

## Article

# What Likeability Attributes Attract People to Watch Online Video Advertisements?

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**Abstract:** As online video viewing increases, so does the size of the online video advertising market. However, it is challenging to create an advertising creative suitable for online video services. Advertising likeability helps to provide the strategies necessary for producing video advertisements that can facilitate consumer responsiveness and generate persuasive effects. Therefore, this study aimed to identify the likeability attributes of online video advertising content that increase online video advertisement views and to validate them with actual user data. To achieve this objective, this study applied a mixed-methods approach using two studies. The first study was an exploratory study in which users' reviews on recently popular online video advertisements were analyzed through text mining, after which we identified key likeability attributes. We then conducted a focus group discussion method to measure the degree of video ads in each attribute. The second study was a confirmatory study, in which the key likeability attributes identified in the first study were verified empirically through an econometric model. As a result, we derived six likeability attributes of online video advertisements. The findings also highlight the effects of music, storytelling, influential people, and novel ideas on the number of views. Altogether, our study offers practical insights into which factors and identified likeability attributes enable effective online video advertisements.

**Keywords:** online video advertisement; advertising likeability; mixed-methods approach; focus group discussion (FGD)



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## 1. Introduction

As online video consumption continues to increase, so does the online video advertising market, such as YouTube advertising [1]. The online advertising market has continually evolved with changes in market trends and consumer interests, as well as the development of information technology [2]. Despite the economic effects of the COVID-19 pandemic on the market, the global online advertising expenditure in 2020 was \$378.16 billion, up from \$335.6 billion in 2019, and is expected to increase to \$645.8 billion by 2024 (<https://www.statista.com/statistics/237974/online-advertising-spending-worldwide/> (accessed on 2 March 2022)). In the pre-internet era, consumers mainly obtained information on products or brands through mass media advertisements [3]. For this reason, advertisements were produced based on promotional or informational content.

The development of information technology has also enabled consumers to obtain information quickly from various media platforms. In this case, advertisements are more concerned with content designed to please consumers, and they go beyond just simply offering information. As online video advertisements are widespread and can be skipped due to media characteristics, users can easily avoid advertisements that are offered when watching online videos. However, advertising agents and companies of products in advertisements prefer that consumers watch their advertisements completely without skipping them. Thus, advertisements have been produced with various concepts to draw consumers'

attention. Nevertheless, it is challenging for advertising agents to create advertisements that fully attract and engage consumers.

Advertising likeability can help facilitate consumer responsiveness and generate persuasive effects. When consumers like an advertisement, the advertisement directly influences their feelings toward the product or brand presented [4,5]. Previous studies [4,6–11] have already suggested that advertising likeability is one of the important predictors of the advertised product or service sales. Few studies have focused on advertising likeability, but studies have focused on the conceptual research of advertising likeability and its effects. There is little research focused on analyzing the attributes of advertising likeability with actual data. Therefore, this study aimed to determine the likeability attributes of online video advertising content that increase online video advertising views and to validate them with actual user data.

To address this objective, we applied a mixed-methods approach with two studies. The first study was an exploratory study in which users' reviews on recently popular online video advertisements were analyzed through text mining, allowing key likeability attributes to be identified. Thereafter, we selected popular advertisements, including the key likability attributes, and classified the advertisements by each likeability attribute by conducting a focus group discussion (FGD). The second study was a confirmatory analysis in which key likeability attributes derived from the first study were verified empirically based on actual user data. Together, this study contributes novel insights into the media and advertising field by identifying and empirically validating the likeability attributes of online video advertising content, which has been an important predictor of persuasion and sales for advertising products. Further, this study's findings contribute to the promotion of the online advertising market by identifying the likeability attributes of effective online video advertisements.

## 2. Conceptual Background

### 2.1. Online Advertising Likeability

The success of advertisements and advertising creatives is dependent on consumers [12]. People think of advertisements as a disruption to their media viewing, and thus, they tend to avoid watching them. Compared to traditional mass media advertisements, such as TV advertisements, online video advertisements can be easily skipped by viewers. For this reason, it is critical for online video advertisements to attract viewers to watch the entire duration of the advertisement. In traditional TV advertisements, viewers more readily watch and accept the contents presented, whereas, in online video advertisements, viewers prefer not to watch advertisements in their entirety to quickly view the main media content [13]. In other words, viewers can choose to either watch or skip advertisements depending on their interest in them [13,14].

According to previous research, high-arousal stimuli increased viewers' attraction and attention to advertisements [15]. In the online video context, there are several advertisements that viewers can be exposed to when viewing a great deal of online content, and the level of control of advertisements has evolved. From a business perspective, given that the revenue model of online video advertising is based on the insertion of advertisements, profits are dependent on how much advertising users are subjected to. Therefore, it is important to expose users to advertisements for more than a certain amount of time [13,16]. As such, advertisers strive to produce attractive advertisements with new concepts, encouraging viewers to watch their advertisements for longer or to the end.

Advertising likeability may also facilitate consumer responsiveness. Likeability is related to one's positive feelings toward, enjoyment of, or satisfaction with something. An effective advertisement is one that consumers like and intend to watch again [17]. The likeability positively influences the duration and intensity of viewers' attention, brand recall and awareness, and effectiveness in generating sales [8,18]. Therefore, this study defines online advertising likeability as viewers' liking of and satisfaction with online video advertisements and desire to watch them again [17]. If viewers have a greater likeability

for a particular online video advertisement, they will have the intention to watch it to the end or again [4]. In addition, advertising likeability directly influences viewers' feelings toward advertised products or services [5].

The roles of advertising likeability and likeability in the advertising process have been analyzed in some studies [11,19–21]. Regarding components of advertising likeability, in traditional advertisements, likeability was presented as a complex concept involving various factors and was identified with five dimensions: ingenuity, meaningfulness, energy, warmth, and rubs the wrong way [4]. For the attributes of advertising likeability, Fam [22] identified seven dimensions based on five countries, which were entertaining, warmth, relevant to me, soft sell, strong/distinctive/sexy, status appeal, and trendy/modernity/stylish. For online video advertisements, entertainment, informativeness, and credibility positively influenced the attributes of advertising [23]. Compared to traditional mass media advertising, online video advertising features high user control over watching advertisements. Therefore, it is necessary to generate a more strategic advertising creative. Since online video advertisements are inserted into online videos on social media, it is possible to collect viewers' reviews about advertisements in such media. Therefore, this study aimed to identify key attributes of advertising likeability and to validate them based on advertising content by analyzing viewers' reviews on popular online video advertisements.

## 2.2. Previous Studies on Online Video Advertisement

Online video advertisements have drawn massive attention and gained more views through online video platforms, such as YouTube. Online video advertisements are advertisements inserted in online video content. Viewers tend to skip these advertisements to watch their main media content more quickly. Notably, watching online video advertisements is highly controlled by viewers according to advertising likeability. Therefore, it is important to reflect advertising likeability that compels viewers to watch advertisements without skipping them. However, most research on advertising likeability focused on the advertising content of traditional mass media. Regarding the online advertising context, previous studies have mainly aimed to determine the characteristics of online advertising and their effects.

Table 1 summarizes previous studies on online advertisement. Tellis et al. [24] examined the characteristics of advertisements that induce online advertising virality. The study found that positive emotions, such as amusement, excitement, inspiration, and warmth, positively influenced sharing. However, information-focused content, except for risky content, negatively affected sharing. In addition, a variety of drama elements, such as surprise, plot, and characters, including babies, animals, and celebrities, aroused emotions. Wai Lai and Liu [25] analyzed how content likeability, content credibility, and social media engagement influenced user acceptance of product placement in mobile social networks. The study found that content likeability, content credibility, and social media engagement directly affected user acceptance of product placement in mobile social networks. Social media engagement influenced content credibility, and content likeability was an antecedent of social media engagement and content credibility. Shehu et al. [26] examined how likeability dynamics influenced consumers' intention to share online video advertisements. The study demonstrated that high likeability from the beginning to the end of an online video advertisement is important.

Goodrich et al. [27] examined how advertisement characteristics, such as length, humor, and informativeness, influenced perceived ad intrusiveness and marketing outcomes. The study found that intrusive advertisements negatively affected attitudes toward advertised brands and host websites and intentions. On the other hand, it was determined that informative and humorous video advertisements and longer advertisements dampened viewers' attitudes and intentions to a lesser extent. Dehghani et al. [28] identified the dimensions of YouTube advertisements that influenced advertising value and brand awareness and analyzed consumers' purchase intentions. The study found that entertainment, informativeness, and customization were the strongest positive drivers of purchase

intention, and irritation negatively influenced purchase intention. To predict the instantaneous likeability of advertisements, Saha et al. [29] proposed a prediction algorithm based on deep learning and compared it with other methods. The authors classified advertisement clips into five categories (i.e., entertaining, creative, emotional, humorous, and miscellaneous) based on the overall impression of raters. Puwandi et al. [30] examined factors that influenced consumer response to video advertisements. The study found that consumer behavior toward online video advertisements positively influenced consumer response, and intention to watch the advertising, flow, and corporate reputation positively affected consumer behavior. In addition, informativeness, entertainment, and credibility positively influenced attitudes toward the advertisement, whereas irritation negatively affected attitudes toward the advertisement.

Most studies on online advertisements have focused on the characteristics and effects of online advertising. Although there have been some studies focused on the likeability of online advertisements, most studies have adopted concepts used in previous studies. It has also been rare to analyze the likeability attributes of advertisements watched by viewers. In addition, most previous studies have used perception data through survey methods. Saha et al. [29] proposed a prediction algorithm based on deep learning methods to predict the instantaneous likeability of an advertisement. However, they did not classify the advertisement into likeability factors from the perspective of viewers and validate them. Rather, they focused on developing a prediction model for the likeability of advertisement and validated its quality. That is, few research studies have derived the factors of advertising likeability of online video advertisements from the perspective of actual users (viewers) and validated them. Therefore, this study aimed to derive and validate the likeability attributes according to viewers from the content perspective of online video advertisements by utilizing actual data.

**Table 1.** Previous Studies on Online Advertisements.

Study	Method	Objective	Results
[30]	Survey (descriptive survey)	To examine factors that affect consumer response to online video advertisement	Showed that consumer behavior toward online video advertisement positively affects consumer response
[29]	Deep learning	To predict instantaneous likeability of advertisements	Proposed algorithm to predict instantaneous likeability of advertisements and compared the algorithm with other methods
[25]	Survey	To investigate the effects of content likeability, content credibility, and social media engagement on users' acceptance of product placement in mobile social networks	Showed that content likeability is an antecedent of social media engagement and content credibility; social media engagement has an influence on content credibility; and content likeability, content credibility, and social media engagement both directly affect user acceptance of product placement in mobile social networks
[24]	Mixed-effects regression	To understand ad-related characteristics that drive virality (sharing) of online ads	Found that positive emotions of amusement, excitement, inspiration, and warmth positively affect sharing
[28]	Survey	To identify dimensions of YouTube advertising that may affect advertising value, as well as brand awareness and, accordingly, purchase intentions of consumers	Showed that entertainment, informativeness, and customization are the strongest positive drivers, while irritation is negatively related to YouTube advertising
[26]	Survey	To examine the effects of likeability dynamics on consumers' intentions to share online video advertisements	Found that high likeability at the beginning and the end of a video advertisement is important

Table 1. Cont.

Study	Method	Objective	Results
[27]	Experiment	To examine the effects of advertisement characteristics (i.e., length, humor, and informativeness) on perceived ad intrusiveness and on marketing outcomes	Showed that intrusive advertisements negatively affected attitudes and intentions toward both the advertised brand and the host website

### 3. Research Methodology

#### 3.1. Research Context

For the research context, we chose one of the top ten global portal websites, which provides an online video service, “S-Service” (for reasons of confidentiality, we refer to this Korean video service by the pseudonym of S-Service) for its users (viewers) and brands. Most video content formats are online TV clips [31] produced by terrestrial and cable networks. In addition, this service allows companies to open online brand channels and distribute their advertising through online videos. Like YouTube, S-Service’s business model is based on video advertising revenue, but unlike YouTube, general viewers have restrictions on uploading their videos. However, viewers can watch online videos on S-Service for free and conveniently comment on their thoughts and opinions on the online video. Furthermore, when a viewer clicks on a short clip in S-Service, a skippable video advertisement plays for 15 s, and the “Skip” button appears, allowing the viewer to choose between watching or skipping the advertisement. As the first step of the exploratory study, we collected 14,561 comments from the ten online video advertisements with the highest cumulative views among the brand channel in 2020.

The comment data collection period was from the release date of each video to 16 February 2020. Next, we obtained 627 datasets of video-level viewing records for ad campaigns that were executed in 2020 from S-Service. The data included the video URL of each advertisement, the number of impressions, 15 s plays, the number of complete views, clicks, and skip data. We excluded advertisements from the same advertising campaign and advertisements with missing data. Finally, we selected 300 online video advertisement datasets with a total of 538,135,696 impressions.

#### 3.2. A Mixed-Methods Approach and Research Procedure

A mixed-methods approach combines both qualitative and quantitative methods, and it can be conducted concurrently or sequentially depending on the purpose of the study [32,33]. Mixed-methods research questions differ from qualitative and quantitative research questions. Quantitative research questions tend to be specific in nature [34]. However, qualitative research questions are more open-ended, evolving, and non-directional [34]. The major difference between quantitative and qualitative research questions is that one generally develops quantitative research questions before the study begins; in contrast, one generally develops qualitative questions at the beginning of the study, or the questions emerge at some point throughout the study [34]. A mixed-methods approach has the ability to address both exploratory and confirmatory studies using the same research questions. A qualitative method has typically been used for exploratory research to develop an understanding of a phenomenon. In contrast, a quantitative method has typically been used for confirmatory studies. This study aimed to explore the likeability attributes of online video advertising content that increase online video advertising views and to validate them with actual user data. Since the online video service is an emerging phenomenon, we first adopted exploratory studies as qualitative studies to determine the likeability attributes of advertisements. We collected data by compiling user comments on advertising video clips and determining the likeability attributes of online video advertising content. Qualitative research was necessary in this study, as previous studies did not provide adequate insights and likeability attributes regarding online video advertising content. Because this

service is relatively new and rapidly evolving, we needed to investigate major likeability attributes utilizing user data. Then, we developed and tested an econometric model based on the likeability attributes derived in the exploratory study. Therefore, we integrated Equations (1) and (2). As notation, we use  $P(t)$  for the distribution over topic  $t$  in a specific document and  $P(k|t)$  for the probability distribution over keyword  $k$  given topic  $t$ .  $P(t_i = j)$  refers to the probability that the  $j$ th topic was sampled for the  $i$ th keyword token.  $n$  is the number of topics, and  $Y$  refers to the dependent variable.  $\beta$  is the regression coefficient of the explanatory variable (i.e., topic  $t$ ), and  $\epsilon$  is the error.

$$P(t_i) = \sum_{j=1}^n P(k_i|t_i = j)P(t_i = j) \tag{1}$$

$$Y_i = \beta_1 t_{i1} + \beta_2 t_{i2} + \dots + \beta_n t_{in} + \epsilon_i \tag{2}$$

In this study, we aimed to examine new phenomena and test a model based on the likeability attributes derived from the qualitative study. Since qualitative or quantitative research alone is insufficient to address the issue, a mixed-methods approach was used in this study. Following the guidelines [35], we used a sequential mixed methods design for qualitative and quantitative analyses. These methods are implemented in different phases, and each is integrated into a separate phase. This research design serves the developmental and confirmation purposes of our study [32,35]. Therefore, we applied a mixed-methods approach using qualitative and quantitative methods to achieve our research objectives. Figure 1 illustrates our research procedure.

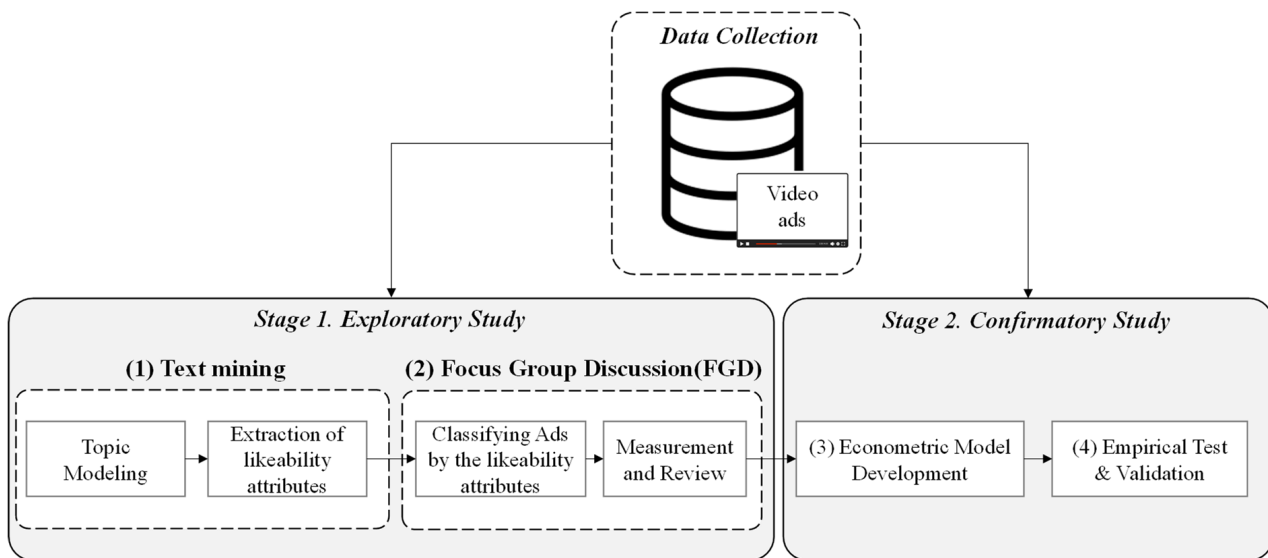


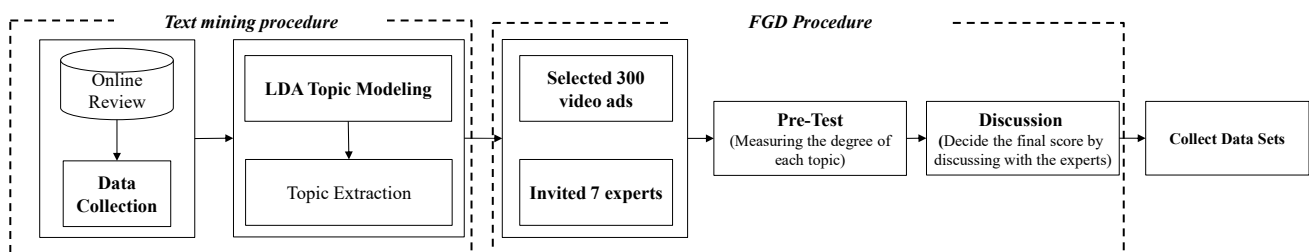
Figure 1. Research procedure.

For the exploratory study, we collected data by crawling comments on advertising video clips on branded channels. (1) First, the key likeability attributes of online advertisements based on topic modeling techniques were explored, and the attributes were reviewed by experts. (2) Next, we selected representative advertisements that included key likeability attributes and classified the advertisements according to these attributes through a focus group discussion (FGD) [36]. We also measured the degree of each attribute that was explored using topic modeling methods. The media company provided advertisement datasets, including URLs and user logs of 627 videos derived from when they executed the campaign. Among them, 300 refined videos were supplied to the FGD participants to measure the likeability attributes of each video. The calculated results were developed as the final dataset through FGD. For the confirmatory study, (3) we developed an econometric model using the derived likeability attributes and validated it using user

log data. (4) Through an econometric analysis, we tested the effect of likeability attributes on the online video advertising views. Finally, we suggested strategies for online video advertisement production that can increase user involvement in online video advertising.

### 3.3. Text-Mining Analysis and Focus Group Discussion (FGD)

We conducted a topic modeling technique of text mining and a focus group discussion (FGD) for the exploratory study. Regarding text mining, this study used latent Dirichlet allocation (LDA) topic modeling to explore the likeability attributes of online video advertisements. After topic modeling, we selected 300 popular advertisements that included the key likeability attributes and classified the advertisements by the likeability attributes through FGD. Figure 2 illustrates the exploratory study procedure, including LDA topic modeling and the FGD.



**Figure 2.** Exploratory Study Procedure.

LDA topic modeling is a text analysis method that extracts and summarizes information from text data. With increased online user reviews, previous researchers adopted topic modeling techniques to derive topics based on user reviews [37,38]. The LDA method is one of the most frequently used topic modeling techniques [39]. Its approach treats keywords as groups on a specific topic by calculating their probability [39]. Probabilistic clustering approaches extract potentially important topics from text and identify the main keywords and their weights. The method helps collect and analyze prominent people's honest opinions without the risk of reflexivity. We conducted LDA topic modeling with the following process, guided by previous studies [37,39]. First, the collected data were pre-processed through Part-Of-Speech tagging (POST) and the removal of stop words. Next, we applied the LDA algorithm for data analysis, as the LDA algorithm is necessary to establish the number of topics (K) to be identified. Finally, we decided on the names of topics to properly represent the keyword sets.

A focus group discussion (FGD) is a qualitative research method involving an interactive discussion and is led by a trained moderator [40]. The FGD method is widely used in mixed-method studies because it generates more sociological data that can support the results of other methods with high face validity and an economic/speed advantage [40,41]. Following the guideline in [36], we invited seven experts (two information system (IS) researchers, one advertising producer, and four advertising company employees) to conduct the FGD method. Before the FGD, we thoroughly explained the aims of the study and explored the likeability attributes of online video advertisements, including definitions and examples, to participants. Then, we asked them to watch advertisements and measure each likeability attribute's degree as a pre-survey process. Conducting a pre-survey helps prevent a group-thinking impact on individual participants' responses [40]. Table 2 presents the pre-survey questions in this study. The degree was assessed on seven-point Likert scales (1 = strongly disagree; 7 = strongly agree).

**Table 2.** Pre-survey questions.

Likeability Attributes	Questions
Music effect	<ul style="list-style-type: none"> <li>Does the video ad you watched include memorable songs, music, and sound effects?</li> </ul>
Message delivery	<ul style="list-style-type: none"> <li>Does the video ad you watched have a message that can be emotionally touching or with which the user can empathize?</li> </ul>
Storytelling	<ul style="list-style-type: none"> <li>Does the video ad you watched have a specific storyline or story-supporting elements (e.g., plot, characters)?</li> </ul>
Influential people	<ul style="list-style-type: none"> <li>Does the video ad you watched include people who are influential in the public because of their recent popularity?</li> </ul>
Novel idea	<ul style="list-style-type: none"> <li>Does the video ad you watched contain witty ideas and novel techniques?</li> </ul>
Event-based information	<ul style="list-style-type: none"> <li>Does the video ad you watched provide helpful information or contain marketing events and activities in which viewers can participate directly?</li> </ul>

#### 4. Results

##### 4.1. Exploratory Study

We first measured the perplexity and coherence scores to determine the number of topics [42]. A perplexity score measures how well topics reflect a text’s content; the lower the perplexity score, the better the output [43]. The coherence score analyzes the similarities of words in a topic; the higher the coherence score, the greater the semantic consistency observed [44]. We determined six topics by synthesizing the perplexity score (−7.80) and the coherence score (0.50). The designation of topics was developed by three experts (two IS researchers and one advertising producer) after considering the meaning of each keyword and its relationship with the others [37]. Table 3 shows the key likeability attributes of online advertisement, keywords, and sample comments for each attribute.

**Table 3.** Explored likeability attributes.

Topic Modeling Results		
Key Likeability Attributes	Keywords	Sample Comments
Music effect	voice, music, song, sound, addiction, music video, digital sound source	<ul style="list-style-type: none"> <li>It is my first time looking for an advertisement. I liked the song so much that I’ve watched this video more than 10 times.</li> <li>I felt that the music in the advertisement was like a music video.</li> <li>Who makes this CM song~~~~? The ad music is addictive, so I keep listening to it</li> </ul>



Table 3. Cont.

Topic Modeling Results		
Message delivery	life, begin, cheer, support, victory, message, empathetic	<ul style="list-style-type: none"> <li>• Isn't this a nominee for the advertisement excellence award?? The ad is so touching</li> <li>• Penguin~ It's touching~ Do you really want to see Mom and Dad? I will support you??</li> <li>• It is an ad that is impressive to watch again. After seeing this, I bought red ginseng for the first time in my life. I like the inspired message of the video.</li> </ul>
Storytelling	plot, youth, love, story, image, web drama	<ul style="list-style-type: none"> <li>• Looking back, it's a really well-shot ad with a solid storyline.</li> <li>• The Antarctic penguin story is sadder than the Little Mermaid story. I am curious about the following story.</li> <li>• Wow, the story and acting are all crazy! Great!!</li> </ul>
Influential people	Young-woong, Jennie, model, Lee-naeun, Gwang-hui	<ul style="list-style-type: none"> <li>• It's the first time I've seen such a cute soju endorser Na-eun. My heart hurts!</li> <li>• Isn't it cheating to have Jenny appear in the commercials? How the hell do you skip this ad?</li> <li>• Wow~~ This is cool. Black &amp; White. Is he a trot singer?? It looks like an actor!! Lim Young-woong!</li> </ul>
Novel idea	witty, novel, fun, ridiculous, charm	<ul style="list-style-type: none"> <li>• I'm crazy, the funniest ad I've ever watched.</li> <li>• It's the first time I've seen an ad this ridiculous. The other ads are long, and I'm mad, but this one is running out of time.</li> <li>• The creative was so unique that I had to watch it to the end.</li> </ul>
Event-based information	gift, collection, marketing, thanks, event	<ul style="list-style-type: none"> <li>• If you buy the pengsoo sticker, you will receive expensive red ginseng as a gift. New Year's Eve event is hot</li> <li>• Everyone seems happy with the new Chex-flavored event, where even elementary, middle, and high school students joined together to collect.</li> <li>• Thanks to the BBQ event, I ate chicken well. Marketing and ads are good.</li> </ul>

The six likeability attributes are as follows: *music effect, message delivery, storytelling, influential people, novel idea, and event-based information*. First, the *music effect* indicates that the advertisements include memorable songs, music, and sound effects and give the feeling of watching a music video. Lantos and Craton [45] proved that musical characteristics, such as genre, style, and role of music in ads, affect consumers' attitudes toward the ads and brand. The identified keywords (voice, music, song, sound, addiction, music video,

and digital sound source) also collectively represent the *music effect* as explored likeability attributes. The comments indicate that music is related to ad likeability and compels viewers to watch the ad video repeatedly. A sample subject commented, “*The ad music is addictive, so I keep listening to it.*”

The second likeability attribute is *message delivery*, indicating that the advertisements contain a message that can be emotionally touching or can be empathized with by the viewer. Here, the message refers to deriving a realization or thought by watching the advertisement video. Previous studies support that message delivery responses in advertising involve consumers more deeply [46]. The identified keywords are life, begin, cheer, support, victory, message, and empathetic. An example comment mentioned that “*It is an ad that is impressive to watch again.*” Third, *storytelling* refers to advertisements with a specific storyline or story-supporting elements (e.g., plot and characters). Tellis et al. [24] identified that the storyline captivates and engages ad viewers. The specified keywords include plot, youth, love, story, image, and web drama. Related comments indicate that drama and plots in ads contribute to an ad’s likeability.

Fourth, the *influential people* attribute indicates that advertisements include people who are influential to the mass public because of their recent popularity. The appearance of celebrities in advertisements draws the attention of ad viewers and is also one of the main likeability attributes of advertisements [47]. The identified keywords, which are the names of influential Korean people (Youngwoong, Jennie, Leenaean, and Gwanghui), also collectively represent *influential people* as explored likeability attributes. An example comment is, “*It’s the first time I’ve seen such a cute soju endorser Naeun.*” Fifth, *novel idea* represents advertisements that contain witty ideas and novel techniques. Few researchers have found that witty ads affect viewers’ attitudes toward advertisements [24,48,49]. The identified keywords are witty, novel, fun, ridiculous, and charm. An example comment is, “*I’m crazy, the funniest ad I’ve ever watched.*”

Lastly, *event-based information* refers to ads that provide helpful information about the product or service or contain marketing events and activities in which the viewers can participate directly. It includes activities or actions that viewers can engage in, such as searching for a brand or downloading a related app. An empirical study identified informativeness in ads as significantly related to advertising value [50]. The specified keywords are gift, collection, marketing, thanks, and event. An example comment is, “*Thanks to the BBQ event, I ate chicken well. Marketing and ads are good.*”

Based on the LDA topic modeling of comment data for exploring the likeability attributes of ads, we conducted a focus group discussion method to measure the degree of video ads in each attribute. First, we conducted a pre-survey with the seven invited experts. A total of 300 advertisements were used in the survey, and it took an average of two hours for each participant. After the pre-survey, the participants discussed and reviewed each video to confirm the final score of the results with a moderator. The moderator presented the advertisement video that the participants had just watched through thumbnails and brief descriptions of each advertisement and asked for the score of each likeability attribute individually. If the participants’ scores did not match, the final score was determined through discussion among the participants. In addition, if the score was not confirmed even after discussion, the corresponding ad creative was excluded from our study data. The number of advertisement video clips for which an agreement was finally reached among participants was 272.

#### 4.2. Confirmatory Study

We used a total of 272 advertisement video clips in the analysis. The dependent variable, *VTR* (view-through rate), was calculated by dividing the number of views of advertisement videos watched for more than 15 s by the total number of impressions because the video length was different for each of them. As for control variables, length was operationalized as the playback duration of the advertisement video. Table 4 shows descriptive statistics and the results of correlation analysis.

**Table 4.** Correlations Between Variables.

		Mean	S.D.	V1	V2	V3	V4	V5	V6	V7	V8
Music effect	V1	2.563	1.831	1.000							
Message delivery	V2	2.051	1.296	0.090	1.000						
Storytelling	V3	2.743	1.824	−0.026	0.210	1.000					
Influential people	V4	3.941	1.932	0.109	−0.112	0.092	1.000				
Novel idea	V5	2.063	1.517	0.143	−0.097	0.212	0.164	1.000			
Event-based information	V6	2.452	1.645	−0.125	−0.141	0.005	−0.098	0.014	1.000		
Length	V7	45.261	72.118	−0.044	0.004	0.097	−0.003	0.103	0.063	1.000	
VTR	V8	0.271	0.107	0.196	0.013	0.225	0.216	0.221	−0.066	−0.079	1.000

We applied the logit-transformed VTR after checking the distributions of variables. Equation (3) shows the logit transformation of VTR. The value of VTR is a predicted positive number and constrained to a maximum of 1 for proportional measurement. In this case, the logit transformation (i.e., log-odds) can deal with sensitivities. Equation (4) describes the econometric model of this study. In this study,  $\text{logit}(\text{VTR}_i)$  refers to the view-through rate of advertisement video clip  $i$  as a dependent variable, and  $\gamma$  is the regression coefficient of the control variable.

$$\text{Logit}(Y_i) = \ln\left(\frac{\text{VTR}}{1 - \text{VTR}_i}\right) \quad (3)$$

$$\text{logit}(Y_i) = \beta_0 + \beta_1 \text{Music effect}_i + \beta_2 \text{Message delivery}_i + \beta_3 \text{Storytelling}_i + \beta_4 \text{Influential people}_i + \beta_5 \text{Novel idea}_i + \beta_6 \text{Event based Information}_i + \sum_1^k \gamma_k \text{Controls}_j + \varepsilon_j, \quad (4)$$

Next, we performed tests according to Equation (4) to determine whether there was heteroskedasticity. The test results show that this model rejected homoskedasticity at the 1% significance level. Therefore, an estimation was made considering heteroscedasticity. We thus corrected standard errors so that our interval estimates were valid by using robust standard errors [51].

In Table 5, Model (1) and Model (2) represent the results as two dependent variables (hereafter, DVs). We analyzed Model (2) as our main model and then checked its robustness to a different specification with the non-logit transformed DV, Model (1), motivated by Xu and Lee's study [52]. The results are similar between the models overall. As other variables are constant, the odds ratio for the *music effect* is 1.043 ( $=e^{0.141}$ ) and significant. It means that the odds ratio for the *music effect* of a likeability attribute increases from 1.0 to 1.043 even after controlling for other variables. The odds ratio for *storytelling* as a likeability attribute increases from 1.0 to 1.050 ( $=e^{0.051}$ ) and is significant. The odds ratios for *influential people* and *novel idea* as likeability attributes are 1.041 ( $=e^{0.040}$ ) and 1.049 ( $=e^{0.048}$ ) and significant. However, the remaining two likeability attributes (*message delivery* and *event-based information*) showed no statistically significant association with user involvement. We also found that the odds ratio for the length of an advertisement was not significant. Additionally, we also analyzed interaction effects in a post hoc analysis, but all were rejected.

Table 5. Main Results.

	Model (1): DV		Model (2): Logit-Transformed DV	
	Coefficient ( $\beta$ )	S.E.	Odds Ratio ( $e^{\beta}$ )	S.E.
Music effect	0.009 **	(0.003)	1.041 **	(0.012)
Message delivery	−0.001	(0.005)	1.004	(0.020)
Storytelling	0.012 **	(0.004)	1.052 **	(0.015)
Influential people	0.008 *	(0.003)	1.041 **	(0.015)
Novel idea	0.010 **	(0.003)	1.049 ***	(0.012)
Event-based Information	−0.002	(0.004)	1.000	(0.018)
Length	0.000	(0.000)	0.999	(0.000)
Constant	0.177 ***	(0.024)	0.152 ***	(0.129)
$R^2$	0.150		0.146	

## 5. Discussion and Implications

### 5.1. Discussion of Findings

With the development of IT and the activation of various media, more online content has been produced and consumed. Especially as social media platforms such as YouTube were introduced, online video advertisements based on such media have drawn a lot of attention. Compared to traditional advertisements, online video advertisements give viewers more freedom to choose what they view. For this reason, it is important to compel consumers to watch online advertisements for longer or in their entirety. This study derived and validated key likeability attributes of online video advertisements to meet this goal.

Using LDA topic modeling of text mining, we derived the key likeability attributes of online video advertisements, developed an econometric model with the derived likeability attributes, and tested them. Through LDA topic modeling of text mining, six key likeability attributes were identified: *music effect*, *message delivery*, *storytelling*, *influential people*, *novel idea*, and *event-based information*. Thereafter, we conducted a focus group discussion (FGD) to select representative advertisements that included the key likability attributes and classified the advertisements by each likeability attribute. We then tested the effects of the key likeability attributes on online video advertisement views. Our results indicated that, among the six likeability attributes, *music effect*, *storytelling*, *influential people*, and *novel ideas* influenced consumers' viewing of online video advertisements. Based on the key likeability attributes, we suggest strategies for online video advertisement production, as shown in Table 6. Although the attributes *message delivery* and *event-based information* among the derived likeability attributes were not significantly influential, we included them in the suggested online advertising strategies.

The *music effect* refers to advertisements that apply a specific song or type of music or create a new song. Music or songs are used to persuade in political messages and commercial advertising [53]. It has been said that music in media exerts a persuasive influence through cognitive and affective processes, along with information other than music (e.g., visual images, words, and narrative structure). Notably, in advertising, music plays various roles, such as the attraction of consumers' attention, the delivery of product messages, and the stimulation of associations [54]. In other words, music combined with advertisements helps bring up the image of the product through its melody and thereby leads to marketing. Therefore, not only is an appropriate music or song applied to an online video advertisement, but a song in harmony with an advertising product or service's concept is created. Recently, in the advertising industry, 'branded content' has drawn much attention. Branded content produces advertising effects by placing an image related to an

advertising product, service, or brand in cultural content without any exposure to its name. With the growth of online video advertisements, such as those on YouTube, advertising by the medium of culture, rather than direct advertising, generates a more effective marketing tactic. Therefore, we can consider creating advertisements that are more like music videos.

**Table 6.** Suggested strategies for online video advertising.

Key Likeability Attributes	Suggested Strategies
Music effect	<ul style="list-style-type: none"> <li>• Creating songs that are specific to the product and the service being advertised</li> <li>• Creating music video-style advertisements</li> </ul>
Storytelling	<ul style="list-style-type: none"> <li>• Creating advertisements with stories</li> <li>• Creating series-based advertisements</li> </ul>
Influential people	<ul style="list-style-type: none"> <li>• Utilizing celebrities who communicate frequently with the public through social media</li> <li>• Utilizing people who are popular online (e.g., influencer)</li> </ul>
Novel idea	<ul style="list-style-type: none"> <li>• Applying witty and novel concepts</li> <li>• Utilizing new technologies (e.g., interactive advertising)</li> </ul>
Message delivery	<ul style="list-style-type: none"> <li>• Providing content that everyone can relate to (e.g., pandemic situation and employment problems)</li> <li>• Delivering messages of emotion, laughter, etc.</li> </ul>
Event-based information	<ul style="list-style-type: none"> <li>• Providing information that includes marketing events</li> <li>• Advertising production based on consumer participation</li> </ul>

For *storytelling*, most traditional advertisements have the approach of pushing information that they want to promote to viewers, so they tend to avoid such advertisements. Nevertheless, in traditional TV advertising, it is possible to expose consumers to advertisements even if consumers provide no response. However, in online video advertising, the platform enables viewers to avoid advertisements through functions such as “skip”. Therefore, it is important for online video advertisements to captivate and retain viewers in watching the advertisements for longer or until the end. It is necessary to remove viewers’ sense of refusal to advertising content and to deliver advertising messages naturally. As viewers increasingly watch video content through smartphones, online video advertisements can leverage such strategies. It is possible to dramatize advertisements to attract viewers’ attention. Compared to traditional TV advertising, online video advertising has fewer time limits. Accordingly, it is possible to incorporate more stories into advertisements and focus on dramatized advertisements. These story-based advertisements can first attract viewers’ attention through their storytelling and then briefly display their advertising message in the last segment. In this way, it is possible to encourage viewers to concentrate more on advertisements. In addition, an advertising series enables users to have more interest in advertisements.

For *influential people*, celebrities have long been used in advertising. These days, however, people spend more time on social media, beyond that spent on traditional media. For this reason, influencers have a larger influence on the public through social media. Therefore, we suggest the utilization of celebrities or influencers who continue to communicate with the public on a personal and relatable level through social media.

Given that influencers have different appealing images and characteristics, it is necessary to analyze and apply them effectively and create advertisements in line with the appropriate concept. For the *novel idea*, the concept of an advertisement is determined according to an advertised product or service, or its witty idea can be designed with the use of recently popular content. By using the characteristics of online video advertising and communicating with the public, we suggest creating advertisements that induce consumers' participation. Aside from that, with the application of advanced technologies, such as AI, VR, and AR, it is possible to make advertisements. If non-identified personal information is available, data-based advertisements can be considered.

For *message delivery*, in the case of online media platforms, such as YouTube, the decision to watch advertisements depends on the viewers. Advertising content plays an important role in making viewers interested in advertisements and watching them. Advertisement content that evokes viewers' empathy, enjoyment, and captivation is popular to the public. The major goal of content-type advertisements is to give consumers a sense of fun, pleasure, or captivation, thereby inducing consumers' viewing and attraction. For example, if recent social issues, such as the COVID-19 pandemic or employment issues, are used as advertisement themes, it is easier to gain people's empathy. Content-type advertisements are mainly offered on social media platforms, such as YouTube and Instagram. Through users' likes and sharing and other users' word-of-mouth, such advertisements generate additional marketing effects.

For *event-based information*, most advertisements in the pre-internet era included detailed information on advertised products or services. Since the internet disperses information widely, and consumers can obtain information easily, advertisements have lessened their role in offering information. Instead of directly offering information on advertising products or services, based on the characteristics of online video advertising, we suggest offering information on events and activities to facilitate consumers' participation. For example, by allowing consumers to share their experiences with advertised products or services, it is possible to hold events to offer rewards and provide relevant information. In addition, by delivering information on various events that enable consumers to experience products or services in advertisements before purchase, online video advertisements make it possible to attract consumers' attention.

## 5.2. Limitations and Future Research

This study has a few limitations to note. Although this study determined likeability attributes that increase online video advertising views and validated them, we did not analyze other ad effectiveness measures, such as brand recall or purchase intention [5,55]. These measures can explain how ad likeability in online video advertising further influences the decision-making process. Moreover, online advertising can track other actual consumer behaviors not utilized in our study, such as ad-skipping or actual purchase behaviors [56]. Future research needs to collect these data for a complete understanding of ad likeability in online video advertising.

Second, this study only analyzed online video services in South Korea. Thus, the results of our study cannot be fully generalized to other countries or contexts. Future studies should consider other online video services that provide different elements of platforms (e.g., UI/UX) and global user data logs. Furthermore, ad likeability in online advertising can be influenced by other cultural, situational, or personal factors. However, these factors are beyond the scope of this study, given our limited dataset. We look forward to using data in various contexts in future studies.

Third, we examined the interaction between ad likeability attributes of online advertising, but this study did not find significant results. This may be due to a lack of sufficient ads and user log data. Given the high number of ads and user log data on online video services, future research could identify and examine the interaction effects of these ad likeability attributes. Lastly, we did not consider enough control variables. Future research should

use additional control variables, such as semantic and feature complexity, the number of celebrity endorsements, and product category [57].

### 5.3. Implications for Research and Practice

This study offers several important research and practical implications. Regarding research implications, this study contributes insights into a novel methodology by adopting a mixed-methods approach to determine and validate the key likeability attributes of online video advertisements. Most research studies have utilized survey methods or conceptual analyses and applied either qualitative or quantitative methods. This study adopted a mixed-methods approach to identify the key likeability attributes of online video advertisements through text mining and validated the derived likeability attributes with an economic model. Applying either a qualitative method or a quantitative method is insufficient for investigating the study's research questions. For this reason, a mixed-methods approach was adopted. By applying a mixed-methods approach using both qualitative and quantitative methods, this study overcame the limitations of using only one method. As for the mixed-methods research design, based on existing guidelines [32], we adopted a sequential explanatory design (i.e., exploratory investigation in study 1 and confirmatory investigation in study 2). In other words, this study derived key likeability attributes through text mining as a qualitative method, validated the developed economic model with derived likeability attributes, and contributed to the use of the mixed-methods approach.

Second, this study utilized actual user data to increase the reliability of the study results. By contrast, most previous studies on online advertisements have used perception data. With the use of the text mining technique, this study collected review data on online video advertisements. Thereafter, based on the likeability attributes derived through text mining, we developed an economic model and validated our findings with actual user data. That is, the influence of the likeability attributes on the views of online video advertisements was validated using actual user data. By applying actual data to identify and validate the key likeability attributes of online video advertising, this study increased the reliability of its results and improved its performance.

Third, this study applied the focus group discussion (FGB) method to classify the advertisements according to the identified likeability attributes through the text mining technique. The FGB generates more sociological data that can support the results of other methods with high face validity and a speed advantage [40,41]. This study improved the quality of research by applying adequate methods to identify and validate the likeability attributes of online video advertisements. Lastly, by deriving the likeability attributes of online video advertising, this study expanded research on media and entertainment fields. Regarding advertising likeability, most related studies have been conducted in the traditional advertising context, and some have been conducted in the online advertising context. Nevertheless, novel factors of online advertising failed to be highlighted. This study identified the likeability attributes of online advertising that differentiate it from traditional advertising, thereby proposing a detailed strategy for the creation of online video advertisements.

Regarding practical implications, based on the derived likeability attributes of online video advertisements, this study proposed strategies to create effective online video advertisements (see Table 6). The study suggested a detailed strategy to create an online video advertisement that consumers are more likely to view for longer or to the end. In line with consumers' interest in online video advertisements, in conjunction with the changing media environment, our study determined and validated key likeability attributes of effective advertisements. To this end, our study's findings enable further synergy for digital content businesses in the entertainment industry.

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