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# The Effects of Using O2O Fashion Mobile Commerce on Consumers' Attitudes and Intentions -Focused on the characteristics of consumers and O2O mobile commerce-

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## Keywords

online to offline,  
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## Abstract

This study investigated consumers' enjoyment, perceived risks, expected values, and innovativeness factors and the effects of the convenience and personalization of "online to offline" (O2O) fashion mobile commerce on its perceived usefulness, perceived ease of use, and consumers' attitudes and intention to use O2O mobile commerce. A research model was developed using the Technology Acceptance Model (TAM). A mobile survey was conducted through smartphone messengers and SNSs targeting male and female college students in their 20s who are living in the Seoul Metropolitan Area. A total of 192 questionnaire responses were used in the analysis. "Among the consumer characteristics, only enjoyment and expected values were found to make consumers feel that the O2O fashion mobile commerce is useful and easy to use. Among the mobile commerce characteristics, only convenience was found to have significant effects on consumers' perceived usefulness and ease of use regarding O2O fashion mobile commerce. Perceived usefulness was found to have the effects on attitudes as well as intention to use toward O2O mobile commerce. It was shown that positive attitudes toward O2O mobile commerce led to positive use intention toward O2O mobile commerce.

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## I. Introduction

As the digital economy flourishes, the borderline between offline and online is disappearing. As a result, the concept of Online to Offline (O2O), which connects these

two different domains, is expanding. The widespread diffusion of the broadband network and smartphones and the development of related technologies have already made use of wired and wireless Internet across the world. In particular, the growth of the mobile Internet

based on smartphones is now surpassing that of the wired Internet. The expansion of the use of wireless Internet means that the borderline between online and offline is becoming blurred because you can access the Internet anywhere and anytime in your daily life without being confined to places with limited Internet access, such as in front of a desktop computer.

According to the "The 2016 Survey on Internet Usage" released by the Korea Internet & Security Agency (KISA, 2017), 99.2% of all households in Korea were able to access the Internet. A very high number of people (43,636,000, or 88.3% of the population over 3 years old) were found to use the Internet in 2016. More specifically, over 99% of people from in their teens to 40s, 74.5% of those in their 60s, and 25.9% of those in their 70s or older were found to use the Internet, indicating that the usage rate of the Internet among the elderly was also showing a steady increase. In addition, the diffusion of smartphones has increased the mobile Internet usage rate to 85.9%. In particular, the mobile usage rate among those from in their teens to 50s was over 90%.

Many payment activities, such as shopping, are performed through the Internet. The volume of Korea's online market was forecast to reach 60 to 65 trillion won in 2016, which is a 12% increase compared with the previous year, so the online market is expected to have the highest growth rate among retailers in Korea. In particular, mobile shopping has become the fastest-growing distribution channel in Korea: Its sales reached approximately 24 trillion won, about 78% up from the previous year (Korea Chain Store Association, 2016). Fashion items are major products purchased from Internet shopping. Of people 12 aged or older, 57.4% were found to have purchased goods or services on the Internet over the past year, and 6 out of 10 Internet shoppers were found to shop at least once a month. The most popular items purchased through internet shopping were clothing, shoes, sporting goods, and accessories (77%), followed by tickets for movies/cultural performances (45.6%), books (43.1%) and cosmetics (37.3%), indicating that apparel, miscellaneous goods,

and beauty products were the main items purchased by consumers during Internet shopping (KISA, 2016).

As the Internet has become a part of everyday life, making online commercial transactions possible, people can purchase cheap products by comparing their prices and make online. In general, comparison shopping enables consumers to compare and purchase offline products online. However, a new form of shopping has emerged, so the decision is made online, while the final purchase is made offline. Despite the steady rise of e-commerce since the 1990s, e-commerce sales accounted for about eight percent of US retail sales (<https://www.census.gov>) and consumers still browse malls and shops. Many global E-commerce brands are investing in ways to bring about that same emotional connection offline (Hickey, 2016; Rampell, 2010).

O2O commerce is a business strategy that draws potential customers from online channels to physical stores. O2O commerce identifies customers in the online space (e.g., through emails, internet advertising, and mobile advertising) and then uses a variety of tools and approaches to entice the customer to leave the online space and visit brick-and-mortar stores. O2O means that consumers do not overly rely on logistics by purchasing products or services in virtual spaces (online shops) and receiving the products or the services in real spaces (offline shops) (Curty & Zhang, 2013). O2O commerce combines the great customer experience and excellent price competitiveness from offline and online commerce.

Based on the TAM model, this study examined consumers' attitudes and use intention regarding O2O fashion mobile commerce. It sought to investigate the effects of consumer factors, such as enjoyment, innovativeness, expected value, and perceived risks, and those of O2O mobile commerce factors, such as convenience and personalization, on consumers' perceived usefulness and ease of use, attitudes, and use intention. Based on this, this study also intends to analyze the important factors in consumers' use of O2O mobile commerce, which has recently emerged, and derive effective strategies based on the results.

## II. Literature Review

### 1. Theoretical Framework: Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), which is used as a theoretical framework in this study, was developed by Davis in 1989 for identifying the factors that influence organizational members' acceptance of information technology introduced to improve organizational performance (Davis, 1989). This model is rooted in the Theory of Reasoned Action (TRA), a representative behavioral intention model, which predicts behaviors based on attitudes. It focuses on identifying what causal relationships have been set up between organizational members' beliefs, attitudes, which are positive or negative evaluations, use intention, and actual use regarding specific innovations as well as on finding external factors that influence the process of their acceptance (Davis, Bagozzi, & Warshaw, 1989). Davis presented perceived usefulness and perceived ease of use as key variables, which were not previously presented as individuals' psychological factors in the TRA.

This model suggests that when users are presented with a new technology, a number of factors influence their decision to accept and use it, notably perceived usefulness and perceived ease of use. Perceived usefulness was defined as the extent to which a person perceives that using a particular system would enhance his or her job performance (Davis, 1989). Perceived usefulness indicates the perception toward the amount of effort required to use a specific system or the perception toward the extent to which users believe that a specific system will be made easily available to them; moreover, it implies the refusal to use a specific system that is too difficult to use or requires more effort relative to its usefulness (Adams, Nelson & Todd, 1992; Agarwal & Prasad, 1998; Davis, 1989). Perceived ease of use is defined as the extent to which a person believes that using a particular system would be free from effort.

According to Davis (1993), user acceptance is very important factor that determine the success of an

information system. The external variables, such as design features of the information system, have a direct influence on perceived usefulness and perceived ease of use. These perceptions affect individuals' attitudes toward technology, and finally, influence intentions to accept the technology. And the technology acceptance intentions affect technology acceptance behavior. Previous research found that the behavioral intentions to use the technology are highly correlated with actual utilization (Adams et al., 1992; Agarwal & Prasad, 1998; Davis, 1989).

### 2. Consumer Characteristics

In this study, consumer characteristics and characteristics O2O mobile commerce were included as external variables. As personal characteristics in accepting information technology have been recently emphasized, studies that introduce many external variables, such as usefulness and ease of use, innovativeness, enjoyment, expected values, and perceived risks, are being carried out (Ajzen & Madden, 1986; Kim, 2010; Na, 2012; Vijaysarathy, 2004).

#### 1) enjoyment

Many studies that have expanded the TAM have found that enjoyment is one of the factors that affect use intention, and enjoyment is used as a concept of fun. Enjoyment is defined as the extent to which one feels the use of a particular technology itself is fun, regardless of the outcomes of its use (Shiau & Luo, 2010). Hoffman and Novak (1996) proposed that intrinsic motivation (e.g., perceived enjoyment) enhanced self-relevance, making an individual feel more involved in an activity. In the extension TAM, perceived enjoyment was added to TAM as an important factor that affected Internet use (Teo, Lim, & Lai, 1999; Lee, Lee, & Yu, 2011). Moon and Kim (2001) report that the results of applying TAM with enjoyment as an additional variable showed that enjoyment had a greater influence on intention to purchase than usefulness. Even

the previous studies on the acceptance of the mobile Internet report that enjoyment has a direct effect on use intention and ease of use has a significant effect on enjoyment (Cheong & Park, 2005).

## 2) innovativeness

Innovativeness is the tendency to willingly accept changes and try new things and can be said to be “ideas or objects that accepting individuals or other sectors perceive to be new” (Rogers, 2003). To conduct shopping through O2O mobile commerce, consumers first search for and purchase products online and then check and pick up the actual items at offline stores. In other words, consumers can search for, purchase, or reserve products or services provided at offline shops in the mobile environment via a smartphone anytime and anywhere. Since this is different from the existing shopping method, people using O2O mobile commerce can be said to be more innovative than traditional and ordinary consumers. Previous studies have demonstrated that individuals' innovative tendency has a positive effect on attitudes toward e-business services and use intention (Son, 2007). Kang (2013) reports that consumers' innovative tendency has a positive effect on their intention to accept mobile shopping. Highly innovative consumers show favorable attitudes toward technology acceptance and have a strong internal motivation to purchase technology-intensive products (Choi, 2009).

## 3) expected values

Expected values are “values that one tries to gain by using new services.” Based on their expected values, accepting individuals satisfy their various desires by using particular services. According to expectancy value theory, two factors function when a particular task is performed: high expectation for task performance and values that can be attained as a result of task performance. In other words, individuals evaluate various possible behavioral alternatives or strategies in the process of forming their behaviors to select the

behavioral strategies from which they expect the most favorable outcomes. An analysis by Galloway and Meek (1981) of the correlation between expected values and media exposure showed that higher expected values have a more positive effect on media exposure. O2O mobile commerce will meet the values that users seek to attain. Based on these previous studies, the following hypotheses were established.

Hypothesis 1: Innovativeness, expected values, and enjoyment of O2O fashion mobile commerce have a positive (+) effect on consumers' perceived usefulness.

Hypothesis 2-1: Innovativeness, expected values, and enjoyment O2O fashion mobile commerce have a positive (+) effect on consumers' perceived ease of use.

## 4) perceived risks

Perceived risks are defined as the “consumer's anxiety about unexpected outcomes that can be caused by the purchase and use of products or risks associated with innovations” (Ostlund, 1974). The greater consumers' uncertainty or expected negative outcomes, the greater their perceived. There are perceived risk factors in O2O mobile commerce as well. Chi, Kang, and Han (2015) presents anxiety about privacy due to privacy infringement and personal information leakage by O2O mobile commerce, annoyance caused by spam messages, public attention, etc. as risk factors. They demonstrated through empirical research that these risk factors lead consumers to stop using O2O mobile commerce. The current study conceptualized perceived risks as anxiety about privacy infringement related to privacy infringement and personal information leakage and public attention and examined whether perceived risks had a negative (-) effect on attitudes toward and intention to use O2O mobile commerce.

Hypothesis 1-2: Consumers' perceived risks have a negative effect on their perceived usefulness of O2O fashion mobile commerce.

Hypothesis 2-2: Consumers' perceived risks have a

negative effect on their perceived ease of use of O2O fashion mobile commerce.

### 3. Characteristics of O2O Mobile Commerce

According to TAM model, the external variables, such as design features of the system, have a direct influence on perceived usefulness and perceived ease of use. Previous research (Ahn & Rhou, 2017, Shin & Lee, 2014, Siau, Lim, & Shen, 2001) found that features of the information system or mobile device influence users' perception of usefulness and ease of use.

#### 1) convenience

Convenience is the most prominent mobile commerce feature and can be defined as the ability to use mobile commerce "anytime and anywhere" regardless of users' locations (Durlacher Research, 1999). In particular, convenience is considered the most important reason for mobile shopping. Therefore, convenience will have a positive effect on the acceptance of O2O mobile commerce.

#### 2) personalization

Personalization is defined as "the feature to provide information and services customized to the needs of particular individuals" (Siau et al., 2001). Various services customized to individuals can be provided based on the information pre-configured on their mobile devices, and mobile shopping gives them the feeling that they are engaging in many interactions (Shin & Lee, 2014). Thus, personalization services will have a positive effect on the acceptance of O2O mobile commerce. Based on the characteristics of O2O mobile commerce, the following hypotheses were established.

Hypothesis 3: The characteristics of O2O fashion mobile commerce (convenience and personalization) will have a positive (+) effect on perceived usefulness.

Hypothesis 4: The characteristics of O2O fashion

mobile commerce (convenience and personalization) will have a positive (+) effect on perceived ease of use.

### 4. Perceived Usefulness and Ease of Use

Perceived usefulness is the degree to which one believes using a particular technology or system will improve one's ability to perform tasks. Perceived ease of use refers to the degree to which one believes one will use a particular system with ease (Davis, 1989). Both perceived usefulness and ease of use have been reported to have a highly related to attitudes toward technologies and use intention, and even with actual use (Adams et al., 1992; Taylor & Todd, 1995). It can be seen that users are more likely to accept new technologies, as they consider it more useful to accept them and they think it is easier to learn them. In addition, perceived ease of use tends to influence usefulness since technologies that are easy to use are more useful when all other conditions are equal (Adams et al., 1992; Davis et al., 1989). Users may exert a positive effect on attitudes toward the technology system, when they consider a new system as being more useful than an existing one. TAM model also hypothesizes a direct link between perceived ease of use and perceived usefulness (Davis et al., 1989). When the two technologies offer the same features, users will find more useful when they find the technology easier to use.

Hypothesis 5: Perceived ease of use has a positive effect on usefulness.

Hypothesis 6: Perceived usefulness has a positive effect on attitudes toward O2O fashion mobile commerce.

Hypothesis 7: Perceived ease of use has a positive effect on attitudes toward O2O fashion mobile commerce.

### 5. Attitudes and Intention to Purchase

Attitudes are defined as the intensity of the personal and subjective preferences of users for new technologies or services, and use intention means "whether they are willing to use new technologies or services." The stronger

their attitudes or use intention, the likelier they are to actually use them (Davis, 1989; Engel, Blackwell & Miniard, 1995). Variables that are likely to influence attitudes and use intention in the previous studies based on TAM include perceived risks, perceived usefulness and ease of use, and enjoyment (Wu & Wang, 2005). TAM model also demonstrates that the link between perceived usefulness and intention to use the technology (Davis et al., 1989).

Hypothesis 8: Attitudes toward O2O mobile commerce have a positive effect on intention to use O2O fashion mobile commerce.

Hypothesis 9: Perceived usefulness of O2O mobile commerce have a positive effect on intention to use O2O fashion mobile commerce.

### III. Methods

#### 1. Theoretical Framework

A research model was developed using the TAM (See Figure 1).

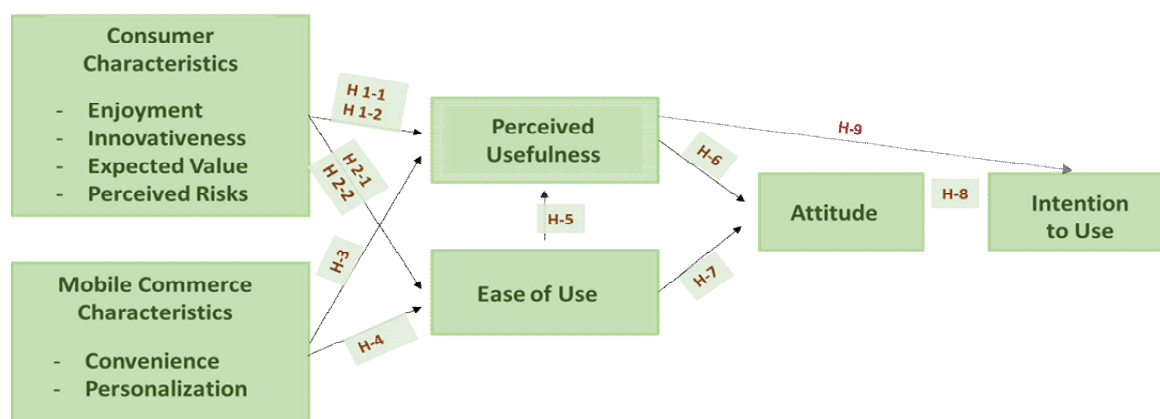


Figure 1. A Research Model of This Study

#### 2. Measurement

All measurement items were adopted from previous studies. They were reworded for this current study context, if necessary. Definitions of each variable and measurement items used in this study are presented in Table 1. All items were measured on a five-point rating scale, with endpoints defined by 1 = “very unlikely” and 5 = “very likely.”

#### 3. Sampling and Data Collection

This study mainly targeted college students who have much experience of online shopping and are familiar with O2O marketing. We used convenient sampling to conduct a survey of male and female college students in their 20s living in the Seoul Metropolitan area who have had online shopping experience in the last six months. A mobile survey was conducted through smartphone messengers and SNSs. Of 195 responses, a total of 192 questionnaire responses excluding unreliable ones were used in the analysis. The data were analyzed using frequency analysis, factor analysis, reliability analysis, correlation analysis, and a series of multiple regression analyses using the SPSS program.

Table 1. Variables and Measurement Items Used in This Study

Measurement Variables	Operational Definitions	Items	Source
Enjoyment	The degree of enjoyment while using O2O mobile commerce	<ul style="list-style-type: none"> <li>• I found that the use of O2O mobile commerce could be fun</li> <li>• I enjoyed using O2O mobile commerce</li> </ul>	Cheong & Park (2005) Moon & Kim (2005)
Innovativeness	Tendency to be willing to try making a change	<ul style="list-style-type: none"> <li>• I have much interest in new ideas, information, and news</li> <li>• When new products or services appear, I tend to buy them ahead of others.</li> <li>• I risk failure by using new products and services</li> </ul>	Son (2007)
Expected values	Values to be gained by using O2O mobile commerce	<ul style="list-style-type: none"> <li>• Using O2O mobile commerce is likely to reduce my shopping costs.</li> <li>• If I use O2O mobile commerce, the offline store will try to give me more benefits.</li> <li>• If I use O2O mobile commerce, the offline store will treat me as a special customer.</li> <li>• Using O2O mobile commerce will save me shopping time.</li> </ul>	Galloway & Meek (1981)
Perceived risks	Consumer anxiety about the unexpected results of using O2O mobile commerce	<ul style="list-style-type: none"> <li>• The location information technology of O2O mobile commerce seems to infringe on my privacy.</li> <li>• Using O2O mobile commerce will put my personal information at risk of being leaked.</li> <li>• When I buy cheap products through the promotions of O2O mobile commerce, I am worried about public attention.</li> </ul>	Agarwal & Krahnanna (2000)
Perceived usefulness	The degree to which consumers believe O2O mobile commerce will improve or help with their job performance	<ul style="list-style-type: none"> <li>• I think O2O mobile commerce is a useful service.</li> <li>• It is convenient to purchase products and services using O2O mobile commerce.</li> <li>• Using O2O mobile commerce will save me time and effort.</li> </ul>	Davis et al. (1989) Lee et al. (2011) Na (2012)
Perceived ease of use	The degree to which consumers feel that the use of O2O mobile commerce is easy and convenient	<ul style="list-style-type: none"> <li>• It is simple to use O2O mobile commerce.</li> <li>• It will be easy to learn how to shop using O2O mobile commerce.</li> <li>• It is easy to use O2O mobile commerce.</li> </ul>	Davis et al. (1989) Lee et al. (2011)
Convenience	The feature that information can be gathered anytime and anywhere through O2O mobile commerce	<ul style="list-style-type: none"> <li>• O2O mobile commerce enables me to gather information that I want anytime and anywhere.</li> <li>• O2O mobile commerce enables me to use services anytime I want.</li> <li>• I can use O2O mobile commerce while I am moving.</li> </ul>	Developed by authors
Personalization	The feature that services customized to individuals are provided based on their personal information set in advance	<ul style="list-style-type: none"> <li>• O2O mobile commerce can provide me with updated information on fashion products in which I am interested in real time.</li> <li>• O2O mobile commerce will provide me with purchase recommendations for fashion products that satisfy my needs.</li> <li>• O2O mobile commerce will provide me with fashion ads and events tailored to my needs.</li> </ul>	Siau et. al., (2001)

Table 1. Continued

Measurement Variables	Operational Definitions	Items	Source
Attitudes towards O2O mobile commerce	Intensity of personal and subjective preferences of users for O2O mobile commerce	<ul style="list-style-type: none"> <li>• It is worth installing O2O mobile commerce.</li> <li>• It is fun to install O2O mobile commerce.</li> </ul>	Lee et al. (2008)
Intention to use O2O mobile commerce	Willingness to use O2O mobile commerce	<ul style="list-style-type: none"> <li>• I will use O2O mobile commerce.</li> <li>• I will recommend O2O mobile commerce to other people.</li> </ul>	Agarwal & Krahnanna (2000)

Table 2. Measurement Reliability

Variable	Number of Items	Cronbach's $\alpha$	Variable	Number of Items	Cronbach's $\alpha$
Enjoyment	2	0.89	Personalization	3	0.75
Innovativeness	3	0.67	Perceived usefulness	3	0.78
Expected value	4	0.70	Perceived ease of use	3	0.74
Perceived risk	2	0.68	Attitude toward O2O	2	0.89
Convenience	3	0.72	Intention to use O2O	2	0.84

#### 4. Sample Characteristics

A total of 192 subjects (41.7% male, 58.3% female) participated in this study with the average age of 23. Among all respondents, 72.4% indicated that they knew about O2O mobile commerce and 65.1% indicated that they had used O2O mobile commerce. It was also found that "KakaoTalk Plus *Chingu*" (friend) ( $n=113$ ) was used the most by the respondents, followed by "SYRUP WALLET" ( $n=34$ ) and "YAP" ( $n=22$ ) among the O2O mobile commerce service providers.

### IV. Results

#### 1. Primary Analysis

Reliability tests were performed, the results of which are shown in Table 2. Cronbach's  $\alpha$ , indicating the internal

consistency, was used to examine the reliability of measures. Kline (2000) suggest that measures with a Cronbach's  $\alpha$  score higher than 0.7 indicate "good" internal consistency and a Cronbach's  $\alpha$  score higher than 0.6 indicates "acceptable" internal consistency. Thus, all the measures were used for further analyses.

#### 2. Effects of Consumer Characteristics on Usefulness and Ease of Use of O2O Fashion Mobile Commerce

Multiple regression analyses were performed to test the hypotheses. The effects of consumer characteristics on perceived usefulness are shown in Table 3. Among consumer characteristics, enjoyment was significant at  $\beta = .280$ ,  $p < .001$ , and the expected values were significant at  $\beta = .187$ ,  $p < 0.1$ , which showed enjoyment had a positive (+) effect on usefulness, but no significant effect on innovativeness and perceived risks. Therefore,



**Table 3. Effects of Consumer Characteristics on Usefulness and Ease of Use toward O2O Fashion Mobile Commerce**

Dependent V.	Independent V.	$\beta$	$t$	$R^2$	$F$
Perceived usefulness	Enjoyment	0.280	3.806***	0.382	19.057***
	Innovativeness	-0.057	-0.863		
	Expected value	0.187	2.561**		
	Perceived risks	-0.099	-1.691		
Perceived ease of use	Enjoyment	0.384	5.263***	0.395	20.105***
	Innovativeness	-0.020	-0.309		
	Expected value	0.177	2.450*		
	Perceived risks	-0.044	-0.760		

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ **Table 4. Effects of the Characteristics of O2O Fashion Mobile Commerce on Perceived Usefulness and Ease of Use**

Dependent V.	Independent V.	$\beta$	$t$	$R^2$	$F$
Perceived usefulness	Convenience	0.348	4.606***	0.382	19.057***
	Personalization	-0.016	-0.197		
Perceived ease of use	Convenience	0.267	3.578***	0.395	20.105***
	Personalization	-0.045	-0.567		

\*\*\* $p < .001$ 

Hypothesis 1-1 was confirmed, while Hypothesis 1-2 was rejected.

The effects of consumer characteristics on perceived ease of use are also shown in Table 3. Among the characteristics factors, enjoyment and perceived value were significant at  $\beta = .384$ ,  $p < .001$  and  $\beta = .177$ ,  $p < .05$ , respectively, so they were found to have a positive effect (+) effect on perceived ease of use, while innovativeness and perceived risks were found to have no significant effect on perceived ease of use. Therefore, Hypothesis 2-1 was partially confirmed, while Hypothesis 2-2 was rejected.

### 3. Effects of Fashion Mobile Commerce Characteristics on Usefulness and Ease of Use of O2O Mobile Commerce

The effects of the characteristics of O2O mobile commerce on usefulness are shown in Table 4. Among the characteristics of O2O mobile commerce, convenience was significant at  $\beta = .348$ ,  $p < .001$ , showing that it had a positive (+) effect on usefulness, while personalization was found to have no significant effect on usefulness. Therefore, Hypothesis 3 was partially confirmed. The effect of O2O mobile commerce characteristics on perceived ease of use is also shown in Table 4. Among the characteristics of O2O mobile commerce, convenience was significant at  $\beta = .267$ ,  $p < .001$ , showing that it had a positive (+) effect on perceived ease of use, while personalization was found to have no significant effect on perceived ease of use. Therefore, Hypothesis 4 was partially confirmed.

#### 4. Effects of Perceived Ease of Use on Usefulness

The effects of perceived ease of use on perceived usefulness are shown in Table 5. Ease of use was found to be significant at  $\beta=.619$ ,  $p<0.001$ , showing that it had a positive (+) effect on usefulness. Therefore, Hypothesis 5 was confirmed.

#### 5. Attitudes toward O2O Mobile Commerce and Intention to Use

The effects of perceived usefulness and ease of use on attitudes toward O2O mobile commerce are shown in Table 6. Usefulness was significant at  $\beta=.338$ ,  $p<0.001$ , and perceived ease of use was significant at  $p<0.001$ , showing that they had positive (+) effects on attitudes toward O2O mobile commerce. Therefore, Hypotheses 6 and 7 were confirmed. The effects of attitudes toward O2O mobile commerce on intention to use O2O mobile commerce are also shown in Table 6. The perceived usefulness was significant at  $\beta=.103$ ,  $p<0.05$ , and

attitude toward O2O mobile commerce was significant at  $\beta=.773$ ,  $p<0.001$ , showing that they had a positive (+) effect on intention to use O2O mobile commerce. Therefore, Hypothesis 8 and 9 was confirmed.

As a result of the regression analysis, the variables that had positive (+) effects on perceived ease of use were found to be enjoyment and expected values among the characteristics of consumer characteristics and convenience among the characteristics of O2O mobile commerce. In addition, perceived ease of use was found to have a positive (+) effect on usefulness; perceived usefulness and ease of use were found to have positive (+) effects on attitudes toward O2O mobile commerce; and attitudes toward O2O mobile commerce were found to have a positive effect on intention to use O2O mobile commerce. In other words, it can be said that consumers' higher enjoyment and expected values lead to their perception of the usefulness of O2O mobile commerce, which in turn increases their positive attitudes toward and intention to use O2O mobile commerce.

**Table 5. Effects of Perceived Ease of Use on Perceived Usefulness of O2O Mobile Commerce**

Dependent V.	Independent V.	$\beta$	$t$	$R^2$	$F$
Perceived usefulness	Perceived ease of use	0.619	10.857***	0.383	117.868***

\*\*\* $p<0.001$

**Table 6. Factors Affecting Attitudes toward O2O Mobile Commerce and Intention to Use**

Dependent V.	Independent V.	$\beta$	$t$	$R^2$	$F$
Attitudes	Perceived usefulness	0.338	4.579***	0.363	53.941***
	Perceived ease of use	0.332	4.490***		
Intention to use	Perceived usefulness	0.104	2.174*	0.692	215.687***
	Attitudes	0.773	15.155***		

\* $p<0.05$ , \*\*\* $p<0.001$

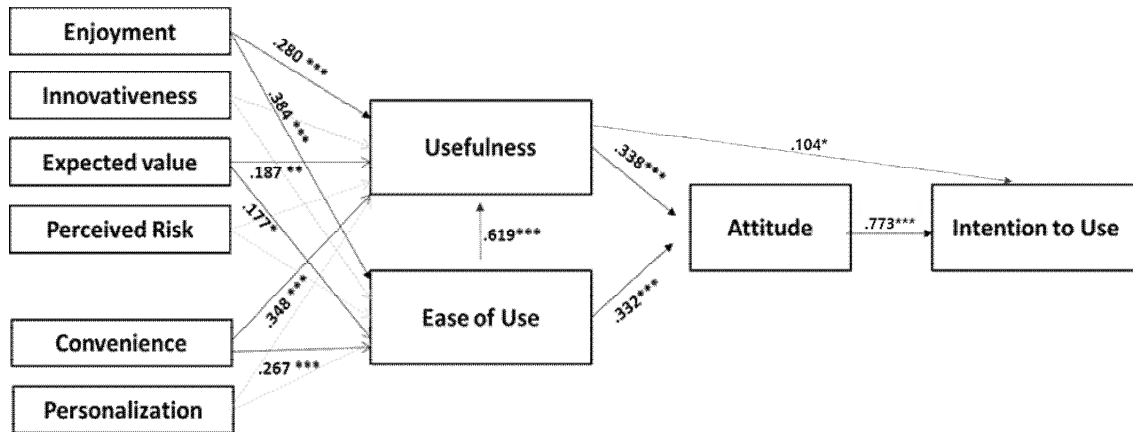


Figure 2. Summary of Study Results

## V. Discussion

This study examined the effects of the consumer characteristics and the characteristics of O2O mobile commerce on consumers' attitudes toward and intention to use O2O mobile commerce. The results of this study are summarized as follows. As a result of examining whether consumer characteristics influence perceived usefulness and ease of use, only enjoyment and expected values were found to make consumers feel that using O2O mobile commerce is useful. In addition, innovativeness and perceived risks were found to have no significant effect on perceived usefulness and ease of use. Kim (2016) confirmed that innovativeness and perceived risks have no significant effect on intention to use O2O mobile commerce. Enjoyment followed by expected values had the greatest effects on perceived usefulness and ease of use. Therefore, it can be interpreted that the greater fun consumers had and the greater values they could attain from using O2O mobile commerce, the more useful they found O2O mobile commerce.

On the other hand, the usefulness of O2O mobile commerce has little to do with consumers' innovativeness, and it is thought that the perceived risks, such as anxiety about privacy infringement and public attention,

are not sufficient to negate consumers' perception that O2O mobile commerce is useful. Thus, as consumers feel that O2O mobile commerce is more enjoyable and obtain greater values from it and they think it is more useful, companies need to establish marketing strategies to place more emphasis on the enjoyment and expected values experienced by consumers who use O2O mobile commerce by offering them convenient, practical, and useful benefits.

As a result of examining whether the characteristics of O2O mobile commerce have effects on perceived usefulness and ease of use, only convenience was found to make consumers feel that it is useful to use O2O mobile commerce. As a result of examining whether perceived ease of use has effects on usefulness, it was found that greater perceived ease of use led to the feeling of greater usefulness.

In addition, perceived usefulness and ease of use were found to have significant effects on attitudes toward O2O mobile commerce. Perceived usefulness was found to have the positive effects on attitudes as well as intention to use toward O2O mobile commerce. It was shown that greater positive attitudes toward O2O mobile commerce led to greater use intention toward O2O mobile commerce. Therefore, companies need to establish marketing strategies that will make consumers who use

O2O mobile commerce experience enjoyment and expected values by providing them with practical and useful benefits.

The subjects of this study were limited to people in their 20s, and most of them were female. Therefore, the results are not sufficient to be generalized. Follow-up studies will need to include a wider range of age groups and a more equal ratio of genders. In addition, other external variables including the quality of O2O mobile commerce (e.g., service quality, information quality), other mobile characteristics (e.g., usability, interactivity), and O2O mobile commerce design attractiveness (Shin & Lee, 2014) also need to be considered for the future studies.

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