

Creating a Theoretical Model to Explore Online Video User Satisfaction and Continuous Usage Intention

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Abstract

The purpose of this study is to identify realistic and verified factors that influence on-line video service user satisfaction and their continuous use intention in order to build an applicable model to explain the causal relations among these factors. The study reviewed the key theoretical frameworks in uses and gratifications approach (UGA) and the technological acceptance model (TAM). To find applications for them, this study analyzes recent relevant replication studies and their main research findings by using a meta-analysis. After careful reviews of the two theoretical models and frameworks as well as a meta-analysis of selected 35 recent studies, the following results and implications were found. First, A number of studies supported combined or hybrid theoretical assumptions of the two frameworks assumed and tested by the UGA and the TAM. Second, there have been a number of specific and useful variables for measuring the core factors impacting user satisfaction and actual use of on-line media. Based on these results, a hypothetical hybrid model was then created by combining the two frameworks into one based on the TAM. This was done by eliminating the 'ease of use' factor and by including the UGA factors.

Keywords: Satisfaction, Intention to Use, On-Line Video, Uses and Gratifications, Technology Acceptance

1. Purpose

Recently, the evolution of the on-line digital ecosystem that surrounds audio-visual media and content has rapidly changed the media industry and the consumption patterns of video content. Traditional broadcasters and services have been overwhelmed by newly emerging diverse, digital, smart, and mobile forms of on-line which have radically changed the media usage modes worldwide. Today, media users more actively consume audio-visual services when and wherever they want according to their personal preferences. Three new characteristics of TV and video viewing behavior have become mainstream: on-demand, mobility, and binge-watching[1]. These new trends have had a strong impact on the entire supply and value chain for TV content creation and distribution[2]. Specifically, on-line digital video content services like OTT(Over-the-Top) and UCC(User Created Content), provide genre content that is

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almost equivalent to that of TV broadcasters and movie theaters. Furthermore, their creation of shorter user-friendly edited content that is universally available has intensified competition.

As of 2019, over half of all American households subscribe to Netflix, and there are 167 million or more paying subscribers outside the US[3]. Youtube is another popular alternative form of media replacing traditional TV viewing, and this web-site provides primarily free UCC content to a majority of the world's population via Internet access. According to a report, '2019 Annual Research of Usage Patterns among Broadcasting Media' by the Korea Communications Commission, 52.0% of Koreans used on-line video services, including Youtube, Facebook, NaverTV, AfreecaTV, and Netflix. Those who use OTTs on an almost daily basis totaled 25.7% and those who use it 1 to 4 times per week were 24%. The most preferred content type was that of entertainment (68.7%), followed by drama (30.7%), sports (22.2%), news reports (21.9%), and current affairs (14.5%)[4]. These statistics suggest that on-line video services have successfully eroded traditional broadcaster market share and can be expected to lead the TV content market in the foreseeable future stably. Traditional television media platforms and transmissions such as terrestrial, cable, and satellite TVs are moving toward online, digitalized, smart, and mobile forms of media. These forms require only devices that correspond to the new network and these, in turn, are radically changing media usage modes worldwide[5].

However, on-line services are not actually in a stable enough condition to grasp and maintain a constant number of loyal users. The rate of paying subscribers to each service out of total users remains very low, and several newcomers such as Disney Plus, Apple, WarnerMedia, AT&T, Amazon, and Wavve, that have launched their services late 2019, have further competitiveness within the broadcast market. In addition to the growing competition level, the high mobility of subscription is important. Many subscribers enjoy free-trials for OTT Services that are a single month in length or more, with customers able to shift to the other services at any time with leaving a very low rate of return to the previous services. For this reason, it is necessary to investigate the kinds of factors that can influence the continuous use or subscription to a service or lack thereof in terms of satisfaction or loyalty.

This study begins with a theoretical overview of on-line video service satisfaction among users and their intention to use it continuously. Two theoretical traditions have tried to provide useful solutions for this research topic heretofore. One has been the 'uses and gratifications approach (UGA)' which assumes positive users of media tend to purposively and strategically seek and choose specific media and content in order to gain their intended satisfaction or gratification. The other has been the 'technology acceptance model (TAM),' which originated from the theory of reasoned action and the theory of planned behavior, and these theories

have evolved to become an essential model for exploring predictors of human attitude toward actual acceptance or rejection of new information technologies. Also, this paper will review key theoretical frameworks of the UGA and TAM and will try to find applicabilities for each of them by analyzing recent replication studies and their main findings related to the two accepted theoretical frameworks. To accomplish this, a meta-analysis method will be used.

2. Theoretical Review and Framework Summation

2.1 Uses and Gratifications Approach (UGA)

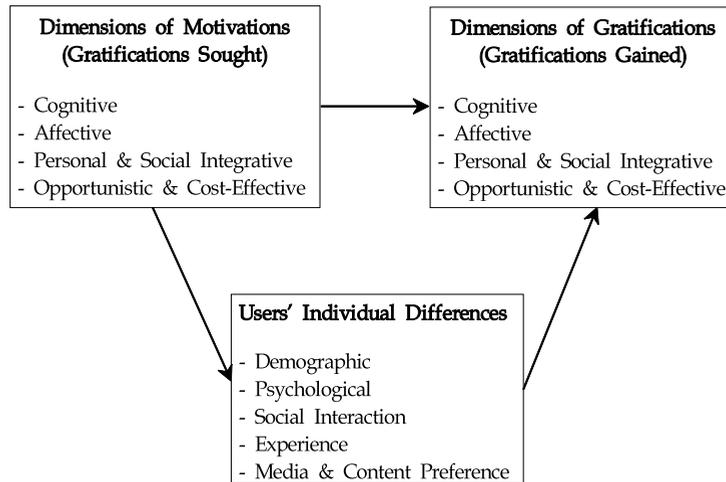
The uses and gratifications approach characterizes media users as active and motivated in selecting the media and content they choose to consume. The theory is based on two principles: people are active in their selection of the media they consume, and they are aware of their reasons for selecting different media and content options. As media technologies and services continuously proliferate, uses and gratifications research has become more emphasized than ever before on understanding a person's motivation when choosing media and the gratification they gain from them.[6] The theory assumes first, that media users play an active role in selecting a medium or content, interpreting it, and integrating it into their lives. Secondly, different types of media compete against each other and against other sources of gratification (needs, wants, or satisfaction) for users' attention. Third, the medium that provides the most satisfaction for a person will be used more often than all the other types.

Based on the typology of motivations to use media and the subsequent gratifications gained, four types of dimensions have emerged: (1) a 'cognitive' dimension, referring to acquiring information - i.e., news, documentaries, education, and how-to videos; (2) an 'affective' dimension, that relates to emotions or feelings, as well as to diversion, stress relief, catharsis, and escapism from reality - i.e., comedies, variety shows, drama; (3) a 'personal and social integrative' dimension, which refers to promoting one's own image, reputation or status, as well as to interacting with family and friends, such as Facebook, Twitter, YouTube, Social Network Service (SNS); (4) an 'opportunistic and cost-effective' dimension, that relates to saving time and money, including advertisement-free content, leisure time content, and free trials[7][8].

Additionally, as the uses and gratifications theory enforces the power of the individual over the power of the media, individual differences mediate the relationship between media and their effects and between the gratifications sought and those gained. This results in satisfaction out of using media being driven as much by the media user as by the media content itself.

So, even if media users receive the same media message with the same motivation, each individual may not be influenced by it in a uniform way.

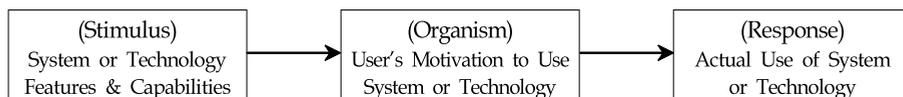
To aggregate the core points argued in theory, the theoretical framework needed for analysis can be drawn like [Fig. 1].



[Fig. 1] Theoretical Framework of Uses and Gratifications Approach (UGA)

2.2 Technology Acceptance Model (TAM)

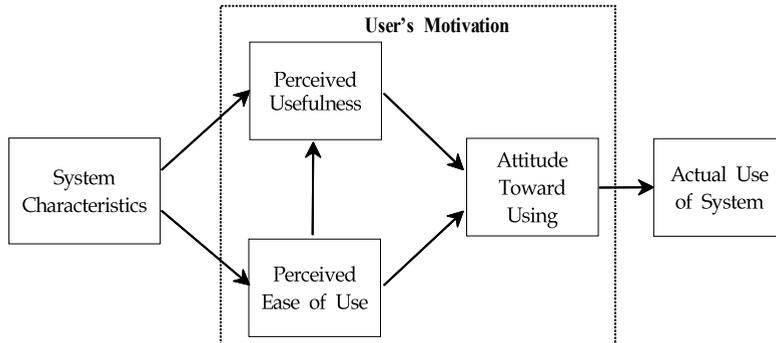
User acceptance of new technologies and services has been a major field of research since the late 1980s when a series of TAMs began to be proposed by Fred Davis. Davis originally conceptualized a model explaining technology or system acceptance or rejection by users in organizations in order to enhance measures and predicting powers of research about new system or technology adoption and actual use of them[9]. As seen in [Fig. 2], he proposed a possible causal relationship among three variables: (1) features and capabilities of new system or technology (stimulus), (2) user's motivation to use the new system or technology (organism), and (3) actual use of them (response).



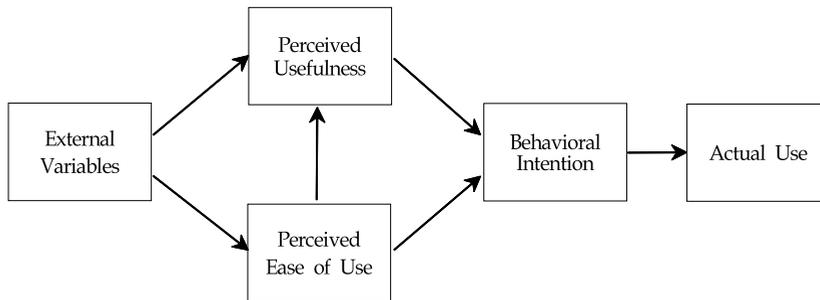
[Fig. 2] Conceptual Model for Technology Acceptance

Davis further refined his original conceptual model to suggest the first TAM ([Fig. 3]). In

formulating this model he relied on the theory of reasoned action, the theory of planned behavior, and other related research findings that dealt more with user's motivation. The variable of user's motivation consists of three factors: (1) perceived ease of use, (2) perceived usefulness, and (3) attitude toward using the system or technology[10].



[Fig. 3] Original Technology Acceptance Model (TAM) (1986)



[Fig. 4] The Most Recently Revised Theoretical Framework of TAM (1996)

Later, Davis modified and refined his original TAM three times in 1989, 1993, and 1996 by including additional variables and transforming the causal relationships that he initially drew according to results from additional empirical studies[11-13]. The final version of TAM shown in [Fig. 4] was proposed in 1996 with the eliminations of the term, user motivation, and the addition of an attitude variable. Many other subsequent replication studies have relied on this version of TAM to investigate mechanisms and processes for technology acceptance cases. He eliminated the 'attitude' variable, replacing it with 'behavioral intention' and extended the 'system characteristics' variable to that of 'external variables', because there might be other factors in addition to system characteristics that impact the beliefs and attitudes of people

toward a new system or technology. These external variables may include user training, user participation, user environment, user experience, persuasion or social pressure, the nature of the implementation process, and so on.

2.3 Research Question

Although on-line audio-visual services are very new, they are familiar among people and there have been innumerable replicating and verifying studies and findings by using the two theoretical models and frameworks. Their findings have been mostly varied and inconsistent. Also, it would be more convenient and effective to analyze these causal relationships based on a single, unified combined model even though traditions of the two theories are different. Based on the purpose of the present study and the two types of related theoretical frameworks described, the following research questions were proposed.

RQ 1. What significant factors or variables can be proven to contribute to explaining satisfaction and continuous use intention among on-line audio-visual media users?

RQ 2. Is it possible to combine the two theoretical frameworks into one?

3. Method

This study employed a meta-analysis of recent empirical studies that had explored the main factors for on-line media user 'satisfaction' and the user's 'continuous use intention'. In order to collect the literature for analysis, the 'Google Scholar' (<https://scholar.google.co.kr/>) academic search engine was used with the keywords of the two theories as well as using 'on-line audio-visual media and content.' Also, the search set the period of publication as the past three years from March 2017 to February 2020 because the on-line audio-visual services, represented by OTT and YouTube, have had an explosive increase in their subscriptions as well as the number of free-trials throughout the last five years in Korea.

As a result of the search, 52 articles were found, and 35 of them were selected for analysis. The other 17 studies were excluded because their topics and theoretical background were not highly relevant to the purpose of this study. All the findings in selected articles were analyzed and organized according to the two theoretical frameworks discussed.

4. Results

To give solutions to the RQ 1. and RQ 2., all the causal relationships verified and found acceptable in the prior studies are examined and listed in [Table 1]. Also, all the specific variables used for analyses and found acceptable are listed in [Table 2].

The causal relationships in the UGA framework were tested and accepted 14 times (7+3+4) and those in the TAM were 25 times (5+7+4+8+1) out of a total of 84 accepted cases. The other 45 causal relations show combined or hybrid results ([Table 1]). In the combined or hybrid relationship results, 26 cases showed a significant relationship between ‘satisfaction and continuous use intention.’ Also, the same number of relationships showed significant effects of the ‘motivation’ and ‘individual difference’ factors. These findings in the recent empirical studies demonstrate the importance and necessity of using a combined or hybrid model of UGA and TAM. Also, the significance of ‘ease of use,’ a core factor of the TAM, is rarely found because a majority of new on-line media and services have been designed and perceived user-friendly by using advanced UX (user experience) interface technologies.

[Table 1] Proved Significant Causalities among Suggested Factors

Theories	Relationships	N	%
Uses & Gratifications (UGA)	Motivation → Satisfaction	7	8.33
	Individual Differences → Satisfaction	3	3.57
	Motivation → Individual Differences → Satisfaction	4	4.76
Technology Acceptance Model (TAM)	External V. → Ease of Use → Use Intention	5	5.95
	External V. → Usefulness/Enjoyment → Use Intention	7	8.33
	External V. → Ease of Use → Usefulness/Enjoyment → Use Intention	4	4.76
	External V. → Use Intention	8	9.52
	Usefulness → Use Intention	1	1.19
Combine & Hybrid	External V. → Satisfaction → Use Intention*	6	7.14
	External V. → Satisfaction	4	4.76
	External V. → Individual Differences → Satisfaction**	1	1.19
	External V. → Individual Differences → Use Intention**	5	5.95
	External V. → Satisfaction → Use Intention*	1	1.19
	External V. → Satisfaction → Usefulness/Enjoyment → Use Intention*	1	1.19
	External V. → Satisfaction → Ease of Use → Usefulness/Enjoyment → Use Intention*	1	1.19
	Ease of Use → Usefulness/Enjoyment → Satisfaction → Use Intention*	1	1.19
	Usefulness/Enjoyment → Satisfaction	3	3.57
	Usefulness/Enjoyment → Satisfaction → Use Intention*	2	2.38
	Individual Differences → Satisfaction → Use Intention* **	2	2.38
	Individual Differences → Use Intention* **	3	3.57
Individual Differences → Ease of Use → Usefulness/Enjoyment → Use Intention**	2	2.38	

	Motivations → Use Intention**	3	3.57
	Motivations → Usefulness/Enjoyment → Use Intention**	1	1.19
	Motivations → Satisfaction → Use Intention* **	7	8.33
	Motivations → Individual Differences → Satisfaction → Use Intention* **	2	2.38
Total		84	100

* Includes 'Satisfaction→Use Intention' ** Includes 'Individual Differences' or 'Motivations'

[Table 2] Specific Variables Used for Tests and Proved Significant

Theories	Factors & Specific Corresponding Variables		N	%	
Uses & Gratification	Motivations (Satisfaction Seeking)	Information (Information/News Seeking, Self-Image Enhancement, Social Enforcement, Vicarious Experience)	4	3.13	
		Enjoyment, Diversion	6	4.69	
		Time-Management	5	3.91	
		Social Interaction	4	3.13	
		Preference of Character & Celebrity	2	1.56	
		Intentionality to Watch (Intentional/Unintentional)	4	3.13	
	Individual Differences (Demographical & Psychological Differences)	Sex	2	1.56	
		Age	3	2.34	
		Involvement	1	0.78	
		Emotional Stability	1	0.78	
		Flow	2	1.56	
		Media Using Behavior (Amount & Frequency of Use, Preference of Service & Content, Habit)	7	5.47	
		Innovativeness	3	2.34	
		Self Efficacy	1	0.78	
		Attitude Toward Media Service	3	2.34	
		Residence(Region, Nationality)	1	0.78	
	Technology Acceptance Model	External Variables (Characteristics of System or Service)	System & Service Quality (Search & Filtering, Privacy Personalized Recommendation, Connection, Ad,)	13	10.1
			Content (Diversity, Quality, Originality, Enjoyment, Information, Reputation, Production)	21	16.4
			Interface (Interactivity, Mobility, N-Screen, Binge-Watching)	6	4.69
Cost (Pricing, Payment, Switching Cost)			9	7.03	
Perceived Ease of Use		Perceived Ease of Use	7	5.47	
		Perceived Usefulness	8	6.25	
Perceived Usefulness/Enjoyment		Perceived Enjoyment	5	3.91	
		Perceived Popularity	2	1.56	
		Perceived Cost-Effectiveness	2	1.56	
		Perceived Attractivity of Alternatives	1	0.78	
	Perceived Functionality	5	3.91		
Total		128	100		

[Table 2] shows specific variables that were used in the prior studies as independent or moderating and which proved significant. The key factors in the UGA - motivations and individual differences - consist of 25 and 24 cases verified in significance respectively, with 6 and 10 proposed variables. To organize them into smaller number of categories, those variables

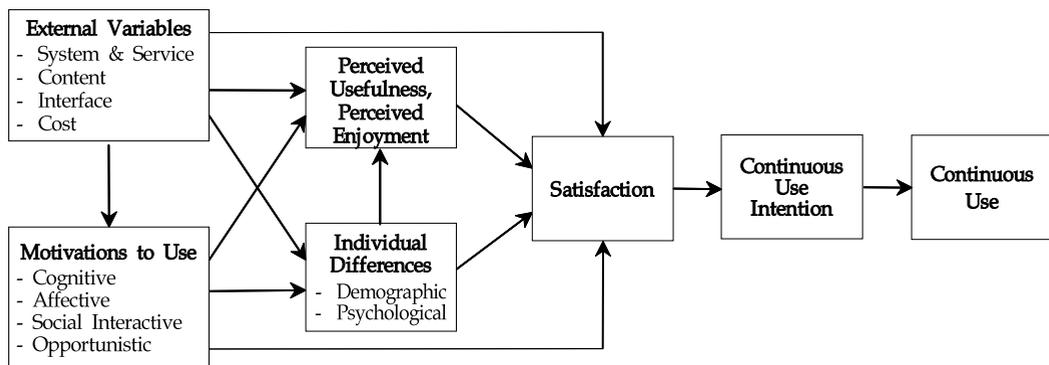
with a frequency of 1 were removed because the possibility of them being used in the real research was too low. Thus, the motivation factor was organized into four dimensions - 'cognitive,' 'affective,' 'opportunistic,' and 'social interactive.' Individual difference was a factor categorized into three dimensions - 'demographical (sex and age)', 'psychological', and 'media using behavior.'

In terms of TAM factors, four types of external variables were identified according to system and Service, content, interface, and cost. The other specific variables tested were categorized in terms of perceived usefulness and enjoyment as they were named differently but considered subsets of the original factors.

5. Conclusion

Several core elements and basic assumptions of both the UGA and the TAM were confirmed in the related studies. The results of meta-analysis imply that the two frameworks need to be aggregated into one with modifications to some factors and their causal relationships mainly based on the TAM structure. Most UGA factors cannot be ignored in a new framework but one of main factors of the TAM, 'ease of use', can be excluded. Both theoretical assumptions share important common points and these are: users' autonomy and activeness since these things depend and complement each other when explaining causal relationships through to the final step - 'continuous use of the easy-to-use media services.'

Based on the meta-analysis and reorganization above, the following hybrid model of the UGA and the TAM was designed in [Fig. 5].



[Fig. 5] Hybrid On-Line Video Service Usage Model for Analysis

Current research remains incomplete until subsequent relevant empirical studies clearly explore

the causality of relationships among the factors and variables suggested in the hybrid model. It is therefore suggested that further specific and sophisticated replicated studies are necessary to elaborate on the usefulness of the theoretical model proposed. This should be done by developing measurements of actual continuous use of viewers of on-line media and content as a new trend in the media market.

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