, 47% of consumers confirm they use their smart phones to see location-specific messages, search for prices on local stores they want to visit, and want retailers to send coupons to their devices when they are in or near the store (Cisco Blogs 2014). The number of m-commerce retail sales is expected to rise to \$61 billion for tablets and \$25 billion for smartphones and other mobile devices by 2016. Besides, mobile commerce in Europe will also grow from EUR 1.7 billion in 2011 to EUR 19.2 billion in 2017 (Imaginovation 2014).

As advanced information technology (IT) and related software evolve continually, retailers must consider how to design their seamless brand or store experience journey for their customers, since they expect consistent, uniform, integrated service and experience, regardless of the channel they use. (Piotrowicz & Cuthbertson 2014). For example, the key feature of “in-store mode” from Walmart’s iPhone app provides consumers a brand new and seamless shopping experience in Walmart’s store. It allows shoppers to make a list by speaking into the phone, and it also shows shoppers what aisle to go to and find their needed products. Moreover, the app also provides shoppers promotions or e-coupons specific to that store, scan items as consumers shop, and go quickly through self-checkout from iPhone (CNET 2012). Another example is Macy’s new omni-channel application, namely shopBeacon (Marketing Land 2014). ShopBeacon is built upon Apple’s iBeacon technology, and it allows users to take advantage of more personalized rewards and discounts. It also guides them through the store and suggest items they may like, thereby driving more consumer engagement and shopping experience while in the store. Given that the success of mobile applications and the growth of mobile commerce, it is not surprising that such phenomenon will continue to receive growing practical and academic attentions for the next decades.

In fact, with the emerging application of “SOLOMO (social, location, mobile)” concept, the above mentioned application, namely O2O (online to offline) seamless service delivery, has become a unique and major attribute for mobile commerce. Mobile devices significantly empower today’s consumers to share exciting findings with friends (social), tag and upload photos at current place (location), find best deals and get feedback about products on their shopping lists, make their purchase decision or even direct use their purchased digital contents through their smart phone apps anytime and anywhere (mobile) in a timely manner. Besides, with ubiquitous mobile access, consumers increasingly expect retailers to provide them with the ability to conduct their prepurchase, purchase and postpurchase activities in whatever retail channel is most convenient for them (Oh & Teo 2010), and O2O application can be the best solution to satisfy consumers’ the above expectations with whole information processing stages and seamless service engagement. As Lusch and Nambisan (2015) stated, a well-integrated hybrid commerce service-delivery system can be conceptualized as a value co-creation configuration of people, technology and other internal and external service systems. Therefore, the ability to engage consumers into a more holistic service-delivery process is especially important, and O2O application provided by mobile devices can thus fulfil the above goal and extend consumer’s existing role into service co-producer. For example, through O2O application, consumers can not only for pure consuming purpose, but they can act as opinion providers, idea creators or the roles of marketing and sales representatives for online retailers as well (Yoo et al. 2010).

Though the above important and unique O2O application features can be well-recognized from the many practical retailing evidences, academic attention paid to understand the impacts of seamless and mobile O2O features on the formation of the degree of perceived customer participation, relationship qualities and subsequent behavioural outcomes is still relatively sparse. First, O2O application refers to a seamless multichannel integration between online and offline shopping environments. However,

as Piotrowicz and Cuthbertson (2014) stated, despite the explosion of omni-channel retailing in practice, the academic literature has yet to develop a broad theory of how channels work together, and empirical evidence of cross-channel synergy has yet to be documented. As such, O2O application can thus open a new path for multichannel retailing studies to investigate the unique effects of O2O application on the process of customer participation, relationship quality and subsequent behavioural outcomes through our study. Second, though benefits such as cross-channel synergies were identified by previous multichannel studies (e.g., Venkatesan et al. 2007; Neslin et al. 2006; Montoya-Weiss et al. 2003), most studies treated online channel as an additional, separate or alternative one. Besides, their research contexts are not focused on mobile O2O application and seamless service integration. Given the examples of Walmart “in-store mode” iPhone app and Macy’s shopBeacon application, the importance of synergies resulted from integration and coordinating multiple channels are discussed as major challenges and opportunities from existing researches, our study of O2O application can thus achieve the above objective since O2O application from mobile device served as a seamless, complement, extended or even enhanced channel for offline context. Lastly, most existing multichannel literatures concentrated their discussion on consumer’s behavioral loyalty or impulse buying within a single supply chain or company context. Our study is focused on the O2O application platform or hub combining internal and external resources from both a single supply chain and a set of supply and demand networks.

In order to address the above research gaps, the objectives of this study are to investigate the effects of the unique attributes of O2O smart phone application on customer participation, relationship quality, subsequent behavioural loyalty and impulse buying intention through the lens of the uses and gratifications (U&G) and service-dominant logic. First, according to the uses and gratifications perspective, different people can use the same mass medium for very different purposes (Severin & Tankard 1997). Likewise, the perspective of uses and gratifications can be used to explain the psychological needs that shape why people use the media and that motivate them to engage in certain media-use behaviours for gratifications that fulfil those intrinsic and extrinsic needs. As O2O application has strengthened the growing importance of seamless service delivery and exploration for customer’s potential needs, it is imperative to investigate the underlying psychological and behavioral dimensions involving O2O application use and their effects on subsequent outcomes. Second, through service-dominant logic (S-D logic), the perceived value or need of a service is ultimately determined by the consumer on the basis of value-in-use rather than value-in-exchange (Lusch & Nambisan 2015), and there is no difference between producer and consumer. Customers can be treated as “prosumers” (dual roles for producer and consumer) and firm’s external employees, and to play active roles to contribute their abilities in diverse business activities such as marketing, production, R&D, or even funds for service delivery, thereby generating their value-in-use (needed values). By doing so, we hope to contribute nascent knowledge for online marketing and information management disciplines scholarly, and provide fruitful insights to the design of an effective value-creating O2O application platform through our study for practitioners.

## **2 THEORETICAL BACKGROUND AND HYPOTHESES**

### **2.1 O2O application (online to offline application)**

O2O application refers to one kind of mobile device application platform, which purpose is to bridge the online and offline environments and in order to generate a seamless and integrated service delivery process for users. The most famous example of O2O application is the case of Tesco Homeplus. In 2011, Tesco Homeplus, a retail chain in Korea, started changing online shopping by putting up large billboards with pictures of their products (e.g., food, beverage or other groceries) in front of many places of great stream of people (e.g., MRT, train or bus stations) with a QR-code associated with each product. Consumers can then use their smart phone to scan the QR-codes to fill up their shopping carts. When finishing shopping, consumers can directly checkout online and their ordered groceries are

delivered to home. Tesco Homeplus' smart phone app bridges offline and online environments into a virtual store for consumers in any time and any place with a brand new shopping experience, and this app is now the number 1 shopping app in Korea, with over 900,000 downloads since it launched in April 2011. Moreover, according to the statistics, Homeplus says that the majority of orders placed on the app are at 10am and 4pm, while people are on their way to and from work (Tesco PLC 2012; Groeber 2012). The second O2O application example is the case of Starbucks coffee. In 2011, Starbucks announced "Starbucks Card" app for download. In pre-purchase stage, consumers can use the app to customize and record their drinking preferences, or they can also find any newest coffee promotions from their mobile phones. Once consumers make their decisions, they can pay orders online directly through Starbucks mobile payment. In post-purchase stage, consumers can share their comments to friends, and check their accumulated rewards for consuming discounts. Starbucks O2O application successfully integrated the online and offline consumption experiences for their customers and satisfied customers' different needs in pre-purchase, purchase and post-purchase stages, thereby significantly cultivating customers' sustained brand loyalties or even impulse buying opportunities towards Starbucks (Marketing Pilgrim 2012).

O2O application can be launched for a single company and for its own products and services as mentioned above, however, there are also many O2O application platforms initiated and operated as integrated hubs for an external huge supply network. Foursquare's app, for example, is a location-based check-in application that launched in 2009 by Southwest Interactive, and it had reached 45 million registered users and surpassed 5 billion check-ins in 2014 (Business Insider 2014). First, through geographic map view, users can identify their current locations and see what kinds of stores nearby and around them. Next, users can click icons of these stores and get more detailed information for products, services or other users' comments or ratings (Mashable 2012). Third, users can post their locations at a venue ("check-in"), write comments or make actual orders and transactions to accumulate their "badges", which are bonuses or credits for later consumption discount or special offers. Lastly, even users have left some specific areas, and they can still make any orders from Foursquare's app and ask Foursquare to send their ordered products to their homes or other places.

The last O2O example is the app called "Accupass - the Activity Master" released by Accuvally Inc. (<http://www.accupass.com>). Accupass mainly focuses on seamless activity and e-ticket service integration. When users find any activity they are interested (e.g., activity posters pasted up on MRT station or any place bustling with people or activity), users can just use the app to scan the QR-code of that activity promptly at current place. Then users can find out more information about the activity and pay for it. When finishing the order, users can get another "paid QR-code" for payment and pass certification. As such, users take the paid QR-code and attend the show. Furthermore, when after the end of the show, users can get some extra discounts for buying other products through the Accupass platform (Techinasia 2013). In summary, O2O application can not only provide seamless and full stage service experience for users, and for O2O application platform owner, they can also seek to encourage complementary third-party innovation from resources located outside, ranging from customers, suppliers, other business partners or even horizontal competitors (Ceccagnoli et al. 2012).

## **2.2 Uses and gratifications (U&G) perspective**

The U&G perspective contends that people utilize particular media channels and content choices because they are seeking to fulfil a need that necessitates being met, and users are no longer thought of as passive, but rather are active in seeking the type of media to use for satiating a specific need (Hicks et al. 2012). As emerging new media such as multiple computer-mediated communications (CMC) technologies, along with traditional media, provide users with a wider array of media selection and contents, the U&G perspective is considered one of the most effective perspectives for identifying motivations underlying media use in many scholar disciplines such as mass communication, information management and so on (e.g., Ko et al. 2005; Stafford et al. 2004; Hicks et al. 2012; Xu et

al. 2012). Since new media often creates new gratifications and motivations, scholars have recognized the importance of applying the U&G perspective to explore new and digital technologies.

Because there are different motivation dimensions for different CMC technologies within the content, process and interaction classifications, some potential dimensions of content would likely be overlooked in certain type of CMC technologies while be importantly investigated in another type of CMC technologies. For example, in the early days of U&G Researches, Rubin (1983) found that the motivational factors for TV usage are pass time, entertainment, escape, information and companionship. The above motivational factors are mostly focused on the content with little emphasis on the process or even social interaction. Besides, Wei (2008) found that there are five motivational factors for mobile phone gratifications, namely, pass time, sociability, reassurance, instrumentality and communication facilitation. Meanwhile, when Internet and websites are becoming booming gradually, specific innovative attributed such (e.g., interactivity) are also enabled. For example, Papacharissi and Rubin (2000) examined Internet users' motivations and five factors were then classified, namely entertainment, pass time, interpersonal utility, information seeking and convenience. Park et al. (2009) conducted a web survey of 1715 college students to examine Facebook users' gratifications, and four primary needed for participating in groups within Facebook were identified, namely socializing, entertaining, self-status seeking and information. Drawing upon the U&G theory, Lou et al. (2011) examined web-based information service adoption motivation by categorizing 24 items into five factors: interpersonal utility, convenience, pass time, entertainment and information seeking.

Here we follow the suggestion proposed by Lee and Ma (2012) and Stafford et al. (2004), two general types of U&G gratifications, namely content and process ones, can be characterized as the underlying structure of major motivations for O2O application adoption. Content gratification refers to the messages carried by the medium and process gratification concerns actual use of the medium itself. Likewise, O2O application users may be motivated by browsing, transaction, enjoyment or social interaction of the usage process and relevant contents, thereby generating four major motivations for O2O application adoption: information (e.g., information, e-coupon, specific offering search or collection), convenience (e.g., to customize user's transaction preference or to place order with mobile payment directly), entertainment (e.g., game engagement or marketing stimuli) and social interaction (e.g. sharing experience or comments) for this study.

### **2.3 Service-dominant logic (S-D Logic)**

O2O application creates a seamless service delivery and experience for consumers. As Maklan and Klaus (2011) stated, experience represents a move beyond products and service. As such, the seamless service delivery and experience created by O2O application represents a great movement for achieving the higher-order goal, namely value-in-use to consumers. Value-in-use refers to that consumers can actively participate and co-create the values they need beyond the traditional value-in-exchange, product and service purely provided from businesses. Vargo and Lusch (2004) have developed a comprehensive foundation for a service-dominant logic (S-D logic) for explaining the concept of value-in-use in marketing.

Traditionally, product-dominant logic (P-D logic) is proposed for the fact that suppliers (or producers) make goods and services for providing customers' needed values to markets. Customers can then purchase these items and suppliers get monetary benefits, namely value-in-exchange, from good and service transactions in return. In order to coordinate R&D, procurement, production and distribution, great resources were then accumulated and companies were then organized, and such organizational form is hard to achieve for common individual customers since limited resources or capabilities. As such, under P-D logic, producers and customers are totally two significant but distinct concepts (Lusch & Nambisan 2015). Taking the car manufacturing industry for example, car makers need to procure all needed material and parts and arrange a series of production activities precisely and effectively, and then distribute cars to market. When cars are sold out, the values provided by car makers can then transfer to customers and monetary benefits are exchanged through transactions.

However, S-D logic holds that all providers are essentially service providers, and thus the roles of producers and customers are not distinct. S-D logic posits both providers and customers as being resource integrators acting in networks embedded in service system, and they interact jointly and reciprocally to co-create value through the integration of resources and application of competences (Oh & Teo 2010). Firms can only provide value propositions, and the perceived value of a service is ultimately determined by the customer on the basis of value-in-use rather than value-in-exchange. Besides, in addition to value-in-use, there is still another kind of value, namely “value-in-context”. Therefore, “value-in-exchange” is only one kind of proposed customer value within S-D logic.

The AppStore platform created by Apple Corporation is a good example for explicating the concept of S-D logic. With ubiquitous web access and increased individual empowerment, external individual developers can then act as co-producers in the app development process by allowing them to perform some self-service by themselves, and the Apple Corporation can effectively engage these external developers as “partial” employees, thereby generating thousands of creative apps. When these apps are downloaded, not only the Apple Company can get monetary benefits, but the external app developers can also get monetary incentives reciprocally (Morris 2013). As users become more technology-savvy, firms such as retailers are faced with the challenges of learning what net-generation consumer value in order to better fulfil their needs. Likewise, users increasingly expect retailers to provide them with the ability to conduct their pre-purchase, purchase and post-purchase activities in whatever channel is most convenient for them. And O2O application through mobile device can be treated as the one of advanced way for achieving the above goals for providing seamless service integrations within the above three common stages for shopping experience.

## **2.4 Customer participation**

Extant studies confirm the importance of value co-creation through customer participation because it is believed to help customers achieve higher service quality and more service control and to benefit firms through increased customer satisfaction and productivity gains (Yim et al. 2012). Especially from a major shift from P-D to S-D logic for marketing, customers are treated as proactive co-creators rather than as passive receivers of value and views companies as facilitators of the value co-creation process rather than producers of standardized value (Chan et al. 2010).

Customer participation refers to the extent to which customers provide or share information, make suggestions, and become involved in decision making during the service co-creation and delivery process (Auh et al. 2007; Bolton & Saxena-Iyer 2009). Early research on the topic of customer participation focused on identifying when customers may be motivated to participate in the stage of productions as partial employees for company’s productivity gains, quality improvements, customization and so on (e.g., Mills & Morris 1986). However, these works mainly focused only on the economic values and the relational bonds between customers and firms, not the customers’ psychological responses (Bendapudi & Leone 2003). Since customers can play a role among three common shopping stages as contributors to their own needs or motivations, customer participation can also be intrinsically and extrinsically attractive to external customers who can derive enjoyment or social interaction, or acquire monetary or status incentives simply from their experience of participation.

To sum up, more customer participation appears to correspond to their higher motivational factors and subsequent behavioural outcomes or even impulse buying intention. These relationships have not been fully developed and investigated empirically (Wu 2011), and it is imperative for the fact that more studies are needed to have an examination of the influential role of user’s motivational factors on the degree of customer participation and its consequent outcomes, as the seamless service delivery context enabled by mobile device and O2O application proposed by this study.

According to Eighmey and Mccord (1998), user’s activity (e.g., Internet usage) is central to U&G research, and motivations are key components of user’s activity. Based on several U&G studies as illustrated in the above, the present study postulates that there are four major motivations for using the

O2O application of mobile device firstly: information, convenience, entertainment and social interaction. Previous studies suggest that providing higher media usage value such as information or entertainment can motivate users to use the media more frequently by satisfying their intrinsic and extrinsic needs and motivations, thereby generating their higher degree of perceived customer participation in the service delivery process. Therefore, it is reasonable to expect that people who have a high degree of certain motivations for using O2O application will be more likely to engage higher degree of activity participation in service delivery during three common shopping stages (pre-purchase, purchase and post-purchase).

The mentioned key feature of “in-store mode” from Walmart’s app, for example, can provide users more seamless information and purchase decision support and enhance their browsing, suggestion or discussion activities more frequently and conveniently. Besides, other users may use O2O application app to exchange idea, communicate with friends, and interact with other people when they have high social-interaction motivation. Moreover, still another user may O2O application for shopping enjoyment, fun or excitement. Therefore, applying the positive relationship between customers’ motivations and their corresponding activities on the O2O application, it seems reasonable to expect that people will foster higher degree of perceived customer participation. Based on the above inference, this study generates the following hypotheses:

*Hypothesis 1 (H1): Users’ O2O application adoption motivations, in terms of information, convenience, social interaction, and entertainment, have positive effects on their perceived customer participation for O2O application.*

## **2.5 Relationship quality**

Relationship quality has long been regarded as an important marketing concept because of its critical role in the customer decision-making/post-purchase process (Crosby et al. 1990; Henning-Thurau & Klee 1997; Morgan & Hunt 1994). Relationship quality can be described as the degree of appropriateness of a relationship to fulfil the needs of the customer associated with the relationship (Henning-Thurau & Klee 1997). Despite there remains no consensus regarding the structural nature of relationship quality, it is evident that several prior studies conceptualized relationship quality as higher-order construct consisting of several distinct although related dimensions, and most studies agree that relationship quality mainly includes three critical indicators, namely satisfaction, trust and relationship commitment (Henning-Thurau & Klee 1997; De Wulf et al. 2001).

Satisfaction with the relationship is treated as an individual’s affective state resulting from an overall appraisal of his or her relationship with a provider. It has been found to be a primary indicator and source of confirmation of needs and therefore a critical driver of positive experience behaviour in marketing related literature (De Wulf et al. 2001). Besides, trust has been conceptualized as the self-assurance that the relationship collaborators have developed reliability and integrity between them and a belief that the other company will only perform actions that will result in positive outcomes (Morgan and Hunt 1994). Lastly, commitment is defined as an attitude that reflects the desire to maintain a valued relationship (Bansal et al. 2004). Commitment is one of the cornerstones essential for the establishment of successful relationships and has become accepted as the focal construct preceding customer’s positive relational behaviours (Morgan & Hunt 1994; Pritchard et al. 1999).

According to U&G perspective, gratification refers to the extent that users’ motivations are satisfied based on their intrinsic or extrinsic needs. As such, once users assess the usefulness and ease of use of the process, content and interactivity provided by O2O app of mobile device seamlessly, these perceptions will lead them to have a positive attitude toward the O2O application. As a result, we argue that users’ greater degree of motivations can induce them to be highly satisfied, trusting, and committed to the O2O application since their shared values, interests or co-created values can be then reinforced, thereby strengthening their higher relationship quality toward the O2O application. Based on these arguments, we make the following hypothesis:

Hypothesis 2 (H2): *Users' O2O application adoption motivations, in terms of information, convenience, social interaction, and entertainment, have positive effects on their perceived relationship quality toward O2O application.*

## **2.6 Behavioural loyalty and impulse buying intention**

Customer loyalty is a consumer's overall attachment or practical behavioural actions to a product, service, brand, or organization (Oliver 1999). The most common assessments of loyalty are behavioural frequency or repurchase patterns (Olsen 2007), even though several attitudinal and intentional measures are used to extend the construct or as surrogates for frequent repurchase behaviour (Ganesh et al. 2000). Customer loyalty manifests itself in a variety of behaviours, the more common ones being repeatedly patronizing a service provider and recommending the provider to other customers (Lam et al. 2004). Since a number of studies have treated these two behaviours as loyalty indicators, in this study, user's behavioural loyalty is operationally defined as a composite measure based on the visiting frequency, the averaged staying time, and the recommendation frequency of O2O application users.

Meanwhile, since the above mentioned O2O application can facilitate a seamless shopping or brand experience for mobile users, the particular emotion for impulse buying could also be triggered due to several environmental stimuli and immediate emotional responses (Park et al. 2012). Impulse buying is defined as "a sudden, hedonically complex purchase behaviour in which the rapidity of the impulse purchase precludes any thoughtful, deliberate consideration of alternative or future implications" (Amos et al. 2014). According to the environmental psychology model, environmental factors such as sense modalities (e.g., sound, sight or touch) and emotional responses are more closely connected with an individual's personality and then can affect individual's behavioural subsequence (Adelaar et al. 2003). When exposing in stages for browsing sales information or promotions for products or services and transaction decision considerations, especially mediated or augmented by specific locations, environmental factors or CMC technologies, times between desire to purchase and actual purchase are likely short. Consumers can experience a strong temptation and attraction for an object of desire and show diminished behavioural constraint to resist it (Roberts & Manolis 2012).

Not only in offline context, impulse buying is also prevalent and has received several attentions in online context. For example, Donthu and Garcia (1999) found that the environment of online transaction and online marketing stimuli make consumers to overspend easily since transactions conducted online can hardly feel like spending money really. Findings from Parboteeah et al.'s study (2009) show that task-relevant and mood-relevant cues can affect the degree to which a user enjoys browsing a website and urge to buy impulsively. Still several studies illustrate that with proper design and implementation of online environmental and marketing stimuli, these features can be better to appeal to impulse buyers and facilitate brick-and-mortar retailing's more fertile sales and growth in turn (Amos et al. 2014).

We argue that higher degree of perceived customer participation within O2O application can thus strengthen relationship quality, behavioural loyalty and impulse buying intention. According to several prior customer participation studies (e.g., Donthu & Yoo 1998; Prahalad & Ramaswamy 2000; Ouschan et al. 2006), customer participation could increase customers' knowledge and control of services, and it then shifts more power to customers. Such a shift in power is particularly crucial for the context of retailing and for our study, since O2O application require a collaborative customer-provider relationship to achieve desirable service outcomes according to the S-D logic. For example, customers involving in using O2O application service to find their personalized shopping preference, interact with emotional marketing activities or interact with more friends, make professional opinions for other customers and acquire their professional positions and so on can gain their more decision power, which makes likely to be more satisfied, trusted and committed to the relationship between them and the application of O2O platform system, thereby fostering their intention to increase their



staying time, usage or frequency toward the O2O application, and even enhance their intention to impulse buying in a timely manner. Therefore, we expect the following:

Hypothesis 3 (H3): *A higher level of perceived customer participation leads to greater perceived relationship quality toward O2O application.*

Hypothesis 4 (H4): *A higher level of perceived customer participation leads to a higher level of behavioural loyalty toward O2O application.*

Hypothesis 5 (H5): *A higher level of perceived customer participation leads to a higher level of impulse buying intention within O2O application.*

Lastly, there is fruitful empirical support for the relationship between relationship quality and loyalty (e.g., Liao et al. 2011; Dayne et al. 2010; Lee et al. 2011; Jacob et al. 2011; Fang et al. 2011). For example, Lee et al. (2011) found that relationship quality is a key determinant of repeat purchase behaviour. Lin et al. (2008) found that gamers who fostered higher perceptions of relationship quality toward the games responded with a more positive emotional mood, which led to increased loyalty. Following the same line of logic, in the context of O2O application, we argue that satisfied and trusted users will identify with and commit to positive and repeated behavioural loyalty to the O2O application in terms of their visiting frequency, average staying time, and recommendation frequency, and even reinforce user's impulse buying intention right away. Based on the above arguments, the following hypothesis is proposed:

Hypothesis 6 (H6): *A higher perception of relationship quality leads to a higher level of behavioural loyalty toward O2O application.*

Hypothesis 7 (H7): *A higher perception of relationship quality leads to a higher level of impulse buying intention within O2O application.*

### **3 METHODOLOGY AND RESEARCH DESIGN**

#### **3.1 Research contexts and samples**

The research context of our study mainly focused on the O2O application platforms including a single supply chain and a ecosystem of supply and demand networks. First, the apps provided by several well-known coffee shops or fast food chains (e.g., Starbucks, Dante coffee or McDonald) could facilitate O2O application and whole service experience for users including pre-purchase, purchase and post-purchase service delivery stages are the research contexts and users are our potential respondents for this study. By using the Starbucks coffee app as mentioned above, users can quickly get the newest information about marketing activities, discounts, coffee and meals. Users can also get the nearest coffee store from their current position through location-based service (LBS). Besides, users can also browse menus of all kinds of coffees and meals, play interest games from the app, and then order from their app. After the shopping, users can then get their consumption credits or incentives for next time consumption, post related photos or share comments to friends. In the case of Starbucks coffee or McDonald, it is a company with its single supply chain can be selected for our study purpose.

Second, for the case of an app platform with a set of supply networks, AccuPass app created by AccuVally Inc. as mentioned above (<http://www.accupass.com/home/features>) is the best example and proper context for our study too. Whenever or wherever users see any activity announcements with a QR-Code provided by AccuPass on a poster, they can scan the QR-Code and get the further information, make further decisions or any orders from the app of AccuPass. AccuPass is an integrated platform for external companies and it allows these external companies to create any marketing or sales activities across pre-purchase, purchase and post-purchase stages. However, comparing to the app for a single company with its own supply chain (e.g., Starbucks coffee), the platform created by

Accuvally Inc. connects with external and diverse kinds of supply networks, and thus there are more possible marketing or incentives plans can be created such as affiliated marketing activities. For example, users can order products from vendor A and B and collect some monetary incentives or discounts, but they can use these accumulated incentives for consuming products or services from vendor K. As such, applications such as the above two contexts are applied to be our research contexts for data collections.

The online survey yielded a total of 196 completed questionnaires. Since 5 questionnaires were invalid, and 191 responses were obtained and valid, including 103 females and 88 males. A majority (68.47%) of the respondents was between the ages of 18 and 30. They were also found to be frequent and experienced users of the O2O application platforms.

### 3.2 Measurement development/operationalization of constructs

All the construct measurements were created or adapted from scales that have been validated in prior research. Information, convenience, entertainment and social interaction scales were measured using the scale developed by Ko et al. (2005). Customer participation is adapted from Sigala (2006). Additionally, relationship quality was measured using nine items adapted from De Wulf et al. (2001). Finally, behavioral loyalty is adapted from Kim and Son (2009), and the indicators of impulse buying intention are adapted from Wells et al. (2011). All items were seven-point, Likert-type scales anchored at “strongly disagree” (1), “strongly agree” (7), and “neither agree nor disagree” (3).

## 4 DATA ANALYSIS RESULTS

### 4.1 Convergent and discriminant validity

We conducted the data analysis in two parts: scale validation and hypothesis testing. First, scale validation proceeded in two steps, namely convergent and discriminant validity analyses. Convergent validity was evaluated using three criteria proposed by Fornell and Larcker (1981): (1) all item factor loadings (alpha) should be significant and exceed 0.5, (2) composite reliabilities (CRs) for each construct should exceed 0.8, and (3) average variance extracted (AVE) for each construct should exceed 0.5 (in other words, the square root of AVE should exceed 0.71). In addition, internal consistency reliability is generally considered a necessary but not sufficient condition for convergent validity. Hence, Cronbach’s alpha, which should be larger than 0.7, was also computed for each construct (Nunnally 1978).

First, the range for factor loadings was 0.76 to 0.96. Besides, as indicated in Table 1, all AVE estimates are well above the cutoff value (0.5), and CRs and Cronbach’s alpha for all factors exceed the required minimum of 0.8 and 0.7 respectively. Hence, all three conditions for convergent validity are met, and thus suggesting that all measurement scales have convergent validity.

	Mean	S.D.	Cronbach’s Alpha	Composite Reliability	AVE	1	2	3	4	5	6	7	8
LOYAL	5.068	1.054	0.899	0.936	0.831	<b>0.912</b>							
CONV	5.021	0.883	0.852	0.91	0.771	0.557	<b>0.878</b>						
ENTER	5.195	0.895	0.859	0.914	0.78	0.538	0.65	<b>0.883</b>					
IMPULSE	4.827	0.827	0.756	0.892	0.63	0.528	0.646	0.548	<b>0.793</b>				
INFOR	4.606	0.845	0.831	0.881	0.598	0.492	0.676	0.527	0.643	<b>0.773</b>			
PART	4.832	0.927	0.915	0.946	0.855	0.641	0.714	0.592	0.562	0.557	<b>0.924</b>		
REL_Q	5.012	0.978	0.934	0.958	0.884	0.527	0.676	0.738	0.625	0.542	0.644	<b>0.94</b>	

SOCIAL	5.344	0.882	0.826	0.896	0.741	0.599	0.644	0.733	0.64	0.503	0.569	0.706	<b>0.861</b>
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Notes:

a. The main diagonal shows the square root of the AVE (averaged variance extracted).

b. Significant at  $p < 0.01$  level is shown in bold.

c. LOYAL as behavioural loyalty, CONV as convenience motivation, ENTER as for entertainment motivation, IMPULSE as for impulse buying intention, INFOR as for informational motivation, PART as for user participation, REL\_Q as for relationship quality, and SOCIAL as for social interaction motivation.

Table 1. Reliability, correlation coefficients and AVE Results

Moreover, to assess discriminant validity among the constructs, this study calculated the square root of AVE for each construct and compared them with interconstruct correlations for each pair of constructs. As shown in Table 1, result also shows that square roots of all AVE estimates for each construct are greater than the interconstruct correlations; thus, discriminant validity is supported.

## 4.2 Hypothesis testing

We use partial least square (PLS) to test the main effects specified in hypotheses H1 through H7, and the analyzed results as presented in Figure 2. First, we hypothesize that the construct of O2O application adoption motivation as a second-order one in terms of four relevant but separate motivational dimensions, namely, information, convenience, entertainment and social interaction. As indicated in Figure 1, we found that all dimensions are significantly related to the construct of O2O application adoption motivation. Besides, the informational and entertainment dimensions are the most two important aspects for forming user's motivation toward O2O application. Second, we found that user's motivation has significant and positive effects both on customer participation (H1) ( $\beta = 0.721$ ,  $p < 0.001$ ) and relationship quality (H2) ( $\beta = 0.666$ ,  $p < 0.001$ ), rendering support for H1 and H2. Third, customer participation has positive and significant effect on relationship quality (H3) ( $\beta = 0.164$ ,  $p < 0.01$ ), thereby supporting H3. Lastly, both customer participation (H4) ( $\beta = 0.515$ ,  $p < 0.001$ ) and relationship quality (H5) ( $\beta = 0.196$ ,  $p < 0.01$ ) have significant effects on user's loyalty toward O2O application and impulse buying intention, providing support for Hypotheses H4 to H7. We will discuss these findings in detail in the next section.

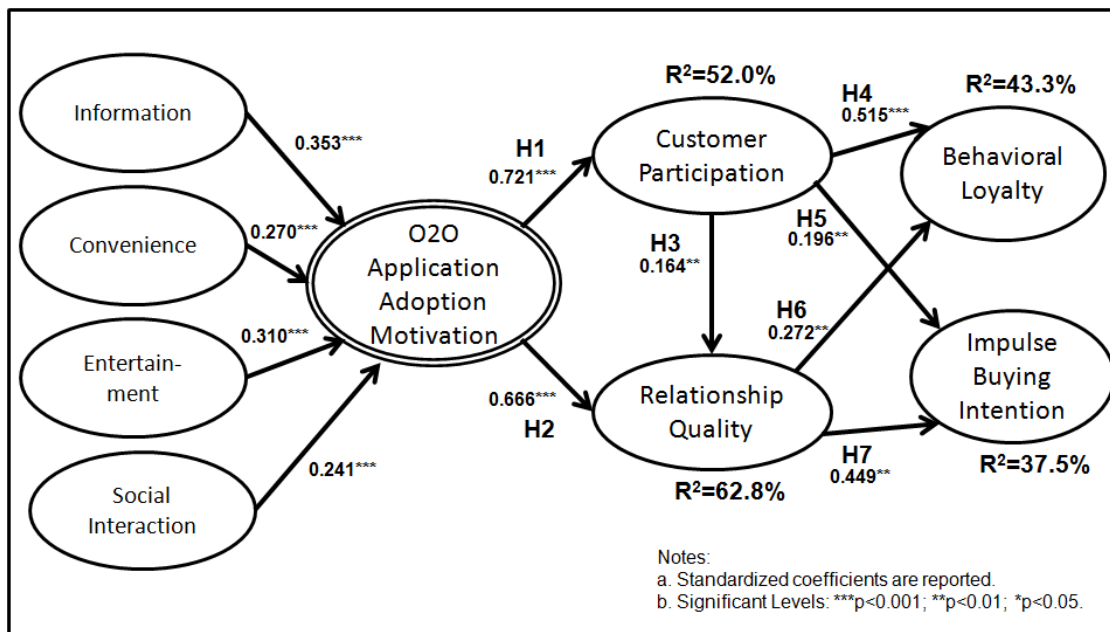


Figure 1. Hypotheses testing

## 5 IMPLICAITONS AND CONCLUSIONS

### 5.1 Discussions

This study sheds some light on this issue by showing the diverse effects of user's motivation facilitating user's participation, relationship quality and subsequent behavioural outcomes (behavioural loyalty and impulse buying intention) toward O2O application through the perspective of Uses and Gratifications (U&G) and S-D logics. And the results of this study impart substantial new insights that can help both academics and e-commerce practitioners in enhancing their understanding of the determinants and influence consequences of O2O application.

First, it can be enlightened that users generate their behavioural loyalty and impulse buying intention from the usage of O2O application not only through relationship quality, but it can also be enhanced through customer participation. Interestingly, the effects of customer participation and relationship quality on behavioural loyalty and impulse buying intention are quite different. For user's O2O application behavioural loyalty, the effect of customer participation ( $\beta=0.516$ ) is greater than the one of relationship quality ( $\beta=0.272$ ) on user's behavioural loyalty, however and in contrast, the effect of customer participation ( $\beta=0.196$ ) is lower than the one of relationship quality ( $\beta=0.0.449$ ) on user's impulse buying intention. These two important determinants jointly explain 43.3 percent of the variance in user's loyalty toward O2O application, and 37.5 percent of the variance in user's impulse buying intention. These findings suggest that more participation in O2O application mainly facilitate more behavioural loyalty, in terms of O2O application usages, frequency or duration times. However, higher degree of relationship quality engendered from O2O application can thus mainly increase higher tendency of user's impulse buying intention. These findings reinforce the importance of user engagement and relationship generation again through the perspective of U&G and S-D logics as discussed above.

Second, the effect of customer participation on relationship quality is also apparent and significant, thereby being consistent with the importance of user engagement and provides empirical evidence for the context of O2O application again. Likewise, our study suggests that the O2O application platform can not only increase several loyal sources for users through the creation of relationship quality with users, but O2O application can also enhance user's loyalty through diverse kinds of customer participation, since the effect of customer participation is clearly the most critical factor on the formation of user's relationship quality and loyalty toward O2O application, as indicated in this study.

Lastly, we argued that user's motivation is conceptualized as a second order construct in terms of information, convenience, entertainment and social interaction dimensions. As indicated in Figure 2, the results show all four factors significantly related to user's motivation. Furthermore, information and entertainment ones serve as the most critical aspects for facilitating user's motivation for using O2O application and platform, and the weightings are 0.353 and 0.310 respectively. Our findings show that when using O2O applications, the information which is real-time and dedicated to the locations users stay currently is the most important aspect for facilitating user's motivation to use O2O application. And secondly that entertainment of O2O application could also enhance user's motivation to use or engage in activities the application supported is also found from this study. And these results then could be used as the basis for managers to make the decision for O2O application platform design.

### 5.2 Theoretical and managerial implications

For the theoretical implications, first, this research contributes the findings of potential motivational factors from the lens of U&G perspective. Through U&G perspective, the results of our study can affirm the U&G arguments that users are more active in seeking the type of media to use for satiating specific needs through mobile device O2O application. And these specific needs could be investigated according to the concept of value-in-use from S-D logic rather than from the one of value-in-exchange

from P-D logic. Second, this study could contribute new evidence to help in understanding the antecedents and drivers of customer participation, relationship quality, subsequent behavioural outcome and impulse buying intention in a highly and seamless interactive O2O integrated media channel setting that involves intensive customer contacts and needs, thereby contributing a new avenue for relevant studies in multi-channel or omni-channel strategy. Third, this study explores how advanced information technology such as mobile O2O application influence or fulfil customer's intrinsic and extrinsic motivations and needs, and the insights gained from this study can inform and serve as a foundation for future research to uncover the intriguing issue of the role of information systems in the service economy.

For the managerial implications aroused from the study, first, the findings of this study could guide O2O application platform managers in fine-tuning their offerings in order to help customers cultivating their seamless and holistic shopping experience from mobile O2O application. Customers' motivational factors, from the perspective of value-in-use of S-D logic, can reflect in gratifications of O2O application process. Therefore, O2O application platform managers could be more responsive to users' needs for quick and effective identification of technological sources, such as information searching, location-based service, QR-code scanning, comments and photo sharing or online transaction and so on, according to the expected insights provided by our study. Second, the contributions of this study can also offer some insights for O2O application platform managers to motivate customers to be value co-creators during the holistic service delivery process. To ensure an effective customer participation process and increased relationship quality, firms for O2O applications need to motivate customers to participate. More effort is required to help them visualize the functional, emotional or social values of their participation through the motivation need satisfaction. Lastly, our contributions for O2O application platform managers suggest that it is imperative for multichannel managers (e.g., retailers) to encourage customer participation and increased relationship quality by designing their hybrid commerce delivery systems with the appropriate mix of customer needed services, depending on their specific strategic focus and resources through the insights of customers' diverse "value-in-use" motivational factors. And platform managers need to integrate their internal and external resources involving employees, customers, suppliers, and several advanced technologies effectively to deliver a seamless customer experience, thereby triggering subsequent behavioral outcomes and impulse buying intention.

### **5.3 Concluding remarks**

While most prior studies focused on traditional e-commerce context and relevant determinants, our understanding of how user's motivation is built and evolves over time has been limited under the context of O2O application platform. To give a more holistic picture, we draw on the perspective of Uses and Gratifications (U&G) to enlighten the effects of the unique attributes of O2O smart phone application on customer participation, relationship quality, subsequent behavioural loyalty and impulse buying intention. Our study also offers an important practical contribution toward the proliferation of O2O application in the context of mobile commerce and provides guidelines on how O2O platform should address their O2O application design differently in terms of information, convenience, entertainment and social interaction aspects, so as to induce new and repeat utilization and to encourage users' loyalty.

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