Determinants of Continuance Intention in Music Streaming Services: A Dual-Model Perspective

음원스트리밍 서비스의 지속사용 의도에 관한 연구: 이원적 모형의 관점에서

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ABSTRACT

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ABSTRACT

With the rapid development of information and communication technology and the rise of digital era, the trend in music consumption has gone through a tremendous change in recent years: from physical, online downloads, and streaming. The success of music streaming services depends heavily on customer's continuance usage, a topic not yet adequately investigated in information systems research. It is unclear to what extent, and how, the existing theories can be extended to explain the continuance usage of such services. In consideration of the distinctive features of these services, this study adapts the dedication-constraint framework and develops a model of music streaming services continuance, which is assessed empirically using data collected from 315 actual users. Results indicate that music streaming services' continuance intention is jointly determined by two mechanisms: perceived benefits (usefulness and enjoyment), and service-specific investments (personalization and learning), with the former playing a more central role. Perceived usefulness and enjoyment directly promote satisfaction, while service specific investments in personalization and learning increase switching costs. Theoretical and practical implications and future research directions are subsequently discussed.

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CHAPTER 1 INTRODUCTION

With the rapid development of information and communication technology and the rise of a generation of digital natives, recent years have seen the emergence of streaming as a major trend in music industry. The music consumption trend has changed from purchasing CD, illegal piracy in digital format, paid downloading, to streaming. The introduction of the MP3 format in the middle of the 90s and streaming services a few years later have changed the structure of music industry for good (Magaudda, 2011). As many other media contents, the world is indisputably moving from ownership to access and streaming is clearly a central component of this new consumption and distribution paradigm. Globally, it took less than two years for digital revenue to overtake that of physical content, and another two years for revenue from music streaming to exceed online downloads. In Asia, both shifts occurred in a single year and 56 percent of digital music revenue from this region comes from music streaming.

While it is clear that the popularity of music streaming among consumers will continue to expand for the following years, the path to profitability for these services is less straightforward. The growth of regional streaming services is accelerating the competition between platform providers and brand advertisers to entice users and increase their continuance intention. Unlike other global streaming services like Spotify or Pandora which adapts "freemium" model for their profits, most of the Asian music streaming services charge every user to use the service. Attracting new users and

locking in extant users are both directly associated with the repurchase from consumers, and survival of the platform. This means the failure to retain customer base would significantly jeopardize the viability of the platform; thus, practitioners are eager to effectively manage their users' satisfaction and barriers to move on to the alternative service.

As discussed earlier, sustained website user traffic is highly associated with revenue growth and profitability through explosion in usage levels. It has been confirmed from many previous studies that long-term relationships between consumers and target IS providers are key to providers' survival in the highly competitive online service marketplace (DeLone & McLean, 2003; Reichheld et al., 2000). Although a great volume of past literature has focused on understanding individual's acceptance of a new information technology application (e.g., IT exploration, innovation with IT), scholars have recently paid tremendous attention on the post-adoption behaviors in recent years (Kim and Son, 2009; Ahn et al., 2007; Ranganathan et al., 2006; Ahuja and Thatcher, 2005; Jasperson et al., 2005; Karahanna et al., 1999). Individuals' post-adoption behavior is different from that of the pre-adoption stage because user's perceptions on the IS is established from direct experience and interaction with the adopted IS and the provider (Cooper & Zmud, 1990). Based on this idea that continued use is the fundamental condition to judge whether the IS adoption is successful or not, a lot of prior work has examined individual user's cognitive intention to use the IS continually (Khalifa & Liu, 2007; Chiu & Wang, 2008). However, their concerns were relatively focused on the simplistic view by largely emphasizing on the interaction

between the users or perceived benefits. Most of those works adopted the expectation-confirmation model (ECT) which has been widely used to predict and examine the determinants of users' continuance intention toward the targeted IS (Bhattacherjee, 2001; Kim & Han, 2009; Bendapudi & Berry, 1997; Anderson & Sullivan, 1993).

CHAPTER 2 LITERATURE REVIEW

2.1 Music Streaming Services

Music streaming services are quite recent and relatively new concept of enjoying music with the development of information communication technology (ICT) and digital technology. Before the emergence of streaming services, illegal downloading of digital files prevailed around the globe and even threatened the whole music industry. According to the Internet Federation of the Photographic Industry, the worldwide recorded music market has been downsized almost by half since 2000 and over 40 billion songs were downloaded through illegal route in 2008. Owing to the purchase convenience and wide-range of access to different types of music, digital platforms have arisen as the largest retailers in the music industry. The first tipping point in the music industry was the launch of iTunes Music Store in 2003. The Recording Industry Association America reported that music sales have plummeted in the United States from $11.8 billion in 2003 to $7.1 billion in 2012. However,

interestingly enough, people have been purchasing more music than ever before. This became possible because Apple's iTunes suggested pay-download model which offered digital albums for $10 and any individual track of that album for 99 cents. Apple obviously popularized the cheap digital single and swiftly overtook CDs, which eventually transformed the music industry forever.

The next innovative and revolutionary form of listening to music was the paid subscription model with streaming. Digital technology has brought the new agenda for both providers and listeners: with the faster and easier Internet connection as well as wider range of mobile devices, people were able to access to thousands of songs through unlimited streaming for the certain amount of cost per month. Digital streaming has actually become the best and most widely accepted model for distributing musical content that could constrain piracy and illegal downloading of music. The idea of streaming subscription applied to other media industries such as videos or movies: Netflix became the largest online video distributor in the U.S. by attracting over 30 million users exceeding those of Comcast that which been the market leader in pay television in the U.S. in 2012 (nScreenMedia, 2013). As of 2015, the number of worldwide Netflix streaming subscribers reached nearly 75 million (Statista, 2016).

Many music streaming service providers have also adopted premium subscription business model in an exchange for the digitized content that can be easily obtained from external servers with a few clicks or tabs on PC or mobile devices.

Increased popularity of different music streaming platforms such as Pandora, Spotify, YouTube Red, which are specifically targeted for people in the United States or many other European countries, brought the two different business models. Either users were able to enjoy music, free-of-charge, but with frequent commercial breaks between songs or blocked-shuffle-mode. Or with the premium option, consumers could also subscribe to the service to gain unlimited access to the content of the streaming service without any commercial interruptions and with higher audio or technical quality. The artist whose song is on a given platform gets compensated with royalties to the amount of times their songs are played or the amount of views their videos received. Launched in October 2008, Spotify has a library of over 8 million tracks and estimates a total of 10 million active users with about 3 million of paying subscribers. ABI Research announced a very promising prospect that thanks to the explosive usage of mobile phones, music streaming services should experience a rapid expansion in the coming half-decade. They also reported that paid subscribers might exceed 150 million by 2016.

The Korean music market trend is not much different: domestic music sales has reached approximately 4 billion dollars in 2012 which has steadily grown about 16.2% annually. Digital music sales represent almost 58% of Korean music market in 2014 (RIAJ, 2015). According to IFPI (2014), there were 17 music streaming platforms, including Melon, Genie, Bugs, Naver Music, and etc., and the total cumulative visitors for the top two platforms in 2014 were 63 million (Melon) and 25 million (Genie), respectively.

2.2 IS post-adoption behavior

A number of prior studies have elaborated on the key factors that emerge after the initial adoption of specific service and influence on decision-making processes in the post-adoption environment. Initial adoption models such as technology acceptance model (Davis, 1989) have been questioned for its link between intention and actual continuance of use. Most of the previous studies on post-adoption behavior have their theoretical foundations on the diffusion of innovation theory (Rogers, 1983). The major argument of this theory is that there are four elements of diffusion process, innovation, communication channel, time, and social system and five-stage model in the innovation-decision process, which are knowledge, persuasion, decision, implementation, and confirmation. Sever diverse lines of research have introduced users' perceptions, which suggested that the fit between an individual user's needs and the characteristics of the IT artifacts. However, these studies mostly focused on the relationship between variables during the initial adoption stage. Given the lack of in-depth prior research on continuance, many post-adoption research in the IS area shed light on the repeated use in the context of online services (Lippert & Forman, 2005; Kim et al. 2005; Thong et al. 2006).

2.2.1 Expectation Confirmation Theory

Extended from expectation-confirmation theory (ECT) from consumer behavior literature to develop a model of IS continuance, a dual model perspective has

arisen from the lack of explanation on "lock-in" effect. ECT mainly focuses on the dedication-based relationships, specifically explaining factors such as satisfaction and perceived usefulness (Olorunniwo et al., 2006; Liao et al., 2006). Bhattacherjee (2001) concluded that the continuance intention of IS use is determined by satisfaction and the perceived usefulness which explains 32% and 9% of the variance respectively. Lee et al. (2007) extended the research and identified perceived usefulness, perceived ease of use, perceived enjoyment and monetary value significantly affect mobile users' satisfaction, which in turn relates to the continuance intention. Shin et al. (2010) also noted the significant effects of usefulness, ease of use and cost rationality on the post-adoption usage of mobile services. Prior literature that used ECT as the theoretical base reported that perceived usefulness, satisfaction, and hedonic value are critical for users to choose a certain IS and continue using the system (Hau et al. 2012; Hong et al. 2006; Thong et al. 2006). However, the foregoing discussion indicated that prior research falls short of explaining the constraint-based mechanism. Continuance intention toward the information system is not only affected by the actual benefits, but also by the switching costs. A lot of relationship marketing literatures have suggested that customers are engaged with continuing relationship with the service provider either because they really like the features of the services or because they believe there is no other option.

2.2.2 Social Exchange Theory

Social exchange theory can also account for the dedication-constraint framework to explain post adoption behavior that has positive influences on continuance intention. Stanley and Markman (1992) explain that personal dedication stems from the desire of an individual to maintain relationship, which centers on the prospect of long-term mutual benefits. Constraint, on the other hand, refers to "the forces that limits individuals to maintain relationships regardless of their personal dedication to them, centering on the locked-in economic, social, or psychological investments that make it difficult for individuals to quit."

Gilmore and Pine (2002) adopted personalization feature as service-specific investments that can later create lock in effect. Kim and Son (2009) indicated that at least two contrasting forces are playing pivotal role in determining the customer-firm relationship and shaping post-adoption behaviors. In extending this perspective, a number of studies in other discipline have also emphasized these two motivational factors from customers to persist relationship with the service provider (Bendapudi and Berry, 1997; Stanley and Markman, 1992). Relevant studies acknowledges that both customer satisfaction and switching barriers affect loyalty to the service, which is believed to be associated with increased revenue and reduced costs (Burnham et al. 2003; Balabanis et al., 2006).

CHAPTER 3 THEROTICAL DEVELOPMENT AND RESEARCH MODEL

Figure 1 illustrates the proposed research model for examining post adoption phenomena in the context of music streaming services. Based on the theoretical base introduced by Kim and Son (2009), the dual model of dedication-constraint framework was developed in an attempt to study benefits and service-specific investments. This study proposed and empirically analyzed the conceptual framework that depicts dedication-based and constraint-based variables as drivers of customer retention and their antecedents in online context.

3.1 Dedication-based mechanism

Numerous literatures have suggested that satisfaction and continuance intention are positively correlated in both offline and online business environment (Oliver, 1999; Park & Kim, 2006; Reichheld & Schefter 2000; Cheung & Lee, 2009). Bhattacherjee (2001) indicated that continuance intention to use a product or service is critical to the success and survival of an IS, particularly in the case of e-commerce and other online services in which the information systems have become the core of business. In the context of e-service, Luo et al. (2006) concluded that satisfaction greatly influences on the dedication to the service. Similarly, Shi et al. (2010) also found that Facebook users' satisfaction appears to influence their continuance intention to use social media

significantly. Therefore, I propose the following hypothesis:

Hypothesis 1: Users' satisfaction with a music streaming service is positively related to their continuance intention with the service.

Prior research on the IS continuance intention considered satisfaction as the salient determinant of IS success (Bhattacherjee, 2001; Kang & Lee, 2010, Limayem & Cheung, 2008; Yang & Peterson 2004; DeLone & McLean, 2003). Because continuance intention is closely related to the loyalty to the brand and repeat patronage, it is important for both researchers and practitioners to examine how companies can retain customer with their services. Favorable feelings toward a particular service have long been found to be an important factor affecting the continuance usage of IT applications. Kim and Son (2009) argue that dedication mechanism is enabled by the realization of net benefits, including satisfaction and perceived benefits. The rationale behind this is proposition is (1) a customer's current assessment of the service work as an indicator from which to expect the future value of the service and (2) the customer engage with the long-term relationship in anticipation of future value. Satisfaction refers to ex-post evaluation based on cumulative user experience with a target product or service (Spreng et al., 1996). Customers acquire positive feelings about a product when performance of that products meets or exceeds expectations (Bhattacherjee, 2001; Chea & Luo, 2008; Oliver, 1993). Consumers who earned favorable feelings toward a

particular service are not only found to build affective relationship in both offline and online (Bendapudi & Berry, 1997; Lindell & Whitney, 2001).

Technology Acceptance Model usually approaches with the two antecedents affecting the intention to adopt the technology: perceived usefulness and perceived ease of use. Previous research suggests these two determinants are especially important for deciding whether to accept or reject information technology. However, relative to online portals or other IT wherein users usually stay for utilitarian reason and, music streaming is likely to be strongly attached to the hedonic value for its perceived benefits. Moreover, Karahanna et al. (1999) demonstrated that comparing the relative effects of perceived usefulness and ease of use during the pre-acceptance and post-acceptance stages of IS use, (1) usefulness affects attitude consistently and substantially during both stages of IS use, and (2) ease of use has inconsistent impact on attitude during the initial stage, which seems to further subside and become insignificant later stages. It is more appropriate to use perceived usefulness and perceived enjoyment for salient ex post expectation influencing users' satisfaction.

According to the cognitive evaluation theory, motivations can be classified into extrinsic and intrinsic subsystems (Ryan et al., 1983). Whereas extrinsic motivation is derived from the goal-oriented and mission-critical mind to successfully perform an activity, intrinsic motivation stems from the feelings of pleasure while performing a behavior. In the context of IS motivation theory (Davis et al., 1992), IS users decide to continue using the system based on two fundamental factors. Extrinsic

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motivation is affected by the benefits and reward of using the IS, which can be explained by perceived usefulness (Davis et al., 1989). On the other hand, the intrinsic motivation is driven by the pleasure and fun of being involved in an IS, which in turn can be explained by perceived enjoyment (Davis et al., 1992).

Utilitarian value and hedonic value are not entirely new, but rather widely accepted factors when describing the motivations for performing a variety of behavior in online context such as shopping or using mobile apps. Babin and Attaway (2000) argued that positive affect associated with a website is related to both utilitarian and hedonic shopping value, impacting share of purchase. Perceived usefulness is conceptually similar to utilitarian value: users' cognitive evaluation of the utility of using an IS evaluation of the utility of using the service in terms of purpose fulfillment and problem solving (Babin et al., 1994). Thus, utilitarian motivation is defined as rational, decision effective, and goal oriented (Hirschman and Holbrook, 1982). Users may obtain utilitarian value if they receive convenience, accessibility, selection, availability of information, and no requirement for commitment, features which are related to perceived ease of use, freedom, and control. In terms of music streaming services, users can acquire utilitarian benefits depending on whether the mission (i.e. searching the appropriate music) or task is completed or not, or whether the mission is completed efficiently during the process. The positive effect of perceived usefulness on satisfaction has been approved in a large number of studies (Bhattacherjee, 2001; Chea & Luo, 2008; Thong et al., 2006; Verhagen & Feldberg, 2011). Hence:

Hypothesis 2: Users' perceived usefulness derived from using a music streaming service is positively related to their satisfaction with the service.

When the Internet first appeared and various information and order-taking service began to appeal to customers, most competition was based on price and availability for the purchase of commodities because they were viewed as appropriate for utilitarian needs (Benjamin & Wigand, 1995). More recently, however, researchers propose the functional or instrumental attributes are no longer exclusively important in online retail: e-commerce consumers increasingly seek hodenic value online. Szymanski and Hise (2000) found that a user interface that makes shopping pleasurable significantly affect customer satisfaction. Childers et al. (2002) also noted that there is a direct effect of enjoyment on attitudes and behavioral outcomes such that immersive, hedonic aspects of the Web are greatly appreciated.

Perceived enjoyment refers to users' positive emotions or feelings of fun and playfulness that are derived from the appreciation of an experience itself, rather than from task completion (Babin et al., 1994). Bloch et al. (1983) suggested increased arousal, heightened involvement, perceived freedom, fantasy fulfillment, and escapism indicate a hedonically valuable experience. As discussed earlier, relative to many other online services (e.g. portal) which enhance effectiveness and usefulness achieved through the use of service, the boundary between goal-oriented activities and play blurs

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in music streaming services, underling the importance of hedonic value for satisfaction. Turel et al. (2010) suggested the theory of consumption values to explain user acceptance of hedonic digital artifacts: they postulated that consumers identify multiple value dimensions, such as enjoyment, quality, social, value-for-money, and their tradeoffs, to make informed purchase decisions. Music streaming services itself provide various hedonic-relevant motivators such as musical appeal, escapism, intrinsic enjoyment, playfulness, and even social values. These intrinsic motivators may ultimately affect satisfaction of the service and allow users to decide whether to continue using the IS or not. As such, the following hypothesis is formulated:

Hypothesis 3: Users' perceived enjoyment derived from using a music streaming service is positively related to their satisfaction with the service.

3.2 Constraint-based mechanism

Switching costs results from one's perceptions about the investment devoted to a certain service that are not easily transferrable or switchable to other services (Lam et al. 2004). Jones et al. (2000) defined from the customer perspective as time, money, and effort that is associated with changing service providers. In other words, perceived switching costs are associated with the migration to a new supplier, vendor, or service provider at any cost. Klemperer (1995) identified three types of nontransferable

investments that are known to affect switching costs: transaction costs, learning costs, and artificial costs. In the context of online services, transaction and learning costs incur because people tend to personalize the features according to their tastes and individual needs.

There are a lot of benefits for a long term relationship between the service provider and customers: fellowship, personal recognition, reduction in anxiety, discount and time-saving and improvement in customer management (Berry, 1995; Peterson, 1995). Furthermore, according to the theory of planned behavior, switching costs can be considered as an external control belief or perceived behavioral control, which directly influence the behavioral intention. In the present research, switching cost can be regarded as the currently subscribed music streaming service users' perceptions of the time, money, and effort that is associated with changing to a new or another platform.

Previous studies (Ng & Kwahk, 2010; Chen & Hitt, 2002; Anderson & Sullivan, 1993) have suggested when the costs, especially monetary costs, are included factors as psychological issues and replacement costs, the customers become more dependent on their incumbent service providers. Specifically, when the switching costs are perceived to be higher than the perceived benefits, consumers are more likely to stay than switch regardless of dissatisfaction or complaint with the current service. Therefore, increase in risk and burden of the consumers as well as high dependency on the service providers is likely to lead to the customer retention and continuance usage.

Therefore, the hypothesis is stated as follows:

Hypothesis 4: Users' switching cost with a music streaming service is positively related to their continuance intention with the service.

Two antecedents that are associated with the switching costs in this study are: personalization and learning. These two factors are commonly conceptualized as service-specific investments that relate to one's history of customizing to an online service over time. Kim and Son (2009) stated that in the constraint-based mechanism, learning and personalization can be seen to affect switching costs, which eventually increases willingness to pay and inattentive to alternatives. As discussed earlier, personalization is expected to affect transaction costs, whereas the learning is related to learning costs that includes time and effort to be accustomed to the system. Jones et al. (2002) suggested that those investments to customize the features of the service are basically sunk costs, but people tend to assume that more amounts of time and efforts will incur to switch to the new service. Access to a wide variety of music in the digital age ironically made it more difficult to find the music they actually enjoy, known as the Paradox of Choice (Oulasvirta et al., 2009). Personalization refers to the extent to which a system has been customized to an individual user's preferences and needs (Kim & Son, 2009), and is believed to increased and sustain initial and post-adoption rates. Lee & Lehto (2010) confirmed that users invest in personalization when they

have relatively high expectations of receiving benefits from doing so or when they have unique needs that cannot be met by the default configuration of the system. The growth of interest and needs in one-to-one marketing had led marketers to utilize resources for personalization for competitive advantage. The idea of personalized products and service offerings has existed even before the emergence of the Internet, but improvement in information technology and the Internet have furnished consumers with more efficient and valuable product and service recommendation. A huge trend in music streaming services is the growing need to easily discover new music that fits his or her preference based on individual listening history and behaviors. If the provider acquires collective personal data, the provider will be more likely to deliver better service than its competitors. This will create lock-in effect which will make users more reluctant to switch to the new services, even if they have more economic benefits or more convenient user interface.

Most worldwide music streaming services, such as Spotify, Last.fm, Pandora, and Pandora, have now adopted automatic music recommendation system to suit users' need for searching new music that exactly fits their taste. Personalized recommendation system effectively alleviates the burden and stress to filter out the relevant songs from the vast amount of songs. For example, Spotify is well-known for its steadily improving recommendation system based on both collaborative-filtering and content-based recommendations. Every premium Spotify users get their own *Discover Weekly* playlist, updated every Monday, with 30 new songs that its recommendation algorithms think you will prefer, based on one's own tastes and those

of other similar users. Spotify's *Now* feature provides playlists based on user's habits and the current time of the day. Similarly, one of the most popular music streaming services in Korea, Melon is also offering personal feature "For U" and "My Music" which give you the most frequently played music for specific month, as well as personal recommended playlist based on one's past listening history. It also provides a list of artists and albums that each user might probably also like by using collaborative filtering. All these "personal" features will make users to consider the costs of switching as rather high. As the current service provider offers benefits that suits personal needs, the user will be more constrained to the system and unwilling to change to an alternative service. Accordingly, the following hypothesis can be formulated:

Hypothesis 5: Users' extent of personalization in a music streaming service is positively related to their switching cost of the service.

Another important factor that influences switching costs is learning. Learning refers to the amount of time and effort that has been spent by the customer to learn routines, procedures, and features of a particular service (Alba & Hutchinson, 1987). As services are inadequately standardized, the customer's skill in using particular service is not necessarily transferrable to other services (Kim & Son, 2009; Polites & Karahanna, 2012). Past investments to learn and modify services to users' own

preferences will increase switching costs because they have to expend time and effort to recreate settings and preferences at a new service. Jones et al. (2002) pointed out when consumers switch service provider, they incur various learning costs ranging from time spent collecting information about potential alternatives to relinquishing benefits from an existing provider.

Learning cost can be further distinguished into costs prior to or after switching and whether the costs are related to customer learning or service provider learning. Prior to switching, most learning costs are associated with the search and evaluation: (1) geographic dispersion and limited alternatives per region, (2) service intangibility, (3) and inseparability of production and consumption (Zeithaml, 1981). After switching to a new service, users also have to expend time and effort to acquire and adapt to the new procedures and routines which require both behavioral and cognitive costs. For example, users who are already accustomed to the features of Melon will find it difficult to apply their skills and knowledge to other streaming services such as Genie or Bugs.

In summary, learning within the certain music streaming service requires investments of individual time and effort. Individuals are unlikely to be able to directly transfer or apply these investments to another system. Learning required to use the specific system is believed to positively influence overall switching costs. Overall, we expect that as individuals invest in learning of music streaming system network, they are less likely to discontinue using the system. This leads to the hypothesis:

Hypothesis 6: Users' extent of learning in a music streaming service is positively related to their switching cost of the service.
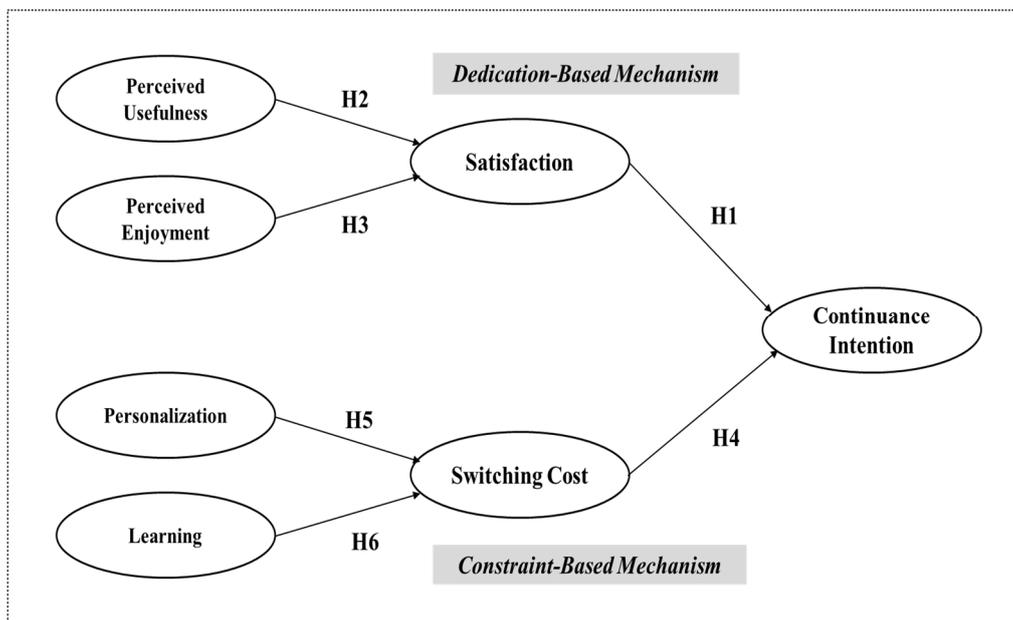

Figure 1. Research Model

CHAPTER 4 METHOD

4.1 Measures

All of the measures were adapted from previously validated studies to fit the context of this study (Appendix A). The questionnaire consisted of three parts: (1) the first part asked respondents general information about music streaming services they use (e.g. type of streaming service, how long they used each service, the type of device they normally use for the service, frequency of usage and how long they stay for each visit) (2) the second part had research questions following the theoretical model. Each item corresponding to the constructs was measured using a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree), except for satisfaction, which was measured with four items based on a seven-point semantic differential scale (3) the third part consisted of questionnaire about respondent's demographic information. A pilot study was conducted for internal validity by assessing the nature of relationships among the constructs. After slight modification in wording to reduce ambiguity, a revised questionnaire was conducted on 30 university students. All constructs were proven to have good reliability through Cronbach's alpha verification, with each construct exceeding the accepted 0.7 reliability level. The use of self-reported measures in the survey is believed to be appropriate and necessary because all the constructs assess customer's cognition, emotion, and intention, rather than actual behavior. We measured all six constructs as first-order reflective constructs with multiple items.

4.2 Data Collection

An online survey was used to collect data for empirical testing. Data were randomly collected from people between 20s and 30s who have been using Korean music streaming services for more than 6 months. Korea Information Society Development Institute (2013) reported that South Koreans in their 20s comprise the largest proportion of paid users, followed by those in their 30s, and spend the most on music content. The survey was carried out for a 2 weeks and repetitive submissions of the questionnaire from the same respondent were forbidden. We collected 336 responses and after excluding 21 incomplete answers, 315 valid samples were used for the final analysis. The survey included questions regarding the respondents such as age, gender, as well as construct measurements. The type of mobile service provider information was also collected: in Korea, three most popular music streaming services, Melon, Genie, and Bugs, are in partnership with mobile service providers, SKT (Melon & Bugs) and KT (Genie) for price promotion. So each respondent was asked if he or she is receiving any price promotion benefit for using the incumbent streaming service.

The final sample was 57.8% male and 42.2 female; 67.6% were in their 20s and 32.4% were in their 30s or above. The distribution of the type of music streaming service was: Melon (57.8%), Genie (12.7%), Bugs (11.7%), and others such as Mnet and Naver Music (17.8%). 88.6% of users used mobile phone as their main device for streaming service, and the rest used PC.

CHAPTER 5 ANALYSIS AND RESULTS

5.1 Measurement Model

Following Anderson and Gerbing (1988), we used a structural equation modeling (SEM) technique via AMOS to test the proposed model. For the psychometric properties of measure, AMOS-based confirmatory factor analysis (CFA) was performed. The CFA results showed that the first item of learning value (LRN3) had poor loading (0.21) and high error variance (0.73) indicating that it may not be a good indicator of the construct. After removing LRN3, all the constructs in the model were of good reliability and had good convergent and discriminant validity. As shown in Table 1, average variance extracted (AVE) and composite reliability for all the constructs exceeded 0.50 and 0.70, respectively, demonstrating good constructs reliability (Fornell & Larcker, 1981).

Table 1. Confirmatory Factor Analysis using AMOS							
Construct/Item	Estimate	S.E	C.R	Standardized Regression Weights	AVE	Construct Reliability	Cronbach's alpha
PU → PU1	1			0.649	0.63	0.84	0.71
PU → PU2	1.103	0.122	9.059	0.659			
PU → PU3	0.878	0.091	9.616	0.728			
PE → PE1	1			0.811	0.70	0.87	0.92
PE → PE2	1.085	0.053	20.401	0.929			
PE → PE3	1.118	0.054	20.696	0.942			
PER → PER1	1			0.57	0.66	0.85	0.75
PER → PER2	1.417	0.155	9.161	0.823			
PER → PER3	1.195	0.131	9.126	0.775			
LRN → LRN1	1			0.824	0.67	0.80	0.69
LRN → LRN2	1.183	0.101	11.704	0.94			
SAT → SAT1	1			0.908	0.74	0.92	0.82
SAT → SAT2	0.891	0.037	23.763	0.884			
SAT → SAT3	0.891	0.04	22.354	0.861			
SAT → SAT4	0.855	0.037	23.358	0.878			
SC → SC1	1			0.722	0.55	0.78	0.93
SC → SC2	1.064	0.085	12.45	0.805			
SC → SC3	1.239	0.099	12.549	0.819			
CI → CI1	1			0.835	0.69	0.87	0.93
CI → CI2	1.168	0.053	22.055	0.931			
CI → CI3	1.169	0.052	22.609	0.948			

Discriminant validity is approved if the square root of the AVE of a measure is larger than its correlation coefficients with the other measures (Chin 1998l; Fornell & Larcker, 1981). We found than each scale met the criterion with AVE close to 0.70 and larger than all of the correlation, which suggests than discriminant validity is satisfactory (Table 2). In addition to convergent and discriminant validity, we also examined the reliability of each scale with Cronbach's alpha. Acceptable level of Cronbach's alph is said to be higher than 0.70. As shown in Table 2, the reliability of the scale measures exceed the recommended values by significant amounts.

Table 2. Correlation Matrix and Discriminant Assessment								
	PU	**PE**	**SAT**	**PER**	**LRN**	**SC**	**CI**	**AVE**
PU(ρ^2)	1							0.63
PE(ρ^2)	0.375769	1						0.7
SAT(ρ^2)	0.401956	0.350464	1					0.74
PER(ρ^2)	0.2601	0.169744	0.178929	1				0.66
LRN(ρ^2)	0.014161	0.001089	0.017956	0.003364	1			0.67
SC(ρ^2)	0.009025	0.029241	0.055696	0.050176	0.2704	1		0.55
CI(ρ^2)	0.259081	0.266256	0.459684	0.182329	0.046656	0.147456	1	0.69

Table 3. Cross Factor Loading							
	Factor						
	1	2	3	4	5	6	7
Perceived Usefulness1	**.882**	-.078	.336	-.266	.445	-.069	.111
Perceived Usefulness2	**.934**	-.116	.373	-.310	.285	-.066	-.311
Perceived Usefulness3	**.831**	-.219	.133	-.410	.321	-.102	.170
Perceived Enjoyment1	.491	**.817**	-.030	-.341	.294	-.082	-.009
Perceived Enjoyment2	.522	**.924**	-.055	-.482	.348	-.174	.088
Perceived Enjoyment3	.523	**.942**	-.016	-.489	.310	-.174	.135
Personalization1	.344	.110	**.765**	-.274	.286	-.183	.278
Personalization2	.323	-.052	**.838**	-.298	.292	-.177	.431
Personalization3	.351	.025	**.757**	-.342	.333	-.146	.062
Learning1	.074	.021	-.153	**.911**	.030	-.373	-.454
Learning2	.082	-.026	-.185	**.831**	.094	-.450	.116
Switching Cost1	.143	.273	.153	-.284	**.717**	.163	.084
Switching Cost2	.180	.188	.123	-.347	**.866**	.179	-.186
Switching Cost3	.120	.449	.055	-.261	**.782**	.098	.215
Continuance Intention1	-.354	.092	.455	-.230	.309	**.823**	.154
Continuance Intention2	-.332	.098	.425	-.413	.340	**.858**	-.412
Continuance Intention3	-.348	.124	.446	-.148	.337	**.987**	.252
Satisfaction1	.164	.066	.529	-.100	.354	-.150	**.900**
Satisfaction2	.145	.108	.526	-.342	.330	-.215	**.882**
Satisfaction3	.175	.006	.499	-.109	.389	-.162	**.874**
Satisfaction4	.195	.090	.480	-.641	.356	-.252	**.862**

To test the common method bias, we first conducted a post hoc Harman's single-factor test through entering all constructs into an unrotated principal component analysis and examining the resultant variance (Harman, 1976). The results showed that seven factors were present and the variance explained by the most significant factor

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was only 11.12%. Second, we also used the new measurement model with all indicators loading on a common method factor by comparing with the original measurement (Liang et al., 2007). The results indicated that the principal variable loadings were all significant at the 0.001 level, while common method factor were insignificant, providing no evidence for common method variance.

5.2 Structural Model & Hypothesis Testing

We evaluated the structural model fit using multiple fitness indices (Table 4), including χ^2/degrees of freedom (df), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), normed fit index (NFI), Tucker-Lewis Index (TLI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). We obtained χ^2/df = 2.283, GFI = 0.893, AGFI = 0.86, NFI = 0.914, TLI = 0.94, CFI = 0.949, TMSEA = 0.064, which all fell into acceptable ranges. Taken together, our model was considered as a reasonable representation of individual's reactions to a music streaming service (Segars & Grover, 1993).

Table 4. Overall Fits of the Measurement Model and Structural Model		
Fit Index	**Measurement Model**	**Recommended Criteria**
CMIN/df	2.283	< 3.0
GFI	0.893	> 0.90
AGFI	0.86	> 0.90
NFI	0.914	> 0.80
TLI	0.94	> 0.90
CFI	0.949	> 0.90
RMSEA	0.064	< 0.08

Results of our structural model analysis are shown in Figure 2. A significant amount (50.7%) of variation in continuance intention is explained by the dedication and constraint mechanisms. Our research model accounted for 48.6% and 31.8% of the variances in satisfaction and switching cost, respectively. None of the three control variables (age, gender, and mobile service provider) had a significant impact on the dependent variable.

Continuance intention in music streaming service was significantly associated with both satisfaction ($\beta = 0.645$, t = 12.132, p < 0.001) and switching cost ($\beta = 0.318$, t = 5.099, p < 0.001), supporting both H1 and H4. In dedication-based mechanism, the positive effects of perceived usefulness ($\beta = 0.443$, t = 5.455, p < 0.001) and perceived enjoyment ($\beta = 0.333$, t = 4.845, p < 0.001) on satisfaction are significant (H2 and H3 supported). In constraint-based mechanism, both personalization ($\beta = 0.216$, t = 3.376, p < 0.001) and learning ($\beta = 0.508$, t = 7.612, p < 0.001) have significantly positive effects on switching cost (H5 and H6 supported).

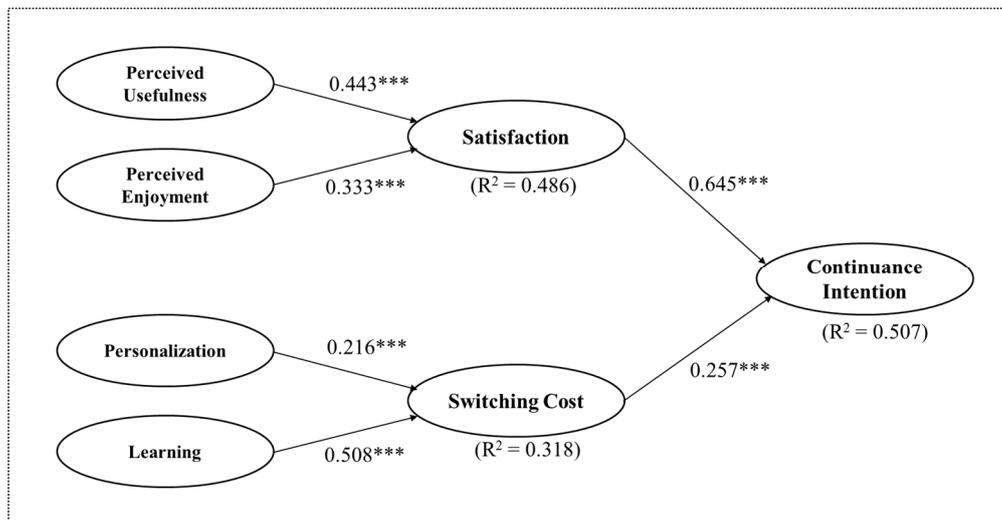**Figure 2. Results of Data Analysis (Completely Standardized Solutions)**

CHATPER 6 DISCUSSION

The success of online services has attracted significant attention in both business and research community in recent years, and the purpose of our research has been to examine the factors and mechanisms that influence users' continuance intention in music streaming services. Our findings based on actual users of music streaming services provide good evidence that both dedication- and constraint-based mechanisms are good predictors of users' continuance intention of the service. Specifically, two types of perceived benefits or values (i.e., perceived usefulness and perceived enjoyment) as well as two sources of service-specific investments (i.e. personalization and learning) influence continuance intention through satisfaction and switching costs, respectively. Our analysis has a number of implications for both research and practice.

Table 5. Hypothesis Testing Results				
	Path	**Path Coefficient**	**t-value**	**Result**
H1	Satisfaction → Continuance Intention	0.645***	12.132	Supported
H2	Perceived usefulness → Satisfaction	0.443***	5.455	Supported
H3	Perceived enjoyment → Satisfaction	0.333***	4.845	Supported
H4	Switching cost → Continuance Intention	0.257***	5.099	Supported
H5	Personalization → Switching cost	0.216***	3.376	Supported
H6	Learning → Switching cost	0.508***	7.612	Supported

6.1 Theoretical Implications

The prior IS literature suggested that post-adoption behaviors are driven not only by perceived benefits but also by service-specific investments. The main objective of this study was to confirm the effect of dedication- and constraint-based mechanisms in music streaming services post-adoption phenomena. Previous studies in music industry have identified the factors affecting adoption or usage of new services such as online downloading or piracy independently, focusing on the consumer decision making style (i.e. high-quality conscious, brand conscious, novelty and fashion conscious, recreational conscious, price sensitive, impulsive, or habitual (Sproles & Kendall, 1986; Wesley et al., 2006; Im & Jung, 2016). Our major contribution of this research is the expansion of a theoretical model examining customer's continuance usage intention in the distinctive context of music streaming services. To the best of our knowledge, this study is among the first to theorize about music streaming services continuance, phenomenon in the IS domain.

The analysis results confirmed that both dedication- and constraint-based mechanisms significantly affect continuance intention in music streaming services. While prior literatures have already identified antecedents of commitment to other online services (i.e. utilitarian value for dedication-based commitment to and personalization and learning for constraint-based commitment), we have expanded the explanatory model by contextualizing in the music streaming. We introduced perceived

enjoyment as the new context-relevant antecedent to satisfaction since recreational and hedonic value might be as important as utilitarian value in music streaming. More specifically, consumers from online portal services or commercial websites will repeatedly visit a website and repurchase if they can search right information or products, which means utilitarian value is critical for satisfaction and brand loyalty. In music streaming services, however, consumers might find the service satisfactory not only from the utilitarian value but also from the hedonic value. That is, perceived usefulness by enabling users to find the right or similar style of music that they are looking for will affect the users' satisfaction, but we found that perceived enjoyment by giving them entertaining experience (e.g. watching their favorite artists' performance or interacting with other users via comments and reviews) is also very important driver of the dedication-based mechanism in the music streaming context.

6.2 Managerial Implications

Our results of this study offer several tactical implications for practitioners as well. The emergence of information and communication technologies has brought radical transformations in music consumption on the Internet: more specifically, the mode of music consumption has changed from record collecting to digital archiving and subscribing to a music service and the trend of subscription model in streaming is now inevitable. People perceive the source of value of the music commodity from tangible (i.e. ownership) to intangible (i.e. accessibility) formats. This in turn initiated

important revolution in both practical implications and policies for managing music services. The key insight for practice suggested by our findings is that both satisfying consumers and locking them in to the service is critical to improve user's continuance intention toward music streaming services. This study shows that perceived benefits and service-specific investments significantly affect the commitments, suggesting important role for service providers to consider various types of utilitarian and hedonic benefits as well as lots of barriers to block them from switching to different providers.

As highlighted above, our analysis advises practitioners to focus on dedication-based mechanisms to enhance user continuance intentions. Lower costs of hardware and advances in digital technology has certainly led to growth in online streaming services, and this access to vast amount of music has paradoxically made it more difficult for consumers to find the music they want and enjoy. To improve perceived usefulness, the service providers might want to focus on filtering out music that is relevant to each user by developing sophisticated recommendation systems. Service developers should also consider hedonic factors as influential antecedent of satisfaction to enhance positive psychological reactions to the service. For example, building a community for an artist's fans to gather and share their message to their favorite artists would give immersive and entertaining experiences as well as a strong sense of social presence.

Meanwhile, practitioners should not ignore the constraint-based mechanism to increase continuance intention. Learning and personalization significantly influenced

the formation of switching costs in the context of music streaming services. This implies that the more time and effort users invest in learning the streaming service, the more likely they will prefer that service to an alternative. Moreover, by actively investing in content- and collaborative filtering-based recommendation systems, practitioner should enhance personalized music recommendation to effectively increasing switching costs, and therefore improving continuance intention. Offering differentiated incentives for frequent and longtime users might be a smart way to boost customer patronage as well.

6.3 Limitations and Future Research

Although our proposed antecedent model was largely supported in the empirical analysis, while interpreting the findings, we identified several limitations of our study. First, caution must be observed in generalizing these findings because we studied specifically in Korean music streaming services. Unlike many other dominant global music streaming services (i.e. Spotify, Pandora, or Deezer) which are run as "freemium" model (there are two types of consumers: users who use the service free of charge with limited features and paid users who subscribe for monthly charge with unlimited access to all features), Korean music streaming services are all premium subscription model so collection responses from one country can limit the generalizability of results. Second, the results are based on cross-sectional data, so only interrelationships are tested. As this study provides only a short-term snapshot of user

behavior, longitudinal investigations are encouraged in future research. For longitudinal study, we recommend to test the model with actual usage behavior or actual repurchase data instead of continuance intention.

Furthermore, it would be interesting for further research to investigate other antecedent or intervening variables in the social network mechanism. In the digital age, consumers do not merely listen to music on their own, but rather increasing number of users enjoy writing reviews about an album, liking other users' comments, and interacting with other users who share similar taste. Social factor and relational capital can be incorporated into the model to test whether it affects perceived benefits or service-specific investments. Our contextual framework is flexible enough to accommodate such additional variabele and still offer valuable insights into relationships with other variables. We also urge future researchers to examine both intermechanisms and intramechanism relationships to give clearer understandings of the customer relationship management.

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초 록

디지털 시대가 도래함에 따라 정보통신기술의 가파른 발전과 더불어 음악 소비패턴이 CD나 테이프등의 물리적 형태에서 디지털 다운로드, 그리고 가장 최근에는 스트리밍 형태로 변화하였다. 음악 스트리밍 서비스의 성공에 있어 소비자의 지속적 사용은 매우 중요한 요인임에도 해당 주제에 대한 정보시스템 연구는 매우 부족한 실정이다. 본 연구는 최근 경영정보 분야에서 활발히 활용되고 있는 자의와 구속기반의 이원적 모형을 접목하여 음악 스트리밍 서비스의 지속사용 의도에 미치는 요인들을 파악하고자 한다. 제안한 연구모형은 음악 스트리밍 서비스 사용경험이 있는 315명을 통해 검증하였다. 자의 기반 관점에서는 인지된 이점 (유용성과 즐거움)이, 구속 기반 관점에서는 개인화와 학습 효과가 선행 요인으로 고려되었다. 연구 결과, 두 가지의 매커니즘 모두 지속사용 의도에 유의미한 영향을 미침을 확인 할 수 있었다. 인지된 유용성과 즐거움은 사용자 만족 형성에 중요한 역할을 담당하였고, 개인화와 학습효과는 전환 비용을 높이는 데 기여하였다. 끝으로 제시된 이론적인 시사점과 실무적 시사점은 향후 음악 스트리밍 서비스 연구자와 실무자들에게 효과적인 경영정보 및 마케팅 전략을 세우는 데 도움을 줄 것으로 기대된다.

주제어: 온라인 사용자 행동, 정보기술 수용 후 행동, 음악 스트리밍 서비스, 만족, 전환비용, 지속사용 의도, 이원적 모형, 구조방정식 모델

Appendix A: Measurement Scales

List of Model Constructs and Items

Continuance Intention is adapted from Bhattacherjee (2001)
CI1: I intend to continue my use of current MSS in the future.
CI2: I intend to increase my use of current MSS in the future.
CI3: I will keep using the current MSS as regularly as I do now.

Satisfaction is adapted from Bhattacherjee (2001).
SAT1: Extremely dissatisfied/satisfied
SAT2: Extremely displeased/pleased
SAT3: Extremely frustrated/contented
SAT4: Extremely terrible/delighted

Switching Costs are adapted from S.S. Kim and Son (2009).
SC1: Switching to a new MSS would involve some hassle.
SC2: Some problems may occur when I switch to another MSS.
SC: If I stop using the current MSS, I will waste a lot of the effort that I have already made in the MSS.

Perceived Usefulness is adapted from Lin and Lu (2011).
PU1: Using MSS enables me to acquire more information or know more music.
PU2: Using MSS improves my efficiency in listening to and searching new music.
PU3: MSS is a useful service for what I initially wanted to accomplish.

Perceived Enjoyment is adapted from David et al. (2011).
PE1: Using MSS is pleasurable.
PE2: I have fun with using MSS.
PE3: I find using MSS to be interesting.

Personalization is adapted from S.S. Kim and Son (2009).
PER1: I "set up" MSS to use it the way I want to.
PER2: I have put effort into adapting MSS to meet my needs.
PER3: I have chosen features offered by the MSS to suit my style of MSS.

Learning is adapted from S.S. Kim and Son (2009).
LRN1: Learning to use the features offered by the MSS took a lot of time and effort.

LRN2: There was a lot involved for me to understand the MSS well.
LRN3: I spent a lot of time and effort to learn how the "system works" at the MSS.

*** MSS: Music Streaming Service

Appendix B: Respondents' Demographics & Experiences with MSS

Real-life Demographics	Count	Percent
Gender		
Male	182	57.8
Female	133	42.2
Age		
20-29	217	67.6
30-39	88	27.9
40 or above	14	4.5
Music Streaming Service		
Melon	182	57.8
Genie	40	12.7
Bugs	37	11.7
Mnet	20	6.3
Others	36	11.4
Tenure as MSS user		
< 1year	99	31.4
1 - 2 years	80	25.4
2 - 3 years	38	12.1
> 3 years	98	31.1
Main device for use		
Mobile	279	88.6
PC	36	11.4

Login Frequency

Less than 3 times /week	44	14.0
1 - 2 times /day	89	28.3
3 - 4 times /day	79	25.1
More than 5 times /day	103	32.7

Duration for each login

< 10 minutes	29	9.2
10 – 30 minutes	57	18.1
30 – 60 minutes	102	32.4
More than 1 hour	127	40.3