A Study on the Determinants of the Acceptance Intention of Smart TV Advertising: Focusing on the Application of Internet Advertising Theory

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ABSTRACT

This study identified and analyzed the determinants that influence the acceptance intention of smart TV advertising, focusing on the applying the theory used in Internet advertising research, from the perspective that smart TV was born based on the characteristics of existing TV and the internet. As a result of the study, it was confirmed that the main theory and approach related to Internet advertising influences the acceptance intention of smart TV advertising, and that the main variables of internet advertising research can also be applied to smart TV advertising research. First, it was found that flow, a variable that affects the attitudes and behaviors of internet audiences, positively influences the acceptance intention of smart TV advertising. In addition, it was confirmed that the main variables of Ducoffe's web advertising model, a major internet advertising effect model, influence the acceptance intention of smart TV advertising. As a personal characteristic of the audience, it was found that the overall attitude toward advertising had a positive effect on the acceptance intention of smart TV advertising. The results of this study confirmed that smart TV has the characteristics of internet media, suggesting that it is necessary to more actively apply the approach of internet research and major variables of internet research to smart TV advertising research in the future.

KEYWORDS

Smart TV advertising, acceptance intention of advertising, flow, web advertising model

1. INTRODUCTION

Recently, smart TVs are spreading rapidly. Smart TV, which combine TV and the internet by embracing internet full browsing functions and providing richer applications, content, and multimedia, have been commercialized for a considerable time but have been slow to spread. The content environment that is not properly established is an important cause.

However, with the recent rapid growth of OTT services, the spread and usefulness of smart TV have increased dramatically. Moreover, the use of OTT has increased significantly due to COVID-19. The use of smart TV is increasing rapidly as viewers watch TV rather than mobile at the time they want through OTT. With the application of internet functions to smart TV, users now regard smart TV as "an ultra-large screen smartphone" that can enjoy various apps and contents such as OTT connections, content consumption, games, as well as cable or broadcasting programs.

Companies and the advertising industry have become more interested in smart TV advertising as the media grows this way. Introducing an advertising rate system from the existing subscription system for OTT services also plays a significant role in this. Introducing an advertising rate system for OTT services will serve as an opportunity to grow the smart TV advertising market further as the proportion of smart TV advertising worldwide begins to outpace mobile devices in 2021. Smart TV advertising is expected to grow qualitatively as existing internet-based advertisements, such as data-based customized advertising and performance marketing, are actively utilized.

Smart TV, which provides integrated and new services with the characteristics of existing TV and the internet, is expected to continue to grow as advertising media. By delivering advertising messages

through large screens and high-quality sounds, smart TV advertising can gain the effect of traditional TV advertising that effectively builds brand images. Also smart TV advertising can gain the effect of internet advertising that can obtain interactive behavior such as providing specific information and purchasing through interaction with consumers. So, smart TV can have strong competitiveness as an advertising media if operated efficiently.

Research is needed as new media spreads in society and new media advertising spreads. Unfortunately, research on smart TV advertising is not yet accessible to find. This is also related to the need for more research on smart TV as media. Research on smart TV advertising was also only conducted for some early policies, technical research, and exploratory research

However, it is time to study smart TV advertising in a situation where smart TV services are rapidly spreading, and smart TV advertising is expected to grow rapidly due to increased OTT use. In particular, the need for research on smart TV advertising is emerging because smart TV is a new type of media that combines existing TV and internet functions and because smart TV will have a great impact on smart paradigms in the future.

Advertising acceptance is an essential concept in new media advertising research. This is because it is only possible to obtain the desired advertising effect with the audience's advertisement acceptance behavior in new media advertising, where the audience's selective exposure to advertising messages and active information processing is essential. In particular, since smart TV can currently use Internet-based services such as YouTube, Instagram, TikTok, Naver, and others as well as exposure in the form of traditional TV advertising, consumers' active acceptance of advertisements becomes more important. In particular, in smart TV advertising research, identifying variables that affect smart TV viewers' intention to accept smart TV advertisements is an essential practical and academic task.

To revitalize research on new media advertising that is newly spreading in society, the first thing to understand is the characteristics of the media. In other words, as a new media, the characteristics of smart TV should be important Smart TV with complex media characteristics can be media closer to TV for traditional purposes such as terminal characteristics and video viewing. However, in terms of using the Internet network as well as using web browsing and cloud services and actively using content, it has media characteristics as the internet.

From this point of view, it raises the question of whether it is possible to apply the theories and variables used in the existing internet advertising research during the initial research on smart TV advertising. It can grasp the nature of smart TV and smart TV advertising by finding the answers to these questions. In particular, it is essential in smart TV advertising research whether it is possible to apply theories and variables used in Internet advertising research to identify the factors influencing the acceptance of advertising that are important in smart TV advertising effects.

Flow is an audience-related variable that is important in studying internet advertising effects. Flow can be conceptualized as the optimal experience, enjoyment, and fun felt while using the Internet in relation to Internet research, and it has been proven that it is a variable that affects the attitudes and behaviors audiences of Internet such as continuous navigation of the Internet or revisiting a specific site, loyalty, information search behavior, purchase intention, Internet addiction, and Internet advertising. According to related studies, the common components of flow can be said to be pleasure, immersion, concentration, and curiosity. Flow is a state in technology, and challenges are balanced above a certain level (Csikszentmihalyi & Csikszentmihalyi,1988).

It can be predicted that smart TV usage behavior shows a lean-forward behavior that performs various functions compared to the existing lean-back TV viewing behavior. In addition, compared to the existing simple TV viewing, smart TV require an appropriate level of technology in using various media functions, and the likelihood of feeling immersed and satisfied in the process of using them increases. Therefore, applying the flow concept, which was importantly used in internet media and advertising research, to smart TV advertising research is a meaningful attempt.

Duoffe's web advertising model, as a major Internet advertising effect model, explains the audience's attitude toward web advertising (Brackett & Carr Jr, 2001; Okazaki, 2004; Tsang et al., 2004). The application of Duoffe's web advertising model in a smart TV advertising environment is meaningful because consumers' active exposure and processing of advertising messages in a smart TV advertising environment are important. Traditional TV advertising presupposes passive exposure to advertising messages, whereas, in a smart TV advertising environment, exposure itself may not occur depending on the audience's will (Tan 2015). Therefore, the audience's perception and evaluation of smart TV

advertising characteristics emerge as very important in accepting smart TV advertising. Consequently, the application of variables related to web advertising models in smart TV advertising effect research, which is expected to have the characteristics of internet advertising, will also help to understand the characteristics of smart TV advertising.

It is necessary to examine the individual variables of consumers as variables that affect consumers' intention to accept advertisements. Based on the analysis of related research, this study will analyze the effect of overall attitudes toward advertising, innovation tendencies, and need for cognition on smart TV advertisement acceptance intentions.

The purpose of this study is to identify and analyze the factors affecting the intention to accept smart TV advertising currently spreading in society, focusing on the application of the theory used in internet advertising research, from the perspective that smart TV is a media created based on the characteristics of existing TV and the internet. This study hopes to understand the characteristics of smart TV and smart TV advertising as new media advertising and convergence media advertising.

Academically, this study will establish a framework for smart TV advertising research as an early study and contribute to the activation of subsequent research. In addition, the significance of this study is to attempt an integrated approach to new media advertising research by incorporating the results of previous internet advertising research into smart TV advertising research. In addition, identifying the factors that affect advertising acceptance, which are essential for the effects of smart TV advertising in practice, will help establish a smart TV advertising strategy.

2. THEORETICAL BACKGROUND

2.1. Smart TV and smart TV advertising
Smart TV can be defined as a TV that can provide various services such as broadcasting services, communication services, telecommunication services, ventilation convergence services, computer services, mobile services, and SNS, and control and consume them through user-friendly interfaces such as voice and gestures. Smart TVs can also provide content linkage with multimedia devices, N-screen services, and information exchange and control functions with home appliances installed in the home.

Smart TV advertising has a high potential for growth in that it adds the effect of Internet advertising that can obtain various interactive behaviors based on individual consumer information to the image construction effect of existing TV advertisements based on strong impact. Since smart TVs are spreading domestically and internationally, advertisements specialized for them are also beginning. However, the smart TV advertising market is expected to grow rapidly given that smart TV technology develops rapidly and user convenience improves. In addition, in the case of smart TV advertisements, app developers, content providers, and advertisers can get new opportunities to generate revenue by providing free development tools for each advertisement development.

2.2. New media advertising acceptance
Advertising acceptance is an important concept in new media advertising, where the recipient's selective exposure to advertising messages and active information processing is important. In particular, for advertisements of new media entering the early advertising market to be established successfully, media users' intention and behavior to accept advertisements in the media are more necessary. In the new advertising environment, advertising effects mainly occur through active selection and acceptance of commercial messages rather than passive exposure of existing advertisements based on consumers' message control, so the concept of consumers' active acceptance of advertisements becomes more important in the future. In advertising research, the importance of consumers' perspectives on advertising acceptance is expected to become more prominent.

Research on consumers' acceptance of advertising has been particularly active in research on mobile advertising. The Theory of Reasoned Action (TRA) has been applied in several studies to predict consumer acceptance of mobile advertising (Tsang et al., 2004; Wong & Tang, 2008; Zhang & Mao, 2008; Collins and Estrella 2021; Long et al., 2022; Khwanngern et al., 2020). TRA is a theory proposed by Fishbein and Ajzen (1975) that analyzes how attitudes and beliefs are related to an individual's behavioral intention or actual behavior.

2.3. Flow
Hoffman and Novak (1996) define the flow experience in the process of using the Internet as (1) a continuous exchange of responses through interaction with a computer, (2) inherently enjoyable, (3) self-loss, and (4) self-reinforcement. It was defined as an accompanying condition. The concept of flow was

introduced to the Internet when Ghani, Supnick, and Rooney (1991) pointed out that flow was an important difference when comparing computer-mediated and face-to-face communication characteristics. Since then, related studies have increased as Hoffman and Novak (1996) proposed flow as an important variable in the basic conceptual model of marketing strategy in a computer-mediated environment.

Flow is studied as an important variable in the internet use environment because continuous use of the Internet is closely related to the experience of flow. In other words, flow is a process of internal synchronization that leads to Internet use, and the synchronization process occurs when Internet use is accepted as an appropriate level of stimulation and, at the same time, one has the technology to control it.

2.4. Web advertising model

In 1996, Ducoffe identified the main factors consumers want to gain from advertising from the perspective of what determines the value of advertising. Based on this, he proposed a web advertising model, which states that the entertainment, information, and annoyance elements of Internet advertising affect attitudes toward Internet advertising through advertising value or directly (Ducoffe, 1996).

According to Ducoffe (1996), consumers mentioned the information provision function as the primary function of advertising. In other words, as advertisements provide consumers with information about products, consumers try to make satisfactory product purchase behavior based on the information provided by advertisements. Rotzoll et al. (1989) also argued that the informational function of advertising is the main function that provides the basis for the existence of advertising.

The entertainment quality of advertising refers to consumers considering the advertisement to be fun when they encounter it. Many studies on attitudes toward advertising have verified that enjoyable and entertaining advertising has a positive effect on brand attitude (Kim, 2007).

Generally, consumers perceive advertisements as annoying when they cause psychological anxiety. Annoyance is a negative, anxious, and dissatisfied emotion that consumers feel toward various advertising stimuli (Aaker & Bruzzone, 1985).

2.5. verall attitude toward advertising

Consumers' overall attitudes toward advertising can affect their acceptance of advertising in new media such as IPTV. Attitude toward advertising refers to people's positive or negative feelings toward advertising (Mackenize & Lutz, 1989). According to related studies, it is argued that consumers' overall attitude toward advertising influences their attitude toward individual advertisements. Specifically, people with more favorable attitudes toward advertisements are more likely to accept individual advertisements. There are also research results showing that people enjoy it (Kim & 2008). In addition, according studies related to advertising avoidance, it has been verified that the more negative a consumer's attitude toward advertising is, the greater the tendency to avoid it (Lee & Lumpkin, 1992; Speck & Elliott, 1997).

In the case of Smart TV advertising, which allows consumers to engage in various interactive behaviors such as requesting additional information and participating in events while watching advertisements, the consumer's attitude toward overall advertising may affect the individual's interactive behavior toward Smart TV advertising. Some models explaining the information processing of internet advertising pay attention to the role of attitudes toward advertising as an interactive variable from exposure to attitude change. Most Internet advertising-related studies have shown that media users' attitudes toward advertising affect active exposure to advertisements, the level of advertisement clicks, and advertisement avoidance (Kim & Kim 2003; Lee & Lyu, 2005; Ha 1998). A comprehensive study of attitudes toward advertising and advertising-related behaviors shows that the more positive the attitude toward advertising, the more actively they accept specific media advertisements. In contrast, the more negative the attitude toward advertising, the more likely they are to avoid advertisements in particular media.

2.6. Innovation tendency

Consumer innovation tendency refers to the degree to which one member of a social system adopts an innovation before others. Consumers with high innovation tendencies are open to new products or products that are unfamiliar to them. In contrast, consumers with low innovation tendencies dislike change and view new products as threatening. Rogers classified consumers according to the point of acceptance of a new product and defined an innovator as a consumer who first accepts a new product at the beginning of its introduction (Jung, 2003). Additionally, an innovator is a person who can process information about new concepts, ideas, products, services, etc., and has the ability to easily think of ways

to apply them. Innovation tendency is often seen as an individual's innate personality trait, and it significantly impacts various consumer decisions and behaviors.

There is also study that applies innovation tendency to advertising, which is noteworthy. Jung (2003) found that innovative consumers are very interested in new product pre-routing advertisements compared to non-innovative consumers, and not only are they very active in responding to them, but also have relatively high reliability given to advertisements.

2.7. Need for cognition
The need for cognition is an individual's inherent tendency to seek out and process surrounding information and can be said to reflect the degree of an individual's motivation to identify and understand surrounding objects or situations (Cacioppo & Petty, 1982; Haugtvadt, Petty, & Cacioppo, 1992).

An individual's need for cognition has been widely used in research as a variable affecting advertising information processing. Related research results show that rational advertising messages have a greater impact on recipient groups with a high need for cognition, while emotional advertising messages have a greater impact on recipients with a low need for cognition. It was found to be more influential in the inmate population. In addition, when an individual's psychological response (cognitive response/emotional response) affects brand attitude after exposure to an advertisement, the influence of the cognitive response appears to be stronger as the recipient's need for cognition increases. In contrast, the influence of the emotional response appears to be stronger as the emotional intensity increases. There was a study showing that the need for cognition had a significant effect on the intention to click on advertisements (Lee & Kim, 2001).

3. HYPOTHESIS

3.1. The effect of flow on the acceptance intention of smart TV advertising
Flow is an immersion state obtained through interaction when using the Internet. In addition, it has been verified that flow has a positive effect on exploratory behavior on the Internet, such as information search before purchase and continuous information search (Hoffman et al, 2000; Novak et al., 2003).

Smart TV is similar to the Internet use environment in that consumers actively select and use various services and functions. Therefore, compared to the existing TV use environment, the likelihood of immersion in smart TV in the process of using smart TV is greater. In addition, a certain degree of technology is required to use smart TV as new media and services, and satisfaction can increase in solving and using these technological challenges. Therefore, consumers will be able to experience the flow they experience when using the Internet and smart TV. In addition, consumers who experience the flow of the process of using smart TV are likely to continue to explore and use smart TV advertisements with a favorable attitude toward various new functions, and this probability can also be applied to smart TV advertising. Considering these findings, it can be expected that the flow experienced while using smart TV will have a positive effect on the intention to accept smart TV advertisement. Therefore, the following research hypothesis was established.

H1: The flow experienced by the audience when using smart TV will have a positive effect on the acceptance intention of smart TV advertising

3.2. The effect of perceived advertising attributes on the acceptance intention of smart TV advertising
According to Ducoffe's web advertising model, the evaluation of web advertising's informativity and entertainment has a positive effect on attitudes toward web advertising, directly or indirectly, and the evaluation of web advertising's annoyance has a negative effect on attitudes toward web advertising through advertising value (Ducoffe, 1996).

According to the theory of reasoned action (TRA), consumers' behavioral intentions are influenced by attitudes toward such behavior. Here, considering Duoffe's web advertising model, it can be expected that the audience's perceived advertising attributes for smart TV advertising affect the intention to accept smart TV advertising. Based on the contents mentioned so far, the following research hypothesis was established.

H2: The perceived advertising attributes will have an effect on the acceptance intention of smart TV advertising

H2-1: The perceived informativity for smart TV advertising will have a positive effect on the acceptance intention of smart TV advertising

H2-2: The perceived entertainment for smart TV advertising will have a positive effect on the acceptance intention of smart TV advertising

H2-3: The perceived annoyance with smart TV advertising will have a negative effect on the acceptance intention of smart TV advertising

3.3. The effect of personal characteristics on the acceptance intention of smart TV advertising

3.3.1. The effect of overall attitude toward advertising on the acceptance intention of smart TV advertising

An individual's overall attitude toward advertising can affect the acceptance of advertisements executed on new media such as smart TV. Attitudes toward advertising refer to an individual's overall feelings about advertising (Mackenize & Lutz, 1989). Related studies show that the overall advertising attitude of individual consumers affects the attitude toward individual advertisements (Lee & Lumpkin, 1992; Speck & Elliott, 1997)

When looking at related studies, consumers with a favorable attitude toward advertising highly intend to accept smart TV advertisements. In particular, smart TV and smart TV advertising as media have high user control, so the overall attitude toward advertising can affect advertising acceptance further. Therefore, the following research hypothesis was established.

H3: The overall attitude toward advertising will have a positive effect on the acceptance intention of smart TV advertising

3.3.2. The effect of innovation tendency on the acceptance intention of smart TV advertising

Consumer innovation tendencies refer to the degree to which individuals accept innovation before others. People with strong innovation tendencies adopt new technologies or services quickly, and actively use them. In addition, innovators are people who can process new information and apply it.

Individual innovation has been shown to play a significant role in accepting advertisements for new products. As a new medium, smart TVs not only have innovative product characteristics but also new functions that are utilized in advertising. In addition, consumers with high innovation have the characteristics of actively using new media, and it can be said that they are highly interested and responsive to new information in advertising. From this point of view, it can be predicted that the individual consumer's innovation tendency affects the acceptance of smart TV advertisements with new advertisement characteristics, and from this point of view, the following research hypothesis was established.

H4: The innovation tendencies will have a positive effect on the acceptance intention of smart TV advertising

3.3.3. The effect of the need for cognition on the acceptance intention of smart TV advertising

Need for cognition is an individual's propensity to find and process information around him, and it can be said that it represents the degree of individual motivation to grasp and understand objects or situations around him (Cacioppo & Petty, 1982; Haugtvadt et al., 1992). Therefore, when people with strong cognitive needs accept a persuasion message, they are more synchronized to actively process it, while a person with weak cognitive needs avoids difficult tasks and likes easy tasks.

Individual cognitive needs have been widely used in research as a variable affecting advertising information processing. Unlike the traditional advertising environment of passive advertising exposure, smart TV advertisements may have advertising effects due to active acceptance behavior. Therefore, audiences with high cognitive needs for advertising stimulation want to know detailed information through advertising acceptance behavior. From this point of view, the research hypothesis on cognitive and the intention to accept smart TV advertising was established as follows

H5: The need for cognition will have a positive effect on the acceptance intention of smart TV advertising

4. RESEARCH METHODS

4.1. Research design

This study conducted a survey on smart TV users to identify the factors affecting the acceptance intention of smart TV advertising. One hundred ninety-three college students from all over the country selected as a convenient sampling method participated in the survey. Among them, a total of 185 copies were used for questionnaire analysis, excluding eight questionnaires in which questionnaire responses were unfaithful. For the data analysis of this study, a regression analysis was conducted to verify the effect of

independent variables on the acceptance intention of smart TV advertising, along with a reliability test. In particular, hierarchical regression analysis was conducted to analyze the influence of independent variables after controlling other predictors to understand the pure influence of each variable on the acceptance intention of smart TV advertising.

4.2. Measurement of variables

4.2.1. The acceptance intention of smart TV advertising
The dependent variable of this study is the acceptance intention of smart TV advertising. In this study, the acceptance intention of smart TV advertising was specifically measured with four questions: 'I will watch smart TV advertisements with interest', 'I will actively use smart TV advertisements', 'I will watch them until the end without stopping', and 'I will take actions to obtain more detailed information if necessary while watching smart TV advertisements'. Measurement questions were measured using a 7-point Likert scale (alpha=.87).

4.2.2. Flow
The flow experienced when using a smart TV was measured with four questions: 'I am deeply immersed while using a smart TV,' 'I enjoy using a smart TV,' 'I have different fun using a smart TV,' and 'I often forget how time passes while using a smart TV.' Measurement questions were measured using a 7-point Likert scale (alpha=.87).

4.2.3. Perceived advertising attributes
First, the perceived informativity of smart TV advertising was measured using a seven-point Likert scale (alpha=.86) based on Duoffe's research measurements (Ducoffe, 1996) four items: 'good information source to know product information', 'providing appropriate product information', 'good information source to provide the latest product information', and 'convenient data to provide product information' (alpha=.86). Perceived entertainment was measured in four categories: 'joy', 'interesting', 'fun', and 'entertainment' (alpha=.96). Annoyance was measured in four categories: 'defying mood', 'adulterating', 'deception', and 'confusing' (alpha=.90).

4.2.4. Overall attitude toward advertising
The overall attitude toward advertising was measured on a 7-point scale with four questions: 'Advertising is necessary to purchase products,' 'the information provided by the advertisement is useful,' 'Advertising is fun,' and 'I enjoy watching advertisements' (alpha=.85).

4.2.5. Innovation tendencies
The innovation tendency was measured on a 7-point scale by referring to a previous study measuring innovation (Baumgartner & Steenkampm, 1996) 'I like to try new things', 'I tend to try new things before the people around me', 'I like to try many new ways in doing something', and 'When a new medium or new technology emerges, I am among the first groups to use' (alpha=.93).

4.2.6. Need for cognition
Based on research by Cacioppo and Petty (1982) to measure cognitive needs, four questions were measured on a 7-point scale: 'I always try to solve something when I have questions about it', 'I want to know more about things I don't know', 'I try to solve difficult and time-consuming problems as much as possible' and 'I think it's more annoying than I think I should solve it when I encounter an unfamiliar task' (alpha=.73). (The underlined question is the reverse coding question)

5. RESULTS
<Research Hypothesis 1~5> is to verify the variables affecting the acceptance intention of smart TV advertising. To this end, regression analysis was conducted using the acceptance intention of smart TV advertising as a dependent variable. To understand the pure influence of independent variables on acceptance intention of smart TV advertising, hierarchical regression analysis was performed to analyze the influence of independent variables after controlling other predictors.

Before conducting hierarchical regression analysis, the variance inflation factor (VIF) was analyzed to identify the problem of multi-collinearity. In general, if the VIF value is five or more, it can be suspected that there is a multicollinearity problem. As a result of calculating the VIF values using SPSS-WIN, the distribution of VIF values of a total of 7 predictors used in this study ranged from 1.18 to 2.04. Therefore, the problem of multicollinearity between predictors is not large enough to affect the research results. Flow was introduced in the first stage, and informativity, entertainment, and annoyance were perceived advertising attributes in the second stage. Overall attitude toward advertising, innovation tendencies, and need for cognition were introduced as personal characteristics in the third stage.

As a result of examining the increase in the R2 value by inputting each variable step by step, the R2 increase (=.217) after inputting the perceived advertising attributes variable was the largest, followed by flow (=.170) and personal characteristics (=.163) (Table 1).

The influence of individual variables on the intention to accept smart TV advertising at each stage is as follows. First, as a result of inputting and analyzing a flow variable as a first step, it was found that the flow had a positive effect on the acceptance intention of smart TV advertising (β=.411, p<.001). Therefore, Hypothesis 1 was supported. In other words, it can be said that the more users experience flow while using smart TV, the higher the likelihood of accepting advertisements delivered through smart TV.

As a result of the analysis of the perceived advertising attributes variables in the next two steps, it was found that informativity (β=.342) and annoyance (β=-.199) had a significant effect on the acceptance intention of smart TV advertising. However, entertainment was found to have no significant effect. Therefore, <Hypothesis 2-1> and <Hypothesis 2-3> were supported.

As a result of the analysis of the overall attitude toward advertising as a personal characteristic in the next three steps supported <Hypothesis 3> as it was found to have a positive effect on the acceptance intention of smart TV advertising at the level of p<.001. As a result of analyzing the impact of other personal characteristics, innovation tendencies, and need for cognition on the intention to accept smart TV advertising, it was found that they did not have a significant effect, so <Hypothesis 4> and <Hypothesis 5> were rejected.

As a result of examining the standardized regression coefficient values of each sub-concept, the flow's standardized regression coefficient value (β=.412) is the largest, indicating that it is the strongest predictor of smart TV advertising acceptance.

Table 1: Hierarchical regression analysis of Smart TV acceptance intention

Independent variable		B	Standard error	Beta	t	p
Flow	Flow	.392	.064	.412	6.124	<.001
R^2		.170 F=37.504 (p=<.001)				
Perceived advertising attributes	Informativity	.394	.089	.342	4.442	<.001
	Entertainment	.060	.065	.072	.915	.362
	Annoyance	-.177	.054	-.199	-3.255	.001
R^2 after 2 step		.387 F=21.234 (p=<.001)				
R^2 increments by 2 step		.217				
Personal characteristics	Overall attitude toward advertising	.351	.059	.362	5.912	<.001
	Innovation tendencies	.031	.060	.037	.517	.606
	Need for cognition	.121	.078	.112	1.556	.122
R^2 after 3 step		.550 F=21.422 (p=<.001)				
R^2 increments By 3 step		.163				

6. DISCUSSION AND CONCLUSION

This study identified and analyzed the factors affecting the acceptance intention of smart TV advertising currently spreading in society, focusing on applying the theory used in Internet advertising research from the perspective that smart TV is a media created based on the characteristics of existing TV and the Internet. Through this, this study attempted to understand the nature and characteristics of smart TV and smart TV advertising as new media advertising and convergence media advertising.

As a result, it was found that the flow had a positive effect on the intention to accept smart TV advertising. This means the more user experience flows while using a smart TV, the higher the likelihood of accepting advertisements delivered through a smart TV. As a result of the analysis of the perceived advertising attributes variables, it was found that informativity and annoyance had a significant effect on the acceptance intention of smart TV advertising. However, entertainment was found to have no significant effect. As a result of the analysis of the overall attitude toward advertising as a personal characteristic, it was found to have a positive effect on the acceptance intention of smart TV advertising. However,

innovation tendency and need for cognition did not have a significant effect on the acceptance intention of smart TV advertising.

As a result of the study, it was confirmed that the main variables of Internet advertising research can also be applied to smart TV advertising research by confirming that the main theory and approach related to Internet advertising affects the acceptance intention of smart TV advertising. These results confirm that smart TV have the characteristics of Internet media.

First, it was found that flow, a variable that affects the attitudes and behaviors of Internet-related audiences, had a positive effect on the acceptance intention of smart TV advertising. Flow can be conceptualized as the optimal experience felt while using the internet, and the common components of flow are immersion, concentration, and curiosity. In the case of traditional TV, audiences tend use TV passively in low-involvement situations. On the other hand, by analogy from the research results, smart TV has Internet characteristics, so it is used in higher-involvement situations by immersing and focusing as consumers do when using the Internet. In other words, you experience more flow than in traditional TV usage situations.

As a major Internet advertising effect model, Ducoffe's web advertising model explains the audience's attitude toward web advertising. The application of Ducoffe's web advertising model in a smart TV advertising environment is meaningful because consumers' active exposure and processing of advertising messages in a smart TV advertising environment are important. Traditional TV advertising presupposes passive exposure to advertising messages, whereas, in a smart TV advertising environment, exposure itself may not occur depending on the audience's will. Therefore, the audience's perception and evaluation of smart TV advertising characteristics emerge as very important in accepting and effective smart TV advertising. The main implications of this study are that it discovered that variables related to the web advertising model, which is the main effect model of Internet advertising, can predict the acceptance of smart TV advertising.

As a result of this study, it was found that an individual's overall attitude toward advertising had a positive effect on the acceptance of smart TV advertising. These results are consistent with previous research findings (Kim & Kim, 2008: Lee & Lumkin, 1992; Speck & Elliott, 1997) that consumers with an overall favorable attitude toward advertising are more actively accepting individual advertisements, and the influence of overall attitudes toward advertising is once again shown as a variable affecting the acceptance and effectiveness of particular advertisements.

In addition, for users to actively accept advertisements, it can be said that media users' attitudes toward advertising affect active exposure to advertisements, the level of click-through of advertisements, and advertisement avoidance in internet advertising that requires active exposure and click-through behavior (Lee & Kim, 2001). The following practical implications can be obtained when considering these research results. When executing advertising in new media, if there is response data from other media advertising in the past of a specific consumer, it is necessary to utilize them actively.

Academically, this study will establish a framework for smart TV advertising research as an early study and contribute to the activation of subsequent research. In addition, the significance of this study is to attempt an integrated approach to new media advertising research by incorporating the results of previous internet advertising research into smart TV advertising research. In addition, identifying the factors that affect advertising acceptance, which are essential for the effects of smart TV advertising in practice, will help establish a smart TV advertising strategy.

Through the results of this study, it was confirmed that Smart TV has the characteristics of internet media, which suggests that there is a need to more actively apply internet research approaches and key variables of internet research to Smart TV advertising research in the future. In the era of convergence, it can be said that convergent research on not only smart TV and smart TV advertising but also various convergence media and advertising is needed in the future.

7. ACKNOWLEDGEMENTS

8. REFERENCES
Aaker, L. F. & Bruzzone, P. R. (1985). Causes of irritation in advertising. *Journal of Marketing*, 49(2), 47-57. DOI:10.2307/1251564.

Baumgartner, H. & Steenkamp, J-B E. M. (1996). Exploratory consumer buying behaviour: Conceptualization and measurement. *International Journal of Research in Marketing*, 13(2), 121-137. DOI: 10.1016/0167-8116(95)00037-2.

Brackett, L. K. Carr Jr, B. N. (2001). Cyberspace advertising vs. other media: Consumer vs. mature student attitudes, *Journal of Advertising Research*, 41, 23-32. DOI: 10.2501/JAR-41-5-23-32.

Cacioppo, J. T. & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42(1), 116-131. DOI: 10.1037/0022-3514.42.1.116 .

Collins, M. Q. & Estrella, G. (2021). A study on advertising strategy based on the impact of a business reputation on the market. *International Journal of Smart Business and Technology*, 9(2), 107-118, DOI:10.21742/IJSBT.2021.9.2.09.

Csikszentmihalyi, M. & Csikszentmihalyi, I. S. (1988). Optimal experience: Psychological studies of flow in consciousness. Cambridge University Press.

Ducoffe, R. H. (1996). Advertising value and advertising on the web. *Journal of Advertising Research*, 36(5), 21-35.

Fishbein, M. & Ajzen, I. (1975). Belief, attitude, intention, and behavior; An introduction to theory and research. Addison-Wesley.

Ghani, J. A., Supnick, R., & Rooney, P. (1991). The experience of flow in computer-mediated and in face-to-face groups. *Proceedings of the 12th International Conference on Information Systems,* 229-237.

Ha, H. G. (1998). A study on the determinants of exposure in Internet advertising. *Advertising Research*, 38, 153-183.

Haugtvadt, C. P., Petty, R. E., & Cacioppo, J. T. (1992). Need for cognition and advertising: Understanding the role of personality variables in consumer behavior. *Journal of consumer Psychology*, 1(3), 239-260, DOI: 10.1016/S1057-7408(08)80038-1

Hoffman, D. L., Novak, T. P. (1996). Marketing in hypermedia computer-mediated environments: Conceptual foundations. *Journal of Marketing*, 60(3), 50-68. DOI:10.2307/1251841

Hoffman, D. L., Novak, T. P., & Yung, Y. F. (2000). Measuring the customer experience in online environments: A structural modeling approach. *Marketing Science*, 19(1), 22-44. DOI: 10.1287/mksc.19.1.22.15184

Jung, H. (2003). A study of new product preannouncing advertising: conceptual overview and empirical analysis on consumer innovativeness and responses. *The Korean Journal of Advertising*, 14(2),185-208.

Kim, G. & Kim, J (2003). Influences of stimulation and avoidance of internet advertising on advertising effectiveness. *The Korean Journal of Advertising*, 14(3), 165-190.

Kim B. (2007). The antecedents of influence on the attitude toward mobile advertising. *Advertising Research*, 75, 35-59. DOI:10.2307/1251564.

Kim, K. W. & Kim, Y. M. (2008). Study on satellite DMB user`s media use motivations and attitudes toward advertising, *The Korean Journal of Advertising*, 19(1), 99-133.

Khwanngern, K., Chouvatut, V., & Ongsakul, W. (2020). Comparative analysis of online shopping behavior of Thai and Chinese consumers. *International Journal of Smart Business and Technology*, 8(1), 37-50.

Lee, S. & Lumpkin, J. R. (1992). Differences in attitudes toward TV advertising: VCR usage as a moderator, *International Journal of Advertising*, 11(4), 333-342. DOI: 10.1080/02650487.1992.11104509

Lee, K. R. & Kim, S. H. (2001). A study on the role of involvement and need for cognition as coordinating variables in internet banner advertising information processing. *Advertising Research*, 52, 73-90.

Lee, J. & Lyu, J. (2005). A study of advertising avoidance in Internet: Level of advertising avoidance and predictors of advertising avoidance. *The Korean Journal of Advertising*, 16(1), 203-223.

Long, H. C., Do, U. N. H., Lan, P. D. T., Ha, P. N., Truc, N. N. H., & Thanh, T. L. T. (2022). The impact of tiktok advertising on young people's online shopping behavior during the covid-19 pandemic. *International Journal of Smart Business and Technology*, 10(1), 145-162, DOI:

10.21742/IJSBT.2022.10.1.10

Mackenize, S. & Lutz. R. J. (1989). An empirical examination of the structural antecedents of attitude toward the Ad in an advertising pretesting context. *Journal of Marketing*, 53(2), 48-65, DOI: 10.2307/1251413.

Novak, T. P., Hoffman, D. L., & Duhachek, A. (2003). The influence of goal-directed and experiential activities on online flow experiences. *Journal of Consumer Psychology*, 13(1&2), 3-16. DOI:10.1207/S15327663JCP13-1&2_01.

Okazaki, S. (2004). How do Japanese consumers perceive wireless ads? A multivariate analysis. *International Journal of Advertising*, 23, 429-454. DOI: 10.1080/02650487.2004.11072894.

Rotzoll, K., Haefner, J. E., & Sandage, C. J. (1989). Advertising and the classical liberal world view. In R. Hovland & G. B. Wilcox(Eds.), Advertising in society: classic and contemporary readings on advertising's role in society. Lincolnwood, IL: NTC Business Books.

Speck, P. S. & Elliott, M. T. (1997). Predictors of advertising avoidance in print and broadcast media, *Journal of Advertising*, 26(3), 61-76. DOI: 10.1080/00913367.1997.10673529.

Tan, Jian, (2015). A Game Theoretic Approach to Coordinate Pricing and Advertising in Closed-loop Supply Chain. International Journal of u - and e - Service, Science and Technology, 8(11), 161-170, doi: 10.14257/ijunnesst.2015.8.11.16.

Tsang. M. M. Ho, S. C., & Liang. T. P. (2004). Consumer attitudes toward mobile advertising: An empirical study. *International Journal of Electronic Commerce*, 8, 65-78.DOI: 10.1080/10864415.2004.11044301.

Wong, M. M. & Tang, E. P. Y. (2008). Consumer attitude toward mobile advertising: The role of permission. *Review of Business Research*, 8(3), 181~187.

Zhang, J. & Mao, E. (2008). Understanding the acceptance of mobile SMS advertising among young Chinese consumers. *Psychology of Marketing*, 25(8), 787~805. DOI: 10.1002/mar.20239.