CONJOINT ANALYSIS FOR EFFECTIVE USE OF ONLINE VIDEO ADVERTISING ON VIDEO SHARING WEBSITES

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By

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CONJOINT ANALYSIS FOR EFFECTIVE USE OF ONLINE VIDEO ADVERTISING ON VIDEO SHARING WEBSITES

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ABSTRACT

This study employs conjoint analysis to ask which online video advertising formats consumers prefer. Research has shown that online consumers prefer to watch entertainment programming without the information of ads, yet ads are generally the heart of most online content programming business models. Thus, it is important to test whether giving people a choice of ads they have to watch helps how much they are willing to pay for entertainment content to avoid video ads, and what the influence of ad length is on those preferences. The study also looks at how other consumer responses, like advertising skepticism and attitude toward advertising in general, influence their preference structures.

Choice-based conjoint experiment was employed with four attributes: ad choice (ad choice vs. no ad choice), length of online video ads (15 seconds vs. 30 seconds), number of online video ads (1 ad vs. 2 ads vs. 3 ads), and membership price ($0 vs. $1.99 vs. $4.99 vs. $9.99). Overall, 223 college students participated in the experiment. Data analysis consisted of two phases: counting analysis and multinomial logit analysis.

The results indicated the impact of giving participants ad alternatives (i.e., ad choice) when using online video ads. Also, it was found that participants want to watch fewer ads and pay less money to buy membership on video sharing websites to avoid ads. However, considering the interaction effects, it is recommended using online video ads with ad choice and 15 seconds. Moreover, although participants preferred to watch fewer online video ads, when including ad choice in online video ads it is possible to increase the number of ads. Regarding the trade-offs between watching ads for free content and paying for ad-free content, negative ad perception did not generate the trade-offs, while positive ad perception supported the trade-offs. Therefore, it is possible that consumers who have positive ad perceptions may accept the option of purchasing membership on video sharing websites, which in turn gives platform providers opportunities for a business strategy for their websites. The implications of these findings for researchers and advertisers are further discussed.

CHAPTER 1

INTRODUCTION

Since video sharing websites such as YouTube.com or Hulu.com have emerged, the number of online users who spend time watching online videos, like user-generated content or short format/long format TV content, has increased. According to eMarketer (2011a), in 2010, about 65% of U.S. online users watched online videos. That number is expected to grow to 76% of U.S. online users by 2015. About 178 million people watch online videos per month; on average each person watches 171 videos, and spends 12 hours 39 minutes each month viewing online videos on video sharing websites (comScore 2010a). Moreover, there are few age differences in watching online videos. All age categories from pre-teens (aged from 2 to 11: 67.6%) to seniors (aged over 65: 61.7%) watch online videos (comScore 2009). Therefore, online videos are media that can reach all target segments across all age populations through video sharing websites.

As people watch online videos on video sharing websites they are more likely to be exposed to ads embedded in the online videos. It is recognized that using online videos is a good way to reach people online. Specifically, U.S. online users watched more than 8.3 billion online video ads in March, 2012 (comScore 2012). Along with increases of online video consumption among Internet users, advertisers have increased their interest in online video ads and allocated more money to online video ads on video sharing websites. According to eMarketer (2011a), online video advertising spending was about $1.42 billion in 2010, and is projected to be about $7.11 billion by 2015. This growth

indicates a compound annual rate of 38% in a five-year period by 2015; this reflects that online video advertising is the fastest-rising format of online advertising spending.

Online video advertising is a new form of advertising, providing advertisers with several benefits. eMarketer's (2009, 2010b) interviews with advertising professionals explicate the potential of online video advertising for advertisers. First, advertisers are now able to use premium content to embed ads generated by media professionals and entertainment companies, which in turn can enhance brand equity. Second, advertisers can deliver their marketing messages to a massive number of consumers. Third, online video advertising generates a strong ROI on the advertising dollars spent. Although compared to traditional TV ad spending, online video ad spending is small, ad spending per viewer-hour for online video ads is similar to TV. Fourth, consumers are more likely to reduce their negative perceptions of advertising, compared to traditional TV advertising. It is assumed that people are distracted from their viewing by fewer ads when viewing online videos than TV programs, and they may think that ads in online videos are also entertaining. In fact, over 25% of people who watched online video ads felt that those ads were enjoyable (comScore 2010a). Fifth, online video advertising provides advertisers with opportunities for better targeting. These advantages of online video advertising have driven the growth of the use of online video advertising.

There are two broad types of online video advertising (Lee and Lee 2008, 2009; Lee and Lee 2012): online video advertising with video playback control functions (i.e., buttons labeled play, pause, or stop) and online video advertising without these control functions. Unlike online video ads with those control functions, online video ads without those control functions are embedded into online video content (Lee and Lee 2012). For

instance, Dove's evolution campaign is an online video ad with the control functions; it requires clicking the ad to watch it and provides users with control functions such as play or stop during the presentation of the ad. On the other hand, when consumers watch any user-generated content on YouTube or TV shows on Hulu, they are forced to watch ads before, during, or after watching the video content. There are no control functions. Although people watch online video ads with control functions by actively searching websites (e.g., YouTube.com), many times, they encounter online video ads without control functions when watching online videos on video sharing websites.

Given that both formats provide users with video and audio streaming, they are similar to traditional TV commercials (Lee and Lee 2012). However, while online video advertising with control functions requires voluntary exposure for users to be exposed to the ads without streaming other video content, online video ads without the control functions requires forced exposure with streaming other video content. Therefore, online video advertising without control functions is almost the same format as a traditional TV commercial on video sharing websites. Although both types of online video ads are popular for advertisers, because the format of online video ads without control functions is familiar to advertisers, much like 30-second TV commercials, many advertisers have increased advertising budgets for that format of online video ads (IAB 2009; Katz 2010). Thus, in the current study, a main interest is online video advertising without the control functions (hereafter "online video advertising" represents online video advertising without the control functions).

This type of online video advertising is usually embedded into any form of online video programs such as TV shows, movies, trailers, and TV clips on video sharing

websites. Consumers are exposed to online video ads before, during, or after watching the video programs. As media technologies advance, consumers can watch online video programs through various media platforms such as Internet-connected TV (e.g., Apple TV, smart TV), smartphones (e.g., iPhone), tablets (e.g., iPad), or laptops and desktops accessing video sharing websites. When consumers watch online video programs on video sharing websites through these various media platforms, they also watch online video ads.

Despite the increased desirability of using online video ads among advertisers or marketers, there is little empirical evidence indicating what formats influence consumers to watch online video ads and, thus, how advertisers can use them most effectively on video sharing websites. The main purpose of the current study is to investigate effective use of online video advertising on video sharing websites in terms of consumers' decision-making process for watching online video ads. In addition, when consumers make a decision of whether or not to watch ads, several factors may have impacts on the decision-making such as ad formats and their prior perceptions of ads (i.e., ad skepticism and attitude toward ads). The current study considers these factors, along with effective use of online video advertising.

To achieve this purpose the current study will first explore appropriate format and length of online video ads among alternative options that affect consumers' preference of watching online video advertising. Second, the current study will examine how much consumers are willing to pay for enjoying online video content to avoid video ads on video sharing websites. In other words, the current study will investigate how consumers make a trade-off decision between watching ads for free content and paying for ad-free

content on video sharing websites. In the media industries, advertising is an important source for providing free content (Crampes, Haritchabalet, and Jullien 2009). In the new media environment, it is important to investigate new business models to balance trade-offs to benefit advertisers, media platforms, as well as consumers by conducting empirical studies. Thus, the current study explores the trade-off between watching ads for free content and paying for ad-free content in the context of online video advertising on video sharing websites. Third, the current study will investigate the influence of consumers' responses to advertising such as ad skepticism and attitude toward advertising in general on their preference structures in the context of watching online video ads on video sharing websites.

To examine consumers' decision-making for watching online video ads on video sharing websites formats of online video ads that have been used are first overviewed, and then trade-off decision-making related to watching online video ads on video sharing websites is reviewed within the theoretical concepts of the impact of choice (Anderson, Taylor, and Holloway 1966; Reibstein, Youngblood, and Fromkin 1975), ad skepticism (Darke and Ritchie 2007; Obermiller and Spangenberg1998, 2000), and attitude toward advertising in general (Dutta-Bergman 2006; Mitchell and Olson 1981; Muehling 1987). As an experimental method, conjoint analysis (Curry 1996; Green and Srinivasan 1978; Hair et al. 2006) is adopted.

Conjoint (trade-off) analysis is considered one of the most widely-adopted quantitative methods when conducting marketing research. It 1) examines the perceived values of particular product features; 2) explores how demand for a specific product or service is associated to price, and 3) predicts what the possible acceptance of a product or

service would be if conveyed to a real market (www.sawtoothsoftware.com). Unlike other research methods that test each variable directly, conjoint analysis tests what attributes consumers prefer in a more realistic context by examining their preferences about combinations of different variables. As a simple example, when testing consumers' perceptions of a car, instead of asking which brand (Toyota, Hyundai, Ford), color (black, gray, blue), or price ($10,000, $20,000, $30,000) they want, conjoint analysis evaluates consumers' preferences about combinations of those attributes (e.g., Toyota, black, $20,000 or Hyundai, gray, $20,000). Therefore, the current study used conjoint analysis as a realistic method to investigate consumers' trade-offs among different attributes in the context of consuming online video ads on video sharing websites. By employing a conjoint analysis experiment in the context of online video ads on video sharing websites, the current study is able to control the alternatives presented to respondents; however, it determines the specific characteristics of online video ads and video sharing websites that are the most influential attributes on consumers' preferences.

The current study is significant in that it attempts to bring conjoint analysis into the study of advertising; it also tests trade-offs – referring here to different combinations among various features related to online video ads – between watching ads for free content and paying for ad-free content on video sharing websites. Thus, this study will provide advertising researchers and practitioners with fundamental grounds to develop an effective trade-off strategy when they use online video advertising on video sharing websites as their advertising strategy. Additionally, the findings of this study will provide advertising researchers and practitioners with an understanding of what particular attributes of online video advertising influence viewing. Specifically, this study supports

a format that gives consumers alternative choice options of online video ads at the beginning of online video programs, called ad choice. This format will provide advertising and marketing industry with practical implications regarding how to enhance interactivity in online video advertising and consumers' preferences for watching online video ads.

CHAPTER 2

LITERATURE REVIEW

Definition and Use of Online Video Advertising

Online video advertising can be defined as a broadband video commercial that "may appear before, during, and after a variety of content including, but not limited to, streaming video, animation, gaming, and music video content in a player environment" (IAB 2008a, p. 5). This type of advertising may appear "in live, archived, and downloadable streaming content" (IAB, 2008a, p. 5). Online video advertising is a new form of advertising embedded into or accompanied with online video programs. The advent of rich media technology such as .swf (Adobe Flash) and .xap (Microsoft Silverlight) assist advertisers and marketers to use online video advertising in various ways.

There are three content types of online video programs in which advertisers and marketers can place online video advertising: professionally produced, "prosumer" (a blend between "Professional" and "Consumer"), and user-generated contents (UGC) (IAB 2009). Professionally produced content is usually produced by trained professionals in media or entertainment companies, and the companies have the rights to distribution. This type of content is often considered premium content. Prosumer content is a kind of user-generated content, but the quality is professional because it is created by users who have professional production skills. User-generated content (UGC) is produced by end-

users and available in public. When advertisers decide to use online video ads on video sharing websites, it is important to consider these possible types of online video contents.

The emergence of video sharing websites such as YouTube and Hulu has boosted the popularity of online video viewing. For example, YouTube, which was founded in 2005 and acquired by Google in 2006, provides consumers with mainly user-generated videos uploaded by users (www.youtube.com/t/about _youtube). On the other hand, Hulu, which was founded in 2007, provides consumers with mainly professionally generated videos such as a selection of popular TV shows, clips, or movies from over 350 content companies, including FOX, NBCUniversal, ABC, Univision, A&E Networks, MGM, MTV Networks, Comedy Central, National Geographic, Paramount, Sony Pictures, Warner Bros., TED and more (www.hulu.com/about). As the video sharing websites have increased in popularity, advertisers have increasingly launched their brands on online video ads on video sharing websites (eMarketer 2011b; Southgate et al. 2010).

Although the use of online video advertising has become popular in advertising industries, advertisers and agencies are still confused about the effective use of online video advertising (IAB 2008). Katz (2010) indicated that in the current world, as media have been developed with digitization and have become much more ubiquitous, it is important to find an appropriate advertising format or model that works considering digitization and consumer empowerment. Because online video advertising includes characteristics of both traditional TV advertising and online advertising, advertisers can encounter challenges, such as the lack of concurrence about appropriate formats for online video advertising; this also creates difficulties in finding optimal trade-offs between watching ads for free content and paying for ad-free content. To find good

solutions for online video advertising use, advertisers and agencies have to gain a comprehensive understanding of online video advertising and how it influences consumers.

Formats of Online Video Advertising

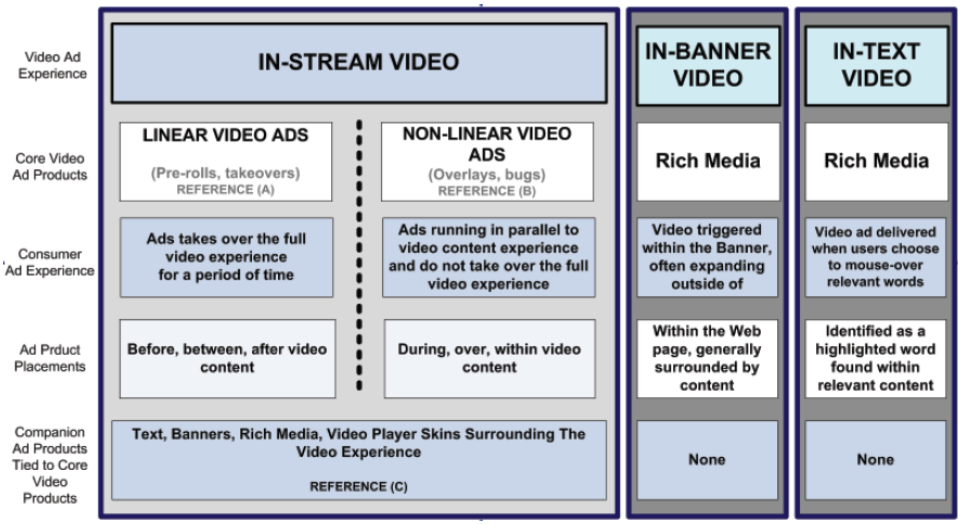
Since 2005, following the emergence of a digital environment with online videos and advertisers' desires about new interactive advertising formats of online video programs, the Interactive Advertising Bureau (IAB) has developed and updated creative guidelines for online video advertising. IAB (2008b, p. 4) broadly categorized the experience of online video advertising into three formats: in-stream, in-banner, and in-text video formats. Figure 2.1 categorizes the formats of online video advertising along with three types of video experiences.

First, in-stream video ads are usually played or watched by a video viewer. Consumers are exposed to in-stream video ads before, during, or after the streaming video program that consumers want to view. Sometimes, these ads can be presented around or outside online video programs to deliver advertising messages. Second, in-banner video ads are commonly presented within a banner. Consumers are exposed to in-banner video ads through banners of other websites or display ad inventory. Third, in-text video ads are user-initiated and activated by related highlighted words or phrases within certain content. Consumers are exposed to in-text video ads from highlighted words or phrases in the text of web content by moving their mouse over the words or phrases (IAB 2008b).

Among these three formats of online video advertising, currently, the in-stream video ad format has gained the most attention from the advertising industry (e.g., IAB

2008b, 2009; Katz 2010). According to eMarketer (2009a), over half of the total use of online video ads (63.8%) is in-stream video ad formats. Specifically, the average completion (i.e., watching ads from start to finish) rates for both 15-second and 30-second in-stream ads are about 80%. Also, it has been found that consumers recalled seeing in-stream video ads (e.g., pre-, mid- and post-roll ads) more often than any other formats of online video ads (Brightcove and TubeMogul 2010; eMarker 2011b). Over half of participants (53%) who recalled seeing some ads or brands remembered viewing the in-stream video ads in the past 24 hours (eMarker 2011b). Moreover, as indicated, on video sharing websites, in-stream video ads are more popular than other formats. Therefore, it is important to investigate in-stream video advertising in-depth.

Figure 2.1
Formats of Online Video Advertising (IAB 2008b, p. 4)



As shown in Figure 2.1, in-stream video advertising has three subcategories: linear video ads, non-linear video ads, and companion ads (IAB 2008b, p. 5). They are defined below:

1. Linear video ad (i.e., Figure 2.1, REFERENCE A): The ad is presented before, in the middle of, or after the video content is consumed by the user, in very much the same way a TV commercial can play before, during, or after the chosen program.
2. Non-linear video ad (i.e., Figure 2.1, REFERENCE B): The ad runs concurrently with the video content so the users see the ad while viewing the content.
3. Companion ads (i.e., Figure 2.1, REFERENCE C): The ads are commonly text, display ads (e.g., banner ads), or rich media (e.g., interactive multimedia ads) that wrap around the video experience.

Specifically, the main characteristic of a linear video ad is that consumers watch the ad within viewing a full video program similar to traditional TV advertising. Based on the placement of ads, there are three types of linear video ads: pre-, mid-, and post-roll ads (eMarketer 2011b; IAB 2008b). The most popular linear video ad is pre-roll (IAB 2011). Pre-roll is defined as "a linear video ad spot that appears before the video content plays" (IAB 2008b, p. 16). Non-linear video ads can be presented as text, graphical ads, or video overlays. Overlay ads, which are referred to as ads "that appear in the bottom 20% of the video window" (IAB 2008b, p. 16), are a currently popular non-linear video ad format. The main objective of companion ads is to provide consumers with continuous visibility of the sponsor during the presentation of the video program. Furthermore, the

companion ads commonly pair with linear and non-linear video ads by running alongside the video program or ad content. Figure 2.2 shows an example of linear video ad format and companion ad format, whereas Figure 2.3 shows an example of non-linear video ad format (i.e., overlay ad).

Figure 2.2
An Example of Linear and Companion Video Ads (IAB 2008b, p. 6)

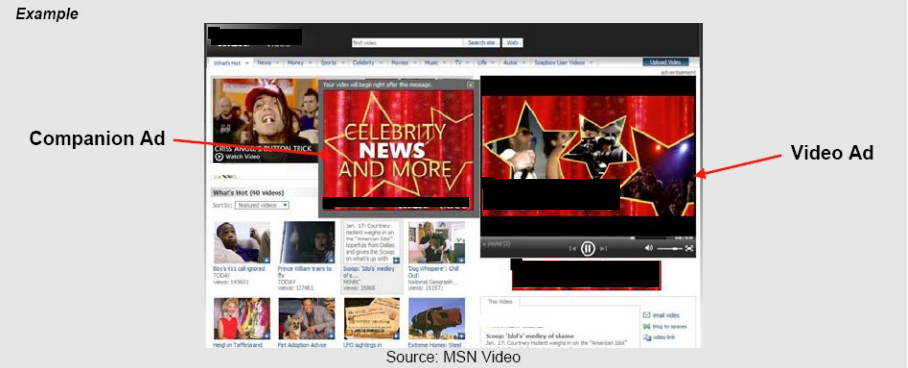
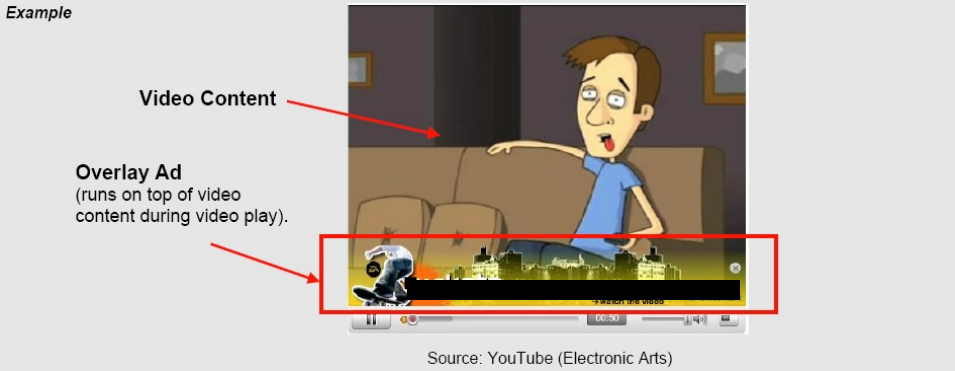


Figure 2.3
An Example of Non-linear Video Ads (IAB 2008b, p. 11)



There is another way to categorize formats of online video advertising. According to Katz (2010), in 2008 The Pool was established to identify the most advantageous ad

models across emerging media platforms. The Pool consisted of seven media companies (i.e., AOL, BBE, CBS, Discovery, Hulu, Microsoft, and Yahoo!) and several major U.S. advertisers including Allstate, Applebee's, BlackBerry, Capital One, and Purina. In the study of The Pool, online video advertising was categorized into six models (p. 73):

1. Ad Selector: Each viewer chooses which ad to see before the content; two or three choices provided. If no selection is made, the default ad airs.
2. Clickable Video: Elements (products) within the ad can be clicked on while the ad is playing to provide additional information.
3. Embedded Video: Ad runs along with video when content is shared on social network sites.
4. Interactive: Before the ad airs, a brief announcement of the content sponsor appears; during the ad, the top banner rolls down with ad information on which the viewer can click; if no click occurs, the video ad appears after the content (post-roll).
5. Pre-roll: Standard, 30-second, television-like ad that appears before video content in a forced exposure. Used as benchmark.
6. Transitional Skin: Ad covers screen around video content while content is loading.

While these categories are somewhat brief and the names are somewhat different from IAB's guideline, the six categories broadly overlap with IAB's formats. Specifically, Ad Selector and pre-roll can be included in linear video ads. In addition, clickable video is a type of non-linear video ads, and transitional skin is a type of companion video ads.

However, there is a unique format of online video advertising in The Pool's category. Unlike IAB's format guideline, The Pool's format distinguished the Ad Selector from pre-roll. Ad Selector and Pre-roll are similar formats in that they are presented before the presentation of video content. On the other hand, Ad Selector is different from pre-roll in that it provides consumers with an opportunity to choose an ad that they want to watch. Given that the pre-roll format is the most popular format of online video advertising (Brightcove and TubeMogul 2010) and the Ad Selector format is a distinguished format of online video advertising (Katz 2010), the current study mainly focuses on investigating these two formats.

When advertisers and marketers make use of online video advertising on video sharing websites, there are two features that they need to consider: the length of online video ads and the number of online video ads. Katz (2010) indicated that the study of The Pool found that consumers expect efficiency of time when they view online video programs. Online video ads can contribute to the efficiency of play-time. Typically, two types of ad lengths are popular for advertisers and marketers to use online video advertising: 15-second ads and 30-second ads (IAB 2008b). 30-second online video ads are the same length as traditional TV commercials. However, consumers may prefer a shorter length of online video ads. In the online world, consumers expect that they have more control over time and space (Liu and Shrum 2002; McMillan and Hwang 2002). When viewing online video programs, consumers may think the same way: they may not want their time to be disturbed by ads and they may think 15-second ads are more appropriate for online video programs.

In addition to the length of online video ads, the number of online video ads that an online video program has can also contribute to the quality of viewer experience on online video programs. Advertisers disagree about how many ads to include in their programming. Some argue that they should include as many ads as consumers can tolerate; on the other hand, others want to embed fewer ads compared to traditional 30-second ads in TV programs in online video programs (Businessweek 2011). Also, there is an argument that the number of ads should depend on the length of online video programs. It is suggested that long-form online video programs can include more ads than short-form online video programs (Adweek 2011). In this situation, advertisers and marketers want to know how many ads they need to embed in online video programs. Thus, the number of online video ads is an important feature of online video ads that consumers can consider on video sharing websites.

Therefore, in the current study, the length of online video ads and the number of online video ads serve as independent variables.

Impact of Choice

Number of choices can have positive or negative impacts on consumers' decision-making. Some scholars argue that more choice is better than less (e.g., Anderson 2006; Reibstein et al. 1975); however, other scholars argue that too much choice has negative effects (Iyengar and Lepper 2000; Shah and Wolford 2007). The Katz's (2010) research showed that diversity of choices affects consumers' attitude toward ads and advertised brands. We turn, therefore, to research on how people respond in general to "choice." In general, it is expected that the more choices, the better (Anderson 2006; Anderson et al. 1966; Bown, Read, and Summers 2003; Reibstein et al. 1975). More choices provide

consumers with advantages by increasing their satisfaction with decision-making (Anderson 2006). Research in psychology argues that people tend to prefer wide-ranging choices (Iyengar and Lepper 2000; Wise and Pepple 2008). Specifically, in psychology, this is called "decision freedom" which demonstrates the impact of consumer choices on their behavior and attitudes (Anderson et al. 1966; Reibstein et al. 1975). Decision freedom increases as individuals' choices of alternatives are increased. For consumers, choice among alternatives can represent many kinds of marketing-related options such as different products, services, or brands (Anderson et al. 1966).

The impact of choice can be explained by economic and psychological perspectives (Oppewal and Koelemeijer 2005; Reibstein et al. 1975). First of all, individuals prefer a greater number of choices to increase cost efficiency, achieving a decision-making from various options with limited time and efforts (Oppewal and Koelemeijer 2005; Scheibehenne, Greifeneder, and Todd 2010). Decision-making is the process of choosing inputs considering limited time and capacity of cognitive allocation of the human brain. Having different alternatives saves time and effort to search other possible options by comparing trade-offs within simultaneous presentations of various options (Oppewal and Koelemeijer 2005). Second, psychologically, individuals feel satisfaction about their decision when their decision is based on different alternative choices rather than just one. Increased number of choices enhances the chosen option, which in turn diminishes cognitive dissonance (Anderson et al. 1966; Festinger 1957). Based on these explanations, there are benefits from a greater number of choices. More choices help individuals to decrease uncertainty about their preferences and form inferential beliefs about their decision (Hutchinson 2005; Oppewal and Koelemeijer

2005; Simonson 1999). In addition, more choices can generate positive emotions about a given decision by enhancing enjoyment and hedonic value (Babin, Darden, and Griffin 1994; Oppewal and Koelemeijer 2005).

Given that consumers are inclined to believe that a greater number of choices provides more benefits than fewer choices (Oppewal and Koelemeijer 2005), it is commonly assumed that consumers prefer having a greater number of choices to having fewer choices or no choice for their marketing activities such as selecting brands or purchasing products. Bown et al. (2003) indicated that consumers have a "choice is better" heuristic in that they simplify their decision process as "it is better to choose from a larger selection than a smaller one" (p. 306). They also argued that consumers are attracted by choice not only for comparing similar options but also for comparing conflict options. Thus, consumers expect that they can achieve their decision-making goal with a greater number of choices because it possibly contains a desired alternative (Oppewal and Koelemeijer 2005). Anderson et al. (1966) indicated that in the perspective of consumers, an increased number of choices lead to "better choices," "made due to the searching out and sorting of those products which best meet their needs" (p. 65). In this respect, consumers tend to seek greater variety of options (Anderson 2006; Berger, Draganska, and Simonson 2007; Borle et al. 2005).

The impact of choice has been examined in various fields including psychology, marketing, retailing, and other fields (e.g., Berger et al. 2007; Bown et al. 2003; Koelemeijer and Oppewal 1999; Reibstein et al. 1975). For example, Oppewal and Koelemeijer (2005) found that an increased assortment generated more positive evaluations by testing a choice experiment on purchasing cut flowers. In the study of a

soft drink taste-testing, participants were more likely to consume soft drinks when an increased choice of soft drink flavors was offered (Reibstein et al. 1975). In the context of brands, Anderson et al. (1966) found that consumers regarded the increased number of brands in the cake mix category as more helpful on their brand choice. Similarly, Berger et al. (2007) tested the impact of high-variety brands of chocolate on consumers' preferences of selecting chocolate, and they found that consumers were more inclined to select a chocolate when having more alternative brands. In the context of interactive media environment, Wise and Pepple (2008) indicated that it is important to investigate the impact of choice in online media (e.g., news portals or blogs) because those media provide users with available alternatives such as hyperlinks or pictures. In a study of online news it was found that people allocated more cognitive effort when they read online news from more available news than from less available news, which in turn generated more accurate recognition of the online news (Wise, Bolls, and Schaefer 2008).

However, there is also evidence that too many choices leads to consumer dissatisfaction. Some scholars have argued that too much choice causes overload to consumers; therefore, it decreases consumers' motivation to choose and consumers' satisfactions of the task (Fasolo, Carmeci, and Raffaella 2009; Iyengar and Lepper 2000; Schwartz 2000, 2004; Shah and Wolford 2007). For instance, Iyengar and Lepper (2000) found that a greater number of choices does not always activate higher purchase intention, rather it is demotivating. In their study, participants' intention to purchase gourmet jams was higher when they were offered limited choice options (i.e., six choices) than when they were offered extensive choice options (i.e., 24 choices). Greifeneder, Scheibehenne, and Kleber (2010) also examined this too-much-choice effect by

providing participants with alternatives of colored pens displayed (i.e., 6 vs. 15 vs. 30). They confirmed the too-much-choice effect in that the number of alternatives increased the consumers' perception of choice complexity.

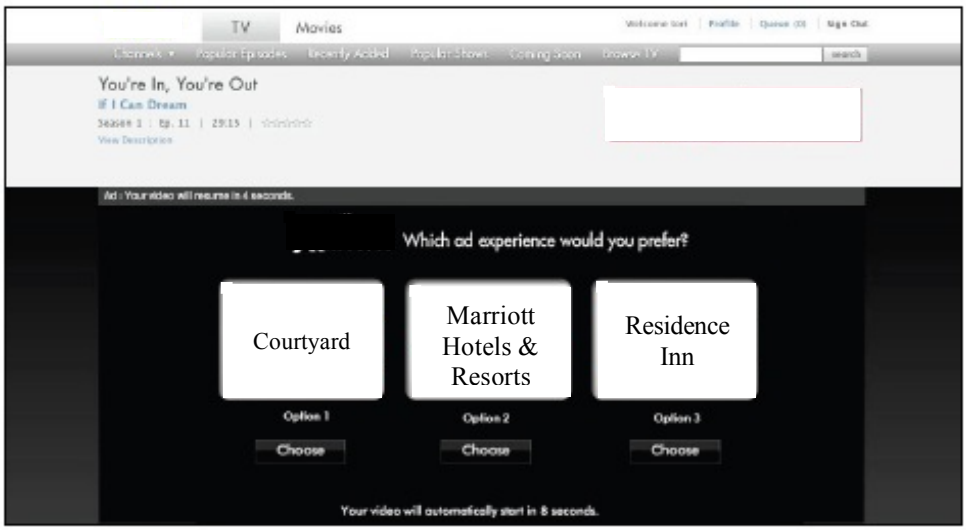
The previous studies of choice overload or too-much-choice effects demonstrate that having too many options to choose from can be associated with negative consequences or adverse effects on consumers' decision-making. However, although these studies demonstrate choice overload effects, they still commonly assume that in general having choice is better than no choice. According to meta-analysis of choice overload studies (Scheibehenne et al. 2010), when researchers compare the number of choices, they used at least three or four alternatives (e.g., Chernev 2003; Haynes 2009) for the small size of choice. Therefore, it is assumed that when consumers encounter a situation for decision-making, having choices is better than having no choice. Consequently, the impact of choice can be described simply: "having choice is better than having no choice, and the more choice, the better." This is consistent with previous studies. Beattie et al. (1994) also demonstrated that people were more likely to have choice than to be forced by predetermined option even though the choice does not generate more satisfaction of the result. Similarly, Suzuki (1997, 2000) argued that people have a preference to have a choice option, rather than have no-choice option. In the current study, the theoretical argument of the impact of choice is applied to the context of online video ads along with video sharing websites.

Choice in Online Video Advertising

Considering consumers' preferences about the number of choices they have, it can be assumed that consumers prefer to have choice options when encountering ads

compared to simply watching defaulted ads. When consumers are exposed to traditional TV commercials, they do not have any freedom to choose particular advertising (Cho 1999; Dijkstra, Buijtels, and Raaij 2005). They have to watch the defaulted ads. However, in the interactive media environment, it is technically possible to give consumers control over the ads, which makes them active to process the ads (Cho 1999). Specifically, this can be achieved by providing consumers with options of ads, that consumers can choose from. For the use of online video ads on video sharing websites, compared to the defaulted or forced ads embedded into online video programs, in 2010 Hulu developed "Ad Selector" which provides consumers with available alternative ads to choose (Hulu 2011a). The Ad Select is described as "an ad unit that allows the user to control their entire ad experience during video playback. At the beginning of content play the user will be presented with two or three category options. Once a selection has been made, the user will be presented with video advertisements in the category of their choice" (Hulu 2011a, p. 7). For example, Marriott could offer consumers a selection of Courtyard, Marriott Hotels & Resorts, or Residence Inn ads before the presentation of online video program. If consumers choose "Courtyard," the rest of ads in the online video program will be related to Courtyard (see Figure 2.4). Although the example shows the Ad Selector within a brand category (i.e., Marriott), the Ad Selector also can be applied across brand categories.

Figure 2.4
An Example of Ad Selector (Hulu 2011a, p. 7)



Given that the Ad Selector can give consumers choice options of ads before watching online video programs, it is different from previous online video advertising format in which ads are embedded into online video programs without choice options. Several major U.S. advertisers and media companies, collectively called The Pool, tested the effectiveness of Ad Selector with other formats of online video ads (e.g., pre-roll that appears before video program in a f

orced exposure, and transitional skin which covers screen around video program when the program is loading), and they found that consumers prefer Ad Selector to other formats (Adweek 2010; ClickZ 2010; Katz 2010). One of the most notable and important characteristics of Ad Selector is that consumers can choose an ad which they are interested in, among given ads.

Katz (2010) conducted the first test to investigate the effects of Ad Selector. 2,378 online panels participated in an online survey and mainly it was found that Ad Selector

had positive effects on both advertisers and consumers. Specifically, for consumers, the results indicated that Ad Selector offered strong personal relevance. Especially, when using Ad Selector in the long form content, it was more visually appealing and engaging than other formats. For advertisers, Ad Selector generated greater unaided recall and positive attitude toward sponsor than other formats, for both long form and short form content. Additionally, Ad Selector showed greater effects in click-through rate than pre-roll and increased top-of-mind and purchase intention. The findings of this study proved the benefits of using Ad Selector in online video advertising.

In 2011, based on the concept and technology of Ad Selector, Hulu advanced the Ad Selector as Ad Swap by giving consumers more user choice and control, which improves advertising experience for consumers and brands (Adage 2011; Hulu 2011b; IAB 2011b). When consumers encounter an ad while watching an online video program, they can stop and swap the ad for another. For example, at the beginning of an ad to play, a consumer can click on the "Hulu Ad Swap" icon in the top left corner. Then, the consumer has three ad choices based on the consumer's profile and previous ad viewing behavior, Finally, the consumer can choose one of three ads that is more preferable or relevant (Hulu 2011b) (see Figure 2.5).

Figure 2.5
An example of Ad Swap (Hulu 2011b, p. 1)

Hulu indicates the benefits of using Ad Swap for consumers, advertisers, and content owners (Hulu 2011b, p. 1): 1) the user now has ultimate control and the power to choose their ad experience in real-time; 2) the advertiser will reach a more engaged audience through consumer opt-in, therefore driving higher engagement, brand and message recall, likeability and purchase intent among consumers; and 3) for content owners, ad innovation facilitates higher ad prices, which gives Hulu the ability to better monetize content on behalf of content owners. Hulu's own research demonstrated that when consumers can proactively select an ad, to change an ad that they do not want to watch, they have greater recall, brand favorability, and purchase intention (Hulu 2011b).

The main purpose of both Ad Selector and Ad Swap is to give consumers the power of control over their advertising experience with choice-based ad formats. Therefore, the Ad Selector revealed the new interactive format of advertising, i.e., *ad choice*, by developing consumers' active participation of choosing ads before the

exposure of the ads. Based on description of Ad Selector, *ad choice* can be defined as an ad format that consumers have alternative ad options that they can select before they are exposed to ads. Thus, an ad choice format allows consumers to experience control over the presentation of ads compared to other ad formats that do not offer alternative ads to choose from before consumers encounter ads. When consumers have control over advertising, which enhances interactivity, they can generate positive cognitive and emotional processes in response to the advertising (Ariely 2000; Cho 1999; Coyle and Thorson 2001; McMillan and Hwang 2002; Sicilia, Ruiz, and Munuera 2005).

In this situation, although the previous study found the effectiveness of Ad Selector, it is important to examine the effectiveness of ad choice format compared to the situation that does not have the ad choice options based on theoretical understanding. Previously, Berger et al. (2007) investigated the influence of choice in the context of brands. They studied the effectiveness of alternative brands in choices of chocolate. Participants were more willing to select a brand from various brand choices to purchase the brand, which gave them more positive evaluations of the chosen brand. Additionally, while the previous study found the strength of giving consumers alternative options of ads, it has not explored how the values of those options would be associated with pricing related to the ads, such as buying a membership on a website with fewer ads.

Applying the impact of choice into the context of online video advertising on video sharing websites, it is expected that consumers may prefer to have an option to select an online video ad before watching an online video program rather than to be passively exposed to a defaulted online video ad. Exploring online video ads in terms of ad choice format will promote advertising scholars and practitioners to consider online

video advertising as a new form of interactive advertising as well as ad choice format as a new format of interactive advertising. However, considering consumers' decision-making process for watching advertising in general, along with ad choice format, it is expected that consumers' existing perceptions of ads impact their watching online video ads. It is possible that consumers who have negative perceptions of ads may avoid online video ads regardless of having ad choice. On the other hand, it is also possible that consumers who have positive perceptions of ads may prefer to accept ad choice when watching online video programs. Therefore, for the further understanding of the impact of ad choice on consumers' decision-making for watching online video ads, consumers' existing perceptions of ads will provide advertising scholars and practitioners with comprehensive insights in the field of advertising.

Prior Perceptions of Advertising

The important possible variables that have not yet been examined in the research on online video advertising regard what a person's prior perceptions of advertising are. For the effective use of online video ads on video sharing websites, it is important to understand what consumers think about advertising because their general perceptions of advertising have an impact on the process of other advertising and marketing messages (Friestad and Wrigtht 1994; Homer 1990; Lutz 1985; Obermiller, Spangenberg, and MacLachlan 2005). In the modern society, consumers are exposed to very large amounts of ads each day through different media (Pollay and Mittal 1993; Sheehan 2004). As consumers are exposed to ads, they formulate their own thoughts or opinions about the ads, ranging from enjoyment to criticism (Pollay and Mittal 1993). Consumers who generally dislike ads may try to avoid ads whereas consumers who usually like ads may

prefer to be exposed to ads. Therefore, without understanding consumers' prior perceptions of advertising, advertisers may overlook the consequences of their advertising campaign. Among various perceptions of advertising that existed in consumers' minds, skepticism toward advertising (Obermiller and Spangenberg 1998) and attitude toward advertising in general (Lutz 1985) form consumers' positive or negative thoughts. Also, for advertisers and marketers, one of the most important questions to answer is how they advertise their products or brands better by decreasing the ad skepticism and increasing positive attitudes toward advertising. Although online video advertising is a new form of online advertising, it is similar to traditional TV advertising in that it is embedded before, during, and after video programs. Thus, like the traditional TV advertising, consumers' prior perceptions of ads can be a part of their decision-making of watching online video advertising as a predictor or antecedent for the decision-making process.

In this respect, the current study seeks to include consumers' prior perceptions, i.e., ad skepticism and attitude toward advertising in general, to predict how those perceptions influence consumers' decisions to watch online video ads on video sharing websites.

Ad Skepticism

The first variable that is relevant to how people prefer online video advertising is ad skepticism. Skepticism toward advertising (i.e., ad skepticism) has been an important issue in advertising studies (Darke and Ritchie 2007; Hardesty, Carlson, and Bearden 2002; Obermiller and Spangenberg1998, 2000; Obermiller et al. 2005). Obermiller and Spangenberg (1998) defined ad skepticism as "the tendency toward disbelief of

advertising claims" (p. 160). They indicated that ad skepticism is a consumers' stable characteristic and affects consumers' response to advertising (Obermiller and Spangenberg 2000). Ad skepticism reflects a part of a broader construct of marketplace beliefs, including schemer schemas (Friestad and Wright 1994) and criticism (Sheehan 2004), as well as negative feelings and attitude toward advertising in general (Darke and Ritchie 2007). Obermiller and Spangenberg (1998) have developed scales of ad skepticism (i.e., SKEP), expecting that ad skepticism can be generally applied across media within consumers.

Advertising has been criticized in many ways, including that it may provide misleading information, boost undesirable values, and persuade consumers to purchase products that they do not need (Dutta-Bergman 2006; Pollay 1986; Pollay and Mittal 1993; Sheehan 2004). Sheehan (2004, p. 8) demonstrated four general areas of advertising criticism based on their effects. First, advertising is criticized by the lack of a consumers' role in the advertising process. Advertising tends to deprive consumers' of the role as a decision-maker by insulting their rational ability. Second, there is so much advertising in the marketplace that it is difficult to determine which advertising is appropriate for consumers. Third, there is ongoing concern that advertising undermines our culture by cultivating and amplifying values and behaviors, which may spread materialism in our society. Fourth, advertising often uses more sensational and provocative imagery in the ad to attract consumers' attention, which can cause ethical or sexual issues in advertising messages. Often, consumers have negative feelings about advertising, sensing manipulation or subliminal methods in advertising messages (Andrews 1989; Osmonbekov et al. 2009; Pollay and Mittal 1993). For example,

advertising often succeeds in its manipulation of consumers by exploiting consumers' emotions such as fear, guilt, anxiety, inferiority, unhappiness, and inadequacy (Andrews 1989; Pollay 1986).

Many researchers have observed a persistent tendency of skepticism toward advertising (Calfee and Ringold 1994; Darke and Ritchie 2007; Obermiller and Spangenberg 1998, 2000; Obermiller et al. 2005). Calfee and Ringold (1994) analyzed six decades of survey data and found that about two-thirds of consumers doubt the credibility of advertising, indicating that advertising attempts to persuade consumers to purchase unnecessary products. Considering the trend of ad skepticism, it has been found that ad skepticism negatively affected consumers' opinions and emotions about advertising in general and about advertised products (Calfee and Ringold 1994; Darke and Ritchie 2007; Obermiller et al. 2005). In addition, consumers who are skeptical about advertising show more distrust of ads, which in turn makes consumers alert advertisers' intention to persuade them through the ads (Darke and Ritchie 2007; Obermiller and Spangenberg 2005).

Ad skepticism is also an important part of persuasion knowledge because distrust can influence consumers' ability to cope or deal with the persuasive intentions of advertising (Campbell and Kirmani 2000; Friestad and Wright 1994; Obermiller and Spangenberg 1998, 2000). Persuasion knowledge reflects consumers' knowledge of advertisers' marketing strategies to persuade consumers' response to the strategies (Campbell and Kirmani 2000; Friestad and Wright 1994; Obermiller et al. 2005). Persuasion knowledge is defined as a consumers' intuitive idea about how advertising is structured to influence them. Consumers use these intuitive ideas to "interpret, evaluate,

and respond to influence attempts from advertisers and salespeople" (Friestad and Wright 1994, p. 1). Friestad and Wright (1994, p. 3) identified three types of knowledge structures: persuasion knowledge, agent knowledge (which includes beliefs about the traits, competencies, and goals of advertisers or marketers), and topic knowledge (which includes beliefs about products or services). Consumers cope with the knowledge structures to recognize, analyze, interpret, and evaluate the advertisers' persuasion attempts when they encounter the attempts. They also use the knowledge structures for their marketing behaviors such as selecting brands and purchasing products responding the attempts.

When we consider the importance of consumers' persuasion knowledge, the importance of ad skepticism is also considered (Friestad and Wright 1994; Obermiller and Spangenberg 1998). Obermiller et al. (2005) indicated that ad skepticism is consistent with persuasion knowledge in that consumers generate ad skepticism to resist to marketing messages that advertisers or marketers intentionally develop. Friestad and Wright (1994) also demonstrated that ad skepticism is linked to limited persuasion knowledge because consumers employ ad skepticism as a part of their tactics for coping with the marketing attempts they receive.

As we have seen, skepticism toward advertising often reduces the effectiveness of advertising (Calfee and Ringold 1994; Obermiller and Spangenberg 1998). According to previous studies in the field of advertising, when consumers distrust ads, they have less positive responses to ads (Homer 1990; Miniard, Bhatla, and Rose 1990; Obermiller and Spangenberg 1998; Obermiller et al. 2005). In particular, given that attitude toward advertising in general is one of the most important issues in advertising, researchers have

indicated that there is a negative relationship between ad skepticism and attitude toward advertising in general (e.g., Obermiller and Spangenberg 1998; Obermiller et al. 2005). Specifically, Obermiller and Spangenberg (1998) found a negative correlation between ad skepticism and attitude toward advertising using 13 print ads; more skeptical participants indicated less positive attitude toward advertising. Similarly, using the scale of skepticism toward advertising (i.e., SKEP), Obermiller et al. (2005) found that as participants became more skeptical to ads, they evaluated ads as less favorable, less believable, and less influential on themselves.

In addition to attitude toward advertising in general, it has been found that ad skepticism influences other responses related to behaviors. Consumers tend to avoid advertising or to have lower purchase intention when they are skeptical toward ads (Obermiller et al. 2005). Obermiller et al. (2005) indicated that when consumers' ad skepticism is relatively high, it represents distrust or disbelief in the validity of advertising, which results in consumers' tendency to disregard ads and look for product information from other sources. Applying the negative influence of consumers' skepticism toward ad preference to the context of online video advertising, it is expected that consumers who do not believe advertising are much less happy with online video ads when they watch online video programs on video sharing websites.

Attitude toward Advertising in General

Another potentially important variable is attitude toward advertising in general. An attitude is defined as "a general and enduring positive or negative feeling about some person, object [e.g., advertising], or issue" (Petty and Cacioppo 1981, p.7). More specifically, attitude toward advertising in general is defined as a "learned predisposition

to respond in the consistently favorable or unfavorable manner to advertising in general" (Lutz 1985, p. 53). Phelps and Thorson (1991) indicated that attitude toward an ad is a measure of consumers' general liking or disliking of an ad. When assuming that consumers' responses to a specific ad are formed by prior attitude toward advertising, it is useful to understand attitude toward advertising in general in order to interpret and predict consumers' emotional and behavioral responses to a given ad (Muehling 1987).

Attitude toward advertising in general has been broadly researched not only among academic researchers but also among practitioners in the field of advertising and marketing (Brown and Stayman 1992; Dutta-Bergman 2006; Homer 1990; Mitchell and Olson 1981; Muehling 1987; Muehling and McCann 1993; O'Donohoe 1995; Osmonbekov et al. 2009; Phelps and Thorson 1991; Shimp 1981). Lutz, MacKenzie, and Belch (1983) demonstrated that when consumers are exposed to an advertising message, they generate an attitude toward the ad, which in turn has an impact on the following advertising effectiveness such as attitude toward brands or purchase intention. Also, they showed that attitude toward advertising depends on attitude toward advertising in general. Therefore, attitude toward advertising in general is a fundamental tool to measure and evaluate effects of advertising. Homer (1990) argued that researchers in advertising and marketing have paid attention to attitude toward the ad in general as a direct or indirect influential factor on other factors (e.g., Lutz et al. 1983; MacKenzie, Lutz, and Belch 1986; Mitchell and Olson 1981; Phelps and Thorson 1991; Shimp 1981). Haley and Baldinger (1991) suggested that whether consumers like an ad is the most important predictor of advertising effectiveness. In this respect, it is appropriate to consider the

attitude toward advertising that exists in consumers' mind as an indicator of the likelihood of watching online video advertising on video sharing websites.

Attitude toward advertising in general plays an important role in the process of advertising in consumers' mind. It is assumed that consumers are basically attracted by the motivation to feel good (Shimp 1981). In advertising studies, the comprehension of the role of attitude toward advertising in general contributes to understanding experimental design and pretesting ads (MacKenzie et al. 1986; Phelps and Thorson 1991). It has been found that attitude toward advertising has directly or indirectly affected behavioral responses as well as cognitive and affective responses (e.g., Bush, Smith, and Martin, 1999; Lutz et al. 1983; MacKenzie et al. 1986; Phelps and Thorson 1991).

Brown and Stayman (1992) conducted meta-analysis with 43 advertising-related articles searched between 1981 and 1991. In their study, they found that a number of studies (e.g., Homer 1990; Miniard et al. 1990) supported a direct influence of attitude toward advertising in general on brand attitudes and an indirect influence through brand cognitions. Using a similar method, Muehling and McCann (1993) reviewed a wide range of published articles related to attitude toward advertising. They categorized consequences or effects of attitude toward advertising into three groups. First, they indicated that attitude toward advertising has cognitive consequences or effects, including brand cognitions, belief strength, and ad credibility. The second group is affective consequences or effects of attitude toward advertising such as brand attitude, attitude toward act, attitude toward deal, and attitude toward issue. Finally, they demonstrated that attitude toward advertising affects behavioral consequences or effects, including behavioral intentions, viewing time, and repeated purchase. Specifically, Lutz et al.

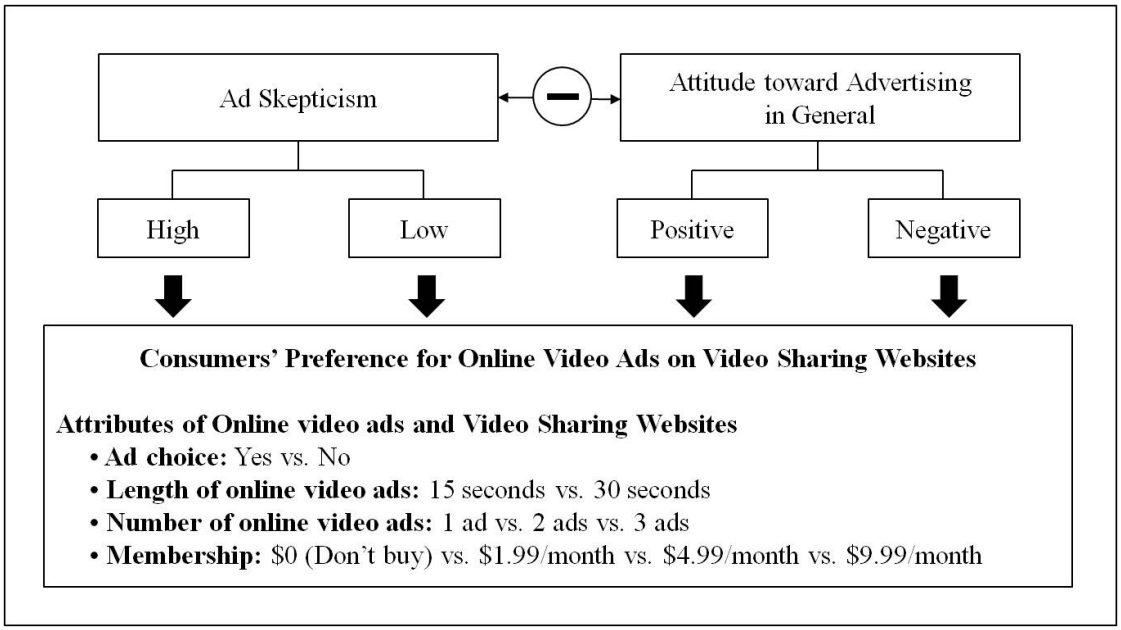
(1983) conducted an experiment to examine the effects of attitude toward advertising using TV commercials in one-hour episode and found that attitude toward advertising has impacts on brand attitudes and product knowledge. Based on the finding of the previous study, MacKenzie et al. (1986) found direct and indirect influences of attitude toward advertising on brand attitudes and purchase intention of advertised products on TV. For a specific behavior, Shimp (1981) investigated the positive impact of attitude toward advertising on consumers' brand choice. Given that brand choice behavior is a decision-making process, how consumers choose a desired brand from a set of alternative brands was tested. Through the theoretical rationale and empirical evidence, the influence of attitude toward advertising on consumers' choice behavior was found.

Previous studies related to attitude toward advertising in general elicit that consumers have their own attitude toward advertising, which in turn affects cognitive, affective, and behavioral outcomes of advertising (Bush et al., 1999; Lutz et al. 1983; MacKenzie et al. 1986; Phelps and Thorson 1991; Shimp 1981). Therefore, attitude toward advertising in general should be considered as a critical determinant of advertising process. In the context of online video advertising, there are behavioral outcomes that can be determined by consumers' prior attitude toward advertising in general, such as either watching or avoiding those ads. It can be assumed that consumers who are favorable to advertising in general may not care about being disturbed by online video ads, and they may prefer to watch online video ads when they watch online video programs. On the other hand, consumers who dislike advertising in general may not be willing to watch online video ads when watching online video programs. Instead, they may want to avoid watching online video ads.

CHAPTER 3

HYPOTHESES

Figure 3.1
Theoretical Concepts and Preference Process of Online Video Ads on Video Sharing Websites



The purpose of the current study is to investigate consumers' effective use of online video advertising on video sharing websites by examining their trade-offs among different attributes of online video ads and those websites as well as between watching ads for free and paying for ad-free content on video sharing websites. Although online video advertising becomes a popular online advertising tool, there are few discussions about how to use it effectively in the advertising academia considering specific attributes of online video advertising. Traditionally, advertising practitioners have interests in these

trade-offs to develop their business strategies (Crampes et al. 2009). However, unlike traditional media (e.g., Kaiser and Song 2009; Peitz and Valletti 2008), in the new media environment, there are few academic discussions about the trade-offs in the field of advertising. Therefore, this study opens the discussion about the effective use of attributes in using online video advertising and the trade-offs between ads for free and paying for ad-free content in the context of online video ads on video sharing websites by conducting an empirical study.

Specifically, considering decision-making process of watching online video ads on video sharing websites, the current study seeks to understand under what conditions consumers prefer to watch online video ads considering their prior perceptions of advertising as well as other features related to online video advertising and video sharing websites. Figure 3.1 describes the main concepts of this study and how consumers decide to watch online video advertising on video sharing websites, including ad choice, number of online video ads, length of online video ads, membership price, ad skepticism, and attitude toward advertising in general.

Hypotheses were developed based on two broad perspectives. First, overall attributes (i.e., ad choice, length of online video ads, number of online video ads, and membership price) of online video advertising on video sharing websites are considered. After that, two additional variables that impact the decision-making of watching online video ads are considered to generate hypotheses: ad skepticism and attitude toward advertising in general.

As discussed earlier, in general, consumers like to have alternative options that they can choose (e.g., Berger et al. 2007; Reibstein et al. 1975). Because of the advanced

interactive media technology, on video sharing websites, online video advertising can provide consumers with choices before viewing an online video program (e.g., Hulu's Ad Selector) instead of specific forced ads. When consumers encounter online video ads on video sharing websites, they can have two broad advertising formats. First, consumers have alternative online video ads that they can choose considering their interests (i.e., ad choice). Second, they have no choice of alternative online video ads and they are forced to watch defaulted online video ads (i.e., no ad choice). Given that consumers prefer to have alternative options rather than to have no alternative options, in the context of online video advertising on video sharing websites, the first hypothesis is suggested:

H1: Participants will prefer having ad choice to having no ad choice when viewing an online video program on video sharing websites.

The length of online video ads is another important factor that may affect consumers' decision-making of watching online video ads. Length is an important feature of online video ads. Practically, in the use of online video ads, two forms of length are popular: 15 second ads and 30 second ads (Online publishers 2007). However, it has been found that shorter ads are more favorable than longer ads when watching TV programs (Aaker and Bruzzone 1985; Rethans, Swasy, and Marks 1986). In general, although consumers understand that advertising provides them with free TV content, they perceive that advertising is intrusive. Therefore, they prefer shorter ads. Because online video advertising is similar to TV advertising embedded into online video programs providing free content, consumers may have the same perception toward online video ads as TV advertising. Considering the decision-making process of watching online video ads, it is expected that consumers may want to watch shorter ads than longer ads when they view

online video programs. Based on this inquiry, the second and the third hypotheses are put forth:

H2: Participants will prefer 15 second online video ads to 30 second online video ads when viewing an online video programs on video sharing websites.

H3: When there is ad choice, participants will be more willing to watch 15 second online video ads than 30 second online video ads.

On video sharing websites, the long form online video programs (i.e., longer than 10 minute video programs) have spaces in which to embed a number of online video ads in the program. In general, consumers are willing to avoid ads (Bauer and Greyser 1968; Clancey 1994; Krugman 1983). It is possible that although consumers like to watch an online video ad when watching an online video program, they may not want to watch two or more ads.

However, when consumers are exposed to ads that are relevant to their interests or they select what they want to watch, they may be acceptable more ads to watch. Thus, when consumers have ad alternatives (i.e., ad choice) that they can choose in accordance to their interests rather than to be exposed to defaulted ads chosen by someone else, it is expected to embed an increased number of online video ads into an online video program. Moreover, along with the tendency that consumers prefer 15 second ads, it is predicted that they also prefer to watch fewer ads. Under the decision-making process of watching online video ads, the influence of quantity of online video ads and the influence of ad choice and the length of online video ads on the quantity of online video ads, the fourth, the fifth, and the sixth hypotheses are generated:

H4: Participants will prefer fewer online video ads to more online video ads when viewing an online video program on video sharing websites.

H5: When there is ad choice, participants will be willing to watch more of online video ads.

H6: When there are 15 second ads, participants will be willing to watch fewer of online video ads.

Consumers are exposed to online video ads when watching online video programs on video sharing websites. In the decision-making process to watch online video ads, one of important attributes of video sharing websites is whether consumers have a membership on the websites. Thus, the current study assumes that when consumers buy a membership on video sharing websites, they can watch online video programs without being interrupted by online video ads. This paradigm is a type of trade-off between watching online video programs without advertising by paying membership fees, and watching free online video programs with advertising without paying membership fees. However, it is common that consumers tend to spend less money for their marketing behaviors, such as purchasing products or services. Thus, consumers may tend to pay less money to buy a membership on video sharing websites. However, it is possible that there may be some conditions in which consumers are allowed to pay more money on video sharing websites to avoid ads, such as having ad choice, longer ads, and fewer ads when viewing online video programs. For these reasons, four hypotheses (i.e., H7, H8, H9 and H10) about the price of membership are suggested:

H7: Participants will prefer paying less money to paying more money to buy a membership on video sharing websites to avoid ads when viewing an online video program.

H8: When a membership includes ad choice, participants will be willing to pay more money to buy the membership to avoid ads on video sharing websites.

H9: When a membership includes 15 second ads, participants will be willing to pay more money to buy the membership to avoid ads on video sharing websites.

H10: When a membership includes fewer ads, participants will be willing to pay more to buy the membership to avoid ads on video sharing websites.

Given that in the decision-making process to watch ads, prior perceptions of advertising have impacts on preferences of watching advertising (Homer 1990; Lutz 1985; Obermiller, Spangenberg, and MacLachlan 2005), following hypotheses for the four attributes of online video advertising on video sharing websites are developed considering ad skepticism and attitude toward advertising in general.

As shown in the literature review, two prior perceptions of advertising (i.e., ad skepticism and attitude toward advertising in general) are expected to influence consumers' preference of online video advertising on video sharing websites. Considering the previous findings, it is expected that ad skepticism and attitude toward advertising in general will be negatively correlated. For instance, Obermiller and Spangenberg (1998) found the negative correlation between skepticism toward advertising and attitude toward advertising. Therefore, this hypothesis is generated:

H11: There will be a negative relationship between ad skepticism and attitude toward advertising in general.

Given that in the decision-making to be exposed to ads, consumers have preference between watching ads and avoiding ads in accordance with their prior perceptions of advertising (i.e., ad skepticism and attitude toward advertising in general), it is assumed that they have different perceptions about the importance of attributes of online video ads and video sharing websites depending on different level of ad skepticism (i.e., low vs. high) and attitude toward advertising in general (i.e., negative vs. positive). Also, ad skepticism and attitude toward advertising in general can affect two options that consumers can choose in the context of online video advertising: they watch online video ads for free online video programs or they avoid watching online video ads by purchasing a membership of the program provider (i.e., video sharing websites).

Regarding the prior perceptions of ad skepticism on preferences of online video advertising on video sharing websites, as the main interest in the current study, the impact of ad choice on online video advertising preferences was considered. Given that consumers who are skeptical to ads are reluctant to accept ads (Calfee and Ringold 1994; Darke and Ritchie 2007; Miniard et al. 1990; Obermiller et al. 2005), it is expected that having ad choice is more preferable than having no ad choice among consumers who have low ad skepticism. Thus, the following hypothesis is generated:

H12: When participants have low ad skepticism, they will prefer having ad choice to having no ad choice when viewing an online video program on video sharing websites.

In addition to the main effect of ad choice, considering the influence of consumers' prior perception of ad skepticism on preferences of online video advertising on video sharing websites, in the decision-making process of watching online video ads, main

effects of other attributes (i.e., length of online video ads, number of online video ads, and membership price) are expected. Therefore, hypotheses for the main effects and the differences between the main effects are generated:

H13a: When participants have low ad skepticism, they will prefer 15 second online video ads to 30 second online video ads when viewing an online video program on video sharing websites.

H13b: When participants have high ad skepticism, they will prefer 15 second online video ads to 30 second online video ads when viewing an online video program on video sharing websites.

H13c: There will be differences between the lengths of online video ads on video sharing websites along with consumers' low vs. high ad skepticism.

H14a: When participants have low ad skepticism, they will prefer fewer ads to more ads when viewing an online video program on video sharing websites.

H14b: When participants have high ad skepticism, they will prefer fewer ads to more ads when viewing an online video program on video sharing websites.

H14c: There will be differences between the numbers of online video ads on video sharing websites along with consumers' low vs. high ad skepticism.

H15a: When participants have low ad skepticism, they will prefer paying less to paying more to buy a membership on video sharing websites to avoid ads when viewing an online video program.

H15b: When participants have high ad skepticism, they will prefer paying more to paying less to buy a membership on video sharing websites to avoid ads when viewing an online video program.

H15c: There will be differences between the amounts of online video ads on video sharing websites along with consumers' low vs. high ad skepticism.

Besides the hypotheses of the main effects, it is expected that consumers' prior perceptions of ad skepticism have impact on the interaction effects among the attributes. Therefore, hypotheses regarding two-way interaction effects among the attributes considering the levels (i.e., low vs. high) of ad skepticism are developed:

H16a: When participants have low ad skepticism, participants who prefer ad choice to no ad choice will be willing to watch 15 second online video ads.

H16b: When participants have high ad skepticism, participants who prefer ad choice to no ad choice will be willing to watch 15 second online video ads.

H16c: When participants have low ad skepticism, participants who prefer ad choice to no ad choice will be willing to watch fewer of online video ads.

H16d: When participants have high ad skepticism, participants who prefer ad choice to no ad choice will be willing to watch fewer of online video ads.

H16e: When participants have low ad skepticism, participants who prefer 15 second ads to 30 second ads will be willing to watch fewer of online video ads.

H16f: When participants have high ad skepticism, participants who prefer 15 second ads to 30 second ads will be willing to watch fewer of online video ads.

H16g: When participants have low ad skepticism, participants who prefer ad choice to no ad choice in a membership will be willing to pay less to buy the membership to avoid ads on video sharing websites.

H16h: When participants have high ad skepticism, participants who prefer ad choice to no ad choice in a membership will be willing to pay more to buy the membership to avoid ads on video sharing websites.

H16i: When participants have low ad skepticism, participants who prefer 15 second ads to 30 second ads in a membership will be willing to pay less to buy the membership to avoid ads on video sharing websites.

H16j: When participants have high ad skepticism, participants who prefer 15 second ads to 30 second ads in a membership will be willing to pay more to buy the membership to avoid ads on video sharing websites.

H16k: When participants have low ad skepticism, participants who prefer fewer ads to more ads in a membership will be willing to pay less to buy the membership to avoid ads on video sharing websites.

H16l: When participants have high ad skepticism, participants who prefer fewer ads to more ads in a membership will be willing to pay more to buy the membership to avoid ads on video sharing websites.

Again, considering the impact of choice, it is expected that when consumers have positive attitude toward advertising in general, in the decision-making process of watching online video ads, they prefer to have ad choice rather than to have no ad choice when watching online video ads. Thus, the following hypothesis for the main effect of ad choice in terms of attitude toward advertising in general is put forth:

H17: When participants have positive attitude toward advertising in general, they will prefer having ad choice to having no ad choice when viewing an online video program on video sharing websites.

Along with the main effect of ad choice, considering the influence of consumers' prior perceptions of attitude toward advertising in general on preferences of online video advertising on video sharing websites, in the decision-making process of watching online video ads, main effects of other attributes (i.e., length of online video ads, number of online video ads, and membership price) are assumed. Thus, hypotheses for main effects and the differences between the main effects are generated:

H18a: When participants have negative attitude toward advertising in general, they will prefer 15 second online video ads to 30 second online video ads when viewing an online video program on video sharing websites.

H18b: When participants have positive attitude toward advertising in general, they will prefer 15 second online video ads to 30 second online video ads when viewing an online video program on video sharing websites.

H18c: There will be differences between the lengths of online video ads on video sharing websites along with consumers' negative vs. positive attitude toward advertising in general.

H19a: When participants have negative attitude toward advertising in general, they will prefer fewer ads to more ads when viewing an online video program on video sharing websites.

H19b: When participants have positive attitude toward advertising in general, they will prefer fewer ads to more ads when viewing an online video program on video sharing websites.

H19c: There will be differences between the numbers of online video ads on video sharing websites along with consumers' negative vs. positive attitude toward advertising in general.

H20a: When participants have negative attitude toward advertising in general, they will prefer paying more to paying less to buy a membership on video sharing websites to avoid ads when viewing an online video program.

H20b: When participants have positive attitude toward advertising in general, they will prefer paying less to paying more to buy a membership on video sharing websites to avoid ads when viewing an online video program.

H20c: There will be differences between the amounts of online video ads on video sharing websites along with consumers' negative vs. positive attitude toward advertising in general.

Like ad skepticism, in addition to hypotheses of main effects, it is expected that consumers' prior perceptions of attitude toward advertising in general have impact on the interaction effects of the attributes. Hence, hypotheses regarding two-way interaction effects among the attributes considering the levels (i.e., negative vs. positive) of attitude toward advertising in general are developed:

H21a: When participants have negative attitude toward advertising in general, participants who prefer ad choice to no ad choice will be willing to watch 15 second online video ads.

H21b: When participants have positive attitude toward advertising in general, participants who prefer ad choice to no ad choice will be willing to watch 15 second online video ads.

H21c: When participants have negative attitude toward advertising in general, participants who prefer ad choice to no ad choice will be willing to watch fewer of online video ads.

H21d: When participants have positive attitude toward advertising in general, participants who prefer ad choice to no ad choice will be willing to watch fewer of online video ads.

H21e: When participants have negative attitude toward advertising in general, participants who prefer 15 second ads to 30 second ads will be willing to watch fewer of online video ads.

H21f: When participants have positive attitude toward advertising in general, participants who prefer 15 second ads to 30 second ads will be willing to watch fewer of online video ads.

H21g: When participants have negative attitude toward advertising in general, participants who prefer ad choice to no ad choice in a membership will be willing to pay more to buy the membership to avoid ads on video sharing websites.

H21h: When participants have positive attitude toward advertising in general, participants who prefer ad choice to no ad choice in a membership will be willing to pay less to buy the membership to avoid ads on video sharing websites.

H21i: When participants have negative attitude toward advertising in general, participants who prefer 15 second ads to 30 second ads in a membership will be willing to pay more to buy the membership to avoid ads on video sharing websites.

H21j: When participants have positive attitude toward advertising in general, participants who prefer 15 second ads to 30 second ads in a membership will be willing to pay less to buy the membership to avoid ads on video sharing websites.

H21k: When participants have negative attitude toward advertising in general, participants who prefer more ads to fewer ads in a membership will be willing to pay more to buy the membership to avoid ads on video sharing websites.

H21l: When participants have positive attitude toward advertising in general, participants who prefer more ads to fewer ads in a membership will be willing to pay less to buy the membership to avoid ads on video sharing websites.

These hypotheses are examined with a conjoint analysis experiment (Curry 1996; Green and Srinivasan 1978; Hair et al. 2006; Orme 2009).

CHAPTER 4

METHODS

Conjoint Analysis

The current study employs conjoint analysis to examine the research questions and hypotheses. Conjoint analysis is a research method to measure participants' trade-offs and to test their preferences for products or services when making a decision (Curry 1996; Green, Krieger, and Wind 2001; Green and Srinivasan 1978, 1990; Hair et al. 2006; Ryan and Hughes 1997; Schaupp and Bélanger 2005). Researchers commonly use conjoint analysis to achieve two purposes (Schaupp and Bélanger 2005). First, conjoint analysis can discover the contributions of different independent variables and their anticipated values to the given dependent variable. Second, conjoint analysis develops a predictive model for new combinations of values of independent variables. In a conjoint analysis, it is assumed that participants estimate the value or utility of a product, service, or idea through the combination of the separate amounts of utility taken from each attribute (Hair et al. 2006; Schaupp and Bélanger 2005).

Given that conjoint analysis extracts the separate findings of utilities of predictor variables from participants' overall preference evaluation, it is considered as a decompositional technique (Green and Srinivasan 1978; Schaupp and Bélanger 2005). Conjoint analysis has been applied to various fields including behavioral studies (e.g., Green and Srinivasan 1978), health economics (e.g., Ryan and Hughes 1997), e-commerce (e.g., Schaupp and Bélanger 2005), food (e.g., Lockshin et al. 2006), tourism

(e.g., Thyne, Lawson, and Todd 2006), and marketing studies (e.g., Green and Rao 1971; Wittink and Cattin 1989). For example, Schaupp and Bélanger (2005) used conjoint analysis to find factors that make online shopping appealing to consumers by combining attributes and their levels about online shopping: technology (levels: security, privacy, and usability), shopping (levels: convenience, trust, delivery), and product (levels: merchandising, product value, and customization). Although conjoint analysis has been popular in many fields of research, there are few advertising studies that employ the conjoint analysis.

There are several advantages in using conjoint analysis (Schaupp and Bélanger 2005; Hair et al. 2006). First, conjoint analysis focuses on measuring consumers' preferences considering attributes and their levels. Second, conjoint analysis predicts a more realistic decision-making process for a population in that it assumes that participants evaluate a given product in a combination of whole attributes simultaneously. Third, conjoint analysis does not require assumptions about the nature of the relationship (e.g., normality, homoscedasticity, and independence) between the attributes and the dependent variable, which makes it easier to investigate unknown variables as possible independent variables. Fourth, conjoint analysis also has the capability to use any levels of measurement as dependent variables such metrics (i.e., an interval or ratio scales) and non-metrics (i.e., nominal or ordinal scales). Also, it can employ non-metric variables as independent variables.

The current study employs conjoint analysis – which is appropriate to examine the relationships and trade-offs among attributes by testing how they make different combinations – because basically this study seeks to investigate the relationships among

different levels of attributes of online video advertising (i.e., ad choice, length of online video ads, number of online video ads, and membership price) by examining which combinations of those attributes participants prefer. Additionally, this study seeks to investigate trade-offs consumers make about watching ads vs. paying not to, and how that relationship is influenced by ad choice, length of online video ads, number of online video ads, and membership price.

Choice-Based Conjoint Analysis

In general, there are broadly three types of conjoint analysis methodology: 1) traditional conjoint analysis, 2) adaptive conjoint analysis, and 3) choice-based conjoint analysis (Hair et al. 2006; Orme 2009). Traditional conjoint analysis is the classic principle of conjoint analysis with conjoint tasks, which is a simple additive model. Traditional conjoint analysis usually includes up to nine attributes. Adaptive conjoint analysis is a type of conjoint analysis that manages a large number of attributes (up to 30) and requires participants to provide additional information that is not revealed in conjoint tasks. The additional information helps researchers to understand the conjoint tasks by simplifying them. Third, choice-based conjoint analysis is a type of conjoint analysis that uses a unique presentation form of stimuli because participants select one full-profile conjoint task from a set of conjoint tasks (i.e., stimuli) instead of rating or ranting each conjoint task. Table 4.1 illustrates a brief comparison of the three types of conjoint analysis methodologies (Hair et al. 2006, p. 479).

Table 4.1
A Comparison of Alternative Conjoint Methodologies
(Hair et al. 2006, p. 479)

Characteristics	The current study		
	Traditional Conjoint	**Adaptive Conjoint**	**Choice-Based Conjoint**
Upper Limit on Number of Attributes	9	30	6
Levels of Analysis	Individual	Individual	Aggregate or Individual
Model Form	Additive	Additive	Additive + Interaction
Choice Task	Evaluating Full-Profile Stimuli One at a Time	Rating Stimuli Containing Subsets of Attributes	Choice Between Sets of Stimuli
Data Collection Format	Any Format	Generally Computer-Based	Any Format

Among these conjoint analysis methodologies, choice-based conjoint analysis is adopted in the current study in light of important advantages of choice-based technique (Hair et al. 2006; Sawtooth Software 2008). First, choosing a preferable task from a group of alternatives of products and services is similar to what consumers actually do in the marketplace and in their daily life. Second, unlike other conjoint techniques, choice-based conjoint analysis includes a "None" option, which lets participants express their decreased desire with regard to the given tasks. Third, although other methodologies analyze the main effect only, choice-based analysis can use both main effects and interaction effects.

The main difference between choice-based conjoint analysis and other methodologies is that participants express their preferences by selecting attributes from sets of attributes instead of rating or ranking them (Chrzan and Orme 2000; Hair et al.

2006; Orme 2009; Sawtooth Software 2008). Another unique feature of the methodology is that it includes a "None" option in choice sets. There are three reasons for including this "None" (e.g., I wouldn't choose any of these.) option. First, it provides participants with a more realistic situation in that it is a generally available option when consuming products or services. Second, it gives participants more positive feelings about choice tasks because they are not forced to choose an undesirable or unexpected alternative. Third, it generates high quality data from participants by having them process a self-screening of unacceptable questions just by clicking "None" (Johnson and Orme 2003). In sum, choice-based conjoint analysis is a good methodology to attain relatively accurate results when using relatively few attributes, to analyze interaction effects among attributes, and to provide participants with a relatively easy, understandable, and natural task including the "None" option (Hair et al. 2006; Johnson and Orme 2003; Pinnell and Olson 1996; Sawtooth Software 2008).

The current study seeks to find what types of online video ads consumers actually prefer in the decision-making process to watch the ads when watching an online video by generating different options to select based on different combinations among different attributes of online video advertising and video sharing websites. Also, this study seeks to explore both main effects and two-way interaction effects of the attribute of online video ads and video sharing websites. Therefore, choice-based conjoint analysis an appropriate method among the three types of conjoint analysis techniques.

Steps Involved in Conjoint Analysis

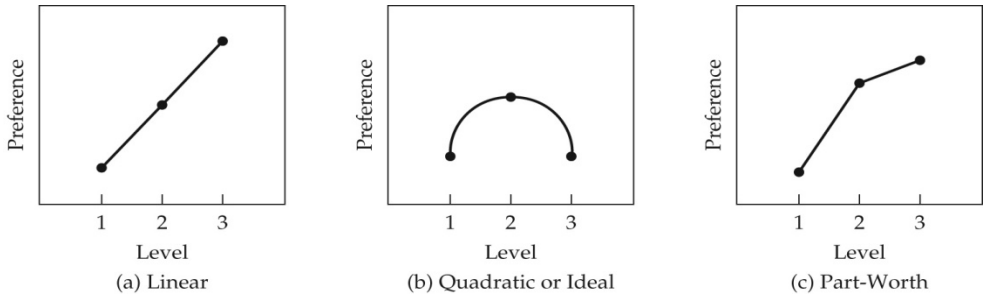
Generally, there are six steps involved in conducting conjoint analysis study (Green and Srinivasan 1978, p. 105). Table 4.2 summarizes the six steps.

Table 4.2
Steps Involved in Conjoint Analysis

Step	The current study
1. Select a model of preference	Part-worth function model
2. Data collection method	Full-profile method
3. Stimulus set construction (full-profile method)	Fractional factorial design
4. Stimulus presentation	Profile cards with series of choice sets
5. Measurement scale for the dependent variable	Non-metric
6. Estimation method	Counting & Multinomial logit estimations

Selection of a Model of Preference: There are three main preference models: the linear model, the ideal point model (linear plus quadratic), and the part-worth function model (see Figure 4.1) (Green and Srinivasan 1978, 1990; Hair et al. 2006). While the linear model measures the fewest parameters, the part-worth function model measures the largest number of parameters by assuming the most general functional form (Green and Srinivasan 1978, 1990; Schaupp and Bélanger 2005). The ideal point model is in the middle between these two models. In the current study, the part-worth function model was selected to allow for a more flexible shape of the model. Additionally, in practice, the part-worth function model is the most commonly adopted (Schaupp and Bélanger 2005).

Figure 4.1
Three Main Preference Models in Conjoint Analysis (Hair et al. 2006, p. 491)



Data Collection Method: There are two main data collection methods in conjoint analysis studies: the two-attribute-at-a-time method and the full-profile method (Green and Srinivasan 1978, 1990; Hair et al. 2006). In the two-attribute-at-a-time method, participants evaluate the various combinations of each pair of attribute levels from the most to least preferred, such as with a trade-off matrix. However, in the full-profile method, participants evaluate the complete set of attributes of a given product or service (Chrzan and Orme 2000; Green and Srinivasan 1978, 1990; Hair et al. 2006; Schaupp and Bélanger 2005). In the current study, full-profile method was used due to some benefits. First, the full-profile method uses a more realistic description of stimuli by showing all attributes simultaneously. Second, the full-profile method has the ability to estimate participants' overall preference with behaviorally oriented situations (e.g., intention to buy, likelihood of trial) (Green and Srinivasan 1978, 1990).

Stimulus Set Construction for the Full-profile Method: It is important to organize the construction of stimuli for the experiment. To decide an appropriate construction for stimuli for the full-profile method, several questions are considered (Green and Srinivasan 1978, p. 109): 1) How many stimuli do we need to use?, 2) What should be

the range of attribute variation and interattribute correlation in constructing the stimuli?, and 3) How should the stimuli themselves be constructed? Ideally, it is the best way to test full factorial design using all combinations of levels of attributes. However, as the number of attributes and levels increases, it is difficult to use a full factorial design (Hair et al. 2006). Therefore, fractional factorial design has been recommended to reduce the number of combinations and to preserve orthogonality and balanced design (Green and Srinivasan 1978, 1990; Hair et al. 2006). With the full-profile method, the current study adopted a fractional factorial design to manage large number of combinations.

Stimulus Presentation: Although previously some studies used paragraph descriptions (e.g., Hauser and Urban 1977), profile cards (with simple attribute-level description) have become more popular stimulus presentation (Green and Srinivasan 1990). The current study uses profile cards along with describing scenarios of what participants need to do with those cards. However, in the current study, unlike traditional profile cards, a profile card included series of choice sets, which shows three or four sets of full-profile stimuli as a set of alternatives to choose (Chrzan and Orme 2000; Hair et al. 2006). A computer-based experiment was used for presenting stimuli and gathering data. Sample scenarios and profile cards in the current study are provided in Appendix B.

Measurement Scale for the Dependent Variable: There are two methods used to define a measurement scale for the dependent variable: metric (e.g., ratio scales, interval scales) or non-metric (e.g., rank order, paired comparisons) (Green and Srinivasan 1978, 1990; Hair et al. 2006). In the current study, the non-metric method was used for the measurement because participants were asked to select one of a series of choice sets.

Estimation Methods: In the current study, for the parameter estimation method, counting estimation and multinomial logit estimation techniques are used. Counting estimation is the basic estimation of conjoint analysis to understand participants' responses based on the frequency of choices, generating proportions from 0 to 1 for each level of attributes (Sawtooth Software 2008). The technique of multinomial logit estimation is more advanced than counting analysis, generating part-worth utilities. Utility can be defined as "an individual's subjective preference judgment representing the holistic value or worth of a specific object" (Hair et al. 2006, p. 464). In addition, when using nonlinear or discrete conjoint analysis, multinomial logit estimation is recommended as a data analysis method (Hair et al. 2006; Kuhfeld 2009; Louviere and Woodworth 1983; Manski and McFadden 1981).

Participants

College students including undergraduate and graduate students at a major Midwestern university were recruited for a study on preferences of watching online video advertising on video sharing websites. Participants were compensated for their time with extra course credits and they had a chance to win a drawing of seven $50 Starbucks eGift Cards. College students are deemed to be appropriate for this study in that prior research conducted by Pew Internet & the American Life Project (2009) reported that about 89% of young Internet users (those age 18–29) watched online video programs on video sharing websites. Similarly, according to comScore (2009), the largest segments of online video viewers are ages 18 to 34. The minimum sample size was calculated following the formula that Johnson and Orme (1996) recommended. Johnson and Orme (1996, pp. 64 – 65) suggested a rule of thumb to decide minimum sample sizes when using the full-

profile choice-based conjoint analysis:

$$\frac{nta}{c} \geq 500$$

In this formula, *n* is the number of respondents, *t* is the number of tasks, *a* is the number of alternatives per task excluding the "None" option, and *c* is the number of analysis cells. When researchers consider using all two-way interactions, *c* is equal to the largest product of levels of any two attributes. In the current study, *t* is ten, *a* is four, and *c* is 12 (4: levels of membership price × 3: levels of the number of online video ads). Therefore, the minimum sample size (i.e., *n*) is 150.

Overall, 223 students participated in the computer-based experiment in a computer lab. Age of the participants ranged from 18 to 29 years old, with a mean age of 21 years old. Most participants were undergraduate students (93.7%, n = 209) and female participants (54.7%, n = 122) slightly outnumbered male participants (45.3%, n = 101). Among the 223 participants, 74.9% (n = 167) of participants were Caucasian, 12.6% (n = 28) were Asian, and 12.5% (n = 28) were other races. Finally, 215 (96.4%) reported that they have ever watched online video ads, and of the 215 participants, about 94% reported that they watch online video ads at least once a month. Additionally, 24.7% (n = 55) of the participants subscribe online publishers such as Hulu and Netflix to watch online video programs.

Attributes and Levels

In the current study, there are four attributes of online video ads on video sharing websites for the experiment: ad choice, length of online video ads, number of online video ads, and membership price. Each attribute includes more than two levels to

consider. Based on these attributes and levels, the current study conducted a choice-based conjoint experiment. The experiment includes four attributes along with different levels: ad choice (2 levels: ad choice vs. no ad choice), length of online video ads (2 levels: 15 seconds vs. 30 seconds), number of online video ads (3 levels: 1 ad vs. 2 ads vs. 3 ads), and membership price (4 levels: $0/month vs. $1.99/month vs. $4.99/month vs. $9.99/month).

Ad Choice. Ad choice refers to an advertising format in which consumers have alternative ad options that they can choose before watching an online video program. Specifically, when consumers have ad choice, there are three optional ads on the screen (e.g., Hulu's Ad Selector). Consumers can click one of them to watch it, and then consumers can watch ads related to the clicked ad. Ad choice has two levels: 1) ad choice, which indicates an online video program that includes the ad choice format, and 2) no ad choice, which indicates an online video program that does not include the ad choice format.

Length of Online Video Ads. Length of online video ads, in the context of online video advertising, refers to how long an online video ad is. According to IAB's video ad format guideline (2008), the recommended lengths of in-stream online video ads are 15 second or 30 second ads. Therefore, the current study has two levels of the length of online video ads as 15 seconds versus 30 seconds.

Number of Online Video Ads. Number of online video ads reflects how many ads are included in an online video program. When consumers watch an online video program, they may watch only one ad or several ads. The current study includes three levels of number of ads: 1) 1 ad, 2) 2 ads, and 3) 3 ads. These levels are generated based

on the discussion of more ads versus fewer ads, indicating generally long form online video programs include three ads (Adweek 2011; Businessweek 2009). Typically, 6 – 8% of viewing time consists of ads in online video programs comparing to 25% of TV program (comScore 2010b).

Membership Price (on Video Sharing Websites). As an alternative to watching online video ads, the current study suggests buying a monthly membership to avoid ads on video sharing websites. Membership on video sharing websites refers to paying a certain amount of money for the website to register a video sharing website. It is assumed that when consumers buy a membership, they are not exposed to ads during watching online video programs. The levels of membership is developed based on findings of an online survey that asked "About how much would you estimate you'd be willing to pay per month for TV and movie programs *online* you could get any time *without* commercials?" Of the 143 participants, 28 (19.6%) reported they would pay $0/month, 26 (18.2%) reported they would pay $1.99 – 2.00/month, 15 (10.5%) reported they would pay $4.99 – 5.00/month, and 19 (13.3%) reported they would pay $9.99 – 10.00/month. Therefore, the levels of memberships include 1) $0/month, 2) $1.99/month, 3) $4.99/month, and 4) $9.99/month.

Table 4.3 summarizes attributes and levels of the conjoint experiment in the current study.

Table 4.3
Attributes and Levels Included in the Conjoint Experiment

Attributes	Levels
Ad choice	1) Ad choice, 2) No ad choice
Length of online video ads	1) 15 seconds 2) 30 seconds
Number of online video ads	1) 1 ad 2) 2 ads 3) 3 ads
Membership price ($/month)	1) $0 2) $1.99 3) $4.99 4) $9.99

Other Variables

There are two more independent variables expected to have influence on consumers' preference decision-making with online video advertising on video sharing websites: ad skepticism and a particular attitude toward advertising in general. Ad skepticism and attitude toward advertising in general reflects consumers' existing perceptions to advertising in general, and these two variables were measured.

Ad Skepticism. Ad skepticism in general refers to consumers' tendency not to believe advertising messages (Obermiller and Spangenberg 1998). In the current study, nine items to measure ad skepticism are taken from Obermiller and Spangenber (1998). These items were measured on seven-point scales ranging from "strongly disagree (1)" to "strongly agree (7)." The items include 1) We can depend on getting truth in most advertising; 2) Advertising's aim is to inform the consumer; 3) I believe advertising is informative; 4) Advertising is generally truthful; 5) Advertising is a reliable source of

information about the quality and performance of products; 6) Advertising is truth well told; 7) In general, advertising presents a true picture of the product being advertised; 8) I feel I've been accurately informed after viewing most advertisements; and 9) Most advertising provides consumers with essential information (α = .91).

Attitude toward Advertising in General. Attitude toward advertising in general refers to a predisposition from consistent favorable or unfavorable feelings to advertising in general (Lutz 1985). Five items were borrowed from Phelps and Thorson (1991). These items were measured by seven-point semantic differential scales, anchored with "unfavorable – favorable," "boring – interesting," "dislike very much – like very much," "irritating – not irritating," and "does not hold attention – holds attention." Phelps and Thorson (1991) developed these items based on several previous studies of attitude toward advertising (e.g., Gardner 1985; Lutz et al. 1983; MacKenzie et al. 1986; Mitchell and Olson 1982) (α = .89).

Stimuli

Stimuli (i.e., choice sets) for the choice-based conjoint experiment were generated using SAS (Kuhfeld 2009) and *Sawtooth Software Choice-Based Conjoint System* (Sawtooth Software 2008). The choice set was created with the combination of levels of four attributes (i.e., ad choice, length of online video ads, number of online video ads, and membership price). In the experiment, the total number of stimuli is 48 ($2 \times 2 \times 3 \times 4$), which can cause participants fatigue. Therefore, to reduce participants' fatigue for the conjoint tasks and preserve orthogonality and balanced design, a fractional factorial design with full-profile method was used for the conjoint experiment. Orthogonality refers to "the ability to measure the effect of changing each attribute level and to separate

it from the effects of changing other attribute levels and from experimental error" (p. 463), and balanced design refers to "stimuli design in which each level within a factor appears an equal number of times across the stimuli in the conjoint task" (p. 461) (Hair et al. 2006). To find the appropriate number of stimuli for the fractional factorial design, %mktruns macro and %mktex macro were run using SAS. The %mktruns command can help to find appropriate numbers of choice sets on a survey, and the %mktex command can help to test the efficiency of design (Kuhfeld 2009). Appendix C demonstrates SAS code and output of the experimental design for the experiment. The result of the %mktruns macro was provided by entering "2 2 3 4", indicating that this design included two levels of the first attribute, two levels of the second attribute, three levels of the third attribute, and four levels of the last attribute. Also, the result of %mktex macro was provided by entering the same numbers (i.e., "2 2 3 4") along with eight stimuli (i.e., n = 8).

The SAS output of the experiment indicated that a saturated design is eight and full factorial design is 48. Saturated design refers to the smallest design that can be available and full factorial design refers to the largest design (i.e., 100% efficient design) (Kuhfeld 2009). Thus, in the current experiment, the smallest design can include eight stimuli and the largest design can include 48 stimuli. Additionally, the output indicates that 24 stimuli show 100% efficient design as well. However, to keep the experiment manageable for participants, eight stimuli were used in the experiment. Using eight stimuli was acceptable in that D-efficiency is around 90 (89.77). D-efficiency is "a function of the geometric mean of the eigenvalues" (Kuhfeld 2009, p. 62). As D-efficiency become closer to 100, the design becomes the most efficient (i.e., balanced and

orthogonal) (Kuhfeld 2009). In addition to eight stimuli, two holdouts were added. In the experiment, choice sets consisted of four profiles rather than three profiles to overcome the weakness of testing fewer profiles with small size of stimuli. Consequently, overall ten stimuli (i.e., choice sets) were created with four profiles with a "None" option (see Appendix B). The stimuli of choice tasks were tested with 33 participants who were different from the participants of the main experiment to confirm whether the choice tasks were understandable and worked appropriately.

All of the stimuli for the experiments were created using *Sawtooth Software Choice-Based Conjoint System*.

Data Collection Procedure

The choice-based conjoint analysis experiment was conducted as a computer-based experiment by inviting participants to a campus computer lab. Although the experiment can be conducted through an online survey, conducting it at a computer lab is better in order to control participants so that they can concentrate on the experiment as well as to help them understand instructions such as the attributes and levels. All procedures, questionnaires, and recruitments of the experiment were approved by the Campus Institutional Review Board (IRB) before conducting the experiment.

On arriving at a computer lab on campus, participants were asked to be seated individually in front of a computer and were briefly informed on how to answer the questions. The experiment defines a choice context in which a participant is about to watch an online video program on a video sharing website considering online video ads and needs to decide options of watching the online video program. At the beginning of the online survey, participants were asked to read an electronic consent form and then to

read an instruction of the experiment, a scenario of the context, and an explanation of attributes and their levels. Participants assumed that they watch about a 20 minute online video program.

The 20 minutes of online video program was decided based on the industry data that generally, 6 – 8% of viewing time consists of ads in online video programs (comScore 2010b). In the current study, the maximum number of online video ads is 3 ads and the maximum length of the ads is 30 seconds. Thus, the maximum total length of ads is 90 seconds, which is about 8% of a 20 minute online video program.

The first section of the experiment involved the conjoint tasks. Participants were asked to choose one out of five options. Following the series of conjoint tasks, several other questions including as evaluation of each level of attributes, ad skepticism, attitude toward advertising in general, and demographic information were asked. Overall, the experiment took less than 20 minutes. Appendix B shows the main questionnaire of the current study.

Data Analysis

In the current study, the data analysis consists of two steps following the common data analysis suggested: 1) counting analysis and 2) multinomial logit analysis. First, one common form of data analysis for overall understanding of basic preference summary is the counting analysis. Counting analysis generates proportions from 0 to 1 for each level of attributes. These proportions indicate how often a level of attributes was chosen by participants from a choice task in a conjoint experiment. Therefore, the higher the proportion, the higher preference for the level (Sawtooth Software 2008). Second, among different estimations that deal with part-worth, multinomial logit analysis is the

traditional way to analyze data (Sawtooth Software 2008). Multinomial logit analysis is a more sophisticated method than counting analysis because it pools participants' data into a single aggregate model. Part-worths reflect the overall preference or utility of each level of each attribute, representing relative preference in an attribute (Hair et al. 2006). Specifically, to test hypotheses, first, counting analysis was employed using *Sawtooth Software Choice-Based Conjoint System* (CBC system) and *Sawtooth Software SMRT* (SMRT module), The CBC system exports data files from the experiment server and transforms data for SMRT (Sawtooth Software 2008). SMRT module estimates likelihood of acceptance or interest in possible combinations defined by attributes and their levels in the conjoint analysis (Sawtooth Software 2011). SMRT module offers counting analysis of main and two-way interaction effects by producing a proportion of counts for each level of attributes. Additionally, SMRT module conducts multinomial logit analysis for main and two-way interaction effects by computing part-worth utilities using logit. The higher the utility, the more preferable the attribute level. Therefore, when levels have high utilities, the levels have a highly positive impact on participants' decisions.

CHAPTER 5

RESULTS

Counting Analysis

To look at the overall preference summary of levels for each attribute, counting analysis was conducted. Counting analysis is commonly used for initially understanding the fundamental trends of preferences (Sawtooth Software 2008). As mentioned, counting analysis generates proportions from 0 to 1 for each level of attributes. The proportions indicate how often participants chose the particular level. Therefore, as the proportion of the level of an attribute is higher, the level is more preferable by participants. The counting analysis includes both main effects and two-way interaction effects of attributes.

The counting analysis broadly consists of three parts. The first part of the counting analysis shows the overall preference summary for each attribute level. The second counting analysis was conducted in terms of different levels of ad skepticism (i.e., low ad skepticism vs. high ad skepticism). Ad skepticism was specified as low vs. high ad skepticism by mean split ($M = 3.69$). (For the data analysis, the responses of ad skepticism were reverse coded.). Thus, in the second counting analysis, the proportions of levels in an attributes were compared based on low vs. high ad skepticism. The third counting analysis was conducted in terms of different levels of attitude toward advertising in general (i.e., negative attitude vs. positive attitude). Attitude toward advertising in general was also specified as negative vs. positive attitude toward advertising in general by mean split ($M = 4.80$).

Counting Analysis for Overall Data

The data downloaded by the CBC system was imported into the SMRT module to conduct counting analysis. Table 5.1 shows the results of overall counting analysis including main and two-way interaction effects.). The values of each level represent proportions for each level of attributes. In the counting analysis, Chi-square indicates whether levels of that attribute differ significantly in their frequency of choice (Sawtooth Software 2008). Therefore, a large Chi-square value reflects a significant main effect of each attribute and an interaction effect between the two attributes.

Table 5.1
The Results of Counting Analysis (Overall)

Ad choice	
	Total
Total Respondents	223
Ad choice	0.251
No ad choice	0.223
Within Att. Chi-Square	5.676
D.F.	1
Significance	$p < .05$
Length of online video ads	
	Total
Total Respondents	223
15 seconds	0.243
30 seconds	0.231
Within Att. Chi-Square	1.043
D.F.	1
Significance	not sig
Number of online video ads	
	Total
Total Respondents	223
1 ad	0.288
2 ads	0.253
3 ads	0.164

Within Att. Chi-Square		80.270
D.F.		2
Significance		$p < .01$

Membership ($/month)

		Total
Total Respondents		223
$0		0.859
$1.99		0.052
$4.99		0.029
$9.99		0.008

Within Att. Chi-Square	3883.891
D.F.	3
Significance	$p < .01$

Ad choice × Length of online video ads

		Total
Total Respondents		223
Ad choice	15 seconds	0.355
Ad choice	30 seconds	0.146
No ad choice	15 seconds	0.131
No ad choice	30 seconds	0.316

Interaction Chi-Square	292.056
D.F.	1
Significance	$p < .01$

Ad choice × Number of online video ads

		Total
Total Respondents		223
Ad choice	1 ad	0.213
Ad choice	2 ads	0.367
Ad choice	3 ads	0.180
No ad choice	1 ad	0.378
No ad choice	2 ads	0.158
No ad choice	3 ads	0.147

Interaction Chi-Square	158.490
D.F.	2
Significance	$p < .01$

Ad choice × Membership ($/month)

		Total
Total Respondents		223
Ad choice	$0	0.881
Ad choice	$1.99	0.057
Ad choice	$4.99	0.040

Ad choice	$9.99	0.015
No ad choice	$0	0.836
No ad choice	$1.99	0.045
No ad choice	$4.99	0.018
No ad choice	$9.99	0.004
Interaction Chi-Square		11.270
D.F.		3
Significance		$p < .05$

Length of online video ads × Number of online video ads

		Total
Total Respondents		223
15 seconds	1 ad	0.401
15 seconds	2 ads	0.167
15 seconds	3 ads	0.176
30 seconds	1 ad	0.194
30 seconds	2 ads	0.355
30 seconds	3 ads	0.152
Interaction Chi-Square		171.302
D.F.		2
Significance		$p < .01$

Length of online video ads × Membership ($/month)

		Total
Total Respondents		223
15 seconds	$0	0.893
15 seconds	$1.99	0.040
15 seconds	$4.99	0.033
15 seconds	$9.99	0.006
30 seconds	$0	0.824
30 seconds	$1.99	0.064
30 seconds	$4.99	0.026
30 seconds	$9.99	0.011
Interaction Chi-Square		8.573
D.F.		3
Significance		$p < .05$

Number of online video ads × Membership ($/month)

		Total
Total Respondents		223
1 ad	$0	0.936
1 ad	$1.99	0.064
1 ad	$4.99	0.067
1 ad	$9.99	0.012
2 ads	$0	0.858
2 ads	$1.99	0.058

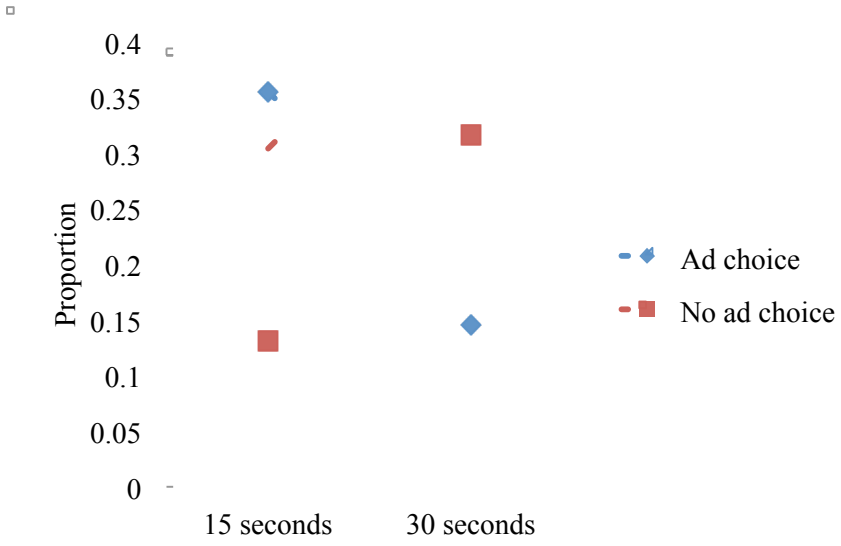
	2 ads	$4.99	0.022
	2 ads	$9.99	0.007
	3 ads	$0	0.744
	3 ads	$1.99	0.036
	3 ads	$4.99	0.010
	3 ads	$9.99	0.004
Interaction Chi-Square			23.603
D.F.			6
Significance			$p < .01$
Warning: some cells have an expected value of less than five.			
None			
		Total	
	Total Respondents	223	
	None chosen:	0.052	

First, when we look at the main effect of ad choice, Hypothesis 1 stated that participants would prefer to have ad choice rather than to have no ad choice when they come across online video ads embedded in online video programs on video sharing websites. The chi-square test indicated that there was significant difference between the levels of ad choice [χ^2 (1) = 5.676, $p < .05$], which thus supported that ad choice was more preferable, having been selected 25.1% of the times in occurred, than no ad choice (22.3%). Therefore, H1 was supported.

The second hypothesis addressed participant's preference for 15 second online video ads to 30 second online video ads. Although participants slightly preferred 15 seconds (24.3%) to 30 seconds (23.1%), the Chi-square test did not show the significant difference between them [χ^2 (1) = 1.043, n.s.]. Thus, there was no preference difference between 15 second and 30 second online video ads among participants. Hypothesis 3 stated that when there is ad choice, participants would prefer 15 second online video ads to 30 second online video ads. Chi-square test of interaction between ad choice and the

length of online video ads was significant [χ^2 (1) = 292.056, p < .01], which indicated the significant interaction between the two attributes. Specifically, when participants preferred to have ad choice, they preferred 15 second online video ads (35.5%) rather than 30 second online video ads (14.6%). However, when they preferred to have no ad choice, they preferred 30 second online video ads (31.6%) rather than 15 second online video ads (13.1%) (see Figure 5.1). Hence, H3 was supported, while H2 was not supported.

Figure 5.1
Interaction between Ad Choice and Length of Online Video ads



The fourth hypothesis addressed participant's preference for fewer online video ads to more online video ads when watching online video programs on video sharing websites. A Chi-square test indicated that there is significant difference among the levels of the numbers of online video ads [χ^2 (2) = 80.270, p < .01]. Among three different

levels of the number of online video ads (i.e., 1 ad vs. 2 ads vs. 3 ads), 1 ad was the most preferred, having been selected 28.8% of the times it occurred, followed by 2 ads (25.3%) and 3 ads (16.4%). Hypothesis 5 stated that participants would prefer to watch more online video ads rather than to watch fewer online video ads when there is ad choice. Chi-square test indicated that there was a significant interaction between ad choice and the number of online video ads was significant [χ^2 (2) = 158.490, $p < .01$]. When participants preferred to have ad choice, watching 2 ads was the most popular, having been selected 36.7% of the times it occurred, followed by 1 ad (21.3%) and 3 ads (18.0%). On the other hand, when participants preferred to have no ad choice, watching 1 ad was the most popular, having been selected 37.8% of the times it occurred, followed by 2 ad (15.8%) and 3 ads (14.7%) (see Figure 5.2). Hypothesis 6 stated that participants would prefer to watch fewer online video ads rather than to watch more online video ads when there are 15 second online video ads. Chi-square test indicated the interaction between the length of online video ads and the number of online video ads was significant [χ^2 (2) = 171.302, $p < .01$]. However, when participants preferred to watch 15 second online video ads, watching 1 ads was the most popular, having been selected 40.1% of the times it occurred, followed by 3 ads (17.6%) and 2 ads (16.7%). On the other hand, when participants preferred to watch 30 second online video ads, watching 2 ads was the most popular, having been selected 35.5% of the times it occurred, followed by 1 ad (19.4%) and 3 ads (15.2%) (see Figure 5.3). Therefore, H4 was supported, while H5 and H6 were partially supported.

Figure 5.2
Interaction between Ad Choice and Number of Online Video ads

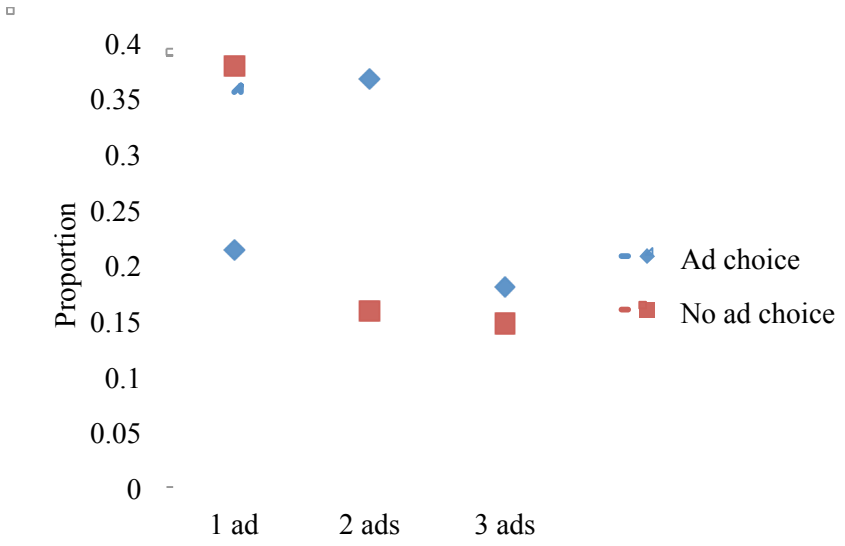
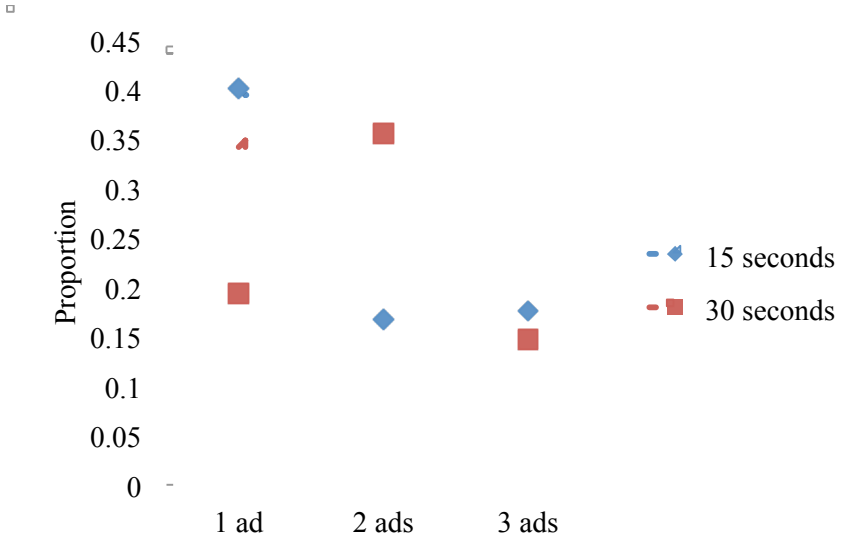


Figure 5.3
Interaction between Length and Number of Online Video ads



The seventh hypothesis addressed participant's preference for paying less to paying more to buy a membership on video sharing websites to avoid ads when watching

online video ads. Chi-square test indicated that there was significant difference among the four levels of membership price [χ^2 (3) = 3883.891, $p < .01$]. Among four different levels of membership (i.e., $0 vs. $1.99 vs. $4.99 vs. $9.99), $0 was the most popular, having been selected 85.9% of the times it occurred, followed by $1.99 (5.2%), $4.99 (2.9%), and $9.99 (0.8%). Hypothesis 8 stated that participants would be willing to pay more to buy a membership on video sharing websites to avoid ads when a membership includes ad choice. Chi-square test indicated a significant interaction between ad choice and the amount of membership price [χ^2 (3) = 11.270, $p < .05$]. When there was ad choice with the membership, $0 was the most popular, having been selected 88.1% of the times it occurred, followed by $1.99 (5.7%), $4.99 (4.0%), and $9.99 (1.5%). Similarly, when there was no ad choice with the membership, $0 was the most popular, having been selected 83.6% of the times it occurred, followed by $1.99 (4.5%), $4.99 (1.8%), and $9.99 (0.4%) (see Figure 5.4). Hypothesis 9 stated that the participants would be willing to pay more to buy a membership on video sharing websites to avoid ads when a membership includes 15 second online video ads. Chi-square test indicated that there was a significant interaction between the two attributes [χ^2 (3) = 8.573, $p < .05$]. When there were 15 second online video ads, $0 was the most popular, having been selected 89.3% of the times it occurred, followed by $1.99 (4.0%), $4.99 (3.3%), and $9.99 (0.6%). Likewise, when there were 30 second online video ads, $0 was the most popular, having been selected 82.4% of the times it occurred, followed by $1.99 (6.4%), $4.99 (2.6%), and $9.99 (1.1%) (see Figure 5.5). Hypothesis 10 expected that participants would be willing to pay more to buy a membership on video sharing websites when a membership includes fewer ads. Chi-square test indicated a significant interaction between the number

of online video ads and the amount of membership price [χ^2 (6) = 23.603, p < .01]. As the previous results of the interaction effects, when participants preferred to watch 1ad, $0 was the most popular, having been selected 93.6% of the times it occurred, followed by $4.99 (6.4%), $1.99 (6.7%), and $9.99 (1.2%). When participants preferred to watch 2 ads, $0 was also the most popular, having been selected 85.8% of the times it occurred, followed by $1.99 (5.8%), $4.99 (2.2%), and $9.99 (0.7%). Finally, when participants preferred to watch 3 ads, $0 was the most preferred, having been selected 74.4% of the times it occurred, followed by $1.99 (3.6%), $4.99 (1.0%), and $9.99 (0.4%) (see Figure 5.6). Thus, H7 was supported and H10 was partially supported, while H8 and H9 were not.

Figure 5.4
Interaction between Ad Choice and Membership Price

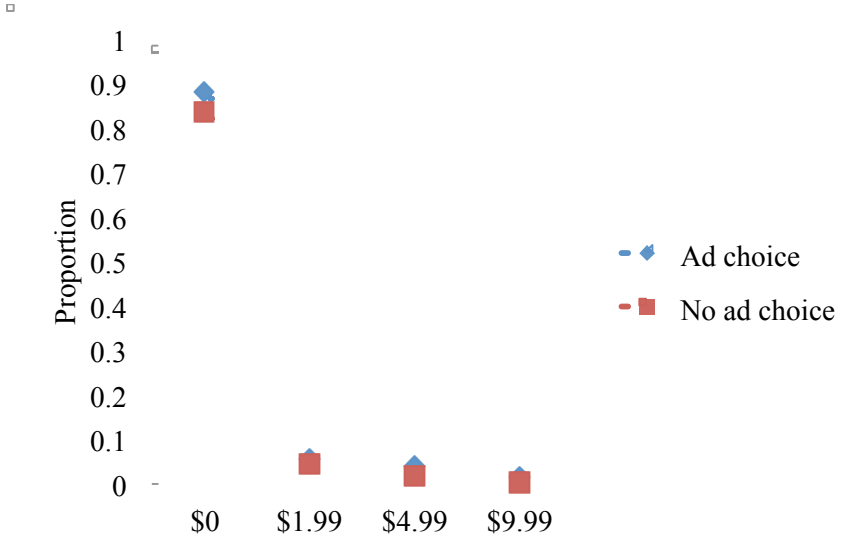


Figure 5.5
Interaction between Length of Online Video Ads and Membership Price

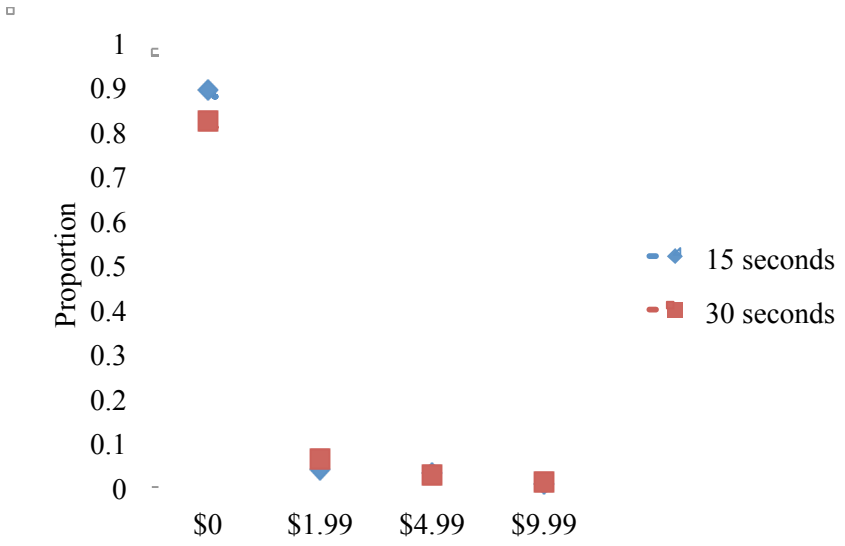
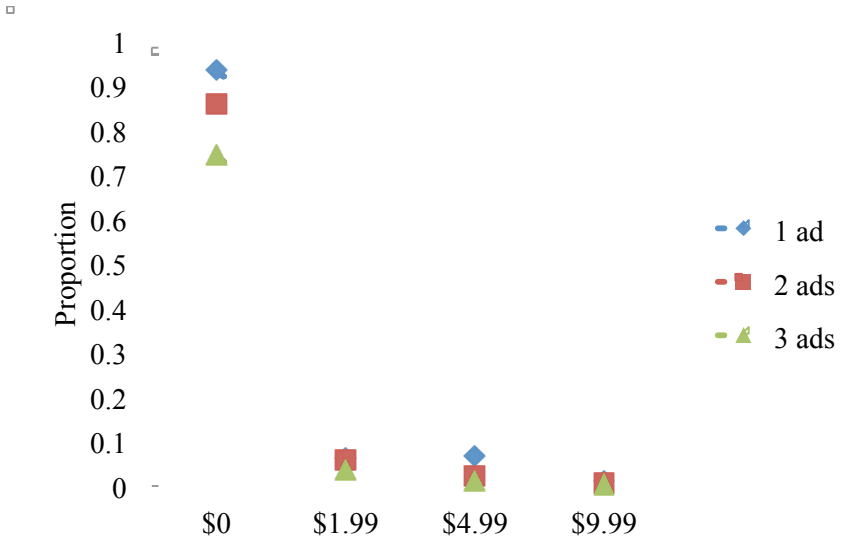


Figure 5.6
Interaction between Number of Online Video Ads and Membership Price



Counting Analysis with Ad Skepticism

Before the counting analysis with ad skepticism and attitude toward advertising in general, the relationship between the two prior perceptions of advertising was examined. Hypothesis 11 stated that there would be a negative relationship between ad skepticism and attitude toward advertising in general among the participants in the current study. To test the relationship between ad skepticism and attitude toward advertising in general, a bivariate correlation test between ad skepticism and attitude toward advertising in general was conducted. As expected, there was a significant negative correlation between ad skepticism and attitude toward advertising in general (r = -.547, p <.001). Therefore, H11 was supported.

Hypotheses 12 to 16 were comparison of main effects and interaction effects of the levels of the four attributes between low ad skepticism and high ad skepticism. As mentioned, ad skepticism was specified as low ad skepticism vs. high ad skepticism by mean split (M = 4.80). By importing the mean split file into SMRT as a merge variable, counting analysis produced comparison results between respondents of low ad skepticism (52.5%, n = 117) and respondents of high ad skepticism (47.5%, n = 106) along with total counting results. Table 5.2 shows the results of counting analysis of low ad skepticism and high ad skepticism, including main and two-way interaction effects. Like the previous counting analysis, Chi-square indicates whether levels of that attribute differ significantly in their frequency of choice, and moreover, the between group Chi-square indicates whether the levels of the two groups differ significantly in their frequency of choice (Sawtooth Software 2008). Therefore, in addition to main and interaction effects, a large Chi-square value reflects a significant difference between the two groups.

Table 5.2
Effects of Ad Skepticism (Counting Analysis)

Ad choice by Ad skepticism			
	Total	Low	High
Total Respondents	223	117	106
Ad choice	0.251	0.254	0.248
No ad choice	0.223	0.221	0.226
Within Att. Chi-Square	5.676	4.186	1.705
D.F.	1	1	1
Significance	$p < .05$	$p < .05$	not sig
Between Group Chi-Square	0.215		
D.F.	1		
Significance	not sig		
Length of online video ads by Ad skepticism			
	Total	Low	High
Total Respondents	223	117	106
15 seconds	0.243	0.244	0.242
30 seconds	0.231	0.231	0.231
Within Att. Chi-Square	1.043	0.595	0.450
D.F.	1	1	1
Significance	not sig	not sig	not sig
Between Group Chi-Square	0.002		
D.F.	1		
Significance	not sig		
Number of online video ads by Ad skepticism			
	Total	Low	High
Total Respondents	223	117	106
1 ad	0.288	0.284	0.293
2 ads	0.253	0.250	0.256
3 ads	0.164	0.173	0.154
Within Att. Chi-Square	80.270	33.118	48.331
D.F.	2	2	2
Significance	$p < .01$	$p < .01$	$p < .01$
Between Group Chi-Square	1.477		
D.F.	2		
Significance	not sig		
Membership ($/month) by Ad skepticism			
	Total	Low	High

Total Respondents	223	117	106
$0	0.859	0.843	0.876
$1.99	0.052	0.063	0.040
$4.99	0.029	0.032	0.026
$9.99	0.008	0.012	0.005
Within Att. Chi-Square	3883.891	1932.251	1955.182
D.F.	3	3	3
Significance	$p < .01$	$p < .01$	$p < .01$
Between Group Chi-Square	8.249		
D.F.	3		
Significance	$p < .05$		

Ad choice × Length of online video ads by Ad skepticism

		Total	Low	High
Total Respondents		223	117	106
Ad choice	15 seconds	0.355	0.358	0.353
Ad choice	30 seconds	0.146	0.150	0.143
No ad choice	15 seconds	0.131	0.129	0.132
No ad choice	30 seconds	0.316	0.313	0.320
Interaction Chi-Square		292.056	151.018	141.075
D.F.		1	1	1
Significance		$p < .01$	$p < .01$	$p < .01$
Between Group Chi-Square		0.263		
D.F.		3		
Significance		not sig		

Ad choice × Number of online video ads by Ad skepticism

		Total	Low	High
Total Respondents		223	117	106
Ad choice	1 ad	0.213	0.214	0.212
Ad choice	2 ads	0.367	0.368	0.366
Ad choice	3 ads	0.180	0.188	0.172
No ad choice	1 ad	0.378	0.368	0.391
No ad choice	2 ads	0.158	0.152	0.164
No ad choice	3 ads	0.147	0.157	0.136
Interaction Chi-Square		158.490	81.788	76.899
D.F.		2	2	2
Significance		$p < .01$	$p < .01$	$p < .01$
Between Group Chi-Square		1.931		
D.F.		5		
Significance		not sig		

Ad choice × Membership ($/month) by Ad skepticism

		Total	Low	High
Total Respondents		223	117	106
Ad choice	$0	0.881	0.865	0.899
Ad choice	$1.99	0.057	0.074	0.038
Ad choice	$4.99	0.040	0.043	0.038
Ad choice	$9.99	0.015	0.020	0.009
No ad choice	$0	0.836	0.821	0.854
No ad choice	$1.99	0.045	0.046	0.044
No ad choice	$4.99	0.018	0.021	0.014
No ad choice	$9.99	0.004	0.007	0.002
Interaction Chi-Square		11.270	7.148	6.307
D.F.		3	3	3
Significance		$p < .05$	not sig	not sig
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Between Group Chi-Square		10.412		
D.F.		7		
Significance		not sig		
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Length of online video ads × Number of online video ads by Ad skepticism

		Total	Low	High
Total Respondents		223	117	106
15 seconds	1 ad	0.401	0.391	0.411
15 seconds	2 ads	0.167	0.171	0.164
15 seconds	3 ads	0.176	0.183	0.168
30 seconds	1 ad	0.194	0.194	0.195
30 seconds	2 ads	0.355	0.345	0.366
30 seconds	3 ads	0.152	0.162	0.140
Interaction Chi-Square		171.302	80.844	90.938
D.F.		2	2	2
Significance		$p < .01$	$p < .01$	$p < .01$
Between Group Chi-Square		2.026		
D.F.		5		
Significance		not sig		

Length of online video ads × Membership ($/month) by Ad skepticism

		Total	Low	High
Total Respondents		223	117	106
15 seconds	$0	0.893	0.876	0.913
15 seconds	$1.99	0.040	0.053	0.026
15 seconds	$4.99	0.033	0.034	0.031
15 seconds	$9.99	0.006	0.011	0.000
30 seconds	$0	0.824	0.810	0.840
30 seconds	$1.99	0.064	0.073	0.054

30 seconds	$4.99	0.026	0.030	0.021
30 seconds	$9.99	0.011	0.013	0.009
Interaction Chi-Square		8.573	2.222	9.812
D.F.		3	3	3
Significance		$p < .05$	not sig	$p < .05$
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Between Group Chi-Square		11.406		
D.F.		7		
Significance		not sig		
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Number of online video ads × Membership ($/month) by Ad skepticism

		Total	Low	High
Total Respondents		223	117	106
1 ad	$0	0.936	0.909	0.965
1 ad	$1.99	0.064	0.068	0.060
1 ad	$4.99	0.067	0.073	0.061
1 ad	$9.99	0.012	0.014	0.009
2 ads	$0	0.858	0.843	0.874
2 ads	$1.99	0.058	0.068	0.047
2 ads	$4.99	0.022	0.017	0.028
2 ads	$9.99	0.007	0.011	0.003
3 ads	$0	0.744	0.744	0.745
3 ads	$1.99	0.036	0.054	0.016
3 ads	$4.99	0.010	0.020	0.000
3 ads	$9.99	0.004	0.009	0.000
Interaction Chi-Square		23.603	11.549	18.633
D.F.		6	6	6
Significance		$p < .01$	not sig	$p < .01$
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Between Group Chi-Square		18.862		
D.F.		11		
Significance		not sig		
Warning: some cells have an expected value of less than five.				

None by Ad skepticism

	Total	Low	High
Total Respondents	223	117	106
None chosen:	0.052	0.050	0.053
Between Group Chi-Square	0.070		
D.F.	1		
Significance	not sig		

Hypothesis 12 addressed that when participants have low ad skepticism they would prefer having ad choice to having no ad choice when viewing an online video program on video sharing websites. Regarding the main effect of ad choice, when participants had low ad skepticism, ad choice was more preferable, having been selected 25.4% of the times in occurred, over no ad choice (22.1%) [χ^2 (1) = 4.186, $p < .05$]. However, there was no significant difference between the levels of ad choice when having high ad skepticism although ad choice (24.8%) demonstrated higher scores than no ad choice (22.6%) [χ^2 (1) = 1.705, n.s.]. Additionally, there was no significant difference between low and high ad skepticism in terms of ad choice [χ^2 (1) = 0.215, n.s.]. Hypotheses 13a to 13c were about the main effects of the length of online video ads on participants' preference of watching online video ads. Regarding the main effect of the length of online video ads, like the overall counting analysis, there were no significant differences between the levels as well as between the groups. Thus, H12 was supported, while H13a to H13c were not.

In terms of the number of online video ads, Hypothesis 14a stated that when participants have low ad skepticism, they would prefer fewer ads to more ads when viewing an online video program on video sharing websites; Hypothesis 14b addressed that when participants have high ad skepticism, they would prefer fewer ads to more ads. In addition, Hypothesis 14c expected the differences between the numbers of online video ads on video sharing websites along with consumers' low vs. high ad skepticism. As a result, participants who had low ad skepticism indicated the significant difference among the levels of the numbers of online video ads [χ^2 (2) = 33.118, $p < .01$]. Among three different levels of the number of online video ads (i.e., 1 ad vs. 2 ads vs. 3 ads), 1 ad

was the most preferred, having been selected 28.4% of the times it occurred, followed by 2 ads (25.0%) and 3 ads (17.3%). Similarly, participants who had high ad skepticism showed the significant difference among the levels of the numbers of online video ads [χ^2 (2) = 48.331, $p < .01$]. Among the three different levels of the number of online video ads, 1 ad was the most popular, having been selected 29.3% of the times it occurred, followed by 2 ads (25.6%) and 3 ads (15.4%). However, there was no significant difference between the results of low and high ad skepticism in the context of the number of online video ads [χ^2 (2) = 1.477, n.s.]. Therefore, H14a and H14b were supported, whereas H14c was not supported.

Considering the main effect of membership price, Hypothesis 15a stated that when participants have low ad skepticism, they would prefer paying less to paying more to buy a membership on video sharing websites to avoid ads when viewing an online video program. Hypothesis 15b addressed that when participants have high ad skepticism, they would prefer paying more to paying less to buy a membership. Moreover, Hypothesis 15c expected the differences between the amounts of online video ads on video sharing websites along with consumers' low vs. high ad skepticism. The results showed that participants who had low ad skepticism demonstrated that there was significant difference among the four levels of membership price [χ^2 (3) = 1932.251, $p < .01$]. Among four different levels of membership (i.e., \$0 vs. \$1.99 vs. \$4.99 vs. \$9.99), \$0 was the most popular, having been selected 84.3% of the times it occurred, followed by \$1.99 (6.3%), \$4.99 (3.2%), and \$9.99 (1.2%). In addition, participants who had high ad skepticism indicated a significant difference among the four levels of membership price [χ^2 (3) = 1955.182, $p < .01$]. Among four different levels of membership, \$0 was the

most popular, having been selected 87.6% of the times it occurred, followed by $1.99 (4.0%), $4.99 (2.6%), and $9.99 (0.5%). The preference difference of membership prices between low and high ad skepticism was significant [χ^2 (3) = 8.249, $p < .05$]. Thus, H15a and H15c were supported, while H15b was not.

Hypotheses 16a to 16l addressed how the level of participants' ad skepticism (low vs. high) differentiate the interactions among the four attributes of online video ads (i.e., ad choice, length of online video ads, number of online video ads, and membership price) on video sharing websites. The interactions tested in the overall counting analysis were analyzed in terms of ad skepticism.

Hypothesis 16a stated that when participants have low ad skepticism, participants who prefer ad choice to no ad choice would be willing to watch 15 second online video ads, and Hypothesis 16b stated that when participants have high ad skepticism, participants who prefer ad choice to no ad choice would be willing to watch 15 second online video ads. Looking at the interaction between ad choice and the length of online video ads, when participants had low ad skepticism, there was a significant interaction between the two attributes [χ^2 (1) = 151.018, $p < .01$]. Specifically, when participants preferred to have ad choice, they preferred 15 second online video ads (35.8%) rather than 30 second online video ads (15.0%). However, when they preferred to have no ad choice, they preferred 30 second online video ads (31.3%) rather than 15 second online video ads (12.9%) (see Figure 5.7). When participants had high ad skepticism, a significant interaction was found between the two attributes [χ^2 (1) = 141.075, $p < .01$]. Specifically, when participants preferred to have ad choice, they preferred 15 second online video ads (35.3%) rather than 30 second online video ads (14.3%). However,

when they preferred to have no ad choice, they preferred 30 second online video ads (32.0%) rather than 15 second online video ads (13.2%) (see Figure 5.8). However, the difference of these two interactions was not significant [χ^2 (3) = 0.263, n.s.]. Therefore, H16a and H16b were supported.

Figure 5.7
Interaction between Ad Choice and Length of Online Video Ads with Low Ad Skepticism

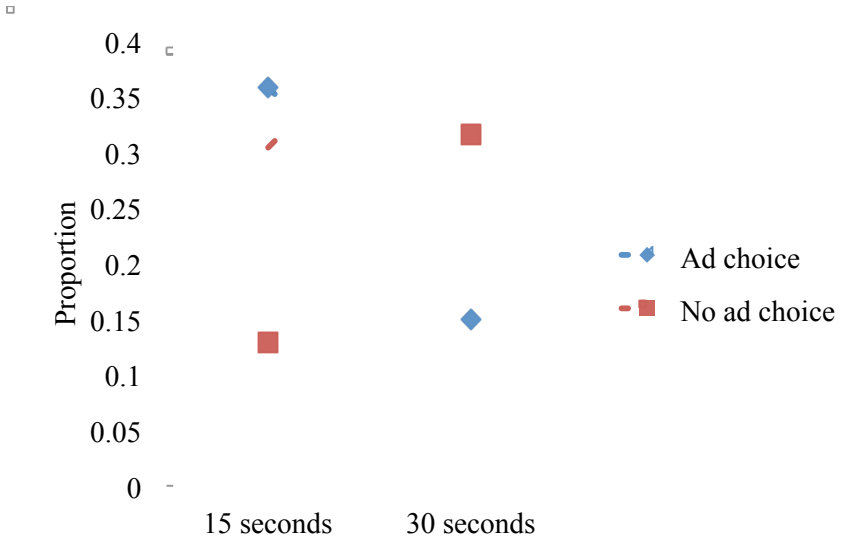
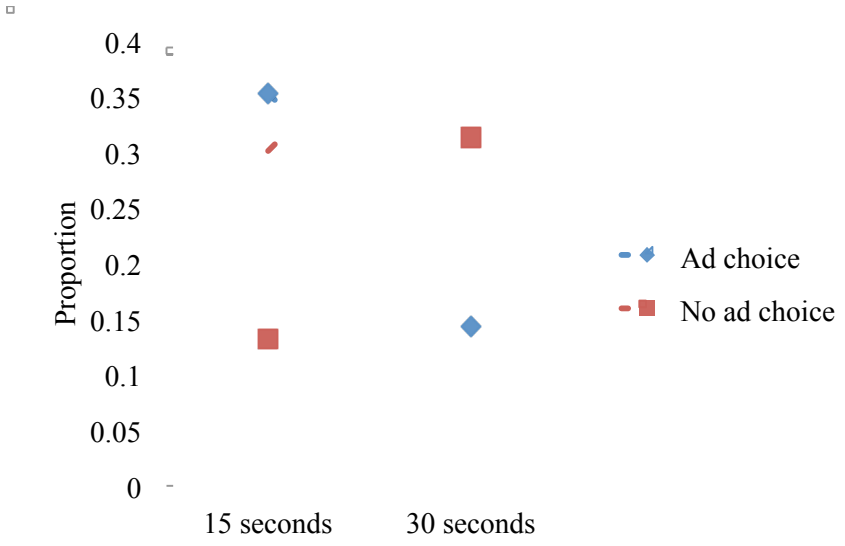


Figure 5.8
Interaction between Ad Choice and Length of Online Video Ads with High Ad Skepticism



Next, the interaction effect between ad choice and the number of online video ads was investigated. Hypothesis 16c addressed that when participants have low ad skepticism, participants who prefer ad choice to no ad choice would be willing to watch fewer of online video ads, and Hypothesis 16d stated that when participants have high ad skepticism, participants who prefer ad choice to no ad choice would be willing to watch fewer of online video ads. Participants who had low ad skepticism showed a significant interaction between the number of online video ads and ad choice [χ^2 (2) = 81.788, p < .01]. Specifically, when participants preferred to have ad choice, watching 2 ads was the most popular, having been selected 36.8% of the times it occurred, followed by 1 ad (21.4%) and 3 ads (18.8%). On the other hand, when participants preferred to have no ad choice, watching 1 ad was the most popular, having been selected 36.8% of the times it occurred, followed by 3 ads (15.7%) and 2 ad (15.2%) (see Figure 5.9). With the similar

pattern, participants who had high ad skepticism showed a significant interaction between the number of online video ads and ad choice [χ^2 (2) = 76.899, $p < .01$]. When participants preferred to have ad choice, watching 2 ads was the most preferred, having been selected 36.6% of the times it occurred, followed by 1 ad (21.2%) and 3 ads (17.2%). However, when participants preferred to have no ad choice, watching 1 ad was the most popular, having been selected 39.1% of the times it occurred, followed by 2 ad (16.4%) and 3 ads (13.6%) (see Figure 5.10). Nevertheless, there was no significant difference between groups of low and high skepticism [χ^2 (5) = 1.931, n.s.]. Thus, both H16c and H16d were partially supported.

Figure 5.9
Interaction between Ad Choice and Number of Online Video Ads with Low Ad Skepticism

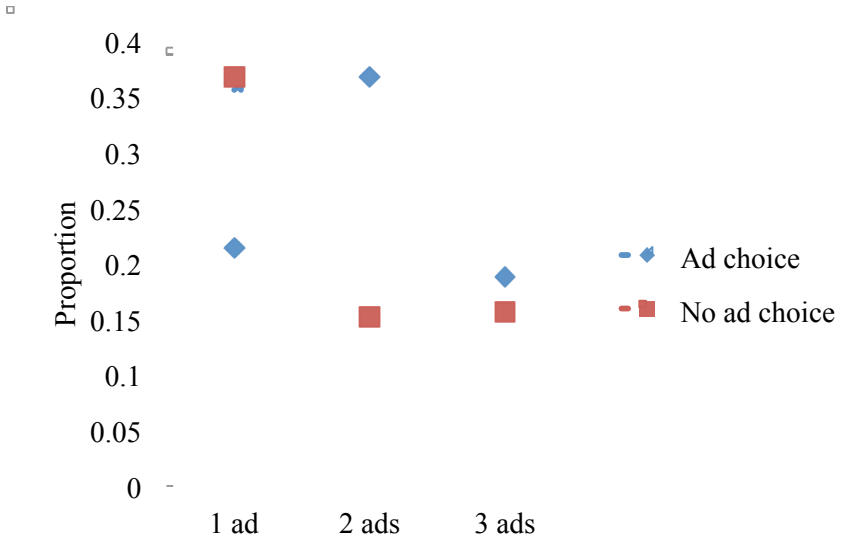
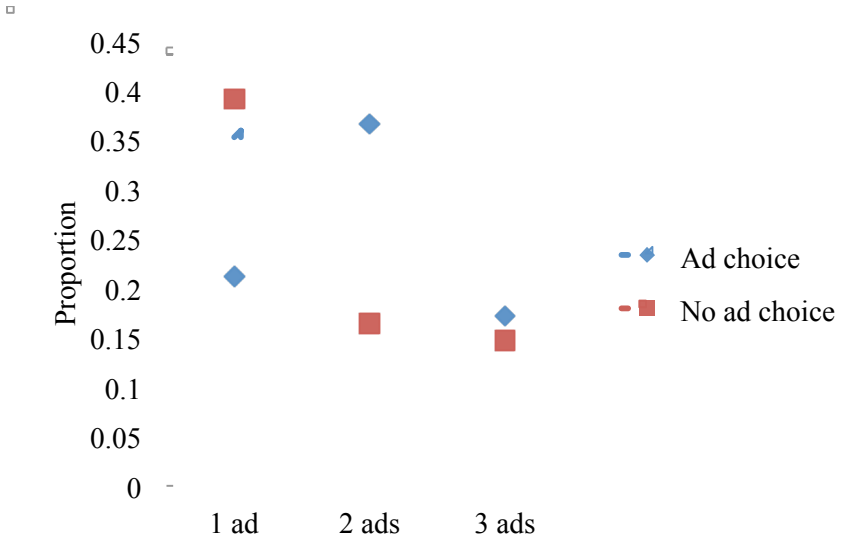


Figure 5.10
Interaction between Ad Choice and Number of Online Video Ads with High Ad Skepticism



The interaction effect between the length of online video ads and the number of online video ads was investigated. Hypothesis 16e addressed that when participants have low ad skepticism, participants who prefer 15 second ads to 30 second ads would be willing to watch fewer of online video ads, and Hypothesis 16f stated that when participants have high ad skepticism, participants who prefer 15 second ads to 30 second ads would be willing to watch fewer of online video ads. Participants who had low ad skepticism showed a significant interaction between the length of online video ads and the number of online video ads [χ^2 (2) = 80.844, $p < .01$]. Specifically, when participants preferred 15 second ads to 30 second ads, watching 1 ad was the most popular, having been selected 39.1% of the times it occurred, followed by 3 ads (18.3%) and 2 ads (17.1%). On the other hand, when participants preferred 30 second ads to 15 second ads, watching 2 ads was the most popular, having been selected 34.5% of the

times it occurred, followed by 1 ad (19.4%) and 3 ad (16.2%) (see Figure 5.11). With the similar pattern, participants who had high ad skepticism showed a significant interaction between the length of online video ads and the number of online video ads [χ^2 (2) = 90.938, $p < .01$]. When participants preferred 15 second ads to 30 second ads, watching 1 ad was the most preferred, having been selected 41.1% of the times it occurred, followed by 3 ads (16.8.%) and 2 ads (16.4%). However, when participants preferred 30 second ads to 15 second ads, watching 2 ads was the most popular, having been selected 36.6% of the times it occurred, followed by 1 ad (19.5%) and 3 ads (14.0%) (see Figure 5.12). However, there was no significant difference between groups of low and high skepticism [χ^2 (5) = 2.026, n.s.]. Therefore, both H16e and H16f were partially supported.

Figure 5.11
Interaction between Length and Number of Online Video Ads with Low Ad Skepticism

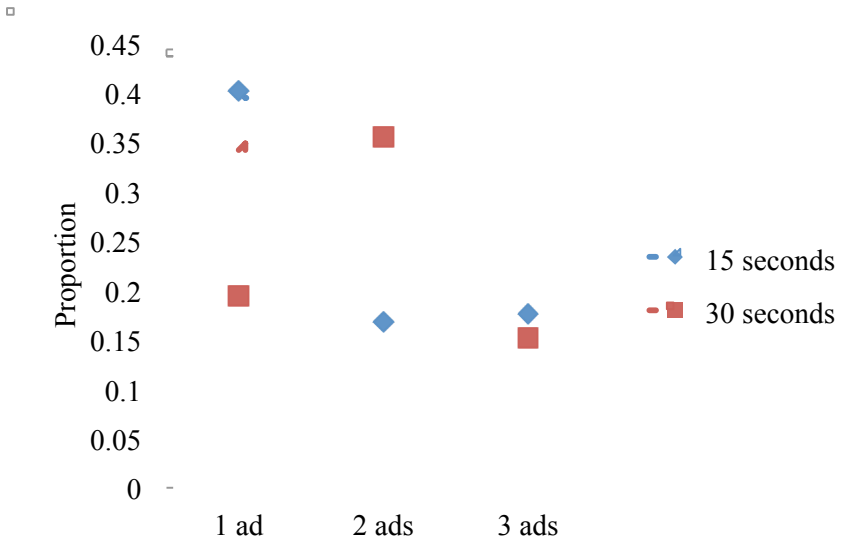
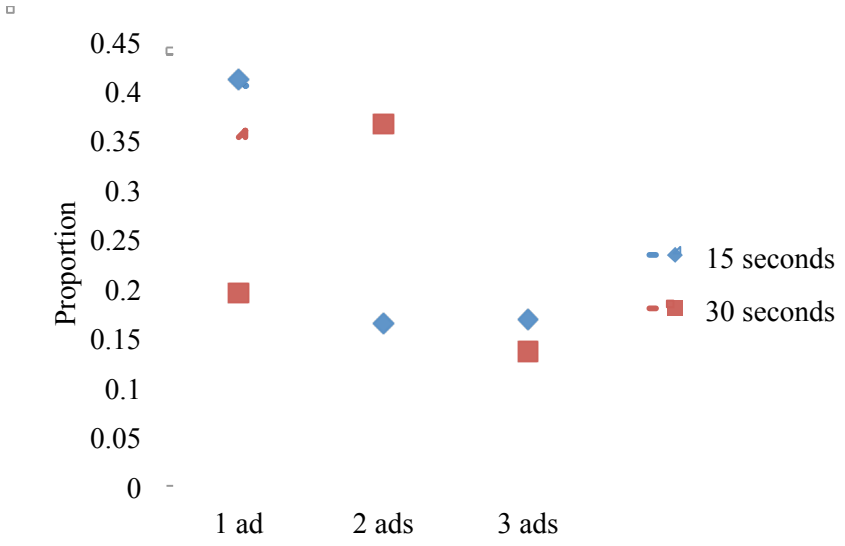


Figure 5.12
Interaction between Length and Number of Online Video Ads with High Ad Skepticism



Finally, three interactions related to membership price were examined considering low and high ad skepticism. First, Hypothesis 16g addressed that when participants have low ad skepticism, participants who prefer ad choice to no ad choice in a membership would be willing to pay less to buy the membership to avoid ads on video sharing websites, and Hypothesis 16h stated that when participants have high ad skepticism, participants who prefer ad choice to no ad choice in a membership would be willing to pay more to buy the membership. There was no significant interaction between the amount of membership price and ad choice regardless of low ad skepticism [χ^2 (3) = 7.148, n.s.] and high ad skepticism [χ^2 (3) = 6.307, n.s.]. Also, there was no significant group difference [χ^2 (7) = 10.412, n.s.]. Hence, H16g and H16h were not supported.

Second, Hypothesis 16i stated that when participants have low ad skepticism, participants who prefer 15 second ads to 30 second ads in a membership would be willing

to pay less to buy the membership to avoid ads on video sharing websites, and Hypothesis 16j stated that when participants have high ad skepticism, participants who prefer 15 second ads to 30 second ads in a membership would be willing to pay more to buy the membership. Although there was no significant interaction between the amount of membership price and the length of online video ads when participants had low ad skepticism [χ^2 (3) = 2.222, n.s.], there was a significant interaction when participants had high ad skepticism [χ^2 (3) = 9.812, $p < .05$]. When participants with high ad skepticism preferred to watch 15 second online video ads, $0 was the most popular, having been selected 91.3% of the times it occurred, followed by $4.99 (3.1%), $1.99 (2.6%), and $9.99 (0%). When participants with high ad skepticism preferred to watch 30 second online video ads, $0 was the most popular, having been selected 84.0% of the times it occurred, followed by $1.99 (5.4%), $4.99 (2.1%), and $9.99 (0.9%) (see Figure 5.13). Therefore, H16j was partially supported, while H16i was not supported.

Third, Hypothesis 16k stated that when participants have low ad skepticism, participants who prefer fewer ads to more ads in a membership would be willing to pay less to buy the membership to avoid ads on video sharing websites, and Hypothesis 16l stated that when participants have high ad skepticism, participants who prefer fewer ads to more ads in a membership would be willing to pay more to buy the membership. While no significant interaction between the amount of membership price and the number of online video ads was found when participants had low ad skepticism [χ^2 (6) = 11.549, n.s.], there was a significant interaction when participants had high ad skepticism [χ^2 (6) = 18.633, $p < .01$]. Specifically, when participants with high ad skepticism preferred to watch 1ad, $0 was the most popular, having been selected 96.5% of the times it occurred,

followed by $4.99 (6.1%), $1.99 (6.0%), and $9.99 (0.9%). When the participants preferred to watch 2 ads, $0 was also the most popular, having been selected 87.4% of the times it occurred, followed by $1.99 (4.7%), $4.99 (2.8%), and $9.99 (0.3%). Lastly, when the participants preferred to watch 3 ads, $0 was the most preferred, having been selected 74.5% of the times it occurred, followed by $1.99 (1.6%), $4.99 (0%), and $9.99 (0%) (see Figure 5.14). There was no significant difference between the groups of ad skepticism about the interaction [χ^2 (11) = 18.862, n.s.]. Therefore, H16l was partially supported, while H16k was not supported.

Figure 5.13
Interaction between Length of Online Video Ads and Membership Price with High Ad Skepticism

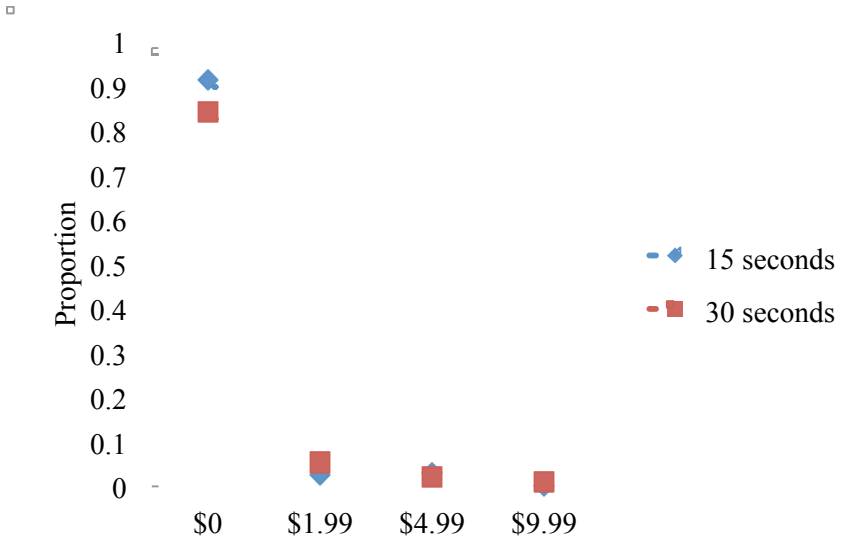
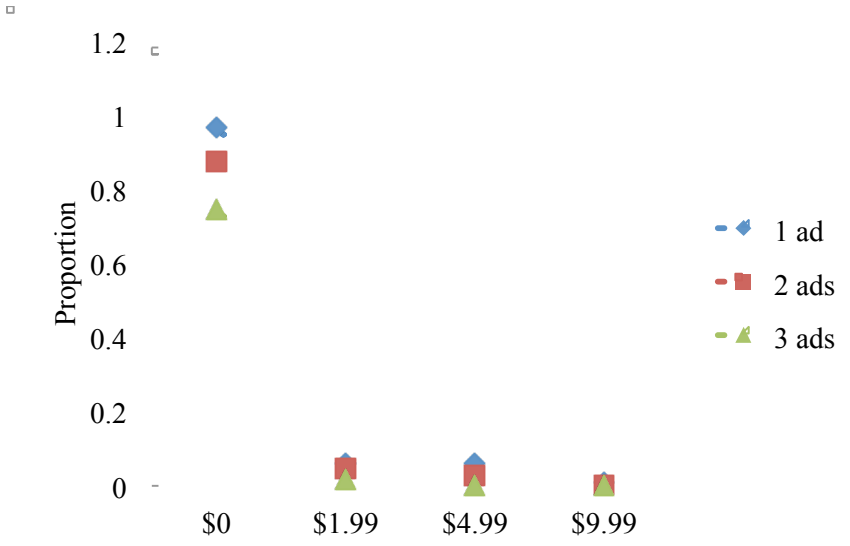


Figure 5.14
Interaction between Number of Online Video Ads and Membership Price with High Ad Skepticism



Counting Analysis with Attitude toward Advertising in General

Hypotheses 17 to 21 were comparisons of main effects and interaction effects between negative attitude toward advertising in general and positive attitude toward advertising in general. Like ad skepticism, attitude toward advertising in general was specified as negative vs. positive attitude toward advertising in general by mean split (*M* = 3.69). By importing the mean split file into SMRT as a merge variable, counting analysis produced comparison results between respondents of negative attitude toward advertising in general (46.2%, n = 103) and respondents of positive attitude toward advertising in general (53.8%, n = 120) along with total counting results. Table 5.3 demonstrates the results of counting analysis of negative and positive attitude toward advertising in general, including main and two-way interaction effects.

Table 5.3
Effects of Attitude toward Advertising in General (Counting Analysis)

Ad choice by Attitude toward advertising in general (AttAd in general)			
	Total	Negative	Positive
Total Respondents	223	103	120
Ad choice	0.251	0.245	0.256
No ad choice	0.223	0.226	0.221
Within Att. Chi-Square	5.676	1.237	4.906
D.F.	1	1	1
Significance	$p < .05$	not sig	$p < .05$
Between Group Chi-Square	0.468		
D.F.	1		
Significance	not sig		
Length of online video ads by AttAd in general			
	Total	Negative	Positive
Total Respondents	223	103	120
15 seconds	0.243	0.245	0.242
30 seconds	0.231	0.227	0.235
Within Att. Chi-Square	1.043	1.082	0.185
D.F.	1	1	1
Significance	not sig	not sig	not sig
Between Group Chi-Square	0.225		
D.F.	1		
Significance	not sig		
Number of online video ads by AttAd in general			
	Total	Negative	Positive
Total Respondents	223	103	120
1 ad	0.288	0.296	0.282
2 ads	0.253	0.248	0.257
3 ads	0.164	0.156	0.170
Within Att. Chi-Square	80.270	45.554	35.884
D.F.	2	2	2
Significance	$p < .01$	$p < .01$	$p < .01$
Between Group Chi-Square	1.180		
D.F.	2		
Significance	not sig		
Membership ($/month) by AttAd in general			
	Total	Negative	Positive

Total Respondents	223	103	120
$0	0.859	0.874	0.846
$1.99	0.052	0.041	0.061
$4.99	0.029	0.024	0.033
$9.99	0.008	0.004	0.013
Within Att. Chi-Square	3883.891	1899.782	1987.702
D.F.	3	3	3
Significance	$p < .01$	$p < .01$	$p < .01$
Between Group Chi-Square	9.220		
D.F.	3		
Significance	$p < .05$		

Ad choice x Length of online video ads by AttAd in general

		Total	Negative	Positive
Total Respondents		223	103	120
Ad choice	15 seconds	0.355	0.354	0.356
Ad choice	30 seconds	0.146	0.136	0.155
No ad choice	15 seconds	0.131	0.135	0.127
No ad choice	30 seconds	0.316	0.318	0.315
Interaction Chi-Square		292.056	140.440	152.125
D.F.		1	1	1
Significance		$p < .01$	$p < .01$	$p < .01$
Between Group Chi-Square		1.298		
D.F.		3		
Significance		not sig		

Ad choice x Number of online video ads by AttAd in general

		Total	Negative	Positive
Total Respondents		223	103	120
Ad choice	1 ad	0.213	0.210	0.215
Ad choice	2 ads	0.367	0.359	0.373
Ad choice	3 ads	0.180	0.173	0.187
No ad choice	1 ad	0.378	0.398	0.362
No ad choice	2 ads	0.158	0.155	0.160
No ad choice	3 ads	0.147	0.140	0.153
Interaction Chi-Square		158.490	79.593	78.921
D.F.		2	2	2
Significance		$p < .01$	$p < .01$	$p < .01$
Between Group Chi-Square		1.791		
D.F.		5		
Significance		not sig		

Ad choice x Membership ($/month) by AttAd in general

		Total	Negative	Positive
Total Respondents		223	103	120
Ad choice	$0	0.881	0.888	0.875
Ad choice	$1.99	0.057	0.043	0.068
Ad choice	$4.99	0.040	0.034	0.046
Ad choice	$9.99	0.015	0.006	0.022
No ad choice	$0	0.836	0.859	0.817
No ad choice	$1.99	0.045	0.039	0.050
No ad choice	$4.99	0.018	0.015	0.021
No ad choice	$9.99	0.004	0.002	0.007
Interaction Chi-Square		11.270	3.783	7.457
D.F.		3	3	3
Significance		$p < .05$	not sig	not sig
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Between Group Chi-Square		9.562		
D.F.		7		
Significance		not sig		
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Length of online video ads x Number of online video ads by AttAd in general

		Total	Negative	Positive
Total Respondents		223	103	120
15 seconds	1 ad	0.401	0.414	0.390
15 seconds	2 ads	0.167	0.163	0.171
15 seconds	3 ads	0.176	0.173	0.178
30 seconds	1 ad	0.194	0.197	0.192
30 seconds	2 ads	0.355	0.350	0.360
30 seconds	3 ads	0.152	0.140	0.162
Interaction Chi-Square		171.302	82.015	89.355
D.F.		2	2	2
Significance		$p < .01$	$p < .01$	$p < .01$
Between Group Chi-Square		1.511		
D.F.		5		
Significance		not sig		

Length of online video ads x Membership ($/month) by AttAd in general

		Total	Negative	Positive
Total Respondents		223	103	120
15 seconds	$0	0.893	0.915	0.875
15 seconds	$1.99	0.040	0.032	0.048
15 seconds	$4.99	0.033	0.029	0.035
15 seconds	$9.99	0.006	0.002	0.008
30 seconds	$0	0.824	0.833	0.817
30 seconds	$1.99	0.064	0.051	0.075

30 seconds	$4.99	0.026	0.019	0.031
30 seconds	$9.99	0.011	0.005	0.017
Interaction Chi-Square		8.573	3.544	5.105
D.F.		3	3	3
Significance		$p < .05$	not sig	not sig
Warning: some cells have an expected value of less than five.				
Between Group Chi-Square		9.512		
D.F.		7		
Significance		not sig		
Warning: some cells have an expected value of less than five.				

Number of online video ads x Membership ($/month) by AttAd in general

		Total	Negative	Positive
Total Respondents		223	103	120
1 ad	$0	0.936	0.968	0.908
1 ad	$1.99	0.064	0.068	0.061
1 ad	$4.99	0.067	0.063	0.071
1 ad	$9.99	0.012	0.006	0.017
2 ads	$0	0.858	0.864	0.853
2 ads	$1.99	0.058	0.034	0.079
2 ads	$4.99	0.022	0.019	0.025
2 ads	$9.99	0.007	0.003	0.011
3 ads	$0	0.744	0.748	0.742
3 ads	$1.99	0.036	0.019	0.050
3 ads	$4.99	0.010	0.003	0.017
3 ads	$9.99	0.004	0.000	0.008
Interaction Chi-Square		23.603	17.899	11.384
D.F.		6	6	6
Significance		$p < .01$	$p < .01$	not sig
Warning: some cells have an expected value of less than five.				
Between Group Chi-Square		15.779		
D.F.		11		
Significance		not sig		
Warning: some cells have an expected value of less than five.				

None by AttAd in general

	Total	Negative	Positive
Total Respondents	223	103	120
None chosen:	0.052	0.057	0.047
Between Group Chi-Square	0.888		
D.F.	1		
Significance	not sig		

Hypothesis 17 addressed that when participants have positive attitude toward advertising in general, they would prefer having ad choice to having no ad choice when viewing an online video program on video sharing websites. In terms of the main effect of ad choice, there was no significant difference between the levels of ad choice when having negative attitude toward advertising in general, although ad choice (24.5%) indicated higher scores than no ad choice (22.6%) [χ^2 (1) = 1.237, n.s.]. However, when participants had positive attitude toward advertising in general, ad choice was more popular, having been selected 25.6% of the times in occurred, than no ad choice (22.1%) [χ^2 (1) = 4.906, $p < .05$]. In addition, there was no significant difference between negative and positive attitude toward advertising in general regarding ad choice [χ^2 (1) = 0.468, n.s.]. Hypotheses 18a to 18c were about the main effects of the length of online video ads. Regarding the main effect of length of online video ads, like the previous counting analyses, there were no significant differences between the levels as well as between the groups. Therefore, H17 was supported, whereas H18a to H18c were not supported.

Considering the number of online video ads, Hypothesis 19a stated that when participants have negative attitude toward advertising in general, they would prefer fewer ads to more ads when viewing an online video program on video sharing websites, and Hypothesis 19b addressed that when participants have positive attitude toward advertising in general, they would prefer fewer ads to more ads. In addition, Hypothesis 19c expected the differences between the numbers of online video ads on video sharing websites along with consumers' negative vs. positive attitude toward advertising in general. Participants who had negative attitude toward advertising in general indicated a significant difference among the levels of the numbers of online video ads [χ^2 (2) =

45.554, $p < .01$]. Watching 1 ad was the most popular, having been selected 29.6% of the times it occurred, followed by 2 ads (24.8%) and 3 ads (15.6%). Likewise, participants who had positive attitude toward advertising in general demonstrated a significant difference among the levels of the numbers of online video ads [χ^2 (2) = 35.884, $p < .01$]. Among the three different levels of the number of online video ads, 1 ad was the most preferred, having been selected 28.2% of the times it occurred, followed by 2 ads (25.7%) and 3 ads (17.0%). However, the difference between the results of negative and positive attitude toward advertising in general with the number of online video ads was not significant [χ^2 (2) = 1.180, n.s.]. Hence, H19a and H19b were supported, while H19c was not supported.

Regarding the main effect of membership price, Hypothesis 20a stated that when participants have negative attitude toward advertising in general, they would prefer paying more to paying less to buy a membership on video sharing websites to avoid ads when viewing an online video program. Hypothesis 20b addressed that when participants have positive attitude toward advertising in general, they would prefer paying less to paying more to buy a membership. Moreover, Hypothesis 20c expected the differences between the amounts of membership price for online video ads on video sharing websites along with consumers' negative vs. positive attitude toward advertising in general. As a result, participants who had negative attitude toward advertising in general indicated a significant difference among the four levels of membership price [χ^2 (3) = 1899.782, $p < .01$]. Among four different levels of membership price (i.e., \$0 vs. \$1.99 vs. \$4.99 vs. \$9.99), \$0 was the most preferred, having been selected 87.4% of the times it occurred, followed by \$1.99 (4.1%), \$4.99 (2.4%), and \$9.99 (0.4%). Also, participants who had

positive attitude toward advertising in general showed a significant difference among the four levels of membership price [χ^2 (3) = 1987.702, $p < .01$]. Among four different levels of membership, $0 was the most popular, having been selected 84.6% of the times it occurred, followed by $1.99 (6.1%), $4.99 (3.3%), and $9.99 (1.3%). In addition, the preference difference of membership prices between negative and positive attitude toward advertising in general was significant [χ^2 (3) = 9.220, $p < .05$]. Therefore, H20b and H20c were supported, whereas H20a was not.

Hypotheses 21a to 21l addressed how the level of participants' attitude toward advertising in general (negative vs. positive) differentiates the interactions among the four attributes of online video ads (i.e., ad choice, length of online video ads, number of online video ads, and membership price) on video sharing websites. The interactions tested in the previous counting analyses were analyzed considering attitude toward advertising in general.

Hypothesis 21a stated that when participants have negative attitude toward advertising in general, participants who prefer ad choice to no ad choice would be willing to watch 15 second online video ads, and Hypothesis 21b stated that when participants have positive attitude toward advertising in general, participants who prefer ad choice to no ad choice would be willing to watch 15 second online video ads. In terms of the interaction between ad choice and the length of online video ads, when participants had negative attitude toward advertising in general, a significant interaction between the two attributes was found [χ^2 (1) = 140.440, $p < .01$]. When the participants preferred to have ad choice, 15 second online video ads (35.4%) were more popular rather than 30 second online video ads (13.6%). On the other hand, when they preferred to have no ad choice,

they preferred 30 second online video ads (31.8%) rather than 15 second online video ads (13.5%) (see Figure 5.15). When participants had positive attitude toward advertising in general, there was a significant interaction between the two attributes [χ^2 (1) = 152.125, p < .01]. Specifically, when participants preferred to have ad choice, they preferred 15 second online video ads (35.6%) rather than 30 second online video ads (15.5%). However, when they preferred to have no ad choice, they preferred 30 second online video ads (31.5%) rather than 15 second online video ads (12.7%) (see Figure 5.16). The difference of these two interactions was not significant [χ^2 (3) = 1.298, n.s.]. Thus, H21a and H21b were supported.

Figure 5.15
Interaction between Ad Choice and Length of Online Video Ads with Negative Attitude toward Advertising in General

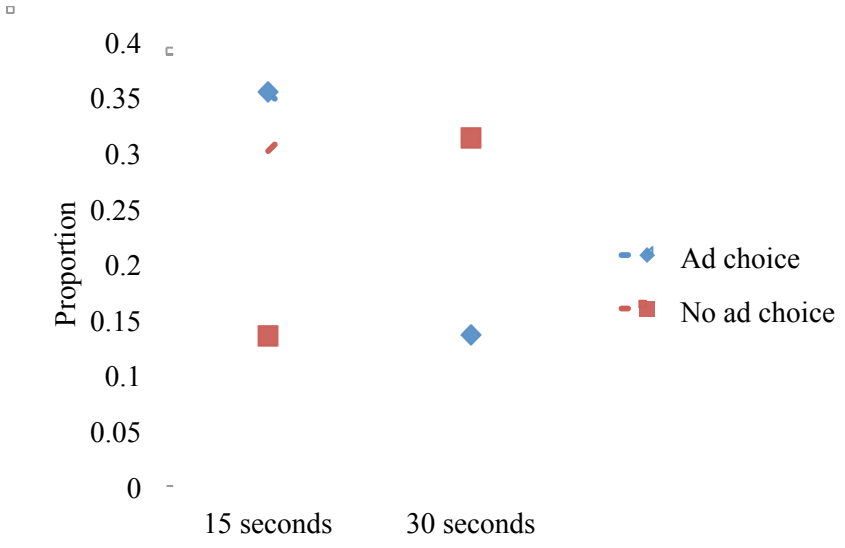
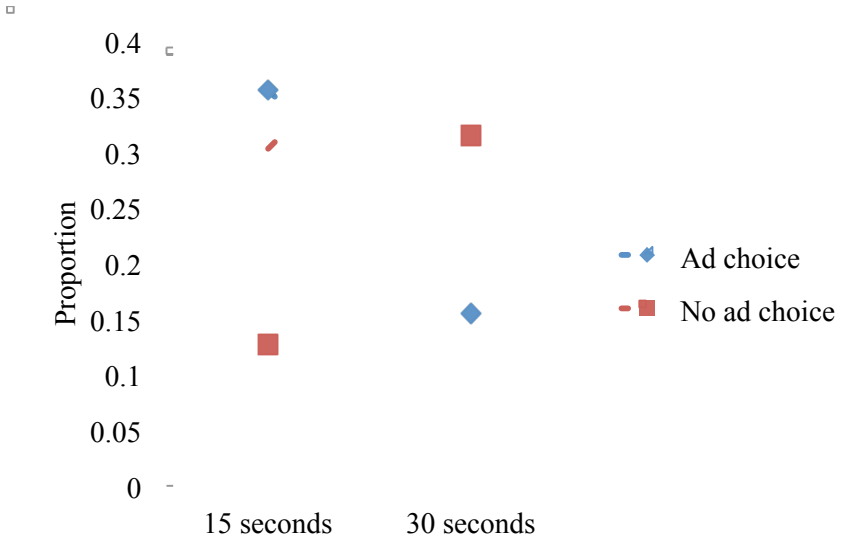


Figure 5.16
Interaction between Ad Choice and Length of Online Video Ads with Positive Attitude toward Advertising in General



The interaction effect between ad choice and the number of online video ads was examined. Hypothesis 21c addressed that when participants have negative attitude toward advertising in general, participants who prefer ad choice to no ad choice would be willing to watch fewer of online video ads, and Hypothesis 21d stated that when participants have positive attitude toward advertising in general, participants who prefer ad choice to no ad choice would be willing to watch fewer of online video ads. Participants with negative attitude toward advertising in general indicated a significant interaction between ad choice and the number of online video ads [χ^2 (2) = 79.593, $p < .01$]. When the participants preferred to have ad choice, watching 2 ads was the most popular, having been selected 35.9% of the times it occurred, followed by 1 ad (21.0%) and 3 ads (17.3%). However, when the participants preferred to have no ad choice, watching 1 ad was the most popular, having been selected 39.8% of the times it occurred, followed by 2 ads

(15.5%) and 3 ads (14.0%) (see Figure 5.17). Additionally, participants who had positive attitude toward advertising in general indicated a significant interaction between ad choice and the number of online video ads [χ^2 (2) = 78.921, $p < .01$]. When the participants preferred to have ad choice, watching 2 ads was the most preferred, having been selected 37.3% of the times it occurred, followed by 1 ad (21.5%) and 3 ads (18.7%). However, when the participants preferred to have no ad choice, watching 1 ad was the most preferred, having been selected 36.2% of the times it occurred, followed by 2 ads (16.0%) and 3 ads (15.3%) (see Figure 5.18). There was no significant difference between the groups of attitude toward advertising in general about the interaction [χ^2 (5) = 1.791, n.s.]. Therefore, both H21c and H21d were partially supported.

Figure 5.17
Interaction between Ad Choice and Number of Online Video Ads with Negative Attitude toward Advertising in General

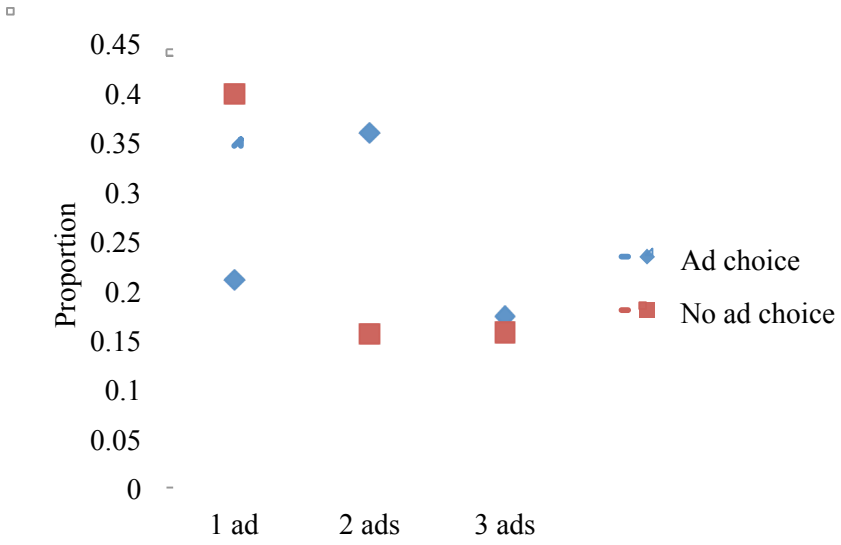
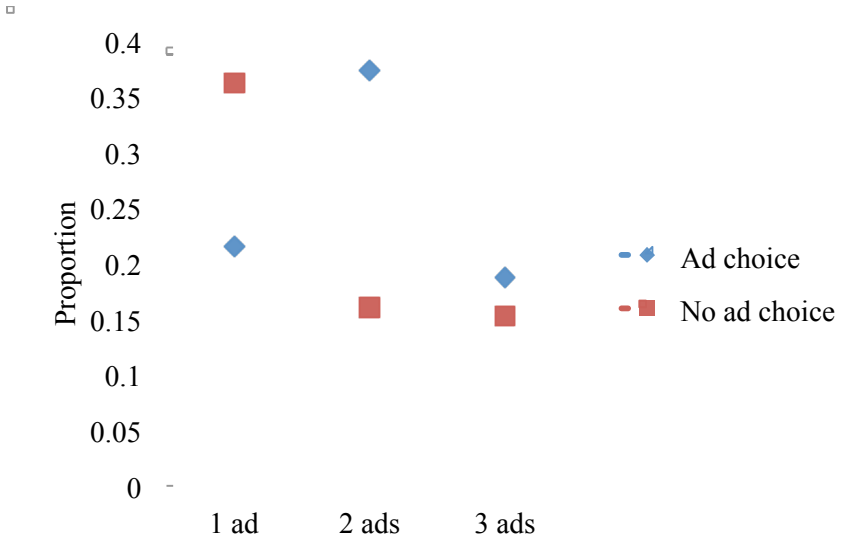


Figure 5.18
Interaction between Ad Choice and Number of Online Video Ads with Positive Attitude toward Advertising in General



The interaction effect between the length of online video ads and the number of online video ads was tested. Hypothesis 21e addressed that when participants have negative attitude toward advertising in general, participants who prefer 15 second ads to 30 second ads would be willing to watch fewer of online video ads, and Hypothesis 21f stated that when participants have positive attitude toward advertising in general, participants who prefer 15 second ads to 30 second ads would be willing to watch fewer of online video ads. Participants with negative attitude toward advertising in general indicated a significant interaction between the length of online video ads and the number of online video ads [χ^2 (2) = 82.015, $p < .01$]. When the participants preferred 15 second ads to 30 second ads, watching 1 ad was the most popular, having been selected 41.4% of the times it occurred, followed by 3 ads (21.0%) and 2 ads (16.3%). However, when the participants preferred 30 second ads to 15 second ads, watching 2 ads was the most

popular, having been selected 35.0% of the times it occurred, followed by 1 ad (19.7%) and 3 ads (14.0%) (see Figure 5.19). Additionally, participants who had positive attitude toward advertising in general indicated a significant interaction between the length of online video ads and the number of online video ads [χ^2 (2) = 89.355, $p < .01$]. When the participants preferred 15 second ads to 30 second ads, watching 1 ad was the most preferred, having been selected 39.0% of the times it occurred, followed by 3 ads (17.8%) and 2 ads (17.1%). However, when the participants preferred 30 second ads to 15 second ads, watching 2 ads was the most preferred, having been selected 36.0% of the times it occurred, followed by 1 ad (19.2%) and 3 ads (16.2%) (see Figure 5.20). There was no significant difference between the groups of attitude toward advertising in general about the interaction [χ^2 (5) = 1.511, n.s.]. Therefore, both H21e and H21f were partially supported.

Figure 5.19
Interaction between Length and Number of Online Video Ads with Negative Attitude toward Advertising in General

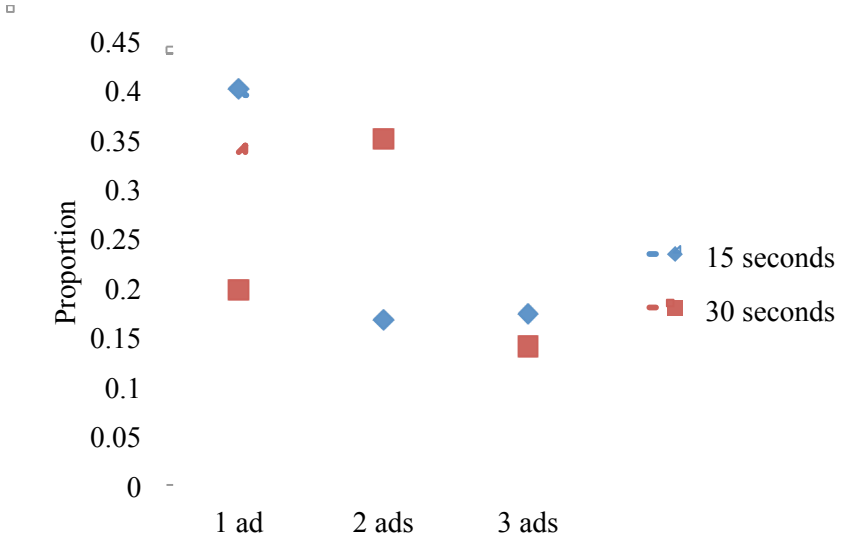
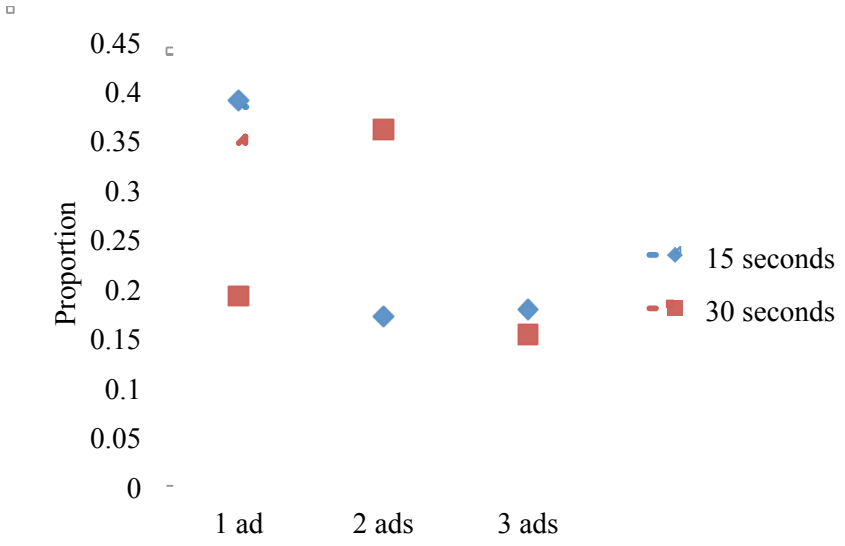


Figure 5.20
Interaction between Length and Number of Online Video Ads with Positive Attitude toward Advertising in General



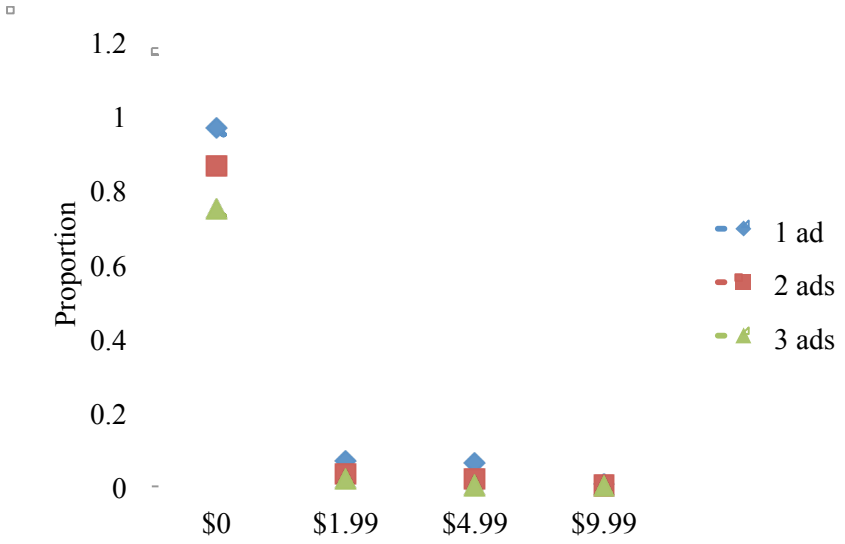
As the last counting analysis, three interactions about membership price were investigated with negative and positive attitude toward advertising in general. First, Hypothesis 21g addressed that when participants have negative attitude toward advertising in general, participants who prefer ad choice to no ad choice in a membership would be willing to pay more to buy the membership to avoid ads on video sharing websites, and Hypothesis 21h stated that when participants have positive attitude toward advertising in general, participants who prefer ad choice to no ad choice in a membership would be willing to pay less to buy the membership. There was no significant interaction between ad choice and the amount of membership price regardless of negative [χ^2 (3) = 3.783, n.s.] and positive [χ^2 (3) = 7.457, n.s.] attitude toward advertising in general. Moreover, there was no significant group difference [χ^2 (7) = 9.562, n.s.]. Hence, H21g and H21h were not supported.

Second, Hypothesis 21i stated that when participants have negative attitude toward advertising in general, participants who prefer 15 second ads to 30 second ads in a membership would be willing to pay more to buy the membership to avoid ads on video sharing websites, and Hypothesis 21j stated that when participants have positive attitude toward advertising in general, participants who prefer 15 second ads to 30 second ads in a membership would be willing to pay less to buy the membership to avoid ads on video sharing websites. Like the interaction between ad choice and the amount of membership price, there was no significant interaction between the length of online video ads and the amount of membership price regardless of negative [χ^2 (3) = 3.544, n.s.] and positive [χ^2 (3) = 5.105, n.s.] attitude toward advertising in general. Thus, H21i and H21j were not supported.

Third, Hypothesis 21k stated that when participants have negative attitude toward advertising in general, participants who prefer fewer ads to more ads in a membership would be willing to pay more to buy the membership to avoid ads on video sharing websites, and Hypothesis 21l stated that when participants have positive attitude toward advertising in general, participants who prefer fewer ads to more ads in a membership would be willing to pay less to buy the membership. While there is no significant interaction between the number of online video ads and the amount of membership price when participants had positive attitude toward advertising in general [χ^2 (6) = 11.384, n.s.], there was a significant interaction when participants had negative attitude toward advertising in general [χ^2 (6) = 17.899, $p < .01$]. Specifically, when participants with negative attitude toward advertising in general preferred to watch 1ad, $0 was the most popular, having been selected 96.8% of the times it occurred, followed by $1.99 (6.8%),

$4.99 (6.3%), and $9.99 (0.6%). When the participants preferred to watch 2 ads, $0 was also the most popular, having been selected 86.4% of the times it occurred, followed by $1.99 (3.4%), $4.99 (1.9%), and $9.99 (0.3%). Finally, when the participants preferred to watch 3 ads, $0 was the most preferred, having been selected 74.8% of the times it occurred, followed by $1.99 (1.9%), $4.99 (0.3%), and $9.99 (0%) (see Figure 5.21). There was no significant difference between the groups of attitude toward advertising in general about the interaction [χ^2 (11) = 15.779, n.s.]. Therefore, H21k and H21l were not supported.

Figure 5.21
Interaction between Number of Online Video Ads and Membership Price with Negative Attitude toward Advertising in General



As analyzed, counting analysis provides researchers with a quick understanding of choice data by summarizing the results of the data. However, counting analysis is based on how often a level was chosen in a choice task. Therefore, it does not reflect

part-worth estimation. Part-worth is defined as "estimate from conjoint analysis of the overall preference or *utility* associated with each *level* of each *factor* used to define the product or service" (Hair et al. 2006, p. 463). In order to analyze the data reflecting part-worth estimation, multinomial logit analysis was employed. It has been recommended that using multinomial logit analysis to attain more sophisticated results from participants' answers (Sawtooth Software 2008).

Multinomial Logit (Logit) Analysis

Multinomial Logit (Logit) analysis is one par-worth estimation technique, which manages participants' data in a single aggregate model. Logit analysis is a more powerful method to analyze the data using estimation of part-worth utilities (Sawtooth Software 2008). Logit analysis tests an effect called logit "utility" for each level of attributes for both main and interaction effects. Although in the counting analysis, the difference of levels in an attribute was tested by Chi-square, it is questionable whether there is significant difference between two levels of an attribute. However, in the logit analysis, it is possible to conduct significant test between two levels of an attribute by calculating t-test manually. Additionally, it is possible to test whether adding an interaction significantly improves the initial model using Chi-square test (Sawtooth Software 2008).

Like the counting analysis, in the current study, logit analysis broadly consists of three parts in the current study. The first logit analysis represents the overall preference summary for each level of attributes. The second logit analysis was run with different levels of ad skepticism (i.e., low ad skepticism vs. high ad skepticism) by mean split (M = 3.69). The third logit analysis was run based on different levels of attitude toward

advertising in general (i.e., negative attitude vs. positive attitude) by mean split (M = 4.80).

There were two main purposes of the logit analysis. First, through the logit analysis, the results of main effects from the counting analysis was confirmed and sophisticated. Second, the results of logit analysis examined whether the interaction effects found by the counting analysis significantly improve the initial model. Therefore, only the interactions found in the counting analysis were included in the logit analysis.

Multinomial Logit (Logit) Analysis for Overall Data

To run the logit analysis, SMRT module was used by importing the data file. First of all, following the data analysis process of the counting analysis, overall logit analysis was conducted to look at all main effects and attain the initial model. Then, interaction effects that indicated significant Chi-square tests in the counting analysis (i.e., ad choice × length of online video ads, ad choice × number of online video ads, ad choice × membership price, length of online video ads × number of online video ads, length of online video ads × membership price, and number of online video ads × membership price) were included in the initial model one by one.

Table 5.4 shows the results of overall logit analysis without interaction effects. First, whether participants' choices were significantly influenced by the combinations of levels in a given attribute was examined by the number of parameters (i.e., degrees of freedom) and Chi-square. The number of parameters estimated can be calculated by adding the total number of levels and subtracting the number of attributes (Sawtooth Software 2008). In the logit analysis for the overall data, with 8 (12 – 4 = 8) degrees of freedom, a Chi-square of about 20.090 was the critical value at the .01 level. The Chi-

square value of 3786.692 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this initial model.

The column labeled "Effect" reflects the utilities of each level of attributes. Thus, the larger the effect (i.e., utility), the more preferred the level (Sawtooth Software 2008). Because the utilities are zero-centered, the sum of them is 0 within each attribute. To the right of "Effect" is a standard error (i.e., Std Err) and to the right of "Std Err" is a t Ratio. The t Ratio represents a measure of a significant test for the difference between the effect of a given level and the average of zero for all levels within the attribute (Sawtooth Software 2008).

By dividing the difference in the two utilities by the pooled standard error which is equal to the square root of the sum of the squared standard errors, t-test between the two levels of each attribute can be performed. In the logit analysis for the overall data, like the results of the counting analysis, the differences of utilities between ad choice and no ad choice [$t = 5.950$, $p < .01$], between 1 ad and 2 ads [$t = 6.482$, $p < .01$], between 2 ads and 3 ads [$t = 5.072$, $p < .01$], between \$0 and \$1.99 [$t = 20.390$, $p < .01$], between \$1.99 and \$4.99 [$t = 4.644$, $p < .01$], and between \$4.99 and \$9.99 [$t = 4.046$, $p < .01$] were significant, while unlike the counting analysis, the difference between 15 seconds and 30 seconds was also significant [$t = 2.237$, $p < .05$]. Therefore, the results of main effects by the logit analysis for overall data mostly confirmed the results of the counting analysis except for the length of online video ads.

From the next logit analysis, it was tested that adding an interaction to the logit model significantly improved the fit by a 2 log-likelihood test. A 2 log-likelihood test

was conducted by first, calculating the number of additional parameters added to the model, second, calculating the improved value of the log-likelihood by adding the interaction. Then, two times the log-likelihood is distributed as Chi-square. By referring to a Chi-square table for the p-value and Chi-square with the degrees of freedom (i.e., the number of additional parameters added to the model), significant improvement in the model by adding the interaction was confirmed.

Table 5.4
The Results of Logit Analysis (Overall)

Log-likelihood for this model = -977.89107
Log-likelihood for null model = -2871.23724
Difference = 1893.34617

Percent Certainty = 65.94182
Consistent Akaike Info Criterion = 2023.67504
Chi Square = 3786.69234
Relative Chi Square = 473.33654

	Effect	Std Err	t Ratio	Attribute Level
1	0.25480	0.06056	4.20754	1 1 Ad choice
2	-0.25480	0.06056	-4.20754	1 2 No ad choice
3	0.08136	0.05143	1.58193	2 1 15 seconds
4	-0.08136	0.05143	-1.58193	2 2 30 seconds
5	0.63014	0.07276	8.66087	3 1 1 ad
6	-0.04676	0.07490	-0.62428	3 2 2 ads
7	-0.58338	0.07474	-7.80543	3 3 3 ads
8	2.86791	0.09016	31.80788	4 1 $0
9	-0.06195	0.11189	-0.55369	4 2 $1.99
10	-0.90644	0.14334	-6.32375	4 3 $4.99
11	-1.89952	0.19923	-9.53416	4 4 $9.99
12	0.02537	0.13264	0.19128	NONE

Table 5.5 shows the results of the logit analysis for overall data adding the interaction between ad choice and the length of online video ads. In the logit analysis for the overall data, with 9 degrees of freedom, a Chi-square of about 21.666 was the critical value at the .01 level. The Chi-square value of 3787.304 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for the overall data including the interaction between ad choice and the length of online video ads indicated the similar tendency to the initial model, which was consistent with the results of the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [t = 5.966, $p < .01$], between 1 ad and 2 ads [t = 6.505, $p < .01$], between 2 ads and 3 ads [t = 4.949, $p < .01$], between \$0 and \$1.99 [t = 19.433, $p < .01$], between \$1.99 and \$4.99 [t = 4.608, $p < .01$], and between \$4.99 and \$9.99 [t = 4.099, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not [t = 1.632, n.s.]. Therefore, the results of main effects by the logit analysis for the overall data including the interaction between ad choice and the length of online video ads confirmed the results of the counting analysis.

To determine significant interaction effect between ad choice and the length of online video ads, a 2 log-likelihood test was conducted. With the additional 1 parameter added to the initial model, adding the interaction has improved the log-likelihood by 0.306. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 0.612 with 1 degree of freedom (i.e., the number of additional parameters added to the initial model) was not significant, indicating that there was not a significant

improvement in the model by adding the interaction between ad choice and the length of online video ads.

Table 5.5
The Results of Logit Analysis (Overall)
Including Interaction between Ad Choice and Length of Online Video Ads

Log-likelihood for this model = -977.58514
Log-likelihood for null model = -2871.23724
Difference = 1893.65210

Percent Certainty = 65.95248
Consistent Akaike Info Criterion = 2031.54980
Chi Square = 3787.30419
Relative Chi Square = 420.81158

	Effect	Std Err	t Ratio	Attribute Level
1	0.25777	0.06110	4.21861	1 1 Ad choice
2	-0.25777	0.06110	-4.21861	1 2 No ad choice
3	0.06441	0.05581	1.15402	2 1 15 seconds
4	-0.06441	0.05581	-1.15402	2 2 30 seconds
5	0.65052	0.07777	8.36471	3 1 1 ad
6	-0.05978	0.07664	-0.78008	3 2 2 ads
7	-0.59073	0.07509	-7.86667	3 3 3 ads
8	2.84416	0.09475	30.01712	4 1 $0
9	-0.04267	0.11441	-0.37296	4 2 $1.99
10	-0.89482	0.14527	-6.15989	4 3 $4.99
11	-1.90667	0.19959	-9.55278	4 4 $9.99
12	0.05588	0.07120	0.78490	Ad choice by 15 seconds
13	-0.05588	0.07120	-0.78490	Ad choice by 30 seconds
14	-0.05588	0.07120	-0.78490	No ad choice by 15 seconds
15	0.05588	0.07120	0.78490	No ad choice by 30 seconds
16	0.03559	0.13356	0.26648	NONE

Table 5.6 shows the results of the logit analysis for overall data adding the interaction between ad choice and the number of online video ads. In the logit analysis for the overall data including the interaction, with 10 degrees of freedom, a Chi-square of about 23.209 was the critical value at the .01 level. The Chi-square value of 3789.023 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for the overall data including the interaction between ad choice and the number of online video ads was similar to the results of the initial model and the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [$t = 6.222$, $p < .01$], between 1 ad and 2 ads [$t = 6.622$, $p < .01$], between 2 ads and 3 ads [$t = 4.723$, $p < .01$], between \$0 and \$1.99 [$t = 19.768$, $p < .01$], between \$1.99 and \$4.99 [$t = 4.589$, $p < .01$], and between \$4.99 and \$9.99 [$t = 3.851$, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not [$t = 1.620$, n.s.]. Thus, the results of main effects by the logit analysis for the overall data including the interaction between ad choice and the number of online video ads confirmed the results of the counting analysis.

To determine significant interaction effect between ad choice and the number of online video ads, a 2 log-likelihood test was conducted. With the additional 2 parameters added to the initial model, adding the interaction has improved the log-likelihood by 1.165. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 2.330 with 2 degrees of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between ad choice and the number of online video ads.

Table 5.6
The Results of Logit Analysis (Overall)
Including Interaction between Ad Choice and Number of Online Video Ads

Log-likelihood for this model = -976.72598
Log-likelihood for null model = -2871.23724
Difference = 1894.51125

Percent Certainty = 65.98240
Consistent Akaike Info Criterion = 2038.31810
Chi Square = 3789.02251
Relative Chi Square = 378.90225

	Effect	Std Err	t Ratio	Attribute Level
1	0.27906	0.06343	4.39923	1 1 Ad choice
2	-0.27906	0.06343	-4.39923	1 2 No ad choice
3	0.06691	0.05841	1.14558	2 1 15 seconds
4	-0.06691	0.05841	-1.14558	2 2 30 seconds
5	0.63489	0.07350	8.63841	3 1 1 ad
6	-0.06567	0.07610	-0.86291	3 2 2 ads
7	-0.56922	0.07467	-7.62311	3 3 3 ads
8	2.90677	0.09992	29.09159	4 1 $0
9	-0.06572	0.11237	-0.58486	4 2 $1.99
10	-0.93561	0.15266	-6.12856	4 3 $4.99
11	-1.90544	0.20003	-9.52597	4 4 $9.99
12	0.04712	0.11777	0.40006	Ad choice by 1 ad
13	-0.12373	0.09590	-1.29023	Ad choice by 2 ads
14	0.07661	0.08096	0.94630	Ad choice by 3 ads
15	-0.04712	0.11777	-0.40006	No ad choice by 1 ad
16	0.12373	0.09590	1.29023	No ad choice by 2 ads
17	-0.07661	0.08096	-0.94630	No ad choice by 3 ads
18	0.04295	0.13417	0.32008	NONE

Table 5.7 shows the results of the logit analysis for overall data adding the interaction between ad choice and membership price. In the logit analysis for the overall data including the interaction, with 11 degrees of freedom, a Chi-square of about 24.725

was the critical value at the .01 level. The Chi-square value of 3801.851 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for the overall data including the interaction between ad choice and membership price indicated the similar tendency to the initial model, which was consistent with the results of the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [$t = 3.472$, $p < .01$], between 1 ad and 2 ads [$t = 7.838$, $p < .01$], between 2 ads and 3 ads [$t = 4.086$, $p < .01$], between \$0 and \$1.99 [$t = 20.249$, $p < .01$], between \$1.99 and \$4.99 [$t = 3.312$, $p < .01$], and between \$4.99 and \$9.99 [$t = 5.119$, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not [$t = 1.054$, n.s.]. Therefore, the results of main effects by the logit analysis for the overall data including the interaction between ad choice and membership price confirmed the results of the counting analysis.

To determine significant interaction effect between ad choice and membership price, a 2 log-likelihood test was conducted. With the additional 3 parameters added to the initial model, adding the interaction has improved the log-likelihood by 7.579. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 15.158 with 3 degrees of freedom was about 0.002, indicating a significant improvement in the model by adding the interaction between ad choice and membership price with a confidence level of 99.8%.

Table 5.7
The Results of Logit Analysis (Overall)
Including Interaction between Ad Choice and Membership Price

Log-likelihood for this model =	-970.31170
Log-likelihood for null model =	-2871.23724
Difference =	1900.92554

Percent Certainty =	66.20580
Consistent Akaike Info Criterion =	2033.97614
Chi Square =	3801.85108
Relative Chi Square =	345.62283

	Effect	Std Err	t Ratio	Attribute Level
1	0.20746	0.08449	2.45562	1 1 Ad choice
2	-0.20746	0.08449	-2.45562	1 2 No ad choice
3	0.04314	0.05789	0.74527	2 1 15 seconds
4	-0.04314	0.05789	-0.74527	2 2 30 seconds
5	0.81721	0.09260	8.82477	3 1 1 ad
6	-0.17321	0.08597	-2.01473	3 2 2 ads
7	-0.64400	0.07672	-8.39373	3 3 3 ads
8	2.88246	0.09112	31.63385	4 1 $0
9	-0.12855	0.11751	-1.09394	4 2 $1.99
10	-0.72936	0.13819	-5.27793	4 3 $4.99
11	-2.02454	0.21193	-9.55289	4 4 $9.99
12	0.31891	0.14125	2.25783	Ad choice by $0
13	0.24068	0.12911	1.86417	Ad choice by $1.99
14	-0.74270	0.19253	-3.85759	Ad choice by $4.99
15	0.18311	0.21343	0.85797	Ad choice by $9.99
16	-0.31891	0.14125	-2.25783	No ad choice by $0
17	-0.24068	0.12911	-1.86417	No ad choice by $1.99
18	0.74270	0.19253	3.85759	No ad choice by $4.99
19	-0.18311	0.21343	-0.85797	No ad choice by $9.99
20	-0.05696	0.13712	-0.41540	NONE

Table 5.8 shows the results of the logit analysis for overall data adding the interaction between the length of online video ads and the number of online video ads. In

the logit analysis for the overall data including the interaction, with 10 degrees of freedom, a Chi-square of about 23.209 was the critical value at the .01 level. The Chi-square value of 3789.417 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for the overall data including the interaction between the length of online video ads and the number of online video ads was similar to the results of the initial model and the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [$t = 5.368$, $p < .01$], between 1 ad and 2 ads [$t = 6.084$, $p < .01$], between 2 ads and 3 ads [$t = 5.506$, $p < .01$], between \$0 and \$1.99 [$t = 20.267$, $p < .01$], between \$1.99 and \$4.99 [$t = 4.704$, $p < .01$], and between \$4.99 and \$9.99 [$t = 4.157$, $p < .01$] were significant, while unlike the counting analysis, the difference between 15 seconds and 30 seconds was also significant [$t = 2.870$, $p < .01$]. Thus, the results of main effects by the logit analysis for the overall data including the interaction between the length of online video ads and the number of online video ads mostly confirmed the results of the counting analysis.

To determine the significant interaction effect between the length of online video ads and the number of online video ads, a 2 log-likelihood test was conducted. With the additional 2 parameters added to the initial model, adding the interaction has improved the log-likelihood by 1.362. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 2.724 with 2 degrees of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between the length of online video ads and the number of online video ads.

Table 5.8
The Results of Logit Analysis (Overall)
Including Interaction between Length and Number of Online Video Ads

Log-likelihood for this model	-976.52897
Log-likelihood for null model	-2871.23724
Difference	1894.70827

Percent Certainty	65.98926
Consistent Akaike Info Criterion	2037.92406
Chi Square	3789.41654
Relative Chi Square	378.94165

	Effect	Std Err	t Ratio	Attribute Level
1	0.23132	0.06094	3.79584	1 1 Ad choice
2	-0.23132	0.06094	-3.79584	1 2 No ad choice
3	0.11146	0.05492	2.02931	2 1 15 seconds
4	-0.11146	0.05492	-2.02931	2 2 30 seconds
5	0.63776	0.07304	8.73211	3 1 1 ad
6	-0.01109	0.07771	-0.14271	3 2 2 ads
7	-0.62667	0.08037	-7.79779	3 3 3 ads
8	2.90021	0.09339	31.05569	4 1 $0
9	-0.05999	0.11230	-0.53421	4 2 $1.99
10	-0.90961	0.14147	-6.42973	4 3 $4.99
11	-1.93060	0.20076	-9.61638	4 4 $9.99
12	-0.09316	0.08671	-1.07432	15 seconds by 1 ad
13	0.11864	0.07605	1.56001	15 seconds by 2 ads
14	-0.02548	0.09117	-0.27944	15 seconds by 3 ads
15	0.09316	0.08671	1.07432	30 seconds by 1 ad
16	-0.11864	0.07605	-1.56001	30 seconds by 2 ads
17	0.02548	0.09117	0.27944	30 seconds by 3 ads
18	0.02553	0.13243	0.19279	NONE

Table 5.9 shows the results of the logit analysis for overall data adding the interaction between the length of online video ads and membership price. In the logit

analysis for the overall data including the interaction, with 11 degrees of freedom, a Chi-square of about 24.725 was the critical value at the .01 level. The Chi-square value of 3792.823 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for the overall data including the interaction between the length of online video ads and membership price indicated the similar tendency to the initial model, which was similar to the results of the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [t = 4.827, $p < .01$], between 1 ad and 2 ads [t = 5.805, $p < .01$], between 2 ads and 3 ads [t = 4.578, $p < .01$], between \$0 and \$1.99 [t = 19.896, $p < .01$], between \$1.99 and \$4.99 [t = 4.590, $p < .01$], and between \$4.99 and \$9.99 [t = 4.054, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not [t = 1.149, n.s.]. Therefore, the results of main effects by the logit analysis for the overall data including the interaction between the length of online video ads and membership price mostly confirmed the results of the counting analysis.

To determine significant interaction effect between the length of online video ads and membership price, a 2 log-likelihood test was conducted. With the additional 3 parameters added to the initial model, adding the interaction has improved the log-likelihood by 3.065. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 6.130 with 3 degrees of freedom was not significant, indicating that there was not significant, indicating that there was not a significant improvement in the model by adding the interaction between the length of online video ads and membership price.

Table 5.9
The Results of Logit Analysis (Overall)
Including Interaction between Length of Online Video Ads and Membership Price

Log-likelihood for this model =	-974.82584
Log-likelihood for null model =	-2871.23724
Difference =	1896.41140

Percent Certainty	=	66.04858
Consistent Akaike Info Criterion	=	2043.00442
Chi Square	=	3792.82280
Relative Chi Square	=	344.80207

	Effect	Std Err	t Ratio	Attribute Level
1	0.23132	0.06774	3.41493	1 1 Ad choice
2	-0.23132	0.06774	-3.41493	1 2 No ad choice
3	-0.06781	0.08347	-0.81232	2 1 15 seconds
4	0.06781	0.08347	0.81232	2 2 30 seconds
5	0.60945	0.07558	8.06329	3 1 1 ad
6	-0.02986	0.08011	-0.37275	3 2 2 ads
7	-0.57959	0.08945	-6.47921	3 3 3 ads
8	2.88482	0.09291	31.04893	4 1 $0
9	-0.04092	0.11398	-0.35903	4 2 $1.99
10	-0.89871	0.14810	-6.06818	4 3 $4.99
11	-1.94519	0.21141	-9.20117	4 4 $9.99
12	0.26896	0.11353	2.36907	15 seconds by $0
13	0.07569	0.13753	0.55036	15 seconds by $1.99
14	0.04661	0.15165	0.30738	15 seconds by $4.99
15	-0.39127	0.22044	-1.77490	15 seconds by $9.99
16	-0.26896	0.11353	-2.36907	30 seconds by $0
17	-0.07569	0.13753	-0.55036	30 seconds by $1.99
18	-0.04661	0.15165	-0.30738	30 seconds by $4.99
19	0.39127	0.22044	1.77490	30 seconds by $9.99
20	0.01769	0.13477	0.13129	NONE

Table 5.10 shows the results of the logit analysis for overall data adding the interaction between the number of online video ads and membership price. In the logit

analysis for the overall data including the interaction, with 14 degrees of freedom, a Chi-square of about 29.141 was the critical value at the .01 level. The Chi-square value of 3812.800 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for the overall data including the interaction between the number of online video ads and membership price indicated was similar to the results of the initial model and the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [$t = 8.326$, $p < .01$], between 1 ad and 2 ads [$t = 3.100$, $p < .01$], between 2 ads and 3 ads [$t = 3.860$, $p < .01$], between \$0 and \$1.99 [$t = 18.998$, $p < .01$], between \$1.99 and \$4.99 [$t = 3.627$, $p < .01$], and between \$4.99 and \$9.99 [$t = 5.089$, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not [$t = 0.598$, n.s.]. Therefore, the results of main effects by the logit analysis for the overall data including the interaction between the number of online video ads and membership price mostly confirmed the results of the counting analysis.

To determine significant interaction effect between the number of online video ads and membership price, a 2 log-likelihood test was conducted. With the additional 6 parameters added to the initial model, adding the interaction has improved the log-likelihood by 13.054. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 26.108 with 6 degrees of freedom was roughly 0.0002, indicating a significant improvement in the model by adding the interaction between the number of online video ads and membership price with a confidence level of 99%.

Table 5.10
The Results of Logit Analysis (Overall)
Including Interaction between Number of Online Video Ads and Membership Price

Log-likelihood for this model =	-964.83699
Log-likelihood for null model =	-2871.23724
Difference =	1906.40024

Percent Certainty =	66.39647
Consistent Akaike Info Criterion =	2048.48657
Chi Square =	3812.80048
Relative Chi Square =	272.34289

	Effect	Std Err	t Ratio	Attribute Level
1	0.45004	0.07644	5.88712	1 1 Ad choice
2	-0.45004	0.07644	-5.88712	1 2 No ad choice
3	0.02599	0.06148	0.42280	2 1 15 seconds
4	-0.02599	0.06148	-0.42280	2 2 30 seconds
5	0.60557	0.11542	5.24653	3 1 1 ad
6	0.08069	0.12384	0.65158	3 2 2 ads
7	-0.68626	0.15539	-4.41641	3 3 3 ads
8	2.94450	0.10199	28.86987	4 1 $0
9	-0.04216	0.11965	-0.35235	4 2 $1.99
10	-0.73238	0.14801	-4.94818	4 3 $4.99
11	-2.16996	0.24058	-9.01964	4 4 $9.99
12	0.57560	0.17707	3.25061	1 ad by $0
13	-0.20131	0.17046	-1.18097	1 ad by $1.99
14	-0.87651	0.25751	-3.40381	1 ad by $4.99
15	0.50221	0.30440	1.64983	1 ad by $9.99
16	-0.40800	0.16143	-2.52740	2 ads by $0
17	-0.10657	0.18556	-0.57431	2 ads by $1.99
18	0.63329	0.21613	2.93021	2 ads by $4.99
19	-0.11873	0.30947	-0.38365	2 ads by $9.99
20	-0.16761	0.16991	-0.98642	3 ads by $0
21	0.30788	0.21774	1.41394	3 ads by $1.99
22	0.24322	0.26956	0.90227	3 ads by $4.99
23	-0.38349	0.40250	-0.95276	3 ads by $9.99
24	-0.04717	0.13964	-0.33777	NONE

Multinomial Logit (Logit) Analysis with Ad Skepticism

Considering low (n = 117) vs. high (n = 106) ad skepticism obtained by the mean split (M = 4.80), logit analysis was conducted. Following the process of the counting analysis, logit analysis was conducted separately for low and high ad skepticism, respectively. First, logit analysis looked at all main effects and attained the initial model. Then, interaction effects for low ad skepticism (i.e., ad choice × length of online video ads, ad choice × number of online video ads, and length of online video ads × number of online video ads) and high ad skepticism (i.e., ad choice × length of online video ads, ad choice × number of online video ads, length of online video ads × number of online video ads, length of online video ads × membership price, and number of online video ads × membership price) that indicated significant Chi-square tests in the counting analysis were included in the initial model one by one.

Table 5.11 shows the results of logit analysis for low ad skepticism (n = 117) without interaction effects. In the logit analysis for the data of low ad skepticism, with 8 degrees of freedom, a Chi-square of about 20.090 was the critical value at the .01 level. The Chi-square value of 1877.166 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this initial model.

The results of main effects in the logit analysis for low ad skepticism without interactions were consistent with the results of the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [t = 5.074, p < .01], between 1 ad and 2 ads [t = 4.483, p < .01], between 2 ads and 3 ads [t = 2.308, p < .05], between \$0 and \$1.99 [t = 15.374, p < .01], between \$1.99 and \$4.99 [t = 3.939, p < .01], and

between $4.99 and $9.99 [$t = 2.791$, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not [$t = 1.320$, n.s.]. Therefore, the results of main effects by the logit analysis for low ad skepticism confirmed the results of the counting analysis.

Table 5.11
Effects of Low Ad Skepticism (Logit Analysis)

Log-likelihood for this model = -567.85087
Log-likelihood for null model = -1506.43389
Difference = 938.58302

Percent Certainty = 62.30496
Consistent Akaike Info Criterion = 1198.43466
Chi Square = 1877.16604
Relative Chi Square = 234.64576

	Effect	Std Err	t Ratio	Attribute Level
1	0.27591	0.07690	3.58792	1 1 Ad choice
2	-0.27591	0.07690	-3.58792	1 2 No ad choice
3	0.05931	0.06352	0.93376	2 1 15 seconds
4	-0.05931	0.06352	-0.93376	2 2 30 seconds
5	0.49875	0.09149	5.45154	3 1 1 ad
6	-0.09449	0.09562	-0.98822	3 2 2 ads
7	-0.40426	0.09419	-4.29180	3 3 3 ads
8	2.65445	0.10897	24.35968	4 1 $0
9	-0.02452	0.13597	-0.18033	4 2 $1.99
10	-0.90525	0.17751	-5.09968	4 3 $4.99
11	-1.72468	0.23391	-7.37316	4 4 $9.99
12	-0.18461	0.17635	-1.04687	NONE

Table 5.12 shows the results of logit analysis for low ad skepticism adding the interaction between ad choice and the length of online video ads. In the logit analysis for

the data of low ad skepticism, with 9 degrees of freedom, a Chi-square of about 21.666 was the critical value at the .01 level. The Chi-square value of 1878.112 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this initial model.

The results of main effects in the logit analysis for low ad skepticism including the interaction between ad choice and the length of online video ads indicated the same tendency of the initial model, which was consistent with the results of the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [t = 5.074, $p < .01$], between 1 ad and 2 ads [$t = 4.655$, $p < .01$], between 2 ads and 3 ads [t = 2.265, $p < .05$], between \$0 and \$1.99 [$t = 14.563$, $p < .01$], between \$1.99 and \$4.99 [t = 3.877, $p < .01$], and between \$4.99 and \$9.99 [$t = 2.882$, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not [$t = 0.716$, n.s.]. Therefore, the results of main effects by the logit analysis for low ad skepticism including the interaction between ad choice and the length of online video ads confirmed the results of the counting analysis.

To determine significant interaction effect between ad choice and the length of online video ads, a 2 log-likelihood test was conducted. With the additional 1 parameter added to the initial model, adding the interaction has improved the log-likelihood by 0.473. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 0.946 with 1 degree of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between ad choice and the length of online video ads.

Table 5.12
Effects of Low Ad Skepticism (Logit Analysis)
Including Interaction between Ad Choice and Length of Online Video Ads

Log-likelihood for this model = -567.37782
Log-likelihood for null model = -1506.43389
Difference = 939.05607

Percent Certainty = 62.33636
Consistent Akaike Info Criterion = 1205.33017
Chi Square = 1878.11214
Relative Chi Square = 208.67913

	Effect	Std Err	t Ratio	Attribute Level
1	0.27854	0.07764	3.58746	1 1 Ad choice
2	-0.27854	0.07764	-3.58746	1 2 No ad choice
3	0.03465	0.06847	0.50610	2 1 15 seconds
4	-0.03465	0.06847	-0.50610	2 2 30 seconds
5	0.53022	0.09797	5.41223	3 1 1 ad
6	-0.11141	0.09695	-1.14908	3 2 2 ads
7	-0.41881	0.09498	-4.40956	3 3 3 ads
8	2.61682	0.11479	22.79647	4 1 $0
9	0.00042	0.13820	0.00304	4 2 $1.99
10	-0.88202	0.18086	-4.87675	4 3 $4.99
11	-1.73522	0.23438	-7.40352	4 4 $9.99
12	0.08586	0.08791	0.97668	Ad choice by 15 seconds
13	-0.08586	0.08791	-0.97668	Ad choice by 30 seconds
14	-0.08586	0.08791	-0.97668	No ad choice by 15 seconds
15	0.08586	0.08791	0.97668	No ad choice by 30 seconds
16	-0.17283	0.17719	-0.97541	NONE

Table 5.13 shows the results of the logit analysis for low ad skepticism adding the interaction between ad choice and the number of online video ads. In the logit analysis for the data of low ad skepticism including the interaction, with 10 degrees of freedom, a Chi-square of about 23.209 was the critical value at the .01 level. The Chi-square value of

1877.554 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for low ad skepticism including the interaction between ad choice and the number of online video ads were consistent with the results of the initial model and the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [$t = 5.034$, $p < .01$], between 1 ad and 2 ads [$t = 4.507$, $p < .01$], between 2 ads and 3 ads [$t = 2.173$, $p < .05$], between \$0 and \$1.99 [$t = 14.940$, $p < .01$], between \$1.99 and \$4.99 [$t = 3.901$, $p < .01$], and between \$4.99 and \$9.99 [$t = 2.623$, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not [$t = 1.296$, n.s.]. Thus, the results of main effects by the logit analysis for low ad skepticism including the interaction between ad choice and the number of online video ads confirmed the results of the counting analysis.

To determine the significant interaction effect between ad choice and the number of online video ads, a 2 log-likelihood test was conducted. With the additional 2 parameters added to the initial model, adding the interaction has improved the log-likelihood by 0.194. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 0.388 with 2 degrees of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between ad choice and the number of online video ads.

Table 5.13
Effects of Low Ad Skepticism (Logit Analysis)
Including Interaction between Ad Choice and Number of Online Video Ads

Log-likelihood for this model = -567.65713
Log-likelihood for null model = -1506.43389
Difference = 938.77675

Percent Certainty = 62.31782
Consistent Akaike Info Criterion = 1213.73042
Chi Square = 1877.55350
Relative Chi Square = 187.75535

	Effect	Std Err	t Ratio	Attribute Level
1	0.28233	0.07931	3.56002	1 1 Ad choice
2	-0.28233	0.07931	-3.56002	1 2 No ad choice
3	0.06434	0.07021	0.91646	2 1 15 seconds
4	-0.06434	0.07021	-0.91646	2 2 30 seconds
5	0.49863	0.09204	5.41774	3 1 1 ad
6	-0.10237	0.09649	-1.06091	3 2 2 ads
7	-0.39626	0.09480	-4.17993	3 3 3 ads
8	2.68076	0.11963	22.40884	4 1 $0
9	-0.02883	0.13631	-0.21149	4 2 $1.99
10	-0.93193	0.18711	-4.98065	4 3 $4.99
11	-1.72000	0.23507	-7.31701	4 4 $9.99
12	0.06272	0.15277	0.41057	Ad choice by 1 ad
13	-0.07412	0.12004	-0.61749	Ad choice by 2 ads
14	0.01140	0.10264	0.11104	Ad choice by 3 ads
15	-0.06272	0.15277	-0.41057	No ad choice by 1 ad
16	0.07412	0.12004	0.61749	No ad choice by 2 ads
17	-0.01140	0.10264	-0.11104	No ad choice by 3 ads
18	-0.17540	0.17725	-0.98955	NONE

Table 5.14 shows the results of the logit analysis for low ad skepticism adding the interaction between the length of online video ads and the number of online video ads. In the logit analysis for low ad skepticism including the interaction, with 10 degrees of

freedom, a Chi-square of about 23.209 was the critical value at the .01 level. The Chi-square value of 1879.152 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for low ad skepticism including the interaction between the length of online video ads and the number of online video ads was consistent with the results of the initial model and the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [$t = 4.730$, $p < .01$], between 1 ad and 2 ads [$t = 4.236$, $p < .01$], between 2 ads and 3 ads [$t = 2.722$, $p < .01$], between \$0 and \$1.99 [$t = 15.286$, $p < .01$], between \$1.99 and \$4.99 [$t = 3.993$, $p < .01$], and between \$4.99 and \$9.99 [$t = 2.863$, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not significant [$t = 1.750$, n.s.]. Thus, the results of main effects by the logit analysis for low ad skepticism including the interaction between the length of online video ads and the number of online video ads confirmed the results of the counting analysis.

To determine significant interaction effect between the length of online video ads and the number of online video ads, a 2 log-likelihood test was conducted. With the additional 2 parameters added to the initial model, adding the interaction has improved the log-likelihood by 0.993. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 1.986 with 2 degrees of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between the length of online video ads and the number of online video ads.

Table 5.14
Effects of Low Ad Skepticism (Logit Analysis)
Including Interaction between Length and Number of Online Video Ads

Log-likelihood for this model =	-566.85798
Log-likelihood for null model =	-1506.43389
Difference =	939.57591

Percent Certainty =	62.37087
Consistent Akaike Info Criterion =	1212.13211
Chi Square =	1879.15181
Relative Chi Square =	187.91518

	Effect	Std Err	t Ratio	Attribute Level
1	0.25619	0.07659	3.34489	1 1 Ad choice
2	-0.25619	0.07659	-3.34489	1 2 No ad choice
3	0.08251	0.06666	1.23779	2 1 15 seconds
4	-0.08251	0.06666	-1.23779	2 2 30 seconds
5	0.50737	0.09142	5.54999	3 1 1 ad
6	-0.06268	0.09875	-0.63474	3 2 2 ads
7	-0.44469	0.09970	-4.46025	3 3 3 ads
8	2.68242	0.11256	23.83180	4 1 $0
9	-0.02188	0.13648	-0.16029	4 2 $1.99
10	-0.90925	0.17540	-5.18384	4 3 $4.99
11	-1.75129	0.23612	-7.41705	4 4 $9.99
12	-0.06181	0.10837	-0.57041	15 seconds by 1 ad
13	0.13912	0.09879	1.40819	15 seconds by 2 ads
14	-0.07730	0.11717	-0.65976	15 seconds by 3 ads
15	0.06181	0.10837	0.57041	30 seconds by 1 ad
16	-0.13912	0.09879	-1.40819	30 seconds by 2 ads
17	0.07730	0.11717	0.65976	30 seconds by 3 ads
18	-0.18487	0.17618	-1.04933	NONE

Table 5.15 shows the results of logit analysis for high ad skepticism (n = 106) without interaction effects. In the logit analysis for the data of high ad skepticism, with 8 degrees of freedom, a Chi-square of about 20.090 was the critical value at the .01 level.

The Chi-square value of 1928.678 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this initial model.

The results of main effects in the logit analysis for high ad skepticism without interactions were similar to the results of the counting analysis. However, although there was no significant difference of preference for the ad choice in the counting analysis, the difference of utility between ad choice and no ad choice was significant in the logit analysis [$t = 2.883$, $p < .01$]. The differences of utilities between 1 ad and 2 ads [$t = 4.754$, $p < .01$], between 2 ads and 3 ads [$t = 5.103$, $p < .01$], between \$0 and \$1.99 [$t = 12.898$, $p < .01$], between \$1.99 and \$4.99 [t (8) = 2.414, $p < .05$], and between \$4.99 and \$9.99 [$t = 2.870$, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not [$t = 1.917$, n.s.]. Therefore, the results of main effects by the logit analysis for high ad skepticism mostly confirmed the results of the counting analysis.

Table 5.15
Effects of High Ad Skepticism (Logit Analysis)

Log-likelihood for this model =	-400.46418
Log-likelihood for null model =	-1364.80335
Difference =	964.33917

Percent Certainty =	70.65774
Consistent Akaike Info Criterion =	862.87140
Chi Square =	1928.67835
Relative Chi Square =	241.08479

	Effect	Std Err	t Ratio	Attribute Level
1	0.20240	0.09929	2.03856	1 1 Ad choice

2	-0.20240	0.09929	-2.03856	1 2 No ad choice
3	0.12077	0.08911	1.35531	2 1 15 seconds
4	-0.12077	0.08911	-1.35531	2 2 30 seconds
5	0.85572	0.12571	6.80697	3 1 1 ad
6	0.02064	0.12271	0.16821	3 2 2 ads
7	-0.87637	0.12585	-6.96358	3 3 3 ads
8	3.23316	0.16569	19.51335	4 1 $0
9	-0.12610	0.20094	-0.62756	4 2 $1.99
10	-0.89821	0.24891	-3.60855	4 3 $4.99
11	-2.20885	0.38284	-5.76959	4 4 $9.99
12	0.35102	0.21131	1.66118	NONE

Table 5.16 shows the results of logit analysis for high ad skepticism adding the interaction between ad choice and the length of online video ads. In the logit analysis for the data of high ad skepticism, with 9 degrees of freedom, a Chi-square of about 21.666 was the critical value at the .01 level. The Chi-square value of 1928.686 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this initial model.

The results of main effects in the logit analysis for high ad skepticism including the interaction between ad choice and the length of online video ads indicated the same tendency of the initial model, which was similar to the results of the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [$t = 2.855$, $p < .01$], between 1 ad and 2 ads [$t = 4.502$, $p < .01$], between 2 ads and 3 ads [$t = 5.013$, $p < .01$], between \$0 and \$1.99 [$t = 12.433$, $p < .01$], between \$1.99 and \$4.99 [$t = 2.370$, $p < .05$], and between \$4.99 and \$9.99 [$t = 2.862$, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not [$t = 1.793$, n.s.]. Therefore, the results of main effects by the logit analysis for high ad skepticism including the

interaction between ad choice and the length of online video ads mostly confirmed the results of the counting analysis.

To determine significant interaction effect between ad choice and the length of online video ads, a 2 log-likelihood test was conducted. With the additional 1 parameter added to the initial model, adding the interaction has improved the log-likelihood by 0.004. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 0.008 with 1 degree of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between ad choice and the length of online video ads.

Table 5.16
Effects of High Ad Skepticism (Logit Analysis)
Including Interaction between Ad Choice and Length of Online Video Ads

Log-likelihood for this model =	-400.46050
Log-likelihood for null model =	-1364.80335
Difference =	964.34285

Percent Certainty =	70.65801
Consistent Akaike Info Criterion =	870.60692
Chi Square =	1928.68570
Relative Chi Square =	214.29841

	Effect	Std Err	t Ratio	Attribute Level
1	0.20143	0.09977	2.01883	1 1 Ad choice
2	-0.20143	0.09977	-2.01883	1 2 No ad choice
3	0.12428	0.09805	1.26755	2 1 15 seconds
4	-0.12428	0.09805	-1.26755	2 2 30 seconds
5	0.85202	0.13276	6.41755	3 1 1 ad
6	0.02358	0.12742	0.18509	3 2 2 ads
7	-0.87560	0.12624	-6.93617	3 3 3 ads

8	3.23756	0.17355	18.65531	4 1 $0
9	-0.13069	0.20800	-0.62832	4 2 $1.99
10	-0.89957	0.24896	-3.61334	4 3 $4.99
11	-2.20730	0.38320	-5.76019	4 4 $9.99
12	-0.01063	0.12391	-0.08580	Ad choice by 15 seconds
13	0.01063	0.12391	0.08580	Ad choice by 30 seconds
14	0.01063	0.12391	0.08580	No ad choice by 15 seconds
15	-0.01063	0.12391	-0.08580	No ad choice by 30 seconds
16	0.34827	0.21362	1.63031	NONE

Table 5.17 shows the results of the logit analysis for high ad skepticism adding the interaction between ad choice and the number of online video ads. In the logit analysis for the data of high ad skepticism including the interaction, with 10 degrees of freedom, a Chi-square of about 23.209 was the critical value at the .01 level. The Chi-square value of 1931.626 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for high ad skepticism including the interaction between ad choice and the number of online video ads indicated the same tendency of the initial model, which was similar to the results of the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [$t = 3.453$, $p < .01$], between 1 ad and 2 ads [$t = 4.987$, $p < .01$], between 2 ads and 3 ads [$t = 4.568$, $p < .01$], between \$0 and \$1.99 [$t = 12.489$, $p < .01$], between \$1.99 and \$4.99 [$t = 2.334$, $p < .05$], and between \$4.99 and \$9.99 [$t = 2.779$, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not [$t = 0.740$, n.s.]. Thus, the results of main effects by the logit analysis for high ad skepticism including the interaction

between ad choice and the number of online video ads mostly confirmed the results of the counting analysis.

To determine the significant interaction effect between ad choice and the number of online video ads, a 2 log-likelihood test was conducted. With the additional 2 parameters added to the initial model, adding the interaction has improved the log-likelihood by 1.473. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 2.946 with 2 degrees of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between ad choice and the number of online video ads.

Table 5.17
Effects of High Ad Skepticism (Logit Analysis)
Including Interaction between Ad Choice and Number of Online Video Ads

Log-likelihood for this model	= -398.99050
Log-likelihood for null model	= -1364.80335
Difference	= 965.81285

Percent Certainty	= 70.76572
Consistent Akaike Info Criterion	= 875.40980
Chi Square	= 1931.62570
Relative Chi Square	= 193.16257

	Effect	Std Err	t Ratio	Attribute Level
1	0.26067	0.10676	2.44164	1 1 Ad choice
2	-0.26067	0.10676	-2.44164	1 2 No ad choice
3	0.05670	0.10832	0.52338	2 1 15 seconds
4	-0.05670	0.10832	-0.52338	2 2 30 seconds
5	0.87006	0.12787	6.80432	3 1 1 ad
6	-0.02826	0.12685	-0.22276	3 2 2 ads
7	-0.84181	0.12499	-6.73505	3 3 3 ads

8	3.30527	0.18669	17.70497	4 1 $0
9	-0.14034	0.20314	-0.69084	4 2 $1.99
10	-0.92914	0.27012	-3.43970	4 3 $4.99
11	-2.23579	0.38489	-5.80893	4 4 $9.99
12	0.04757	0.18979	0.25067	Ad choice by 1 ad
13	-0.22092	0.16344	-1.35168	Ad choice by 2 ads
14	0.17335	0.13678	1.26734	Ad choice by 3 ads
15	-0.04757	0.18979	-0.25067	No ad choice by 1 ad
16	0.22092	0.16344	1.35168	No ad choice by 2 ads
17	-0.17335	0.13678	-1.26734	No ad choice by 3 ads
18	0.39310	0.21751	1.80725	NONE

Table 5.18 shows the results of the logit analysis for high ad skepticism adding the interaction between the length of online video ads and the number of online video ads. In the logit analysis for high ad skepticism including the interaction, with 10 degrees of freedom, a Chi-square of about 23.209 was the critical value at the .01 level. The Chi-square value of 1930.237 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for high ad skepticism including the interaction between the length of online video ads and the number of online video ads was similar to the results of the initial model and the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [$t = 2.208$, $p < .05$], between 1 ad and 2 ads [$t = 4.499$, $p < .01$], between 2 ads and 3 ads [$t = 5.245$, $p < .01$], between \$0 and \$1.99 [$t = 12.816$, $p < .01$], between \$1.99 and \$4.99 [$t = 2.430$, $p < .05$], and between \$4.99 and \$9.99 [$t = 2.967$, $p < .01$] were significant, while unlike the counting analysis, the difference between 15 seconds and 30 seconds was also significant [$t = 2.409$, $p < .05$]. Thus, the results of main effects by the logit analysis for high ad

skepticism including the interaction between the length of online video ads and the number of online video ads mostly confirmed the results of the counting analysis.

To determine significant interaction effect between the length of online video ads and the number of online video ads, a 2 log-likelihood test was conducted. With the additional 2 parameters added to the initial model, adding the interaction has improved the log-likelihood by 0.779. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 1.558 with 2 degrees of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between the length of online video ads and the number of online video ads.

Table 5.18
Effects of High Ad Skepticism (Logit Analysis)
Including Interaction between Length and Number of Online Video Ads

Log-likelihood for this model	= -399.68475
Log-likelihood for null model	= -1364.80335
Difference	= 965.11860

Percent Certainty	= 70.71485
Consistent Akaike Info Criterion	= 876.79831
Chi Square	= 1930.23719
Relative Chi Square	= 193.02372

	Effect	Std Err	t Ratio	Attribute Level
1	0.15985	0.10240	1.56100	1 1 Ad choice
2	-0.15985	0.10240	-1.56100	1 2 No ad choice
3	0.16615	0.09752	1.70373	2 1 15 seconds
4	-0.16615	0.09752	-1.70373	2 2 30 seconds
5	0.87519	0.12894	6.78751	3 1 1 ad
6	0.05692	0.12825	0.44379	3 2 2 ads
7	-0.93211	0.13824	-6.74281	3 3 3 ads

8	3.28358	0.17257	19.02765	4 1 $0
9	-0.12755	0.20263	-0.62945	4 2 $1.99
10	-0.90049	0.24523	-3.67208	4 3 $4.99
11	-2.25554	0.38521	-5.85539	4 4 $9.99
12	-0.17056	0.14694	-1.16071	15 seconds by 1 ad
13	0.10372	0.12220	0.84879	15 seconds by 2 ads
14	0.06684	0.14997	0.44569	15 seconds by 3 ads
15	0.17056	0.14694	1.16071	30 seconds by 1 ad
16	-0.10372	0.12220	-0.84879	30 seconds by 2 ads
17	-0.06684	0.14997	-0.44569	30 seconds by 3 ads
18	0.35100	0.21070	1.66587	NONE

Additional tests using logit analyses for high ad skepticism adding the interactions between the length of online video ads and membership price, as well as the number of online video ads and membership price were conducted. Both results of logit analysis indicated larger Chi-square values than critical Chi-square values at the .01 level, however, the results included extremely inflated standard errors up to 11. Therefore, although the two interactions were significant in the counting analysis, they were excluded in the logit analysis.

Multinomial Logit (Logit) Analysis with Attitude toward Advertising in General

Considering negative (n = 103) vs. positive (n = 120) attitude toward advertising in general obtained by the mean split (M = 3.69), logit analysis was conducted. Following the process of the counting analysis, logit analysis was conducted separately for negative and positive attitude toward advertising in general, respectively. First, logit analysis investigated all main effects and attained the initial model. Then, interaction effects for negative attitude toward advertising in general (i.e., ad choice × length of online video ads, ad choice × number of online video ads, and length of online video ads × number of

online video ads) and positive attitude toward advertising in general (i.e., ad choice × length of online video ads, ad choice × number of online video ads, and length of online video ads × number of online video ads) that indicated significant Chi-square tests in the counting analysis were included in the initial model one by one.

Table 5.19 shows the results of logit analysis for negative attitude toward advertising in general (n = 103) without interaction effects. In the logit analysis for the data of negative attitude toward advertising in general, with 8 degrees of freedom, a Chi-square of about 20.090 was the critical value at the .01 level. The Chi-square value of 1873.605 was larger than this value. Thus, participants' choices were significantly influenced by the combinations of levels in each attribute in this initial model.

The results of main effects in the logit analysis for negative attitude toward advertising in general without interactions were similar to the results of the counting analysis. The difference of utility between 1 ad and 2 ads [$t = 5.927$, $p < .01$], between 2 ads and 3 ads [$t = 3.923$, $p < .01$], between \$0 and \$1.99 [$t = 11.667$, $p < .01$], between \$1.99 and \$4.99 [$t = 2.990$, $p < .01$], and between \$4.99 and \$9.99 [$t = 2.734$, $p < .01$] were significant, while unlike the counting analysis, the difference between ad choice and no ad choice [$t = 2.442$, $p < .05$] and between 15 seconds and 30 seconds were also significant [$t = 2.442$, $p < .05$]. Therefore, the results of main effects by the logit analysis for negative attitude toward advertising in general mostly confirmed the results of the counting analysis.

Table 5.19
Effects of Negative Attitude toward Advertising in General (Logit Analysis)

Log-likelihood for this model =	-389.37450
Log-likelihood for null model =	-1326.17684
Difference =	936.80234

Percent Certainty =	70.63932
Consistent Akaike Info Criterion =	840.46236
Chi Square =	1873.60469
Relative Chi Square =	234.20059

	Effect	Std Err	t Ratio	Attribute Level
1	0.17739	0.10272	1.72690	1 1 Ad choice
2	-0.17739	0.10272	-1.72690	1 2 No ad choice
3	0.21505	0.09346	2.30104	2 1 15 seconds
4	-0.21505	0.09346	-2.30104	2 2 30 seconds
5	0.97776	0.13808	7.08094	3 1 1 ad
6	-0.13309	0.12675	-1.05002	3 2 2 ads
7	-0.84467	0.12974	-6.51040	3 3 3 ads
8	3.37836	0.18978	17.80168	4 1 $0
9	0.04125	0.21400	0.19278	4 2 $1.99
10	-1.00066	0.27500	-3.63883	4 3 $4.99
11	-2.41895	0.43980	-5.50012	4 4 $9.99
12	0.52235	0.22270	2.34552	NONE

Table 5.20 shows the results of logit analysis for negative attitude toward advertising in general adding the interaction between ad choice and the length of online video ads. In the logit analysis for the data of negative attitude toward advertising in general, with 9 degrees of freedom, a Chi-square of about 21.666 was the critical value at the .01 level. The Chi-square value of 1873.818 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this initial model.

The results of main effects in the logit analysis for negative attitude toward advertising in general including the interaction between ad choice and the length of online video ads indicated the similar tendency to the results of the initial model and the counting analysis. Specifically, the differences of utilities between 1 ad and 2 ads [t = 5.839, $p < .01$], between 2 ads and 3 ads [$t = 3.811$, $p < .01$], between \$0 and \$1.99 [t = 11.177, $p < .01$], between \$1.99 and \$4.99 [$t = 2.994$, $p < .01$], and between \$4.99 and \$9.99 [$t = 2.751$, $p < .01$] were significant, while unlike the counting analysis, the difference between ad choice and no ad choice [$t = 2.488$, $p < .05$] and between 15 seconds and 30 seconds were also significant [$t = 2.677$, $p < .01$]. Therefore, the results of main effects by the logit analysis for negative attitude toward advertising in general including the interaction between ad choice and the length of online video ads mostly confirmed the results of the counting analysis.

To determine significant interaction effect between ad choice and the length of online video ads, a 2 log-likelihood test was conducted. With the additional 1 parameter added to the initial model, adding the interaction has improved the log-likelihood by 0.107. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 0.214 with 1 degree of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between ad choice and the length of online video ads.

Table 5.20
Effects of Negative Attitude toward Advertising in General (Logit Analysis) Including Interaction between Ad Choice and Length of Online Video Ads

Log-likelihood for this model = -389.26782
Log-likelihood for null model = -1326.17684
Difference = 936.90902

Percent Certainty = 70.64737
Consistent Akaike Info Criterion = 847.96318
Chi Square = 1873.81804
Relative Chi Square = 208.20200

	Effect	Std Err	t Ratio	Attribute Level
1	0.18440	0.10483	1.75900	1 1 Ad choice
2	-0.18440	0.10483	-1.75900	1 2 No ad choice
3	0.19502	0.10302	1.89295	2 1 15 seconds
4	-0.19502	0.10302	-1.89295	2 2 30 seconds
5	0.99867	0.14636	6.82352	3 1 1 ad
6	-0.14761	0.13082	-1.12833	3 2 2 ads
7	-0.85107	0.13021	-6.53621	3 3 3 ads
8	3.35870	0.19443	17.27459	4 1 $0
9	0.06759	0.22114	0.30565	4 2 $1.99
10	-0.99613	0.27805	-3.58252	4 3 $4.99
11	-2.43016	0.44091	-5.51164	4 4 $9.99
12	0.05559	0.12001	0.46319	Ad choice by 15 seconds
13	-0.05559	0.12001	-0.46319	Ad choice by 30 seconds
14	-0.05559	0.12001	-0.46319	No ad choice by 15 seconds
15	0.05559	0.12001	0.46319	No ad choice by 30 seconds
16	0.53799	0.22601	2.38041	NONE

Table 5.21 shows the results of the logit analysis for negative attitude toward advertising in general adding the interaction between ad choice and the number of online video ads. In the logit analysis for the data of negative attitude toward advertising in general including the interaction, with 10 degrees of freedom, a Chi-square of about

23.209 was the critical value at the .01 level. The Chi-square value of 1874.647 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for negative attitude toward advertising in general including the interaction between ad choice and the number of online video ads indicated a tendency similar to the results of the initial model and the counting analysis. Specifically, the differences of utilities between 1 ad and 2 ads [t = 5.976, $p < .01$], between 2 ads and 3 ads [t = 3.550, $p < .01$], between \$0 and \$1.99 [t = 11.290, $p < .01$], between \$1.99 and \$4.99 [t = 2.836, $p < .01$], and between \$4.99 and \$9.99 [t = 2.687, $p < .01$] were significant, while unlike the counting analysis, the difference between ad choice and no ad choice [t = 2.771, $p < .01$] and between 15 seconds and 30 seconds was also significant [t = 2.088, $p < .05$]. Therefore, the results of main effects by the logit analysis for negative attitude toward advertising in general including the interaction between ad choice and the number of online video ads mostly confirmed the results of the counting analysis.

To determine the significant interaction effect between ad choice and the number of online video ads, a 2 log-likelihood test was conducted. With the additional 2 parameters added to the initial model, adding the interaction has improved the log-likelihood by 0.521. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 1.042 with 2 degrees of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between ad choice and the number of online video ads.

Table 5.21
Effects of Negative Attitude toward Advertising in General (Logit Analysis) Including Interaction between Ad Choice and Number of Online Video Ads

Log-likelihood for this model = -388.85321
Log-likelihood for null model = -1326.17684
Difference = 937.32363

Percent Certainty = 70.67863
Consistent Akaike Info Criterion = 854.84813
Chi Square = 1874.64726
Relative Chi Square = 187.46473

	Effect	Std Err	t Ratio	Attribute Level
1	0.21820	0.11137	1.95927	1 1 Ad choice
2	-0.21820	0.11137	-1.95927	1 2 No ad choice
3	0.16595	0.11239	1.47651	2 1 15 seconds
4	-0.16595	0.11239	-1.47651	2 2 30 seconds
5	0.98178	0.13879	7.07397	3 1 1 ad
6	-0.16201	0.13179	-1.22929	3 2 2 ads
7	-0.81978	0.13024	-6.29444	3 3 3 ads
8	3.40061	0.20573	16.52943	4 1 $0
9	0.03938	0.21520	0.18298	4 2 $1.99
10	-1.00390	0.29833	-3.36504	4 3 $4.99
11	-2.43609	0.44178	-5.51428	4 4 $9.99
12	-0.01473	0.19360	-0.07607	Ad choice by 1 ad
13	-0.10563	0.16294	-0.64831	Ad choice by 2 ads
14	0.12036	0.13714	0.87767	Ad choice by 3 ads
15	0.01473	0.19360	0.07607	No ad choice by 1 ad
16	0.10563	0.16294	0.64831	No ad choice by 2 ads
17	-0.12036	0.13714	-0.87767	No ad choice by 3 ads
18	0.53498	0.22769	2.34964	NONE

Table 5.22 shows the results of the logit analysis for negative attitude toward advertising in general adding the interaction between the length of online video ads and the number of online video ads. In the logit analysis for negative attitude toward

advertising in general including the interaction, with 10 degrees of freedom, a Chi-square of about 23.209 was the critical value at the .01 level. The Chi-square value of 1879.197 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for negative attitude toward advertising in general including the interaction between the length of online video ads and the number of online video ads indicated the same tendency as the results of the initial model, which was consistent with the results of the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [$t = 1.203$, n.s.] was not significant. The differences of utilities between 1 ad and 2 ads [$t = 5.604$, $p < .01$], between 2 ads and 3 ads [$t = 4.623$, $p < .01$], between \$0 and \$1.99 [$t = 11.590$, $p < .01$], between \$1.99 and \$4.99 [$t = 3.163$, $p < .01$], and between \$4.99 and \$9.99 [$t = 2.914$, $p < .01$] were significant, while unlike the counting analysis, the difference between 15 seconds and 30 seconds was also significant [$t = 4.214$, $p < .01$]. Thus, the results of main effects by the logit analysis for negative attitude toward advertising in general including the interaction between the length of online video ads and the number of online video ads mostly confirmed the results of the counting analysis.

To determine significant interaction effect between the length of online video ads and the number of online video ads, a 2 log-likelihood test was conducted. With the additional 2 parameters added to the initial model, adding the interaction has improved the log-likelihood by 2.796. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 5.592 with 2 degrees of freedom was not significant,

indicating that there was not a significant improvement in the model by adding the interaction between the length of online video ads and the number of online video ads.

Table 5.22
Effects of Negative Attitude toward Advertising in General (Logit Analysis) Including Interaction between Length and Number of Online Video Ads

Log-likelihood for this model = -386.57841
Log-likelihood for null model = -1326.17684
Difference = 939.59843

Percent Certainty = 70.85016
Consistent Akaike Info Criterion = 850.29852
Chi Square = 1879.19686
Relative Chi Square = 187.91969

	Effect	Std Err	t Ratio	Attribute Level
1	0.08923	0.10487	0.85079	1 1 Ad choice
2	-0.08923	0.10487	-0.85079	1 2 No ad choice
3	0.31111	0.10441	2.97982	2 1 15 seconds
4	-0.31111	0.10441	-2.97982	2 2 30 seconds
5	1.04222	0.14727	7.07715	3 1 1 ad
6	-0.06307	0.13118	-0.48082	3 2 2 ads
7	-0.97915	0.14851	-6.59322	3 3 3 ads
8	3.50863	0.20416	17.18608	4 1 $0
9	0.06178	0.21625	0.28566	4 2 $1.99
10	-1.02821	0.26836	-3.83147	4 3 $4.99
11	-2.54219	0.44495	-5.71346	4 4 $9.99
12	-0.31813	0.15544	-2.04665	15 seconds by 1 ad
13	0.22238	0.12601	1.76475	15 seconds by 2 ads
14	0.09575	0.15878	0.60304	15 seconds by 3 ads
15	0.31813	0.15544	2.04665	30 seconds by 1 ad
16	-0.22238	0.12601	-1.76475	30 seconds by 2 ads
17	-0.09575	0.15878	-0.60304	30 seconds by 3 ads
18	0.52815	0.22163	2.38302	NONE

Table 5.23 shows the results of logit analysis for positive attitude toward advertising in general (n = 120) without interaction effects. In the logit analysis for the data of positive attitude toward advertising in general, with 8 degrees of freedom, a Chi-square of about 20.090 was the critical value at the .01 level. The Chi-square value of 1938.177 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this initial model.

The results of main effects in the logit analysis for positive attitude toward advertising in general without interactions were consistent with the results of the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [t = 5.379, $p < .01$], between 1 ad and 2 ads [t = 3.597, $p < .01$], between 2 ads and 3 ads [t = 3.355, $p < .01$], between \$0 and \$1.99 [t = 16.011, $p < .01$], between \$1.99 and \$4.99 [t = 3.580, $p < .01$], and between \$4.99 and \$9.99 [t = 2.830, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not [t = 0.449, n.s.]. Therefore, the results of main effects by the logit analysis for positive attitude toward advertising in general confirmed the results of the counting analysis.

Table 5.23
Effects of Positive Attitude toward Advertising in General (Logit Analysis)

Log-likelihood for this model	=	-575.97188
Log-likelihood for null model	=	-1545.06040
Difference	=	969.08851
Percent Certainty	=	62.72172
Consistent Akaike Info Criterion	=	1214.87923
Chi Square	=	1938.17703
Relative Chi Square	=	242.27213

	Effect	Std Err	t Ratio	Attribute Level
1	0.28788	0.07570	3.80306	1 1 Ad choice
2	-0.28788	0.07570	-3.80306	1 2 No ad choice
3	0.01988	0.06264	0.31732	2 1 15 seconds
4	-0.01988	0.06264	-0.31732	2 2 30 seconds
5	0.45775	0.08826	5.18646	3 1 1 ad
6	-0.00618	0.09404	-0.06575	3 2 2 ads
7	-0.45157	0.09370	-4.81917	3 3 3 ads
8	2.62616	0.10436	25.16395	4 1 $0
9	-0.09172	0.13388	-0.68507	4 2 $1.99
10	-0.86823	0.17064	-5.08811	4 3 $4.99
11	-1.66621	0.22451	-7.42158	4 4 $9.99
12	-0.27396	0.17713	-1.54666	NONE

Table 5.24 shows the results of logit analysis for positive attitude toward advertising in general adding the interaction between ad choice and the length of online video ads. In the logit analysis for the data of positive attitude toward advertising in general, with 9 degrees of freedom, a Chi-square of about 21.666 was the critical value at the .01 level. The Chi-square value of 1938.533 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this initial model.

The results of main effects in the logit analysis for positive attitude toward advertising in general including the interaction between ad choice and the length of online video ads indicated the same tendency of the initial model, which was consistent with the results of the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [$t = 5.370$, $p < .01$], between 1 ad and 2 ads [$t = 3.677$, $p < .01$], between 2 ads and 3 ads [$t = 3.280$, $p < .01$], between \$0 and \$1.99 [$t = 15.202$, p

< .01], between $1.99 and $4.99 [$t$ = 3.523, p < .01], and between $4.99 and $9.99 [$t$ = 2.884, p < .01] were significant, while the difference between 15 seconds and 30 seconds was not [t = 0.108, n.s.]. Therefore, the results of main effects by the logit analysis for positive attitude toward advertising in general including the interaction between ad choice and the length of online video ads confirmed the results of the counting analysis.

To determine significant interaction effect between ad choice and the length of online video ads, a 2 log-likelihood test was conducted. With the additional 1 parameter added to the initial model, adding the interaction has improved the log-likelihood by 0.178. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 0.356 with 1 degree of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between ad choice and the length of online video ads.

Table 5.24
Effects of Positive Attitude toward Advertising in General (Logit Analysis) Including Interaction between Ad Choice and Length of Online Video Ads

Log-likelihood for this model	= -575.79398
Log-likelihood for null model	= -1545.06040
Difference	= 969.26642

Percent Certainty	= 62.73324
Consistent Akaike Info Criterion	= 1222.39036
Chi Square	= 1938.53283
Relative Chi Square	= 215.39254

	Effect	Std Err	t Ratio	Attribute Level
1	0.28894	0.07610	3.79675	1 1 Ad choice
2	-0.28894	0.07610	-3.79675	1 2 No ad choice

3	0.00515	0.06736	0.07648	2 1 15 seconds
4	-0.00515	0.06736	-0.07648	2 2 30 seconds
5	0.47719	0.09461	5.04377	3 1 1 ad
6	-0.01814	0.09588	-0.18921	3 2 2 ads
7	-0.45905	0.09424	-4.87108	3 3 3 ads
8	2.60144	0.11160	23.31117	4 1 $0
9	-0.07608	0.13626	-0.55836	4 2 $1.99
10	-0.85319	0.17346	-4.91867	4 3 $4.99
11	-1.67217	0.22486	-7.43639	4 4 $9.99
12	0.05396	0.09016	0.59854	Ad choice by 15 seconds
13	-0.05396	0.09016	-0.59854	Ad choice by 30 seconds
14	-0.05396	0.09016	-0.59854	No ad choice by 15 seconds
15	0.05396	0.09016	0.59854	No ad choice by 30 seconds
16	-0.26683	0.17776	-1.50106	NONE

Table 5.25 shows the results of the logit analysis for positive attitude toward advertising in general adding the interaction between ad choice and the number of online video ads. In the logit analysis for the data of positive attitude toward advertising in general including the interaction, with 10 degrees of freedom, a Chi-square of about 23.209 was the critical value at the .01 level. The Chi-square value of 1877.554 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for positive attitude toward advertising in general including the interaction between ad choice and the number of online video ads were consistent with the results of the initial model and the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [t = 5.422, $p < .01$], between 1 ad and 2 ads [$t = 3.651$, $p < .01$], between 2 ads and 3 ads [t = 3.124, $p < .01$], between \$0 and \$1.99 [$t = 15.619$, $p < .01$], between \$1.99 and \$4.99 [t = 3.626, $p < .01$], and between \$4.99 and \$9.99 [$t = 2.600$, $p < .01$] were significant, while

the difference between 15 seconds and 30 seconds was not [$t = 0.597$, n.s.]. Thus, the results of main effects by the logit analysis for positive attitude toward advertising in general including the interaction between ad choice and the number of online video ads confirmed the results of the counting analysis.

To determine the significant interaction effect between ad choice and the number of online video ads, a 2 log-likelihood test was conducted. With the additional 2 parameters added to the initial model, adding the interaction has improved the log-likelihood by 0.711. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 1.422 with 2 degrees of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between ad choice and the number of online video ads.

Table 5.25
Effects of Positive Attitude toward Advertising in General (Logit Analysis) Including Interaction between Ad Choice and Number of Online Video Ads

Log-likelihood for this model = -575.26089
Log-likelihood for null model = -1545.06040
Difference = 969.79950

Percent Certainty = 62.76774
Consistent Akaike Info Criterion = 1229.19112
Chi Square = 1939.59901
Relative Chi Square = 193.95990

	Effect	Std Err	t Ratio	Attribute Level
1	0.29971	0.07818	3.83364	1 1 Ad choice
2	-0.29971	0.07818	-3.83364	1 2 No ad choice
3	0.02929	0.06942	0.42194	2 1 15 seconds
4	-0.02929	0.06942	-0.42194	2 2 30 seconds

5	0.45560	0.08917	5.10950	3 1 1 ad
6	-0.01948	0.09475	-0.20556	3 2 2 ads
7	-0.43612	0.09387	-4.64593	3 3 3 ads
8	2.67842	0.11689	22.91443	4 1 $0
9	-0.10153	0.13422	-0.75640	4 2 $1.99
10	-0.91414	0.17948	-5.09342	4 3 $4.99
11	-1.66275	0.22514	-7.38531	4 4 $9.99
12	0.12236	0.15119	0.80935	Ad choice by 1 ad
13	-0.14248	0.12030	-1.18434	Ad choice by 2 ads
14	0.02012	0.10254	0.19617	Ad choice by 3 ads
15	-0.12236	0.15119	-0.80935	No ad choice by 1 ad
16	0.14248	0.12030	1.18434	No ad choice by 2 ads
17	-0.02012	0.10254	-0.19617	No ad choice by 3 ads
18	-0.25561	0.17819	-1.43446	NONE

Table 5.26 shows the results of the logit analysis for positive attitude toward advertising in general adding the interaction between the length of online video ads and the number of online video ads. In the logit analysis for positive attitude toward advertising in general including the interaction, with 10 degrees of freedom, a Chi-square of about 23.209 was the critical value at the .01 level. The Chi-square value of 1938.814 was larger than this value. Therefore, participants' choices were significantly influenced by the combinations of levels in each attribute in this model.

The results of main effects in the logit analysis for positive attitude toward advertising in general, including the interaction between the length of online video ads and the number of online video ads, show the same tendency as the results of the initial model, which was consistent with the results of the counting analysis. Specifically, the differences of utilities between ad choice and no ad choice [$t = 5.422$, $p < .01$], between 1 ad and 2 ads [$t = 3.444$, $p < .01$], between 2 ads and 3 ads [$t = 3.474$, $p < .01$], between \$0 and \$1.99 [$t = 15.882$, $p < .01$], between \$1.99 and \$4.99 [$t = 3.595$, $p < .01$], and

between $4.99 and $9.99 [$t = 2.842$, $p < .01$] were significant, while the difference between 15 seconds and 30 seconds was not significant [$t = 0.601$, n.s.]. Thus, the results of main effects by the logit analysis for positive attitude toward advertising in general including the interaction between the length of online video ads and the number of online video ads confirmed the results of the counting analysis.

To determine significant interaction effect between the length of online video ads and the number of online video ads, a 2 log-likelihood test was conducted. With the additional 2 parameters added to the initial model, adding the interaction has improved the log-likelihood by 0.318. Two times the log-likelihood was distributed as Chi-square. The p-value for a Chi-square of 0.636 with 2 degrees of freedom was not significant, indicating that there was not a significant improvement in the model by adding the interaction between the length of online video ads and the number of online video ads.

Table 5.26
Effects of Positive Attitude toward Advertising in General (Logit Analysis) Including Interaction between Length and Number of Online Video Ads

Log-likelihood for this model = -575.65359
Log-likelihood for null model = -1545.06040
Difference = 969.40681

Percent Certainty = 62.74232
Consistent Akaike Info Criterion = 1229.97651
Chi Square = 1938.81362
Relative Chi Square = 193.88136

	Effect	Std Err	t Ratio	Attribute Level
1	0.28091	0.07648	3.67288	1 1 Ad choice
2	-0.28091	0.07648	-3.67288	1 2 No ad choice

3	0.02792	0.06572	0.42476	2 1 15 seconds
4	-0.02792	0.06572	-0.42476	2 2 30 seconds
5	0.46277	0.08815	5.24993	3 1 1 ad
6	0.00938	0.09776	0.09592	3 2 2 ads
7	-0.47215	0.09826	-4.80531	3 3 3 ads
8	2.63451	0.10687	24.65098	4 1 $0
9	-0.09145	0.13431	-0.68088	4 2 $1.99
10	-0.86960	0.16975	-5.12271	4 3 $4.99
11	-1.67346	0.22625	-7.39653	4 4 $9.99
12	-0.00606	0.10660	-0.05689	15 seconds by 1 ad
13	0.07419	0.09763	0.75991	15 seconds by 2 ads
14	-0.06813	0.11450	-0.59500	15 seconds by 3 ads
15	0.00606	0.10660	0.05689	30 seconds by 1 ad
16	-0.07419	0.09763	-0.75991	30 seconds by 2 ads
17	0.06813	0.11450	0.59500	30 seconds by 3 ads
18	-0.27573	0.17706	-1.55725	NONE

Table 5.27 summarizes the results of counting analysis and logit analysis. The results indicated that counting analysis found significant interactions related to the hypotheses. Therefore, logit analysis included those interactions. As can be seen, some of interactions disappeared under logit analysis. It is possible that there may be those interactions; however, those interactions may not be influential. Comparing the results of counting analysis and logit analysis, logit analysis supported most main effects. Also, the results of main effects across the data analyses were consistent. In addition, when comparing the results between ad skepticism and attitude toward advertising in general, the results are almost the same, which reflects the negative relationship between two perceptions (e.g., Obermiller and Spangenberg 1998). Therefore, the results of the current study are reliable.

Table 5.27
Summary of Results for Counting & Logit Analyses

	Hypothesis	Counting Analysis	Logit Analysis
Overall Data	H1	Supported	Confirmed
	H2	Not supported	Not confirmed
	H3	Supported	Not improved (interaction)
	H4	Supported	Confirmed
	H5	Partially supported	Not improved (interaction)
	H6	Partially supported	Not improved (interaction)
	H7	Supported	Confirmed
	H8	Not supported	Improved (interaction)
	H9	Not supported	Not improved (interaction)
	H10	Partially supported	Improved (interaction)
Correlation	H11	Supported	(Not tested)
Ad Skepticism	H12	Supported	Confirmed
	H13a	Not supported	Not confirmed
	H13b	Not supported	Not confirmed
	H13c	Not supported	(Not tested)
	H14a	Supported	Confirmed
	H14b	Supported	Confirmed
	H14c	Not supported	(Not tested)
	H15a	Supported	Confirmed
	H15b	Not supported	Confirmed
	H15c	Supported	(Not tested)
	H16a	Supported	Not improved (interaction)
	H16b	Supported	Not improved (interaction)
	H16c	Partially supported	Not improved (interaction)
	H16d	Partially supported	Not improved (interaction)
	H16e	Partially supported	Not improved (interaction)
	H16f	Partially supported	Not improved (interaction)
	H16g	Not supported	(Not tested)
	H16h	Not supported	(Not tested)
	H16i	Not supported	(Not tested)
	H16j	Partially supported	Not confirmed (interaction)
	H16k	Not supported	(Not tested)
	H16l	Partially supported	Not confirmed (interaction)
Attitude toward Advertising in General	H17	Supported	Confirmed
	H18a	Not supported	Confirmed
	H18b	Not supported	Not confirmed
	H18c	Not supported	(Not tested)
	H19a	Supported	Confirmed
	H19b	Supported	Confirmed
	H19c	Not supported	(Not tested)

	H20a	Not supported	Confirmed
	H20b	Supported	Confirmed
	H20c	Supported	(Not tested)
	H21a	Supported	Not improved (interaction)
	H21b	Supported	Not improved (interaction)
	H21c	Partially supported	Not improved (interaction)
	H21d	Partially supported	Not improved (interaction)
	H21e	Partially supported	Not improved (interaction)
	H21f	Partially supported	Not improved (interaction)
	H21g	Not supported	(Not tested)
	H21h	Not supported	(Not tested)
	H21i	Not supported	(Not tested)
	H21j	Not supported	(Not tested)
	H21k	Not supported	(Not tested)
	H21l	Not supported	(Not tested)

CHAPTER 6

DISCUSSION

The growth of video sharing websites such as YouTube.com and Hulu.com provides advertisers with opportunities to use video advertising on the Internet (Katz 2010; Lee and Lee 2012). Because video advertising delivers messages with audio and visual stimulations, video advertising is an effective tool for advertising (Dijkstra et al. 2005). Traditionally, advertisers have used TV for video advertising to expose their messages to mass audience with the audio and visual effects. However, consumers have reduced their television consumption and they tend to fast-forward advertising with remote controls or digital video recorders (DVRs) (eMarketer 2009b; Picker 2003; Wilbur 2008). Additionally, increased ad clutter on TV makes it difficult for advertisers to reach their target consumers (Dahlén and Edenius 2007; Zanot 1984). In this situation, advertisers have been interested in using online video advertising for their advertising campaigns through video sharing websites (e.g., YouTube) or other social media platforms (e.g., Facebook).

Online video advertising is an emerging form of interactive advertising (Lee and Lee 2011; Lee and Lee 2012) including rich media functions that stimulate perceptual systems by streaming audio and video online (Appiah 2006; Li and Leckenby 2007; Spalding, Cole, and Fayer 2009). The rapid change in the online media environment has boosted the use of online video advertising among advertisers. Since YouTube.com has been launched in 2005 and Hulu.com has been launched in 2007, online video viewing

has been getting popular (comScore 2010a; eMarketer 2011a; Southgate et al. 2010). For advertisers, online videos became emerging media to embed their advertising because it includes features of traditional TV advertising and characteristics of online advertising such as better targeting (IAB 2009; Katz 2010; Lee and Lee 2012).

With the growing popularity of online video ads among advertisers and the increasing number of online video sharing websites (Lee and Lee 2011; Lee and Lee 2012), examining effective use of online video advertising, based on a theoretical understanding, contributes to academic research and the advertising industry. The current study aimed to investigate the effective use of online video advertising on video sharing websites by looking at three attributes (i.e., ad choice, number of online video ads, and length of online video ads) of online video ads and one attribute (i.e., membership price) of video sharing websites, along with psychological perceptions of advertising (i.e., ad skepticism and attitude toward advertising in general), considering the decision-making process of watching online video ads. These attributes are worth studying because they are directly and indirectly related to formats of online video ads and also consumers' perceptions of online video ads. Additionally, by examining consumers' preferences about the attributes about watching online video advertising on video sharing websites, it is possible to answer how consumers make trade-offs that make different combinations among the levels of each attribute.

Mainly, the current study tested online video advertising based on how giving consumers choices of ads influences their preferences for the attributes of online video ads and video sharing websites (Anderson et al.1966; Reibstein et al. 1975). Additionally, how prior perceptions of advertising (i.e., ad skepticism and attitude toward advertising

in general), when making a decision to watch online video ads, influence consumers' perceptions of online video advertising preferences (Lutz 1985; Obermiller and Spangenberg 1998). In order to examine consumers' trade-offs and preferences, choice-based conjoint analysis was conducted (Hair et al. 2006; Orme 2009; Sawtooth Software 2008).

The current study is significant in that it is among the *first* attempts to investigate consumers' preferences of attributes for online video ads to suggest the effective use of them in the advertising academia using the conjoint analysis technique. Because conjoint analysis considers preferences of different levels in an attribute simultaneously, instead of attribute by attribute, the current study enables to compare consumers' preference of different levels of attributes about online video advertising on video sharing websites at the same time assuming to be consumed.

Impact of Choice in Online Video Advertising Preference

The main theoretical concept of the current study is the impact of choice in the context of decision-making process (Anderson 2006; Anderson et al.1966; Reibstein et al. 1975). In general, as consumers have more choices in the decision-making process, they have better satisfaction with their decision (Anderson 2006). In the context of consumers, giving choice reflects increasing alternatives of marketing-related decision-making behaviors such as purchasing products or using services (Anderson et al. 1966; Berger et al. 2007; Bown et al. 2003). Considering that watching online video ads is a type of consumers' decision-making behavior and the interactive technology of online videos can give consumers choice environment of ads, the impact of choice was applied to online video advertising viewing. First, the current study defined *ad choice*, a new form of

interactive advertising, as an ad format that consumers have alternative ad options that they can select before they are exposed to the ads. In the context of online video advertising, ad choice can be used by providing consumers with two or three alternative ads at the beginning of watching online video programs (e.g., Hulu's Ad Selector).

Based on the potentials that consumers prefer to have ad choice rather than have no ad choice, choice-based conjoint analysis was conducted with young consumers (i.e., college students) because they are main users of online video programs on video sharing websites. First, in the counting analysis for the overall data, the main effect of ad choice was examined. The results of the counting analysis for overall data found the impact of ad choice, indicating that participants prefer having ad choice to having no ad choice when they watch online video ads. This finding demonstrates that compared to being exposed to an ad chosen by others such as advertisers or online publishers (e.g., YouTube), young consumers want to have control over the presentation of ads. Control is an important characteristic of ad choice in that control affects the degree of interactivity in media (Williams, Rice, and Rogers 1988; Wu 2006). Also, interactivity offers media the ability to provide consumers with power to control the content during the mediated presentation of communication (Jensen 1998; Lombard and Snyder-Dutch 2001). Therefore, control has been considered one of critical dimensions or factors in interactivity (Liu and Shrum 2002; McMillan and Hwang 2002).

Given that ad choice generates opportunities to control advertising messages, ad choice can enhance online video advertising as an interactive advertising. In the context of interactive advertising, interactivity makes consumers choose and control messages on the media (Cho and Leckenby 1999). In addition, Ko, Cho, and Roberts (2005) argued

that choice of message is one of such human–message interactions. Unlike traditional TV, online videos provides opportunities for consumers to exert control over advertising messages by giving them selecting of two or three alternative advertising options (i.e., ad choice). It has been found that the control over messages improves consumers' ability to process and evaluate those messages, which enhances the effects of advertising (Ariely 2000). Thus, it is important for advertisers to consider including ad choice in online video ads to attract more young consumers to watch those ads.

Effective Use of Online Video Advertising

In addition to examining the impact of ad choice, the current study investigated the effective use of online video advertising on video sharing websites by examining preferences of levels in different attributes related to online video ads and video sharing websites. With the popularity of online video advertising in the advertising industry, there are several industry research data that looked at characteristics and formats of online video advertising (e.g., eMarketer 2009a, 2010b, IAB 2008a, 2008b). However, although advertisers have increased their advertising spending on online video ads, there is no empirical research about how to use online video ads effectively considering theoretical perspectives. In this respect, along with ad choice, the current study tested different attributes of online video advertising on video sharing websites for the effective use of online video ads. The attributes were considered based on the previous industry research (e.g., comScore 2009; eMarketer 2009a, 2010a, 2010b, IAB 2008a, 2008b, 2009), including the length of online video ads, the number of online video ads, and membership price of video sharing websites.

According to the results of main effects by counting analysis, there were significant main effects of the number of online video ads and membership price on online video advertising preferences on video sharing websites, while there was not the main effect of the length of online video ads. Participants preferred to watch 1 ad most, followed by 2 ads and 3 ads, and participants preferred pay $0 most, followed by $1.99, $4.99, and $9.99 to buy a membership on video sharing websites. However, it is difficult to say which one is preferable between 15 second online video ads and 30 second online video ads.

Given that consumers do not want to be interrupted by ads when they enjoy content (Homer 1990; Obermiller et al. 2005), it is common to prefer encountering fewer ads. Moreover, although young consumers can watch ad-free content by purchasing a membership of video sharing websites, most young consumers do not want to pay money for ad-free content and others want to pay less money for ad-free content. These results indicated that basically young consumers do not want to watch more ads and also they do not want to pay for the content. Thus, simply looking at these results, to target young consumers, online video publishers (i.e., video sharing websites) need to include one ad for a 20-minute online video program and they provide ad-free content without a membership. From the perspective of young consumers, ad-free content without payment is the best; however, from the perspective of advertisers and online video publishers, ads and membership fees are important sources for trade-offs between ads for free content and paying (membership fees) for ad-free content (Picker 2003; Sutter 2002). Regarding the result of ad length, as industry data indicated conflict results of effectiveness for length of online video ads (e.g., IAB 2008c, 2011a; Online Publishers Association 2007),

both 15 seconds and 30 seconds are equally acceptable to consumers. The results of logit analysis confirmed this conflict by showing inconsistent results of the main effects of the length of online video ads.

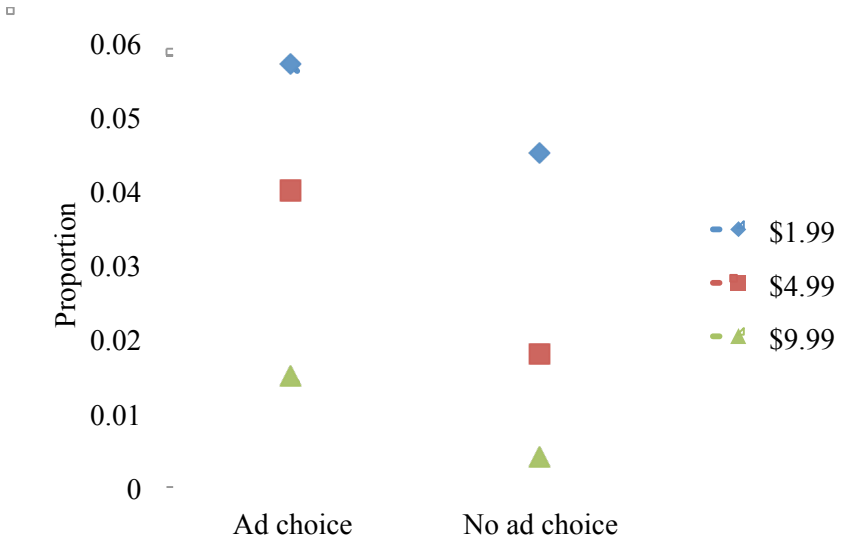
However, considering some interaction effects among the attributes including ad choice, the length of online video ads, the number of online video ads, and membership price demonstrate somewhat different perspectives compared to simply looking at the main effects. First, the interaction between ad choice and the length of online video ads suggested that when participants prefer ad choice, they prefer 15 second online video ads. On the other hand, when they prefer no ad choice, they prefer 30 second online video ads. It is possible that young consumers may perceive online video ads with ad choice and 15 second length as a new type of ads and online video ads with no ad choice and 30 second length as a traditional type of ads. Consequently, when young consumers prefer to have ad choice, they may expect to encounter 15 second ads, perceiving that the ads are new types of ads. However, when preferring to have no ad choice, young consumers perceive that the ads are similar to traditional TV commercials, expecting to encounter traditional ad length of TV commercials (i.e., 30 seconds). Therefore, they may prefer to be exposed to the 30 second online video ads by traditional way, i.e., forced exposure.

It was found that ad choice had an interaction with the number of online video ads. Similar to the main effect, when young consumers prefer to have no ad choice, they prefer to watch fewer ads (i.e., 1 ad > 2 ads > 3 ads). However, unlike the main effects, when participants preferred to have ad choice, they prefer to watch 2 ads most, followed by 1 ad and not 3 ads. Thus, there was no linear tendency of the number of online video ads when including ad choice. The interaction effect between ad choice and the number

of online video ads provide advertising practitioners with an opportunity for young consumers to allow more ads when having ad choice. Regarding the interaction effect between the length of online video ads and the number of online video ads, the results showed different tendency depending on the length of online video ads. When participants preferred the 15 second online video ads, they preferred to watch 1 ad most, followed by 3 ads and 2 ads. However, when they preferred the 30 second online video ads, they preferred to watch 2 ads most, followed by 1 ad and 3 ads. Therefore, it may be possible that 15 second online video ads can allow young consumers to watch more ads than 30 second online video ads.

According to the interaction effect between ad choice and membership price, the results shows the same trends of membership price when having both ad choice and no ad choice, indicating that most participants preferred to pay $0 and others pay less for membership on video sharing websites. However, when focusing on those who wanted to buy a membership (i.e., excluding $0), it was found that there were more participants for each membership price with ad choice than with no ad choice (see Figure 6.1). Although most young consumers do not want to pay money for a membership and others want to pay less money, considering those who want to pay money for the membership, more young consumers who prefer ad choice to no ad choice may be willing to buy a membership to avoid ads. Therefore, it may be possible that ad choice can boost young consumers to buy a membership on video sharing websites.

Figure 6.1
Interaction between Ad Choice and Membership Price Excluding $0 (Overall)



The results of interaction effects between the length of online video ads and membership price, regardless of preferring 15 second and 30 second online video ads, showed the similar trends of membership price. Most participants prefer not to pay for membership and pay less for membership although there was significant interaction between them. This finding is linked to the result of main effect of the length of online video ads indicating no different preference between the two lengths. Thus, advertisers may not too much focus on the difference of the ad length considering membership price of video sharing websites where they want to launch their online video ads for their campaigns. The last interaction between the number of online video ads and membership price also indicated the similar pattern with the interaction between the length of online video ads and membership price. However, it was found that when participants prefer to watch 1 ad compared to 2 or 3 ads, more participants were willing to pay $4.99. From

this finding, it can be assumed that young consumers who prefer to encounter fewer ads during watching online video programs may allow paying more money for the membership to avoid more ads.

From the counting analysis, these interaction effects were found. However, from the logit analysis, the interactions between ad choice and membership price and between the number of online video ads and membership price were confirmed to improve the initial model. Therefore, although significant interaction effects were found, the interactions between ad choice and membership price and between the number of online video ads and membership price were the strongest interactions for overall data.

Impact of Ad Skepticism on Online Video Advertising Preference

The results from the analyses for overall data provide advertising researchers and practitioners with fundamental understanding of attributes of online video advertising on video sharing websites. However, scholars in the field of advertising and marketing have found that in the decision-making process to watch ads, consumers' prior perceptions of advertising affect their responses of advertising (Friestad and Wrigtht 1994; Homer 1990; Lutz 1985; Obermiller et al. 2005; Pollay and Mittal 1993). Among the perceptions, ad skepticism and attitude toward advertising in general have been considered most important perceptions that drive consumers' mindsets to process advertising messages (Lutz 1985; Obermiller and Spangenberg 1998). Thus, the current study tested how ad skepticism and attitude toward advertising in general had impact on consumers' preferences of online video advertising on video sharing websites.

It was assumed that although consumers' preferences of the levels in attributes were examined in terms of overall data, when considering the impacts of the prior

advertising perceptions, the results might be differentiated by ad skepticism and attitude toward advertising in general. First of all, as previous studies found (e.g., Darke and Ritchie 2007; Obermiller and Spangenberg 1998; Obermiller et al. 2005), the negative relationship between ad skepticism and attitude toward advertising in general was found. Based on this finding, it is expected that the results of choice-based conjoint analysis between low ad skepticism and positive attitude toward advertising in general and between high ad skepticism and negative attitude toward advertising in general could be consistent.

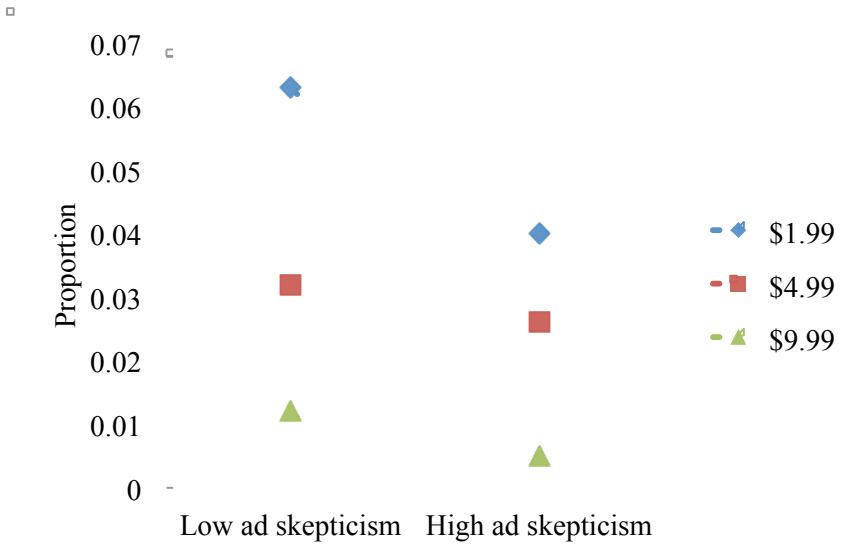
From the counting analysis for the impact of ad skepticism on online video advertising preferences, first, the results found that when participants have low ad skepticism, they preferred to have ad choice than no ad choice. On the other hand, when participants have high ad skepticism, there was no different preference between them. This result suggests that young consumers who are less skeptical to ads like to have ad choice when encountering online video ads. However, when young consumers do not have trust about ads, they may not show preferences of ad choice. Previous studies found that when consumers are highly skeptical and ads, they tend to ignore ads or to have less focus on ads (Friestad and Wright 1994; Obermiller and Spangenberg 1998; Obermiller et al. 2005). Thus, including ad choice in online video ads may not be an important factor for young consumers who have high ad skepticism. Compared to these results to the results of overall data, although overall data indicated the impact of ad choice, the impact generates different tendency considering ad skepticism. It is important for advertisers to understand that ad choice is more effective for less skeptical young consumers about ads.

The results of the main effects for the length of online video ads demonstrated no difference of preference not only between 15 seconds and 30 seconds but also between low and high ad skepticism. In other words, in terms of the length of online video ads, the result indicated no impact of ad skepticism on the length of online video ads. Therefore, advertisers may not worry about using either 15 second or 30 second online video ads. Regarding the number of online video ads, the results represented the same trends as the results of the overall data, indicating that participants preferred fewer ads (i.e., 1 ad > 2 ads > 3 ads) when watching online video programs regardless of low vs. high ad skepticism. However, ad skepticism did not have an impact on the preference difference of the number of online video ads between low and high ad skepticism. These findings reflect the results of the overall data indicating young consumers prefer to watch fewer ads when they enjoy online video programs.

The results of membership price also showed the same patterns as the result of overall data, indicating that most participants did not want to buy a membership (i.e., $0) and others wanted to pay less for the membership (i.e., $1.99 > $4.99 > $9.99) on video sharing websites with low and high ad skepticism, respectively. However, there was difference of this trend between low and high ad skepticism groups. Excluding participants who did not want to pay for a membership, ad skepticism had an impact on young consumers' preference of buying a membership on video sharing websites by decreasing preference to buy a membership when having high ad skepticism (see Figure 6.2). The results may imply that young consumers who have high ad skepticism even do not want to pay money for trade-offs between advertising and free content. On the other hand, young consumers who are less skeptical to ads may understand the trade-offs

between them. All of the main effects considering low and high as skepticism were confirmed by the results of logit analysis.

Figure 6.2
Differences of Membership Price Excluding $0 by Ad Skepticism



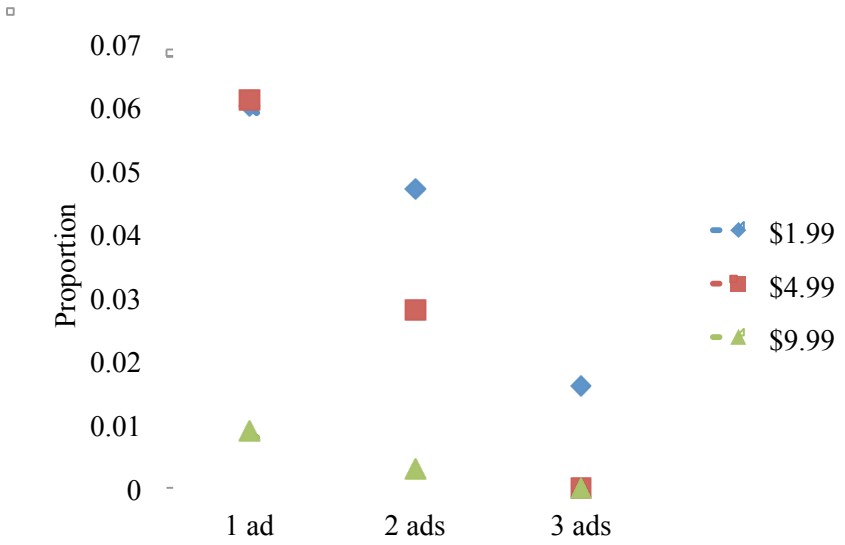
Looking at the results of the interaction effects considering ad skepticism, the results of interaction, between ad choice and the length of online video ads, between the length of online video ads and the number of online video ads, and between ad choice and the number of online video ads for low vs. high ad skepticism represented the same tendency as the results of the overall data. However, unlike the result of the overall data, there was no interaction between ad choice and the membership price. Moreover, there was interaction only for high ad skepticism between the length of online video ads and membership price, indicating that when participants preferred 15 second online video ads, they preferred to pay $0 most, followed by $4.99, $1.99, and $9.99. On the other hand,

when preferring 30 second online video ads, they preferred $0 most, followed by $1.99, $4.99, and $9.99. Also, there was an interaction only for high ad skepticism between the number of online video ads and membership price. When participants preferred 2 ad or 3 ads, they preferred $0 most, followed by $1.99, $4.99, and $9.99, while when preferring 1 ad, they preferred to pay $0 most, followed by $4.99, $1.99, and $9.99 to buy a membership.

Given that the interactions between ad choice and the length of online video ads, between the length of online video ads and the number of online video ads, and between ad choice and the number of online video ads showed the same trends as the results of overall data, it is assumed that there was no impact of ad skepticism on these interactions and these interactions could be interpreted in the similar way to the same interactions as the overall data. In case of interactions between the length of online video ads and membership price and between the number of online video ads and membership price, only high ad skepticism indicated significant interactions. It may be possible that compared to low ad skepticism, high ad skepticism is more influential for young consumers' preference of online video ads on video sharing websites. Regarding the interaction between the number of online video ads and membership price in terms of high ad skepticism, when excluding $0, as the number of online video ads increased, the proportion of participants who wanted to pay the same money for membership decreased (see Figure 6.3). Similar to the results of the difference between membership price considering ad skepticism, based on this result, it is possible that young consumers who are highly skeptical to ads may not want to pay money for trade-offs between ads and

free content. Thus, as the number of ads is increased, they tend to decrease their money for membership.

Figure 6.3
Interaction between Ad Choice and Membership Price Excluding $0 by High Ad Skepticism



Although counting analysis found these interaction effects, from the logit analysis, the interactions failed to confirmed improvement of the initial model. Therefore, although significant interaction effects were found, there were no powerful interactions for the impact of ad skepticism.

Impact of Attitude toward Advertising in General on Online Video Advertising Preference

Considering the impact of attitude toward advertising in general on online video advertising preferences in the decision-making process to watch online video ads, the first results found that when participants had positive attitude toward advertising in

general, they preferred to have ad choice than no ad choice. However, when participants had negative attitude toward advertising in general, there was no different preference between them. This result suggests that young consumers who are positive to ads may be willing to have ad choice when they decide to watch online video ads. However, when young consumers have negative attitude toward advertising in general, they may not show preference of ad choice. This result is consistent with the result of ad choice for ad skepticism. Like the results of the main effect of ad choice, the impacts of choice were found differently along with negative vs. positive attitude towards advertising in general. It is suggested that when consumers have positive attitude toward advertising in general, they tend to be more active to process advertising (Bush et al. 1999; Lutz et al. 1983; MacKenzie et al. 1986; Phelps and Thorson 1991). Thus, given that ad choice provides young consumers with control over the ad content, young consumers who like ads would be willing to have ad choice.

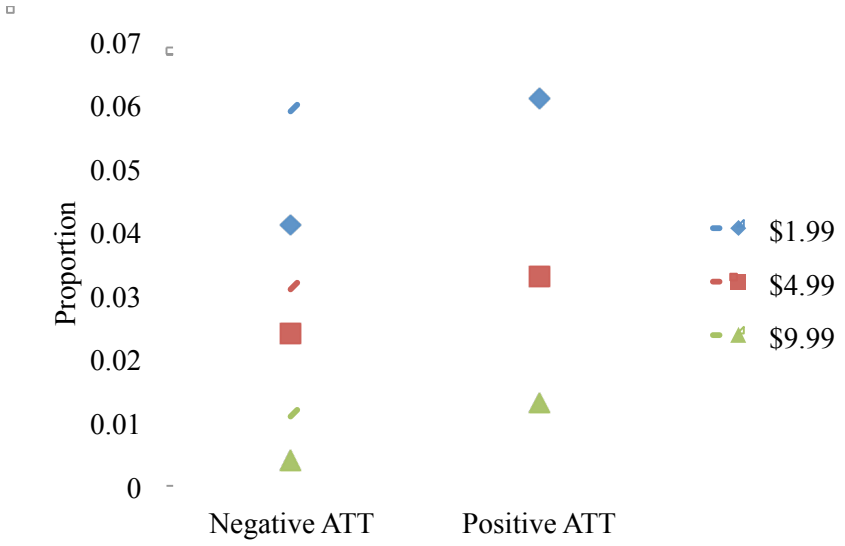
The results of the main effects for the length of online video ads indicated no difference of preference not only between 15 seconds and 30 seconds but also between negative and positive attitude toward advertising in general. In other words, in terms of the length of online video ads, the result demonstrated no impact of attitude toward advertising in general on the length of online video ads. Thus, like the results of the overall data and the ad skepticism, advertisers may not worry about using either 15 second or 30 second online video ads.

Regarding the number of online video ads, the results demonstrated the same patterns as the overall data and ad skepticism, indicating that participants preferred fewer ads (i.e., 1 ad > 2 ads > 3 ads) when watching online video programs regardless of

negative vs. positive attitude toward advertising in general. On the other hand, attitude toward advertising in general did not have an impact on the preference of the number of online video ads. Therefore, the result also suggests that young consumers may prefer to watch fewer ads when viewing online video programs without an impact of prior perceptions of attitude toward advertising in general. Because all results of the main effect of the length of online video ads are the same, it could be concluded that generally, young consumers do not want be interrupted by many ads.

The results of membership price also showed the same trends as the result of overall data and ad skepticism, indicating that most participants did not want to buy a membership ($0) and others wanted to pay less for the membership ($1.99 > $4.99 > $9.99) on video sharing websites regardless of negative vs. positive attitude toward advertising in general. However, there was a significant difference of this trend, between negative and positive attitude toward advertising in general. Excluding participants who did not want to pay for a membership ($0), attitude toward advertising in general has an impact on young consumers' preference of buying membership on video sharing websites by increasing preference to buy a membership when having positive attitude toward advertising in general (see Figure 6.4). The results may suggest that young consumers who are positive to ads may understand the trade-offs between ads and free content. On the other hand, young consumers who are negative to ads do not want to pay money for trade-offs between them, considering that ads are not worth to pay. These results exactly reflect the results of ad skepticism. All of the main effects considering negative and positive attitude toward advertising in general were confirmed by the results of logit analysis.

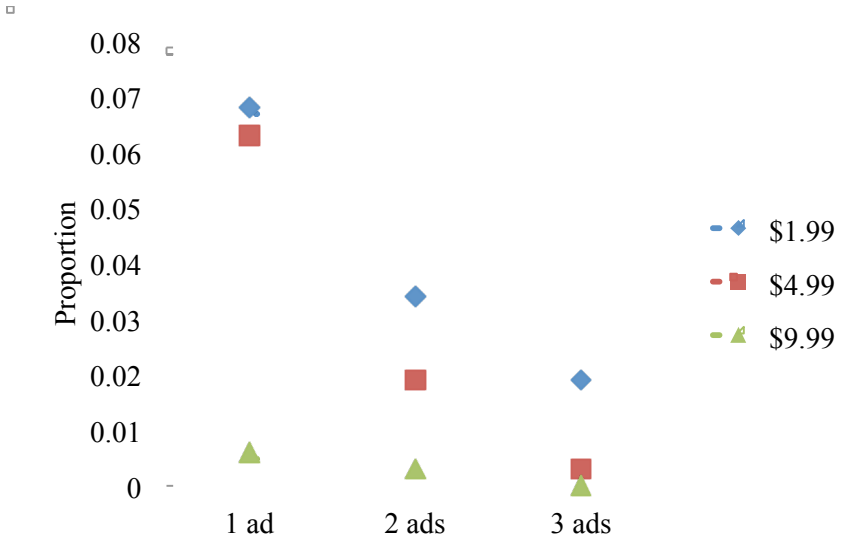
Figure 6.4
Differences of Membership Price Excluding $0
by Attitude toward Advertising in General (ATT)



Looking at the results of interaction effects considering attitude toward advertising in general, the results of interactions between ad choice and the length of online video ads, between the length of online video ads and the number of online video ads, and between ad choice and the number of online video ads were exactly the same as the results of ad skepticism, which was also consistent with the results of the overall data. In addition, the interaction between ad choice and membership price was the same, indicating no interaction between them. Unlike the result of ad skepticism, there was no interaction between the length of online video ads and membership price. Also, there was an interaction only for negative attitude toward advertising in general between the number of online video ads and membership price. When participants preferred any number of online video ads, they preferred to pay $0 most, followed by $1.99, $4.99, and $9.99 for a membership.

Given that the interactions between ad choice and the length of online video ads, between the length of online video ads and the number of online video ads, and between ad choice and the number of online video ads showed the same trends as the results of ad skepticism and overall data, it is assumed that there was no impact of attitude toward advertising in general on these interactions. Thus, it could be concluded that those interactions are consistent in any situations, which provides advertisers and online publishers with ideas of how to use online video advertising across all situations. In general, when providing young consumers with one ad, combining no ad choice with 30 seconds may be effective. On the other hand, when providing 2 ads, combining ad choice with 15 seconds may be preferable among young consumers. Regarding the interaction between negative attitude toward advertising in general and membership price, when excluding $0, as the number of online video ads increased, the proportion of participants who wanted to pay the same money for membership decreased (see Figure 6.5). This result reflects the same result of ad skepticism. Based on this result, it is expected that young consumers who dislike ads may not want to pay money for trade-offs between ads and free content.

Figure 6.5
Interaction between Ad Choice and Membership Price Excluding $0
by Negative Attitude toward Advertising in General



Like the results of interactions with ad skepticism, although counting analysis found these interaction effects, from the logit analysis, the interactions failed to confirmed improvement of the initial model. Therefore, although significant interaction effects were found, there were no powerful interactions for the impact of attitude toward advertising in general.

Theoretical and Practical Implications

Overall, the current study has both theoretical and practical implications. First, although the impact of choice in the decision-making process has been investigated in various academic fields (e.g., Berger et al. 2007; Bown et al. 2003; Koelemeijer and Oppewal 1999; Wise and Pepple 2008), there are few studies to understand and test the impact of choice in the context of decision-making process to consume specific advertising. Based on the idea of "choice is better" heuristic (Bown et al. 2003), the

current study developed *ad choice*, giving consumers ad alternatives when encountering the decision-making process to be exposed to ad messages. It is valuable to consider the impact of choice in the context of advertising in that it enhances interactivity of advertising by providing control over advertising messages, which increases consumers' involvement or user control (Grusell 2007; Jensen 1998; Lombard and Snyder-Dutch 2001; McMillan and Hwang 2002). Therefore, the current study suggests that impact of choice can provide advertising scholars with opportunities to expand the discussions of interactivity.

Along with the impact of choice, this study has a contribution to bring the discussion of effective use of online video advertising to the advertising academia. Although there are a lot of industry studies about online video advertising such as effective formats (e.g., IAB 2008a, 2008b), empirical discussions considering the theoretical perspectives regarding online video ads have not yet started among advertising scholars. Additionally, this study added the concepts of ad skepticism (Obermiller and Spangenberg 1998) and attitude toward advertising in general (Lutz 1985) in the context of the decision-making process to watch online video advertising. Because those concepts have been discussed in depth among advertising scholars under the consumers′ decision-making process (Darke and Ritchie 2007; Hardesty et al. 2002; Muehling and McCann 1993; Phelps and Thorson 1991), discussing online video advertising with the theoretical concepts can enhance empirical findings of the current study. Thus, this study opens the academic discussion about online video advertising.

Methodologically, the current study employed conjoint analysis to apply advertising research. Although conjoint analysis has been broadly used in academic areas

(e.g., Lockshin et al. 2006; Thyne, Lawson, and Todd 2006), it is difficult to find studies adopted it in the context of specific advertising use. In the current study, conjoint analysis makes it possible to investigate consumers' preferences and trade-offs about the levels of different attributes in the context of online video advertising. Unlike other experiments that test attributes of products or services as independent concepts, conjoint experiment evaluates whole attributes by combining them, which gives researchers more realistic findings about consumers' decision-making (Green and Srinivasan 1978; Hair et al. 2006; Schaupp and Bélanger 2005). In the current study, attributes of online video advertising and video sharing websites were tested with conjoint experiment in the context of the decision-making process for the advertising consumption. Therefore, by employing conjoint analysis in the context of advertising, advertising scholars could test attributes of advertising (e.g., formats) and decision-making process for the advertising consumption situations (e.g., trade-offs between ads and free content) from the practical perspectives. Especially, considering complexity of interactivity in advertising, characteristics or dimensions of interactivity (e.g., Liu and Shrum 2002; McMillan and Hwang 2002) could be examined with those of advertising simultaneously using conjoint analysis.

The findings of this study provide advertising practitioners and online publishers with insight about new interactive format of online video advertising (i.e., ad choice). The interactivity of ad choice in online video ads, which is related to the definition as the "ability of selecting timing, content, and sequence of communication act (Li, Daugherty, and Biocca 2002, p. 45)," makes young consumers more involved in online video ads by providing them more control. Similarly, in a game study, Lee and Faber (2007) found that when consumers have active control over brands, they increase their involvement in

the game, which promotes emotional processing of the brands in the game. In addition, consumers have more positive to advertising when the ad is exposed to them based on their own choice rather than the ad is forced to watch (Grusell 2007). Thus, when using online video advertising for their advertising campaigns, advertisers need to consider including ad choice to enhance user control and interactivity expecting young consumers' involvement and positive feelings of their ads. Due to the same reasons, online publishers also need to consider providing services of ad choice on their video sharing websites.

In addition to ad choice, the findings of the current study suggest ideas for advertising practitioners about effective use of online video advertising format. The results of this study were consistent across different analyses (e.g., analysis for ad skepticism and attitude toward advertising in general). Simply, the results of main effects suggest to use ad choice for online video ads and to embed fewer ads on online video programs. Also, it is fine to use either 15 or 30 second of online video ads. However, considering interactions, when advertisers use ad choice for their online video ads, 15 second ads would be better than 30 second ads, which may allow young consumers to accept more ads. Unlike using online video ads with no ad choice, it is possible for advertisers to consider including 2 ads instead of 1 ad in an online video program with ad choice. As mentioned, ad choice may allow consumers to accept more ads by increasing interactivity providing active user control (Liu and Shrum 2002; McMillan and Hwang 2002). Previously, industry studies reported formats of online video advertising, and the current study tested formats based on discussions of these industry studies. Therefore, the findings of this study provide advertising practitioners with practically empirical ideas of how to use online video ads effectively.

However, given that the current study considered prior perceptions of advertising (i.e., ad skepticism and attitude toward advertising in general) as parts of decision-making process for the advertising consumption, the findings provide advertising practitioners with psychology-based insight of using online video advertising. It is important to consider these perceptions because they are directly or indirectly affect the decision-making process of advertising consumption and the advertising effectiveness (Friestad and Wrigtht 1994; Haley and Baldinger 1991; Muehling 1987). Because these two perceptions are negatively correlated to each other (Obermiller and Spangenberg 1998), the each result of the two perceptions was consistent, which implies reliable results of this study. For example, the results of the overall data, ad skepticism, and attitude toward advertising in general suggest that advertisers generally do not need to worry about the different ad lengths of online video ads. Therefore, advertisers can predict consumers' preferences in terms of different levels of ad skepticism and attitude toward advertising in general existed in consumers' mind.

Additionally, the findings of the current study suggests for advertisers and online publishers to look at young consumers' trade-offs between watching ads for free contents and paying for ad free content. Especially, in the current media and advertising environment, the trade-offs between watching ads for free contents and paying for ad free content are prevalent (Herman and Chomsky 1988; Sutter 2002). Although the current study did not include the option for not to watch ads (i.e., 0 ad), it is possible to infer young consumers' tendency of perceptions about the trade-offs by looking at the results. Basically, the results showed that in any situations, consumers prefer to watch fewer ads and want to pay less money to buy membership on video sharing websites to avoid ads.

However, in fact, many consumers do not want to pay money for ads. Therefore, young consumers may be willing to watch online video programs with fewer ads and for free. In this situation, the trade-offs may not work among young consumers for advertisers and online publishers. However, when looking at the results focusing on young consumers who want to pay money to avoid online video ads, interesting observations are found. Overall, there is no trade-offs between watching ads for free online video programs and buying membership on video sharing websites for ad-free online video programs. Even they tend to pay less to watch online video programs with fewer ads. On the other hand, young consumers who are positive to ads tend to understand the trade-offs indicating that they are willing to pay money for fewer ads during watching online video programs. Therefore, these observations of this study suggest that online publishers need to make efforts to clarify and identify the trade-offs on their video sharing websites if they expect the trade-offs as their business strategy. It is possible that if young consumers have enough understanding of the trade-offs, they may be willing to buy membership on their video sharing websites. Also, advertisers and online publishers need to understand the young consumers' perceptions of advertising for the trade-offs.

Limitations and Future Research

Despite important findings and implications for advertising scholars and practitioners, there are several limitations in the current study considering for the future research. First, although this study developed ad choice for advertising based on the impact of choice, the ad choice was examined in a specific context, online video advertising. Therefore, to expand the implications of ad choice, additional research could be conducted in the context other types of advertising. For example, an interstitial ad (i.e.,

a full-page ad that emerges before the actual webpage) is a possible type of advertising to include ad choice. Second, the current study used text-based profile cards with series of choice sets as stimuli. Although text-based profile cards are appropriate stimuli for the choice-based conjoint experiment (Chrzan and Orme 2000; Green and Srinivasan 1990), they are conceptual cards depending on participants' imagination. For more realistic experiments, it would be better to use visual stimuli for online video advertising in that conjoint experiment supports visual stimuli (Green and Srinivasan 1990; Sawtooth Software 2008, 2011). Moreover, it would be better to produce real online video programs including online video ads as stimuli combining the levels of attributes based on the findings of the current study. Conducting experiments with these real stimuli would provide advertising scholars and practitioners with more valid evidence of effective use of online video ads.

Third, to analyze data, counting analysis and logit analysis were adopted. Although they are basic and common data analysis method for choice-based conjoint analysis, these analyses are aggregate level analyses (Hair et al. 2006; Sawtooth Software 2008). Therefore, the findings of this study reflects aggregate model. To analyze data based on individual level, there are other analyses for choice-based conjoint analysis (Hair et al. 2006). For example, CBC/HB module estimates utilities from choice-based conjoint analysis (Howell 2009). CBC/HB module offers HB analysis of main and two-way interaction effects by generating individual utilities, which can be defined as "an individual's subjective preference judgment representing the holistic value or worth of a specific object" (Hair et al. 2006, p. 464), for each level of attributes (Orme 2000; Sawtooth Software 2009). Therefore, future research needs to use more analysis methods

to find further results. Fourth, the findings of the current study include main effects and interaction effects. However, this study more focuses on main effects to understand young consumers' preference of online video ads on video sharing websites. Although the results from counting analysis found interactions effects, logit analysis could not confirm the improvements for all interactions. Thus, future research would improve the current findings by having more interests in interaction effects.

Fifth, although the current study mainly focused on the impact of choice along with ad skepticism and attitude toward advertising in general of the decision-making process of advertising consumption as main theoretical concepts to test online video advertising preference, considering other theoretical frameworks would further benefit the literature. For example, given that consumers' preferences of online video ads on video sharing websites are affected by several attributes such as ad choice and ad length, these attributes can function as motivations that were identified from self-determination theory (SDT) (Deci and Ryan 1985; Ryan and Deci 2000). Basically, SDT assumes that optimal human behavior functioning is influenced by individuals' own motivations to perform a given behavior (Ryan and Deci 2000). SDT categorizes human motivations as autonomous motivation and controlled motivation (Deci and Ryan 1985; Ryan and Deci 2000). Autonomous motivation represents consumers' motivation that connects with volition and self-endorsement of their behavior and it is related to satisfaction of psychological needs (Ryan and Deci 2000). On the other hand, controlled motivation refers to an involuntary motivation related to attaining rewards or avoiding punishments (Deci and Ryan 2008). The attributes related to online video ads can be those motivations to affect consumers' watching of online video ads. Considering that more choices

increase consumers' satisfaction of their decision-making (Anderson 2006; Bown et al. 2003; Reibstein et al. 1975), ad choice may directly or indirectly activate watching online video ads as an autonomous motivation. Also, the trade-offs between watching ads for free content and paying for ad-free content may be related to controlled motivation in that for consumers, watching ads or paying money may be controlled motivations to watch free online video programs. Although this study does not focus on SDT, it is important to understand that the attributes can be motivations to watch or avoid ads. Also, considering the trade-offs between watching ads for free content and paying for ad-free content (Herman and Chomsky 1988; Sutter 2002), literature from media economics would expand the current findings.

In addition, although the current study measured ad skepticism and attitude toward advertising in general in addition to conjoint tasks, they were used simply to categorize participants. In other words, this study did not measure other variables to test causal relationships between variables. Spalding et al. (2009) found that video advertising formats indicated the strongest effects in aided brand awareness and purchase intention. Therefore, future research needs to examine conjoint tasks along with other variables to examine cause-effect relationships among different variables and results of conjoint tasks. Finally, although college students were appropriate target participants in this study in that they are primary users of online video programs on video sharing websites, they do not provide an accurate representation of the population as a whole such as baby boomers or social media moms. In this respect, the findings of this study could be limited to college students or young adult consumers (those age 18–29). Thus, cross-sectional replications of this study using different groups would contribute to generalization of the result.

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APPENDIX A

CONSENT FORM

Background Information and Procedures: In this research you will be asked to participate in a single occasion for extra credit in your class (***limited to classes that instructors agreed to offer) and a drawing of seven $50 Starbucks eGift Cards. The whole survey will take approximately 20 minutes to complete. The purpose of this study is to examine what factors influence college students on watching online video advertising on video sharing websites. You will be asked to answer questions about your preferences and perceptions of online video ads in video sharing websites.

Benefits and Risks of Being in the Study: This study may provide no direct benefit to you, but it may have important implications for scholars. You are not expected to participate in any treatments that would incur the risk of physical or mental injury during your participation in this study. If you do not wish to participate your class instructor will give you another option for equal extra credit.

Confidentiality: All responses will remain anonymous. Data gathered today will be analyzed only in the aggregate so that your name will not be associated with the answers you provide. Information about your name, ID, and participating class will be recorded for sole purposes of verifying your participation to your instructor and will not be attached to your responses. On request, and within these restrictions, results may be made available to you.

Voluntary Nature of the Study: Participation in this study is voluntary, and you may choose not to participate at all, or you may refuse to participate in certain procedures or answer certain questions or discontinue your participation at any time without penalty or loss of benefits. You may also withdraw your consent to participate at any time without penalty.

Contacts and Questions: If you have questions, you may contact Joonghwa Lee (573.999.9322/ jhlk95@mail.missouri.edu).

If you have any questions or concerns regarding your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact - anonymously, if you wish - the Campus IRB office at Campus Institutional Review Board, 483 McReynolds, University of Missouri, Columbia, MO 65211. The web site is available at www.research.missouri.edu/cirb/index.htm and the phone number is 573.882.9585.

Statement of Consent:
I voluntarily agree to participate in this study by pressing the NEXT button:

APPENDIX B

QUESTIONNAIRE

ONLINE VIDEO ADVERTISING PREFERENCES ON VIDEO SHARING WEBSITES

Thank you for participating in this research study.

Choose Your Preference of Online Video Ads on Video Sharing Websites (Please Read Carefully)

All questions in this section pertain to various plans that can possibly be offered today or in the future when watching online video ads on video sharing websites.

Beginning next screen, you will be presented with 10 sets of different plans for watching online video ads on video sharing websites– one set at a time. Each of these sets contains 4 alternative plans for watching online video ads.

Please choose one plan from each set that appeals to you the most, assuming that these are the only plans for watching online video ads on video sharing websites available to you.

If none of the plans in a particular set appeals to you, please check the "none" option.

Note that each of these 10 sets is independent of the other and so, again, please choose one plan from each set assuming those are the only plans available to you.

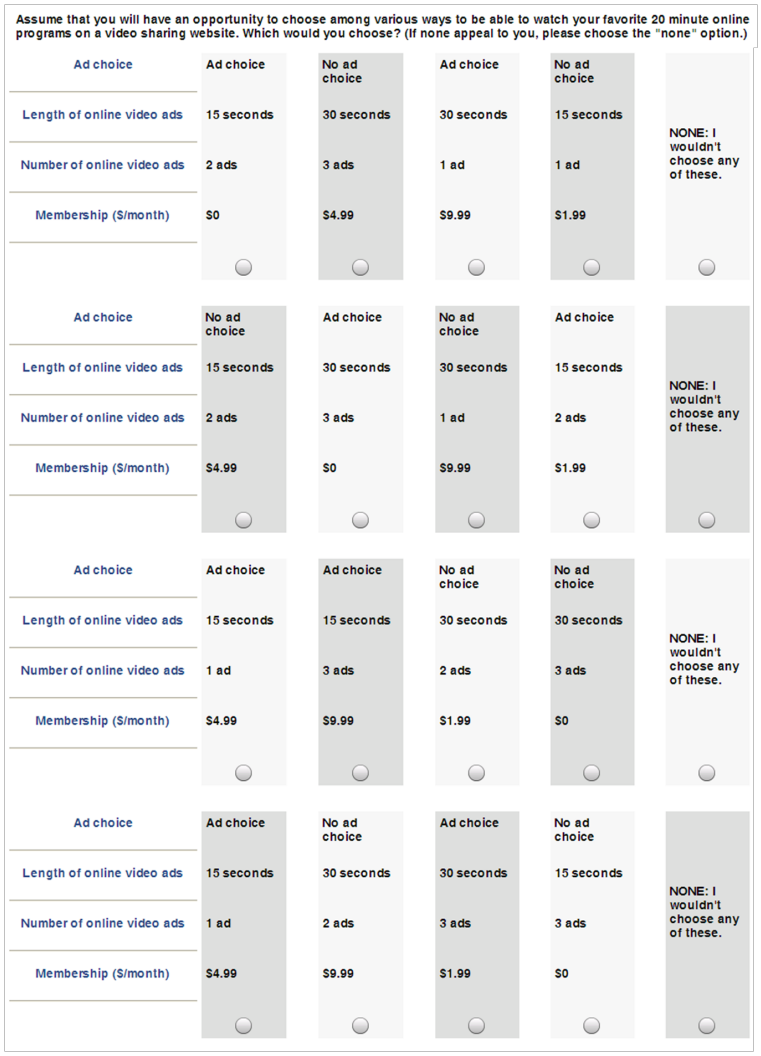
Now, you will be shown a series of choice sets that contain 4 alternative plans for watching online video ads each. Your task is to choose one plan from each set that is most appealing to you. If none of the plans in a set appeals to you then please choose the "none" option for that choice set.

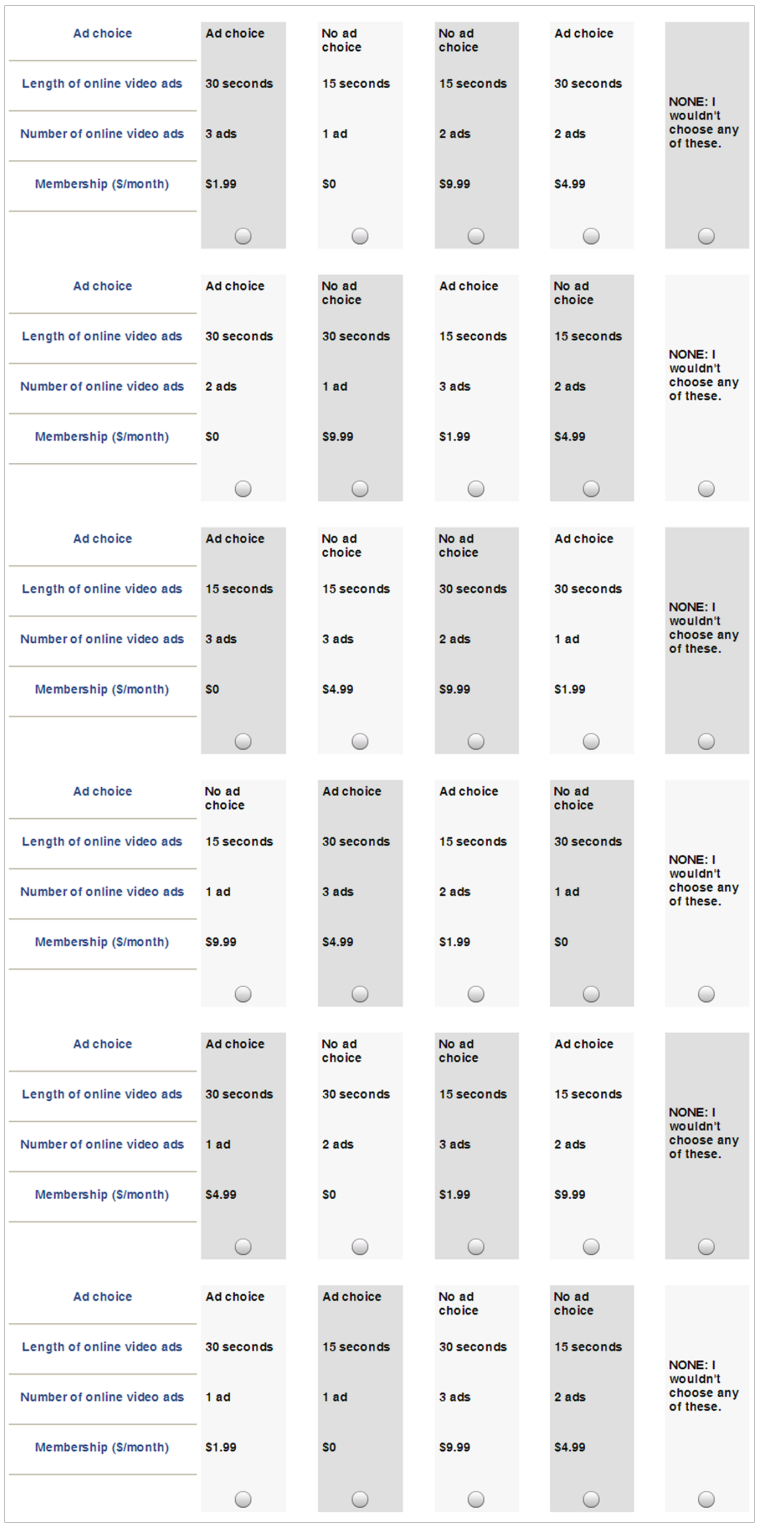
Below, we define the attributes through which you can now or will soon be able to access to watch online video ads.

Attributes	Description
Ad choice	Ad choice refers to the situation that you have alternative ad options that you can choose before watching an online video program. You can click one of them to watch it, and then you can watch ads related to the clicked ad. When an online video program includes ad choice at the

	beginning, it shows “ad choice,” otherwise “no ad choice.”
Length of online video ads	Length of ads reflects how long ads are presented in an online video program.
Number of online video ads	Number of ads reflects how many ads are included in an online video program.
Membership price	Membership (price) refers to a registration on a video sharing website by paying a certain amount of money.

For example, a plan option shown to you could be one that includes: “*online video program has Ad choice; the length of online video ads is 15 seconds; number of ads in the online video program is 1 ad; and I am willing to pay $1.99 per month to watch online video programs on a video sharing website*.” Another plan might offer you “*online video program has No ad choice; the length of online video ads is 30 seconds; number of ads in the online video program is 2 ads; and I am willing to pay $4.99 per month to watch online video programs on a video sharing websites*” and so on.





Ad choice	Ad choice	No ad choice	No ad choice	Ad choice	
Length of online video ads	30 seconds	15 seconds	15 seconds	30 seconds	NONE: I wouldn't choose any of these.
Number of online video ads	3 ads	1 ad	2 ads	2 ads	
Membership ($/month)	$1.99	$0	$9.99	$4.99	

Ad choice	Ad choice	No ad choice	Ad choice	No ad choice	
Length of online video ads	30 seconds	30 seconds	15 seconds	15 seconds	NONE: I wouldn't choose any of these.
Number of online video ads	2 ads	1 ad	3 ads	2 ads	
Membership ($/month)	$0	$9.99	$1.99	$4.99	

Ad choice	Ad choice	No ad choice	No ad choice	Ad choice	
Length of online video ads	15 seconds	15 seconds	30 seconds	30 seconds	NONE: I wouldn't choose any of these.
Number of online video ads	3 ads	3 ads	2 ads	1 ad	
Membership ($/month)	$0	$4.99	$9.99	$1.99	

Ad choice	No ad choice	Ad choice	Ad choice	No ad choice	
Length of online video ads	15 seconds	30 seconds	15 seconds	30 seconds	NONE: I wouldn't choose any of these.
Number of online video ads	1 ad	3 ads	2 ads	1 ad	
Membership ($/month)	$9.99	$4.99	$1.99	$0	

Ad choice	Ad choice	No ad choice	No ad choice	Ad choice	
Length of online video ads	30 seconds	30 seconds	15 seconds	15 seconds	NONE: I wouldn't choose any of these.
Number of online video ads	1 ad	2 ads	3 ads	2 ads	
Membership ($/month)	$4.99	$0	$1.99	$9.99	

Ad choice	Ad choice	Ad choice	No ad choice	No ad choice	
Length of online video ads	30 seconds	15 seconds	30 seconds	15 seconds	NONE: I wouldn't choose any of these.
Number of online video ads	1 ad	1 ad	3 ads	2 ads	
Membership ($/month)	$1.99	$0	$9.99	$4.99	

Considering again the four attributes that are or will soon be available for watching online video ads on video sharing websites, we would like to know how important watching online video ads on video sharing websites via these attributes is to you.

Assume that you have 100 points available. Please allocate these points to the four attributes in terms of their *relative importance* to you. If you wish, you may allocate zero points to one or more attributes, but the total should sum to 100.

1. Ad choice ( )
2. Length of online video ads ( )
3. Number of online video ads ( )
4. Paying for online videos on video sharing websites (membership) ( )

Total ( )

Now, please rate how attractive each of the options for watching online video ads is to you on a scale of 1 (Not at all attractive) to 9 (Very attractive):

1. The online video program has *ad choice*.
2. The online video program has *no ad choice*.
3. The length of online video ads is *15 seconds*.
4. The length of online video ads is *30 seconds*.
5. The number of online video ads in the online video is *1 ad*.
6. The number of online video ads in the online video is *2 ads*.
7. The number of online video ads in the online video is *3 ads*.
8. I am willing to pay *$0/month* to watch the online video program.
9. I am willing to pay *$1.99/month* to watch the online video program.
10. I am willing to pay *$4.99/month* to watch the online video program.
11. I am willing to pay *$9.99/month* to watch the online video program.

Please read each question carefully and answer it to the best of your ability. There are no correct or incorrect responses; we are merely interested in your personal point of view.

Please answer each of the following questions by clicking the number that best describes your opinion. Some of the questions may appear to be similar, but they do address somewhat different issues.

1. We can depend on getting truth in most advertising.
strongly disagree :__1__:__2__:___3__:___4__:___5__:___6__:___7__: strongly agree

2. Advertising's aim is to inform the consumer.
strongly disagree :__1__:__2__:___3__:___4__:___5__:___6__:___7__: strongly agree

3. I believe advertising is informative.
strongly disagree :__1__:__2__:___3__:___4__:___5__:___6__:___7__: strongly agree

4. Advertising is generally truthful.

strongly disagree :__1__:__2__:___3__:___4__:___5__:___6__:___7__: strongly agree

5. Advertising is a reliable source of information about the quality and performance of products.
strongly disagree :__1__:__2__:___3__:___4__:___5__:___6__:___7__: strongly agree

6. Advertising is truth well told.
strongly disagree :__1__:__2__:___3__:___4__:___5__:___6__:___7__: strongly agree

7. In general, advertising presents a true picture of the product being advertised.
strongly disagree :__1__:__2__:___3__:___4__:___5__:___6__:___7__: strongly agree

8. I feel I've been accurately informed after viewing most advertisements.
strongly disagree :__1__:__2__:___3__:___4__:___5__:___6__:___7__: strongly agree

9. Most advertising provides consumers with essential information.
strongly disagree :__1__:__2__:___3__:___4__:___5__:___6__:___7__: strongly agree

10. The following items assess your **attitude toward advertising in general.** Please clic k the number that best describes your opinion for each item. Some items might seem simi lar; however no two items are exactly alike so be sure to click one number for each state ment.

Advertising (is)…

unfavorable	1 - - 2 - - 3 - - 4 - - 5 - - 6 - - 7	favorable
boring	1 - - 2 - - 3 - - 4 - - 5 - - 6 - - 7	interesting
dislike very much	1 - - 2 - - 3 - - 4 - - 5 - - 6 - - 7	like very much
irritating	1 - - 2 - - 3 - - 4 - - 5 - - 6 - - 7	not irritating
doesn't hold attention	1 - - 2 - - 3 - - 4 - - 5 - - 6 - - 7	holds attention
bad	1 - - 2 - - 3 - - 4 - - 5 - - 6 - - 7	good
negative	1 - - 2 - - 3 - - 4 - - 5 - - 6 - - 7	positive

11. Have you ever watched *online video advertising? (yes/no)
*Online video advertising is advertising that may appear before, during, and after an online video content.

12. Do you presently pay to subscribe any company (e.g., Hulu.com) to watch online vide o programs? (If you answer "Yes," please write the company's name.)
(yes _____/no)

13. In the **past 3 months**, how often have you watched online videos (e.g., TV shows, TV episodes, or TV clips)?

Never 1 2 3 4 5 6 7 Quite Often

14. In the **past 3 months**, how often have you watched online videos (e.g., TV shows, TV episodes, or TV clips)?

1) Never
2) Less than once a month
3) Once a month
4) Several times a month
5) Once a week
6) Several times a week
7) Daily

15. How much are you willing to pay per month for watching online video programs on v ideo sharing websites with advertisements? (for example, $x.xx)

$_____/month

16. How much are you willing to pay per month for watching online video programs on v ideo sharing websites without advertisements? (for example, $x.xx)

$_____/month

17. Please indicate your gender. (female/ male)

18. How old are you? _____ years old

19. What is your year in college?

1) Freshman
2) Sophomore
3) Junior
4) Senior
5) Graduate
6) Other _____

20. How do you describe yourself?

1) American Indian or Alaska native
2) African American
3) Asian
4) Caucasian
5) Hispanic or Latino
6) Native Hawaiian or Other Pacific Islander
7) Other

21. What is your major? _____

The following information will be used for the extra credit (***limited to classes that inst

ructors agreed to offer) or a drawing of one of seven $50 Starbucks eGift Cards purpose o nly. When you win the drawing, you will receive the $50 Starbucks eGift Card through y our email.

1. Please type your student ID. _____

2. Please type your email address. _____

3. Please type your full name. _____

4. Please type the course number that you're receiving an extra credit for (if not applicable, please type “NA”). _____

Thank you for your participation!

APPENDIX C

SAS CODE AND OUTPUT OF EXPERIMENTAL DESIGN

SAS Code: %mktruns(2 2 3 4)
Output:

Design Summary

Number of Levels	Frequency
2	2
3	1
4	1

Saturated = 8
Full Factorial = 48

Some Reasonable Design Sizes	Violations	Cannot Be Divided By
24 *	0	
48 *	0	
12	2	8
36	2	8
8 S	4	3 6 12
16	4	3 6 12
32	4	3 6 12
40	4	3

* - 100% Efficient design can be made with the MktEx macro.
S - Saturated Design - The smallest design that can be made.

SAS Code: %mktex(2 2 3 4, n=8, seed=17)
Output:

The OPTEX Procedure

Design Efficiencies with a Saturated Design (n=8)

Design Number	D-Efficiency	A-Efficiency	G-Efficiency	Average Prediction Standard Error
1	89.7735	75.0000	100.0000	1.0000

VITA

Joonghwa Lee was born March 11, 1977, in Seoul, Korea, to Daewoo Lee and Hyangsun Kim. Prior to completing his Ph.D. in Journalism with an emphasis on Advertising at University of Missouri in 2012, he received his B.A. in Advertising from Kookmin University in Seoul, Korea in 2005. Then, he did his graduate work for a year at Kookmin University. In the summer of 2006, he relocated to the U.S. to pursue his academic goals. In 2008, he received his M.A. in Advertising with a specialty in interactive and non-traditional advertising from Michigan State University. He is currently a faculty member at the School of Journalism, Middle Tennessee State University, Murfreesboro, Tennessee.