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Original Research

How Do We Accept YouTube Channels? An Analysis of Sequential Acceptance of a Shared Platform

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ABSTRACT

With the unprecedented growth of YouTube in the South Korean video market, this study aims to understand its exponential expansion of users by investigating the network effects of YouTube as a shared platform. To this end, we propose a new acceptance model where two discrete intentions (to subscribe to and share YouTube channels) were designated within the same phase and named sequential acceptance. For an analysis of the new model, the study conducted an online survey, due to Covid-19 circumstances, on generation Z YouTube users for a month in April 2021 and found 377 valid data. We used PLS-SEM for the model assessment and revealed meaningful explanatory power of sequential acceptance. To be specific, subscription intention plays an anchor point engendering a significant influence on sharing intention in that perceived values revealed mediating effects through subscription intention, validating the sequential acceptance. The value of this study is that our multi-layered intentions explain the user's acceptance in-depth compared to existing studies and that our model can be a transformative foundation for future platform and acceptance studies by applying them in a different context. The study then recommends a series of actions to improve research and marketing strategy on a shared platform.

KEYWORDS

YouTube, shared platform, acceptance model, sequential acceptance, YouTube channels, PLS-SEM

At the first launch in South Korea in 2008, YouTube held only 2% of the online video market share since predominant players – terrestrial online TV and portal TV – already existed, making higher entry barriers to a new market challenger's entrance. As YouTube channels with more than 100,000 subscribers expanded from 367 in 2015 to 4,379 in 2020, an increase of more than tenfold (Ha, 2020), the number of YouTube users drastically reached approximately 86% in the South Korean video market (Gallup Korea, 2021).

As YouTube has garnered its popularity with increasing channels and subscriptions, it subsequently led to the imposition of new rules for

market domination by building demand-side economies of scale in tandem with the demolition of the pipeline-value chain of the online video industry (Van Alstyne et al., 2016). Unlike the conventional pipelines, YouTube was able to dramatically upsurge its volume and speed of supplies by dismantling the gatekeeping on the supply side, triggering its dominance in the South Korean video market. Hence, the network effect expands by creating a massively overlapping culture that intertwines between channels and platforms (or users) based on the users' virtuous cycle of channel experiences called the positive feedback loop (Webster, 2016).

As the core growth engine of the shared platform is the increment of supply and the network effects (Parker, 2017; Van Alstyne et al., 2016), it seems plausible to fathom the influence on users of the network effects triggered by the channels (the supplier) to understand YouTube's market-dominant (or disruptive) growth in terms of a shared platform. However, there is insufficient evidence that these industrial factors affect the behavior of users accepting YouTube. The studies on the success of YouTube in Korea are mainly focused on a technology acceptance model that provides useful information with ease of use (Ma & Kweon, 2020); that explains the advantages of popular genres and content (Seol, 2021); that analyzes media competitiveness according to usage motivation (Jung & Park, 2021). Despite the fact that the existing findings of industrial factors concerning the snapshot (or linear) impacts on user behaviors were helpful to understanding the acceptance of YouTube as technology and content, such approaches would hardly account for the expanded effects that expound on its substitution of the dominant players in the South Korean video market. In addition, users' diverse behaviors on platforms have not yet been considered before. Thus, a new perspective is required to understand the exponential growth of YouTube by incorporating various users' intentions of using a shared platform in terms of YouTube channels.

To this end, this study proposes a theoretical framework of a shared platform acceptance model of YouTube based on antecedent acceptance studies of the platform, not of IT products (Lee et al., 2009; Lin & Lu, 2011; Thong et al., 2006). First, the analysis of an embodiment of the subscription intention is necessary to investigate the network effects since YouTube facilitates "subscription" to channels as a system apparatus representing continued use. Second, the sharing of YouTube channels is deemed significant because the performance of a shared platform, divergent from the pipeline video sites, corresponds to the distributional aspect of not restricting and controlling content and the sharing aspect of allowing anyone to enjoy videos freely without restrictions (Kyncl, 2018). Sharing of YouTube channels can explain users' intentions of spreading the channels without a system apparatus to the external network via SNS or personal suggestions to acquaintances. Thereby, this study approached the acceptance of YouTube users with a combination of two discrete intentions – the intention to subscribe to and to share YouTube channels – which we coined as a sequential acceptance. Then, this study intended to evaluate whether the network effects present either directly or indirectly on the sequential acceptance contributing to the growth of YouTube.

THEORETICAL BACKGROUND

Network Externalities

The network effect is a phenomenon where the more the user's network of a product or service increases, the more the utility of the corresponding product or service increases (Katz & Shapiro, 1994). It has also been referred to as the network externality since its features delineate the influence of the current user's consumption behavior on other contemporary or prospective users, not the user himself. On these seemingly similar

conceptions of network effect and network externality, Lin and Bhattacherjee (2008) clarified the definition of the network externality as a driving force of the network effect. In other words, a network effect occurs in network goods that have the property of network externality. The spread of IT products will result in network effects if network externality is strong enough to increase the possibility of network effects (Economides, 1996). Therefore, in this study, we define YouTube channels as network goods with network properties and identify the influence of network externalities (network effect) perceived by users on a YouTube channel.

Network externality encompasses network size, complementarity, and compatibility, discerned into two discrete dimensions of externalities (Katz & Shapiro, 1985). First, direct externality (DN) indicates the number of users of the given network (Lin & Lu, 2011). It elucidates that contemporary users anticipate future gains as more users flow into their network. DN in an interactive IT system does not mean the actual size of the network but the users' perceived size of the network with stimulated anticipations of benefits after their use (Lin & Bhattacherjee, 2008). For example, users found it beneficial when they perceived that many others use the same SNS as they do (Kim et al., 2008). The perceived benefit of network participation increased the usefulness and enjoyment value of the IT system (Lin & Bhattacherjee, 2008). Facebook users also insisted it was more enjoyable and beneficial when the size of peer users increased (Lin & Lu, 2011). Thus, DN increases the intention to use the system by making users believe that the technology is more favorable and valuable as the number of potential users increases.

In addition to DN, indirect network externalities (IN) emerge in the system that provides more miscellaneous services and brings more benefits to users. In other words, while DN is influenced by the participant size of the demand side, IN is affected by the opposite side of the system, suppliers (Katz & Shapiro, 1994; Zhao & Lu, 2012). If more participants are involved in the system, the impacts on DN increase, leading to the more participation of suppliers. Then, the higher level of supplier involvement leads to the higher level of users' utility. This linear process illustrates that the users' utility gained by one side affects the consumption on the other side.

IN, with this context, comprises perceived complementarity (CPL) and perceived compatibility (CPA). The former indicates a user's perceptions of "the availability of complementary goods and services" (Lin & Bhattacherjee, 2008). For example, if the number of system users increases, service providers may devise additional functions and applications for their systems to enrich the user experience of their services. These value-added functions and services may endow higher perceived usefulness of the system itself as well as perceived enjoyment from games, music, and voice sharing, for instance (Zhou, 2015). In short, CPL refers to users' awareness of having opportunities to engage in diverse activities in the system using complementary service tools (Lin & Lu, 2011), such as sharing and commenting on images.

However, CPL cannot be obtained without CPA in that the system users may be discouraged from not achieving economies of scale by the lower availability of complementary functions and services (Lin et al., 2011). In other words, CPA refers to the degree to extent to which users can transfer the information within the system to other platforms or technologies (Lin et al., 2011). For instance, Gandal (1994) found that system users were willing to pay a substantial premium for software to achieve compatibility with other systems. As such, users' bond to the system can also be maintained via compatible access to services from networks elsewhere, apart from the service availability (Zhang et al., 2017). These suggest if compatibility plays a key role, the benefits of users may increase with the increase of the user number (Schilling, 2002).

In these manners, YouTube channels are deemed

to compose of CPL and CPA. For instance, as the number of users (i.e., viewing, subscribing) increases on a YouTube channel, the channel, a supplier, provides various complementary services (CPL). With multifarious videos uploaded on the YouTube channel, users are likely to have diverse experiences such as comments and community services specialized for communication and highly evaluate its utility. In addition, users highly appraise reciprocal interactions online where the characteristic of YouTube as a shared platform, open and intuitive to sharing content and channels, stimulates users' awareness of compatibility (CPA); in turn, it increases its value of compatible communication situations.

Perceived Values

The technology acceptance model has long been applied to examine new technology and media adoptions and found that perceived ease of use and usefulness have a strong influence on the intention to use the system within an organization (Davis, 1989; Davis et al., 1992; Venkatesh & Davis, 1996). With the widespread use of IT systems and the rapidity of technology development, however, the model now requires the conjugation of other variables to examine network-based IT usage extended beyond the organizational setting (Kim et al., 2007). Since the adoption of new technology, SNS in particular, is based on personal purposes, the value of the user's choice primarily determines his/her behaviors and choices, as manifested in economics (Von Neumann & Morgenstern, 1953) and marketing research (Zeithaml, 1988).

Perceived values decide IT users' succeeding behaviors after assessing the utility of the cost-benefit approach based on users' acceptance of the system (Davis, 1989). When it comes to utility assessment, perceived values of users ground on the locus of motivation to use in tandem with goal orientation. These values are distinctive in the manner of either extrinsic or intrinsic locus (Zeithaml, 1988; Zhang et al., 2017).

The extrinsic value is the expectation of benefits of using a system induced by external stimuli, which arouses users' motivation to adopt the system. The operational definition of usefulness is the total value perceived from using new technology and viewed as outcome expectancy and a measure of extrinsic motivation from the motivation-oriented perspective (Venkatesh & Davis, 1996). In addition, people utilize perceived usefulness (PU) to assess the consequences of their behavior, akin to the product quality concept (Kim et al., 2019; Zeithaml, 1988), and make their behavioral choice based on the desirability of usefulness.

However, the intrinsic value elucidates the motivation arousal rooted in users' pleasure and curiosity while interacting with the system (Davis et al., 1992; Venkatesh et al., 2012). In doing so, they wish to use the system repeatedly and, at some point, start to enjoy the user-system interaction per se (Moon & Kim, 2001; van der Heijden, 2004). This notion echoes the definitions of emotional value as the utility stemming from affective feelings or states that a system generates (Sweeney & Soutar, 2001), and these intrinsic values were referred to as perceived enjoyment (PE) in the existing studies (Dickinger et al., 2008; Sun & Zhang, 2006).

Perceived values are widely applied to content evaluations in that they can evaluate the intrinsic and extrinsic properties of products in terms of quality (Zeithaml, 1988; Zhou, 2015). The existing research found that both PU and PE were the determinants of the continued intention to use interactive systems amongst users, such as blogs, Facebook, and microblogs (Lin & Lu, 2011; Zhang et al., 2017) and, in particular, to use IT systems as a post-evaluation (Lee, 2010; Thong et al., 2006).

In this respect, PU and PE are deemed to be important factors in explaining users' acceptance of YouTube channels. Hence, perceived benefits in YouTube channels are composed of PU and PE, which are expected to mediate network

externalities or directly affect acceptance intention. In other words, YouTube channels as an interactive IT are expected to motivate channel users based on their valuation of PU and PE.

Sequential Acceptance

The success of the new system and media will require users' acceptance of the system once, but its survival requires users' continuance of how consistently they access it (Alam & Kim, 2018; Kim & Malhotra, 2005). The continued usage intention describes the users' determination to keep using the system after their initial use. As individuals' positive experiences from the initial adoption of IT accumulate, they are likely to continue using it (Bhattacherjee, 2001). As YouTube utilizes a system apparatus like the subscription button to retain the users in the system, the continued intention of IT in previous studies is in parallel with subscription intention of YouTube channels (SUB) in three aspects. First, users' acceptance occurs after experiencing the initial adoption of the system (Thong et al., 2006). Second, the intentions to continue using (or accept) the system are a result of repetitive experiences over time rather than a one-time event (Lee et al., 2009). Third, considering the acceptance behavior of shared platforms, the continued intention can be a basic premise for triggering users' sharing and their 'stickiness' (Chiang & Hsiao, 2015). In this regard, the sum of subjective experiences on YouTube channels, SUB, is expected to be the basic premise of other behaviors on a platform, such as sharing and expanding the channels to acquaintances.

The emergence of network effects is possible only when users stay on the platform for a long time, share their experiences with others, and lead to another consumption (Parker, 2017; Van Alstyne et al., 2016). Accordingly, a shared platform with network externalities represents its growth as the exponential network effects due to the user number increment. When network effects are the basis for data-driven communication in digital platforms, in particular, more subscribers call for more providers and, in turn, strengthen feedback loops that attract more subscribers (Choi et al., 2020). Hence, the acceptance of YouTube based on network effects links general viewing to forming a continuous relationship with YouTube channels by subscribing then to recommending and sharing it with others. The network effect during this process does not account for the mere increase in subscribers but the increase of connections between users (Yun, 2017); thus, shared platforms like YouTube internalize these processes and configure the system to transfer externalities to other networks.

Based on the discussion above, it is necessary to understand how intentions of subscription (SUB) and sharing (SI) work in users' decision-making process to understand the acceptance and spread of YouTube with network externality. The existing studies relevant to the user's intention to use (i.e., TAM) regarded their acceptance as a single behavioral intention. The perspective of acceptance as a snapshot of IT (Thong et al., 2006), like conventional frameworks of a single behavioral intention, cannot fully expound on the multi-layered manifestation of network effects on shared platforms like YouTube. Furthermore, the acceptance of a shared platform is a recent phenomenon. For once, Hur et al. (2017) investigated a model with two discrete intentions connected only to the perceived values; however, the relationship between the dependent variables (two behavioral intentions) was not examined. Thus, research explaining multiple acceptances within a phase has been underexplored. This study is designed to explore a sequential acceptance, the multi-layered intentions of SUB and SI in light of shared platform features. In doing so, this pioneering study can serve as the basis for a theoretical framework explaining modern platform acceptance within the same phase, the multi-layered relationship of intentions.

Proposed Theoretical Model

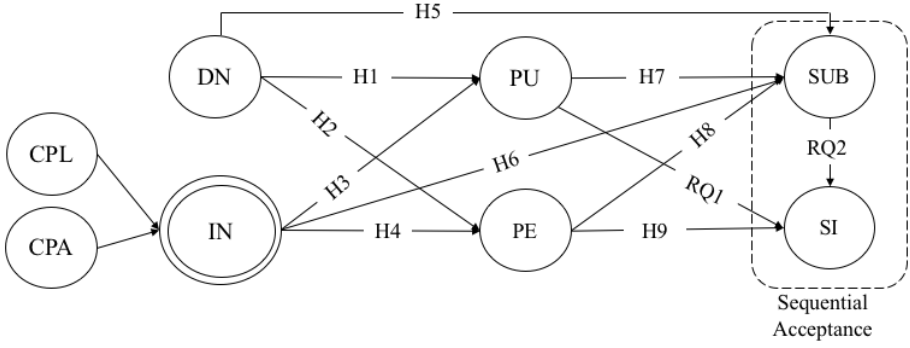
This study aims to propose a framework to analyze the influences of the network externalities (i.e., DN, IN) and the perceived values (i.e., PE, PU) of YouTube channels on SUB and SI as a sequential acceptance. As these channels are network products vested in network externalities, in the sense that the unit value increases for every additional number of users (Lin & Bhattacherjee, 2008), we regarded YouTube channels as a network product to investigate our theoretical framework (see Figure 1). However, while the externalities have been instrumental to SUB, the perceived values play crucial roles to SI. As stated in symbolic interactionism (McPhail & Rexroat, 1979), the subjective interpretation of experiences is more important in deciding how to behave when interacting with others, the intention to share YouTube channels in our case.

The Impacts of Network Externalities

Network externality indicators (i.e., views, likes, subscribers) presented on YouTube capture and structure users' reactions to videos, going beyond simply viewing videos (Chatzopoulou et al., 2010). The value evaluation of channels and content benefits may fall under the influence of these indicators to the degree of perception of users on the network size.

As properties of network products, the network externalities serve as antecedents for factors such as PU and PE, which determine the perceived values of individuals who want to use IT systems. According to previous studies (Gandal, 1994; Katz & Shapiro, 1994; Zhou & Lu, 2011; Zhou, 2015), DN and IN demonstrated positive influences on the PU and PE of individuals who seek to use interactive IT systems (i.e., short message services, mobile messengers) and platforms (i.e., Internet platforms, SNS). These effects then extended to the intention to continue using the services (Lin & Lu, 2011; Zhang et al., 2017). As subscribers accumulate on YouTube channels to form a massive network effect, it magnifies the perceived values of generating and operating YouTube channels, not to mention those of channels themselves and content offered, enhancing the chance of users' acceptance of the network. Hence, with the new context of YouTube channels applied as a shared platform where users revel in various opportunities, the

Figure 1. *The Proposed Theoretical Framework*



Note. Single circles represent first-order constructs and double circles represent second-order constructs. DN = direct externality; IN = indirect externalities; PE = perceived enjoyment; PU = perceived utility; SUB = subscription intention; SI = sharing intention.

hypotheses are presented as follows:

H1: Direct network externality positively influences perceived usefulness.
H2: Direct network externality positively influences perceived enjoyment.
H3: Indirect network externalities (perceived complementarity & perceived compatibility) positively influence perceived usefulness.
H4: Indirect network externalities (perceived complementarity & perceived compatibility) positively influence perceived enjoyment.

Some existing literature revealed the positive influences of network externalities on intentions (Lin & Bhattacherjee, 2008; Zuo & Wang, 2012), arguing that network externality can mediate users' valuation and, at the same time, directly affect their intention to use the IT system. Systems with high interaction properties, such as SNS, DN can directly affect the continued intention (Kim et al., 2018; Wei & Lu, 2014; Zhou, 2015). Others employed IN to unravel the impacts of the new system environment, such as SNS (Hur et al., 2017; Song & Kim, 2017). With the novel context of a shared platform, it can be presumed that both network externalities of YouTube channels may manifest effects on the behavior of users who want to subscribe to YouTube channels, the subscription intention (SUB). Accordingly, the hypotheses are presented as follows:

H5: Direct network externality positively influences subscription intention.
H6: Indirect network externalities (perceived complementarity & perceived compatibility) positively influence subscription intention.

The Impacts of Perceived Values

Perceived value has been an important factor influencing users' intention to continue using interactive media. According to previous studies, PU almost always has a positive effect on the continued intention of SNS (Cho, 2011; Zhang et al., 2017; Zhou & Lu, 2011; Zhou, 2015). Thereby, our conceptual framework incorporates PU to investigate its effects on SUB and the hypothesis is as follows:

H7: Perceived usefulness positively influences subscription intention.

However, the influence of PU on sharing intentions (SI) was not always constant. Some studies discovered its positively meaningful effects on the sharing intention of content (Hashim & Tan, 2018; Kang & Namkung, 2016), while others found no significance (Yang et al., 2010; Yang & Wang, 2015). To be specific, users did not share the videos with acquaintances despite that they thought YouTube videos were informative, educational, and applicable (Yang et al., 2010; Yang & Wang, 2015). And yet, a study targeted woman found partially significant results of PU affecting SI (Yang & Wang, 2015). Others discovered its positively meaningful effects on the sharing intention of content (Hashim & Tan, 2018; Kang & Namkung, 2016). As the outcomes turned out differently at the content level, there necessitates another examination of the channel level to reveal which content result would be consistent with. Hence, we came up with a research question related to sharing intention of YouTube channels (SI) on a shared platform as follows:

RQ1: How does perceived usefulness influence sharing intention?

In addition, PE turned out to be a determinant of the acceptance in interactive hedonic systems, such as microblogs (Zhao & Lu, 2012). In line with this, PE consistently determines the continued intention to play social games, especially when users play with other online agents but not with computer agents; and an individual's pleasure increases if network externalities are enormous

(Wei & Lu, 2014). Besides, PE revealed positive influences on the SI of YouTube videos, indicating that YouTube users deliver videos not for practical purposes but for sharing their perceived pleasure (Yang & Wang, 2015). It should be noted that the studies above separately investigated the influence of PE on the intention to continue use and on the intention to share. Hence, following the nature of the shared platform in which users want to stay in the channel and share their consumption with others, it is necessary to verify the influence of PE on SUB and SI in this study. In addition, it is worth verifying whether a valid relationship tested in the past will still be significant in a new context of YouTube channels. Thus, the following hypotheses are assumed:

H8: Perceived enjoyment positively influences subscription intention.
H9: Perceived enjoyment positively influences sharing intention.

Sequential Acceptance: The Relationship between SUB and SI

This study proposes a new framework that can explain the acceptance behavior on shared platforms by generating a sequential acceptance between the intention of channel subscriptions and that of sharing YouTube channels. The intention to continuously use the YouTube channel is defined as SUB because YouTube has systemized it with a subscription button. It is noteworthy that this study employed the idea of the sharing intention of YouTube channels instead of the content itself. When users intend to share the URL of videos or any content, they pass on comprehensive information of related channels, perhaps, without explicit recognition, which implies the same connotation with the previous studies indicating the sharing of YouTube videos (Chiu et al., 2013). Hence, we designated the users' behavior subscribing to YouTube channels as SUB and the sharing intention of YouTube channels as SI.

What is noted in this study is the relationship between SUB and SI. The network externality expressed on YouTube is not an attribute of the product or service itself but the result of the third party's behavior affecting one's behavior. According to symbolic interaction theory, the subjective interpretation of an individual's experience plays a vital role in the experience of interacting with others (McPhail & Rexroat, 1979). However, it should be underscored that users would not take account of the third party's behavior per se. Instead, their perceived network externalities from YouTube channels with consideration of other people's experiences would influence SUB, which is the sum of user experience with subjective interpretation. Hence, it is logical that SI will be affected not by network externalities but by SUB since sharing is an internalized acceptance of the platform system. It should also be noted that SUB and SI are individually influenced by perceived values of the channel users. According to the previous studies revealing that continued use can affect other acceptance behaviors (Esteves et al., 2021), a sequential relationship structure of SUB influencing SI can be assumed as the following research question:

RQ2: As a sequential acceptance, how does subscription intention influence sharing intention?

METHOD

Data Collection

As the most users of YouTube both in the US (81%, Auxier & Anderson, 2021) and in South Korea (91.6%, Korea Communications Commission, 2021), Generation Z is deemed to represent the prevalent behaviors on YouTube channels. Despite various motivations, the use behaviors amongst different generations were found not to differ in terms of voluntary

content consumptions on YouTube channels (Lee & Chon, 2020). Thereby, we targeted the contemporary Korean undergraduates across the representative regions (i.e., Seoul, Incheon, Kwangju, and Busan) for the proposed model assessment. The survey, including the purpose of the study, the data collection procedure, and the participation consent, was conducted online due to the COVID-19 circumstance. Then, the survey link was posted on the learning management system (LMS) for voluntary participation and random sampling for a month in April 2021. The survey was divided into two sections, one for the theoretical model testing and the other for the demographic information, taking 10 minutes to complete. Among 397 surveys returned, 377 responses were valid data for the analysis after discarding incomplete responses and respondents of those who had not used YouTube channel subscriptions.

As summarized in Table 1, of 377 respondents, 135 (35.8%) were male, and the relatively higher number of 235 (64.2%) were female. Although the average time of using YouTube per day was 121 min (*SD* = 110.76), the frequent duration (mode) was 60 min (23.3%), indicating that most respondents used YouTube for about or less than an hour (159, 42.2%). The most commonly used genre of the channels was Entertainment (44.3%), followed by People & Vlog (18.8%) and Education & Information (12.2%).

Research Design

This study was designed to shed light on YouTube as a new platform by unraveling new relationships among pre-existing constructs by developing a new theoretical framework. First, we incorporated existing measurement scales corroborated in prior research in order to investigate the direct network externalities (DN, modified from Chiu et al, 2013; Lin & Lu, 2011), complementarity (CPL, modified from Lin & Lu, 2011; Zhao, 2015), compatibility (CPA, modified from Chiu et al., 2013; Zhang et al., 2017), perceived enjoyment (PE, modified

Table 1. *Demographic Characteristics* (*N* = 377)

	Type	Frequency	%
Gender	Male	135	35.8
	Female	242	64.2
Age	18-21	140	37.1
	22-24	130	34.5
	25-27	107	28.4
YouTube Time	10-59 min	71	18.8
	60-119 min	115	30.5
	120-179 min	86	22.8
	< 180 min	105	27.9
YouTube Genre	Education & Information	46	12.2
	Entertainment	167	44.3
	Beauty & Know-how	49	13.0
	Vlog	71	18.8
	News & Politics	8	2.1
	Others	36	9.5

from van der Heijden, 2004; Venkatesh et al., 2012), perceived utility (PU, modified from Moon & Kim, 2001; Venkatesh et al., 2012), the subscription intention (SUB, modified from Bhattacherjee, 2001; Lee, 2010; Thong et al., 2006) and the sharing intention[1] (SI, modified from (Hur et al., 2017; Jun, 2017; Lee, 2018). In addition, based on the theoretical and empirical literature, the multi-item scales of the indirect network externalities (IN) were conceptualized as two-dimensional constructs of compatibility and complementarity. These 29 survey questionnaires corresponding to each construct were measured using a 7-point Likert scale, ranging from "1 = *Strongly Disagree*" to "7 = *Strongly Agree*" (see Table 2).

Then, the authors investigated the collected valid data using a partial least squares structural equation modeling (PLS-SEM): a composite-based SEM as well as a predicted-oriented approach. PLS-SEM is a common multivariate analysis computing variance-based structural model, not concerning the normal distribution of data (Hair et al., 2012). Moreover, it is a causal predictive analysis appropriate for the examination of reflective and formative variables in exploratory studies and the explanation of the established theory in confirmatory studies (Sarstedt, Ringle, Henseler, et al., 2014). In contrast, the most widely used confirmatory SEM called covariance-based SEM (CB-SEM) can only be used to explain the established theory based on the normally distributed data. Hence, PLS-SEM makes an alternative to CB-SEM (Hair et al., 2016) and is typically suitable for a complex model with many indicators, paths, and relationships (Chin, 2010; Hair et al., 2016; Henseler et al., 2014). It is also helpful in resolving multifaceted procedures of causal relationships that may have been hard to reveal. PLS-SEM handles the distribution from data, using bootstrapping technique to verify the significance of the value of the path coefficient (Sarstedt, Ringle, Smith, et al., 2014). And PLS-SEM does not stress model fit as in CB-SEM, but considers explained variance as a significant and satisfactory measure of fit (Henseler & Sarstedt, 2013).

RESULTS

Following the two-step procedure of PLS-SEM (Anderson & Gerbing, 1988), we conducted a measurement assessment and a structural assessment using SmartPLS v.3.3.0. First, we conducted a measurement assessment to investigate the construct validity (the reliability and convergent validity) and the discriminant validity before a new theoretical framework estimation. Then, the proposed theoretical framework was examined by the bootstrapping technique with 3,000 subsamples (Vinzi et al., 2010) and by the value of R^2, the path coefficient (β), and t-statistics of every construct as they are essential measures for the structural model (Hair et al., 2016).

Measurement Assessment

For the construct validity assessment, the standardized outer loadings of indicators are ranged from .67 to .97 within statistical confidence levels ($p < .001$). Although the commonly used threshold is .70, the outer loadings of items over .50 are acceptable if other indicators measure the same construct (Chin, 1998). With the satisfactory indicators in the

[1] Symbolic interaction (McPhail & Rexroat, 1979) is the basis of the causal relationship between SUB and SI in that subjective interpretation of experiences is more important in deciding how to behave when interacting (sharing) with others. However, it should also be noted that it is possible to raise the potential issue of measurement (SI2) that the item for SI may have induced a mistake in the user's experience of sharing after the channel subscription. SI2 should carefully be added for future research designs.

Table 2. *Construct Reliability and Convergent Validity*

Construct	Item	Measurement item	Outer loading	VIF	CA	ρA	CR	AVE
DN	DN1	I think the YouTube channels I use are used by a large number of people.	.85	2.31	.87	.88	.91	.72
	DN2	I think the YouTube channels I use seem to have a lot of subscribers.	.88	2.65				
	DN3	I think the YouTube channels I use have an extremely large user base.	.80	1.85				
	DN4	I think many people use YouTube channels.	.86	2.08				
IN	CPL1	A wide range of video selection is available on the YouTube channel I subscribe to.	.65	1.25	.69	.71	.81	.52
	CPL2	A wide range of video types is available on the YouTube channels I use.	.80	1.44				
	CPL3	The YouTube channels I use upload videos regularly and quickly.	.67	1.24				
	CPL4	A wide range of supporting tools aside from videos is available on the YouTube channels I use (i.e., photo, comments, etc.).	.76	1.36				
	CPA1	The YouTube channels I use are well compatible with the websites (i.e., portals, communities, etc.) that I usually visit.	.77	1.61	.82	.83	.88	.65
	CPA2	YouTube channels are well compatible with other SNS (i.e., Facebook, Instagram, etc.)	.84	2.00				
	CPA3	YouTube channels are well compatible with other instant messaging applications (i.e., texts, KakaoTalk, Line, etc.).	.78	1.62				
	CPA4	YouTube channels are generally well compatible with other systems (i.e., mobile device, iPad, etc.).	.84	1.97				
PE	PE1	Using YouTube channels is enjoyable.	.96	6.37	.95	.95	.97	.91
	PE2	Using YouTube channels is fun.	.97	6.97				
	PE3	Using YouTube channels is very entertaining.	.94	4.00				
PU	PU1	Using YouTube channels creates intangible benefits to me.	.68	1.29	.85	.85	.89	.62
	PU2	Using YouTube channels enables me to learn or complete tasks more efficiently.	.86	3.47				
	PU3	Using the YouTube channels helps you to get good outcomes for your learning tasks.	.84	3.46				
	PU4	Using YouTube channels enables me to acquire profitable information and content.	.74	1.57				
	PU5	Using YouTube channels supports the critical part of my tasks.	.82	2.28				
SUB	SUB1	I will subscribe to YouTube channels to use them on a regular basis in the future.	.87	2.81	.86	.87	.90	.64
	SUB2	I intend to continue my subscriptions to YouTube channels rather than discontinue its use.	.84	2.61				
	SUB3	If I could, I would like to continue my YouTube channel subscriptions.	.70	1.56				
	SUB4	I will always try to use YouTube channels in my daily life.	.82	1.86				
	SUB5	My intention is to continue my YouTube channel subscriptions rather than use any alternative means.	.75	1.68				
SI	SI1	I plan to share the YouTube channels I use with other people.	.86	2.32	.85	.87	.90	.69
	SI2	I intend to share the YouTube channels I subscribed to with other people.	.88	3.04				
	SI3	If asked for advice, I intend to share the YouTube channels I use.	.86	2.68				
	SI4	I intend to share the YouTube channels I use online (i.e., within a channel by commenting, on other SNS) in the future.	.69	1.63				

Note. DN = direct externality; IN = indirect externalities; PE = perceived enjoyment; PU = perceived utility; SUB = subscription intention; SI = sharing intention.

suggested model Cronbach's alpha (CA), ρA (rho_A), composite reliability (CR), and the average variance extracted (AVE) are tallied to ascertain the internal consistency (see Table 2). All measures, including rounded up CA of CPL (.69), exceeded the threshold of .70 for CR, CA, and ρA (Martínez-López et al., 2013; Nunnally, 1978), indicating good construct reliabilities. Likewise, all constructs satisfied the threshold of the AVE, a minimum of .50 (Gefen, 2003; Hair et al., 2017), supporting the convergent validity for further examination.

Then, we evaluated discriminant validity by the Fornell-Locker criterion and Heterotrait-Monotrait Ratio (HTMT). The former criterion asks for the greater values of square roots of AVE when compared with the inter-construct correlation of every other construct (Fornell & Larcker, 1981; Gefen & Straub, 2005). As shown in Table 3, diagonal values of the square roots of AVE are larger than the off-diagonal values of correlation coefficients between constructs, confirming the discriminant validity of the measurement model. The latter criterion, HTMT requiring values below .90 between reflective constructs (Henseler et al., 2015), was used to ascertain the discriminant validity. As shown in Table 4, the additional assessment also verifies the measurement model validation.

Structural Model Assessment

Since the proposed structural model fits in a satisfactory quality, it was examined by the bootstrapping technique with 3,000 subsamples (Vinzi et al., 2010). And the variance inflation factor (VIF) was examined to ascertain the multicollinearity issues and were ranged from 1.24 to 6.10, fulfilling the threshold of 10 (Hair et al., 1995). The proposed model was assessed

Table 3. *Discriminant Validity (Fornell-Larcker Criterion)*

Construct	DN	CPL	CPA	PE	PU	SUB	SI
DN	**.85**						
CPL	.64	**.72**					
CPA	.42	.56	**.81**				
PE	.37	.40	.29	**.96**			
PU	.17	.29	.31	.28	**.79**		
SUB	.42	.44	.39	.58	.34	**.80**	
SI	.30	.36	.33	.43	.30	.57	**.83**

Note. Diagonal values (bold) are the square roots of AVE of each construct. Off-diagonal values are the inter-construct correlations between constructs. DN = direct externality; IN = indirect externalities; PE = perceived enjoyment; PU = perceived utility; SUB = subscription intention; SI = sharing intention.

Table 4. *Discriminant Validity (Heterotrait-Monotrait Ratio, HTMT)*

Construct	DN	CPL	CPA	PE	PU	SUB	SI
DN							
CPL	.83						
CPA	.50	.72					
PE	.40	.50	.33				
PU	.19	.36	.36	.30			
SUB	.47	.57	.46	.63	.39		
SI	.33	.45	.40	.47	.34	.65	

Note. DN = direct externality; IN = indirect externalities; PE = perceived enjoyment; PU = perceived utility; SUB = subscription intention; SI = sharing intention.

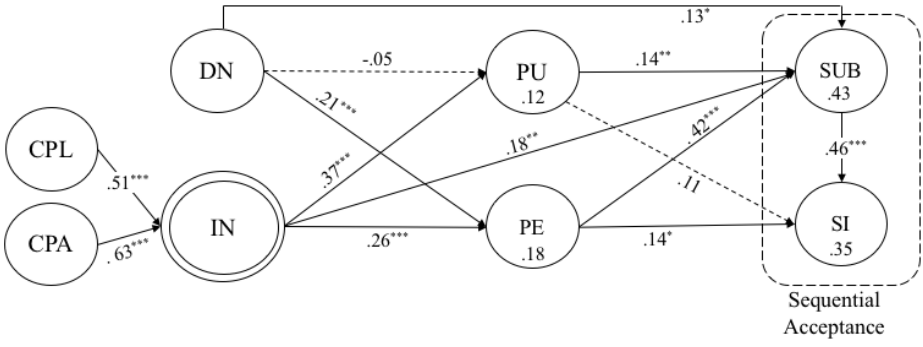
by the value of R^2, the path coefficient (β), and t-statistics on independent and dependent variables (see Figure 2) as they are essential measures for the structural model (Hair et al., 2017). In light of R^2, the model explains 12% of PU, 18% of PE, 43% of SUB, and 35% of SI. We then examined the path coefficient, supporting all but two hypotheses within the statistical confidence levels (see Table 5).

With regard to the second phase, the path between IN and PU (H3: β = .37, t = 5.54, p < .001) exhibited a significance when DN did not (H1: β = -.05, t = .74, p > .05), meaning that the indirect network externalities such as complementarity and compatibility had a positive influence on users' the perceived utility of YouTube channels whereas the size of the direct network externality had not. When it comes to PE, on the other hand, both paths from DN (H2: β = .21, t = 3.63, p < .001) and IN (H4: β = .26, t = 4.79, p < .001) demonstrated positive effects, which portrays the direct and the indirect externalities enhanced the perceived enjoyment of users on YouTube channels.

In addition, all paths to SUB and SI in the last phase were found to be statistically significant. Concerning the paths to SUB, DN (H5: β = .13, t = 2.34, p < .05), IN (H6: β = .18, t = 2.10, p < .01), PU (H7: β = .14, t = 2.94, p < .01), and PE (H8: β = .42, t = 7.27, p < .001) showed the positive influences. They indicate that both direct and indirect externalities, the perceived utility, and the perceived enjoyment stimulated users' subscribing intention on YouTube channels. However, the significant paths to SI turned out to be only one from PE (H9: β = .14, t = 2.41, p < .05), not from PU (RQ1: β = .11, t = 1.91, p > .05). This represents that the users' intention to share YouTube channels was solely affected by the users' perceived enjoyment but not by the perceived utility.

The last structural model examination is found within the last phase. Suggested as a sequential acceptance from the research question, the path between SUB and SI demonstrated the strongest impact positively (RQ2: β = .46, t = 8.15, p < .001). This represents that users' intention to subscribe to YouTube channels does have a positive influence on the intention to share the channels, unraveling a sequential relationship between two discrete intentions.

Figure 2. *The Path Analysis of the Structural Model*



Note. Numbers in the circle are R^2 of the latent variables. Single circles represent first-order constructs and double circles represent second-order constructs. DN = direct externality; IN = indirect externalities; PE = perceived enjoyment; PU = perceived utility; SUB = subscription intention; SI = sharing intention. *p < .05. **p < .01. ***p < .001.

Table 5. *The Path Analysis of the Structural Model*

Hypotheses		Path Coefficient (β)	Sample Mean (M)	Standard Deviation (STDEV)	t Statistics ($\|\beta$ /STDEV$\|$)	p values	Remarks
H1	DN → PU	-.05	-.05	.06	0.74	> .05	Rejected
H2	DN → PE	.21	.22	.06	3.63	< .001	Supported
H3	IN → PU	.37	.37	.07	5.54	< .001	Supported
H4	IN → PE	.26	.26	.06	4.79	< .001	Supported
H5	DN → SUB	.13	.13	.06	2.34	< .05	Supported
H6	IN → SUB	.18	.19	.06	2.91	< .01	Supported
H7	PU → SUB	.14	.14	.05	2.94	< .01	Supported
RQ1	PU → SI	.11	.11	.06	1.91	> .05	Rejected
H8	PE → SUB	.42	.42	.06	7.27	< .001	Supported
H9	PE → SI	.14	.14	.06	2.41	< .05	Supported
RQ2	SUB → SI	.46	.46	.06	8.15	< .001	Supported

Note. DN = direct externality; IN = indirect externalities; PE = perceived enjoyment; PU = perceived utility; SUB = subscription intention; SI = sharing intention.

DISCUSSION

This paper proposed a theoretical framework to understand the acceptance of YouTube as a shared platform. For better comprehension of users' multi-acceptance of the YouTube channels, we incorporated a sequential relationship of discrete intentions (of subscribing to and sharing YouTube channels, SUB and SI, respectively) to ascertain the influences of network externalities and perceived values.

Establishment of Sequential Acceptance

As users display diverse behaviors and responses on platforms, this study assumed the multiple intentions of subscription and sharing in the behavioral intention phase to explain the platform proliferation instead of the user's one-time acceptance. Our theoretical model on this premise affirmed the complex behaviors of users in terms of the sequential acceptance (from SUB to SI) with the most explanation on SUB (R^2 = .43) and SI (R^2 = .35). And the sequential acceptance (β = .46) is found to be the most significant path and illustrates that SUB stipulates the effect of SI, bifurcated variables, for the diffusion of YouTube channels. It echoes the platform stickiness study (Chiang & Hsiao, 2015), arguing that a series of user behaviors occur only when they decide to continue using the platform. And this continued use behavior is considered the result of the post-evaluation of the quality of products and services (Thong et al., 2006). Hence, the subscriptions to YouTube channels can be interpreted as the sum of the user's platform experiences in tandem with their empirical value evaluation. It should also be noted that subscriptions as the sum of the judgments theoretically influence the act of sharing, a result of subjective judgment based on symbolic interaction theory (McPhail & Rexroat, 1979). Taken together, SUB may be an anchor point of all platform behaviors as it explicitly explains SI. In addition, our finding that perceived values (PU, PE) influenced SI mediating through SUB also supports the sequential acceptance. The total effects of PU on SI (β_{tot} = .17, p < .001) and of PE on SI (β_{tot} = .33, p < .001) have a higher value than the direct path coefficients (β = .14; .14, respectively), showing the mediating effects of SUB. It illustrates users' evaluation of their accumulated experiences on YouTube channels directly affect sharing intention and bolster

its influence via subscription, affirming the sequential acceptance.

The Impact of Network Externality

Network externalities (DN, IN) have determined the significance of SUB representing our theoretical framework. It can be understood by the index indicator of the subscription numbers that may have induced YouTube users to subscribe to popular YouTube channels they visited. Our finding shows that both direct (β = .13) and indirect (β = .18) network externalities exerted direct effects on SUB in tandem with mediating effects through at least one of the perceived values (PU, PE). It reflects the recent SNS studies that have considered them as factors both engendering direct and mediating effects (Lin & Lu, 2011; Zhou, 2015). There revealed that the relational externality (the number of peers or referents) had a direct influence on behavioral intention even though the direct externality of network size (the number of users) had no impact (Lin & Lu, 2011). And yet, our theoretical model further unravels the significant influence of the network externality of network size (the number of subscribers to Youtube channels) on the behavioral intention of YouTube channel subscription, having a total effect of .20 (p < .001). It may imply a stronger intervention in the user's decision-making process via an intuitive rating system on YouTube.

What is particularly important is that various services and quality that users can experience are the first concern over the perception of network size. Our framework uncovered stronger influences of indirect network externalities on the perceptions of channel values (PU, PE) and SUB, revealing a total effect of .35 (p < .001), which illustrates that IN emanates a stronger impact than DN on the sequential acceptance. This echoes the findings of Cusumano and his collegues (2019), arguing that innovative supplements must be prioritized in transaction platforms focusing on supply and demand. In other words, to deal with a chicken-and-egg problem, the supply that users can experience in various ways is a vital concern for the expansion of shared platforms. As such, YouTube channels not only provide video content but various complementary services (i.e., community, comments) and compatibility with the external network. And we found that complementary tools trigger an interactive relationship among channels and users that, in turn, leads to subscriptions. Indirect network externalities, in short, can serve as major tools for relationship formation on platforms.

The Role of Perceived Enjoyment

The strongest value of users' evaluation on YouTube channels was the perceived enjoyment (PE) which exhibited a powerful influence on SUB (β = .42) and SI (β = .14). It is in line with the finding that PE was notably high on YouTube compared to other social media (Oh & Syn, 2015), notwithstanding that YouTube was verified to be an excellent tool for knowledge information delivery (Lee et al., 2009). Moreover, the respondents of this study (Generation Z) are accustomed to social media and video source platforms and spend a stupendous amount of time (Nielsen, 2017) averting real-life struggles or filling emotional voids through escapism and fantasy (Toronto, 2009). Experiencing difficulties of offline lives, the richness of information provided by videos may have induced enjoyment in the computer-mediated communication (CMC) context (Hsieh & Tseng, 2017) and then stimulated users' motivation of adhering to IT systems (Moon & Kim, 2001). Considering the context of YouTube and the unique characteristic of Generation Z, such enjoyments would have been started from the first video selection that triggers the YouTube algorithm to list related videos and recommend the most popular videos pertaining to users' first choice (Chatzopoulou et al., 2010). This process, in turn, fixates the

users' attention to corresponding channels as they are in the interaction state and engenders their motivation to remain in the enjoyment state through subscriptions. And yet, the content of the YouTube channels should contain online enjoyment that has been lacking in real-life situations as Generation Z struggles to seek affection and tranquility from online platforms. With those needs provided, Generation Z users can take advantage of YouTube channels as an arena for making new relationships, accessing information (Toronto, 2009), keeping up with friends and family, and even gaining therapeutic support online (Bers, 2010).

IMPLICATIONS

Sequential acceptance of subscriptions to and sharing YouTube channels suggested the current study can be a transformative foundation for acceptance theory. Compared to previous studies, this study may open up a new arena to explain the complex acceptance of the platform by applying discrete dependent variables in the same phase of behavioral intention. Although this theoretical framework did not suggest other varying acceptances corresponding to the system operational style, it will assist other researchers to apply other operational definitions of intention to delve into the complex acceptance in future studies. And since the phenomenon of the rapid growth of the shared platform, YouTube, was distinctive in South Korea, the sequential relationship may vary amongst different cultural backgrounds. Thus, we hope future researchers utilize the sequential relationship as it is to enhance the generability of our model and investigate the reversed constructs (SI to SUB) to reaffirm the sequence of the last phase.

In addition, our theoretical framework can explain the process of overwhelmingly increasing YouTube subscribers by network externalities and sequential acceptance that leads to channel subscription and sharing. We found that a complementary and compatible system contributes to building reciprocal relationships between channels and system users. This, in turn, increases the chance of subscribing to and sharing YouTube channels. It indicates that the impact of network externalities should always be considered in shared platforms. If a platform operator pursues diffusional acceptance, he/she needs to develop platform tools and systems to attract users to stay on the platform and channel upon their positive value evaluation based on accumulated experience. And to engender subscription enlargement, YouTube channel owners or managers are required to unremittingly upload videos and communicate with subscribers through comments and communities in a timely manner.

CONCLUSION

As an unprecedented type of a shared platform, YouTube emerged as a conglomerate in South Korea by dismantling its gatekeeping. To understand the network effects and users' behaviors on YouTube, the authors developed a new theoretical framework designed with two discrete intentions of subscription and sharing within the same phase, coined as a sequential acceptance, for the first time. As our framework is built upon acceptance models, it can also be helpful for researchers who seek to build and explore users' online platform acceptance in a new context of similar platforms. Thereby, the value of this study is to explain how industrial factors are applied to users' acceptance of YouTube channels by supposing the characteristic of shared platforms to cause the rapid growth of YouTube in South Korea. In addition, this paper would be resourceful in the marketing related to a shared platform to understand the acceptance mechanism of YouTube users online. Hence, operators of YouTube can acquire insights into

the diffusional acceptance of their platform.

Although this study helps practitioners and stakeholders of a shared platform to understand users' sequential acceptance using a new framework, there are a few limitations to be addressed in future studies. As the participants of this study were limited to college students in their twenties, the generability of the outcome may not fully elucidate the larger populace. Hence, we suggest future researchers examine participants with comprehensive age ranges and conduct an analysis of variance to check differences between generations. Our model was designed as an exploratory model to investigate sequential acceptance; there may be issues regarding the complexity of the current model to adopt in another context. Thus, if the estimation of our model is unstable, we recommend that future researchers eliminate direct paths to the dependent constructs to improve the generability and stability of the results. As the cross-sectional data was analyzed, it is hard to delve into the emotional states of users, which can be a motivation for using YouTube channels. Thus, we suggest that future studies utilize big data for semantic analysis of comments on YouTube videos or a channel community, for instance, to explore what kind of emotions stimulated the subscription and expansion of the channel amongst users.

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