

EFFECTS OF UNDESIRED ONLINE VIDEO ADVERTISING CHOICE ON USER BEHAVIOR AND ATTITUDE

Research-in-Progress

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Abstract

Although online video advertising is currently a pervasive medium, its effectiveness is still in great doubt. This study examines the effects of undesired choice on user behavior and attitude in the context of online video advertising. We propose that offering people a choice of video advertisements will motivate them into paying more attention to the chosen advertisement, which in turn leads to better memory of the information contained in the advertisement. Additionally, the choosing behavior will encourage viewers to form a favorable attitude towards the chosen video advertisement and their purchase intention towards the advertised product will also be enhanced. We posit that differentiability of choice-set is able to moderate the choice effect. This work is one of the first to investigate the impact of making an undesired choice regarding video advertisements. It extends our understanding of the impact of choice and presents significant implications for both researchers and practitioners.

Keywords: Undesired Choice, Online Video Advertising, Attention, Attitude towards Advertising

Introduction

Online advertising has rapidly become a major source of revenue for websites. Accordingly, video advertising, among various online advertising media, is gaining dominance. According to comScore (2012), Americans viewed 7.5 billion video advertisements in February, 2012 and the total time spent watching these advertisements was nearly 3.2 billion minutes. In addition, video advertising was found to outperform other modes of online advertising in many aspects, such as awareness, click through rate, brand favorability, purchase intention afterwards, etc (Cole et al. 2009). Based on the needs of advertisers and website characteristics, video advertising manifests as different formats. For example, on a portal website, a video advertisement may be displayed beside the main content of news bulletins, while on a video-watching website, a video advertisement may be presented before a video clip is shown. In our study, of particular interest is the latter format, i.e., compulsory video advertising inserted before a target video clip¹. Imagine that you are browsing an online video website, such as Youtube. In such a scenario, rather than viewing the selected video clip immediately, a video advertisement is automatically played and one has to watch the entire advertisement before viewing the selected video clip. Although it is a common present-day advertising strategy, it is generally perceived as ineffective. First, the presenting of this compulsory video before a target video is considered as intrusive and irrelevant. Brehm (1966) suggested that forced exposure to online video advertisements deprives the viewers of the opportunity of choosing not to watch such advertisements. Consequently, viewers will lapse into a state of reactance arousal which would drive them to switch their attention elsewhere to regain their freedom. Second, annoying online video advertisements often disrupt viewers' viewing experience, which will in turn result in the creation of an unfavorable attitude towards the advertisements (Brehm 1966; Brehm and Brehm 1981). Moreover, consequent to becoming rather familiar with this irritating advertising strategy, viewers have become adept at avoiding them by switching their attention to other stimuli and returning to the target video when the video advertisement has run its course. Therefore, although online video advertising is currently a pervasive medium, its effectiveness remains a serious issue for both advertisers and researchers.

Extant advertising research has investigated various factors that might affect the effectiveness of online video advertising, such as the characteristics of the advertisements, contextual features, recipients' characteristics, etc. However, few studies have viewed the issue from the perspective of human-computer interactions. More specifically, how interactive technologies can help improve the effectiveness of online video advertising has not been well explored. In IS literature, consumer choice has long been the focus of many studies, with however most of them focusing on the determinants (e.g., perceived usefulness of a product, attitude towards a product, normative influence, etc) and scant attention has been devoted to the impact of choice per se. The only known exception is the recent work by Murray and Häubl (2011) who studied the effects of freedom of choice on the formation of interface preferences. In their study, two potential theoretical perspectives were examined to explain the effects of freedom of choice on users' interface preferences, i.e., the human capital model and the theory of psychological reactance. The results showed significant support for the second perspective, which posits that the initial freedom of choice is positively related to the preference for the incumbent interface and this relationship is fully mediated by the incumbent interface's perceived ease of use and not the task completion time.

Motivated by both the importance of improving the effectiveness of online video advertising and the scarcity of research on this perspective, the current study aims to examine the effects of choice on users' behavior and attitude. Specifically, we argue for the potential positive effects of making an undesired choice, i.e., the choice options are not desired by users. We address this question in the context of online video websites: rather than intrusively playing a video advertisement to viewers or equipping them with a privilege to skip the video advertisement, we offer viewers a video-advertisement choice-set. For example, viewers are offered three video advertisements on Motorola, Nokia, and Samsung (see Figure 1), and asked to choose one of them to watch prior to watching their selected video clip. Although the viewing of video advertisements is neither desired nor of interest to viewers, we propose that the option of choice would indeed be beneficial. Specifically, in this study we aim to address the following two questions: (1) How might this opportunity to make a choice among undesired options affect viewers' *attention* and *memory* towards a video advertisement? (2) How might such a choice affect viewers' *attitude* toward the

¹ The term "online video advertising" specifically refers to this form of video advertising for the rest of the paper.

video advertisement and their *willingness to purchase* the advertised product?



The rest of the paper is organized as follows. In the next section, we review prior work on the provision of choice. In addition, we discuss two relevant theories in detail. Next, we develop our research hypotheses under our proposed theoretical framework. We conclude with methodological strategies and a general discussion on the potential contribution of our work.

Literature Review

The Effects of Choice

People make choices daily and it is such choices that defines a human being and shapes lives. Choice has been perceived as representative of freedom which implies the ability to choose from a set of options. Plenty of research has been undertaken in investigating the impact of choice on people's feelings, beliefs, and behaviors (see Patall et al. 2008 for a summary). At the same time, the action of choice making per se has psychological consequences (Laczniak et al. 1989), such as replenishment, satisfaction, depletion, regret, etc. Brehm and Brehm (1981) argued that having to make a choice in and of itself can be energizing.

The consistent beneficial effects associated with the provision of choice have been confirmed by researchers (Iyengar and Lepper 2000). For instance, Iyengar and Lepper (1999) found that improved performance resulted from choice: students who chose their tasks did better than those who were assigned tasks. In fact, the choice options need not be instructionally relevant for the enhancement of intrinsic motivation and task performance. According to Cordova and Lepper (1996), even the provision of instructionally incidental choices, i.e., choice of icons for a space vehicle and an alien, could substantially increase children's intrinsic motivation as well as their learning effort. Moreover, choice keeps its beneficial effects when it appears illusory (Detweiler et al. 1996; Langer 1975) and choosing behavior is undesirable (Zimbardo et al. 1965). When asked to eat fried grasshoppers, subjects perceived such behavior as less unpleasant, as long as they believed they had chosen to undertake it (Zimbardo et al. 1965).

Choice is also found to be a crucial variable in introducing a sense of control (Taylor 1989; Taylor and Brown 1988), even though such a sense might be illusory (Langer 1975). As individuals naturally desire control over their lives, the enhanced perception of control, brought on by the provision of choice, is able to reduce anxiety (Stotland and Blumenthal 1964), to decrease aversiveness of threatening events (Corah and Boffa 1970; Staub et al. 1971), and to increase confidence and risk taking (Langer et al. 1975), etc. Lefcourt's (1973) conclusion that "the sense of control, the illusion that one can exercise personal choice, has a definite and positive role in sustaining life," underscores the importance of our line of research.

Although much research has focused on claiming the beneficial effects of choice, there is general consensus among choice researchers that the positive impact of choice is not universal (e.g., Baumeister et

al. 2008; Iyengar and Lepper 1999; Iyengar and Lepper 2000; Muraven and Baumeister 2000). Prior research has shown that the impact of choice depends on the composition of choice-set. For instance, the number of choice options is one factor that has received great research attention. A choice-set with excessive options, on the one hand, is found by researchers to cause confusion and result in inefficiency (Settle and Golden 1974). It could also undermine consumers' subsequent satisfaction with the chosen product and future purchase intention (Iyengar and Lepper 2000). On the other hand, if fewer options are presented, individuals may not feel they are given the autonomy provided by choice so that its positive effect appears to be unpronounced. Three to five options within one choice are suggested as optimal (Patall et al. 2008). In addition, the type of choice options affects people's motivation and performance as well (Patall et al. 2008): choice-set with complex options requires more cognitive effort to process option information. Consequently, its impact may be detrimental, compared to a choice-set with less effortful options. Based on the literature, we deem it important to take the composition of a choice-set into consideration when we claim the effects of choice.

Next, we discuss two theories in detail, i.e., the self-determination theory and the cognitive dissonance theory, both of which emphasize the importance of choice to individuals.

Self-determination Theory

The self-determination theory is an approach to understanding human motivation and personality that highlights the importance of humans' inner psychological resources. Three basic psychological needs are proposed that are deemed essential to the growth, integrity and well-being of human beings, i.e., the need for competence, the need for relatedness, and the need for autonomy (Deci 1980; Deci and Ryan 1985; Ryan and Deci 2000).

In a series of related studies, Deci and his colleagues satisfied participants' need for autonomy by the provision of choice, and demonstrated the motivational effects of this provision (e.g., Deci 1980; Deci and Ryan 1985). The results showed that people were more intrinsically motivated towards an activity if the activity involved personal choice. According to the explanation given by Deci et al., people constantly seek to exercise and validate a sense of control over their external environment and as a consequence, they will be more engaged in and be more persistent regarding activities that meet their need for autonomy (Deci 1971; Deci 1975; Deci 1980; Deci and Ryan 1985; Deci and Ryan 1991). In another study, Zuckerman et al. (1978) compared participants' intrinsic motivation across two groups; participants in one group were asked to choose one of six puzzles for themselves, while participants in another group were simply told by the experimenter which puzzle they were to undertake. Results confirmed the positive effect of choice on enhancing participants' intrinsic motivation and task performance across a variety of tasks.

Therefore, according to the self-determination theory, as long as people perceive themselves to be the origin or source of their own behavior, i.e., their need for autonomy is satisfied, they will intrinsically generate greater willingness to concentrate on a specific activity.

Cognitive Dissonance Theory

Festinger's theory of cognitive dissonance (1957) has been one of the most popular theories in the research field of psychology over the past 55 years. Its core principle is quite simple: dissonance is a negative drive state which occurs whenever an individual holds two inconsistent cognitions simultaneously, e.g., ideas, beliefs, opinions and values (Aronson 1969). As the perception of dissonance is unpleasant, people tend to engage in a "dissonance reduction" process by altering one or both cognitions to make them "fit together" better. A classic example is provided by Festinger (1957): a smoker experiences dissonance when s/he knows smoking causes lung cancer. S/he would either stop smoking or change his or her belief to be less absurd, e.g., the conclusion is based on clinical data rather than experimental data or a few smokers become ill. With either approach, the smoker could reduce dissonance to make himself or herself appear consistent.

Brehm (1956) made the first step in associating the cognitive dissonance theory with the effects of choice. In his experiment, subjects were asked to make a choice between two alternatives which had been previously evaluated. His finding suggested that individuals tended to increase their favorableness towards the chosen option while degrading the evaluation of the unchosen option, after making a choice.

The explanation is straightforward according to the cognitive dissonance theory: following a difficult decision, there are always attributes of the rejected options that one finds appealing and these features are dissonant with not having chosen them. At the same time, the negative attributes of the chosen option are dissonant with having chosen it. Therefore, people emphasize the positive aspects and deemphasize the negative aspects of the chosen option while emphasizing the negative aspects and devaluing the positive aspects of the unchosen options in order to be consistent with their decision (Aronson 1969; Festinger 1964). Similar results have also been indicated by recent research (e.g., Egan et al. 2010).

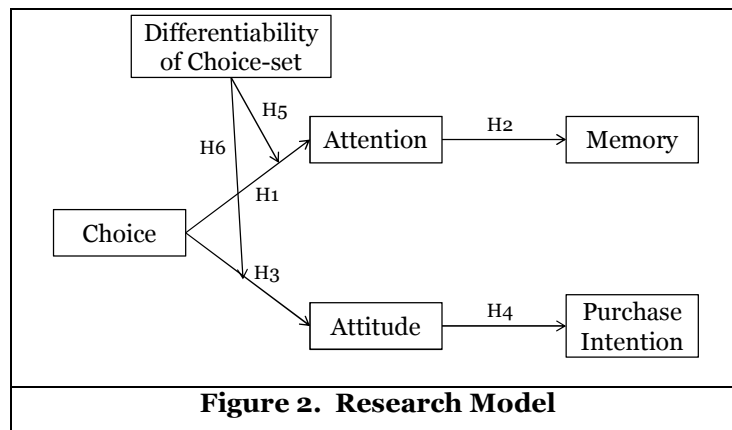
The cognitive dissonance theory has been applied to various domains to explain human behavior and attitudes, e.g., education (Aronson 1995; Lepper and Greene 1975), therapy (Axsom and Cooper 1985; Cooper 2007), marketing (Gbadamosi 2009), etc. For example, by making subjects feel hypocritical about their showering habits, Dickerson et al. (1992) aroused dissonance in subjects, thereby motivating them to conserve water. However, few studies have applied the cognitive dissonance theory to enhance people's attitudes towards undesired choice options, especially in the context of online video advertising, which is the research gap we intend to fill in with our current study.

In summary, both of the self-determination and cognitive dissonance theories emphasize the positive effects of choice. On the one hand, the self-determination theory suggests that the provision of choice is able to enhance people's intrinsic motivation. The cognitive dissonance theory, on the other hand, claims that choice making enables improvement in people's attitude towards the chosen option. Based on these findings, we expect that the provision of video advertisement choice would (1) engage people into the persuasion process, and (2) facilitate the attribution of people's choice decisions as favorable attitudes. In the next section, we develop our research hypotheses based on the implications of prior literature.

Hypotheses Development

Choice and Attention

In the context of online video advertising, attracting people's attention is critical in determining the effectiveness of a video advertisement. According to Sandage (1945), the first function of an advertisement is to attract attention. Without visual attention, it is quite difficult, if not impossible, for the video advertisement to convey information and persuade consumers to make a purchase. As previously mentioned, people naturally are in the habit of avoiding online video advertisements (Goodrich et al. 2011), especially when it interrupts their viewing experiences. As a result, the lack of attention has significantly weakened the ability of video advertisements to impress people with product relevant information. How to attract and maintain people's attention is a challenging issue that advertisers and website designers have long been facing.



Notes: Attention: attention duration on the video ad; Memory: memory of the information contained in the video ad; Attitude: attitude towards the video ad; Purchase Intention: purchase intention of the advertised product.

Attention, as recognized by researchers, is closely associated with people's motivations (e.g., Batra and Ray 1986b; Celsi and Olson 1988). With higher motivation, it is more likely for people to allocate greater cognitive resources and exert more energy in their cognitive behaviors, e.g., attention (Celsi and Olson 1988). Satisfying people's need for autonomy, choice acts as a powerful motivator. Prior research has proved that being able to make a choice endows people with a sense of control (e.g., Taylor 1989; Taylor and Brown 1988). This enhanced perception of control would, according to the self-determination theory, result in people's greater intrinsic motivation to participate in a specific task. For example, it is shown that consumers who have the control to shape the composition of the choice set will experience greater empowerment, which leads to increased motivation (Wathieu et al. 2002).

Applying the self-determination theory (Deci 1980; Deci and Ryan 1985) and studies on perceived control (e.g., Langer 1975; Taylor 1989) to the context of online video advertising, and in contrast to making a choice from alternatives that can be instrumental or attractive, we present a choice set which includes alternatives (e.g. advertisements) that users usually wish to avoid. We expect that, even though the options are undesirable, the provision of choice would still motivate people to watch their chosen advertisement so that more attention will be paid. In contrast, people who are not presented with any choice, i.e., those who are exposed to video advertisements passively, would be demotivated by the elimination of autonomy and less attention should be expected of them. Hence, we hypothesize:

H1: Individuals who are provided with a video advertisement choice will pay more attention to the video advertisement, compared to those who are not given any choice and are passively exposed to the video advertisement.

Advertisements that fail to attract attention cannot be effective, however, attention in itself is insufficient: advertising needs to be memorable (Wedel and Pieters 2000). Actually, in the research field of advertising, consumers' recall of advertisement information is believed to be one of the most important measurements for the advertisement's effectiveness. In both the marketing and psychology research fields, memory is thought to be closely related to attention: it allows for more elaboration and strengthening of information in memory (e.g., Chun and Turk-Browne 2007; Pieters et al. 2002). On their part, Wedel and Pieters (2000) found that eye fixation is important in building brand memory. In addition, William James (1890) claimed in the remote past that 'we cannot deny that an object once attended to will remain in the memory, while one inattentively allowed to pass will leave no traces behind'. In other words, attention duration is necessary for information to be stored in one's memory. Fully dedicating attention is especially important for learning new information (Dudukovic et al. 2009). Prior studies have shown that attention duration influences recall and recognition performance positively (Fleming and Shekhanian 1972; Intraub 1979; Potter and Levy 1969; Shepard 1967). Therefore, we hypothesize:

H2. Individuals' memory of the video advertisement is positively related to their attention duration on that video advertisement.

Choice and Attitude

People's affective responses to advertising have been of increasing interest to both academics and practitioners. Attitude toward the advertising (A_{ad}) is postulated to be an important mediator in the process through which the advertising influences consumers' product or brand attitudes and future purchase intention. Extant marketing research has identified various antecedents of A_{ad} (e.g., MacKenzie and Lutz 1989), while the impact of user behavior on A_{ad} is seldom investigated, e.g., with respect to making a choice.

It is thought that people's attitude is always predetermined before their behavior, i.e., people behave in the way that coordinates their inner attitude. However, the cognitive dissonance theory suggests that this relationship could be reversed: individuals could change their prior attitudes based on their own behavior (Brehm 1956; Festinger 1957). In the context of online video advertising, people form negative attitudes towards a video advertisement most of the time as it interrupts their video viewing experience. However, when asked to make a choice among these undesired options and to indicate their preferences to one of the options, viewers experience dissonance: their unfavorable A_{ad} is inconsistent with their choosing behavior. It is difficult for viewers to justify their behavior if they hold the belief that they do not like the video advertisement. As a consequence, they have to improve their attitude towards the video advertisement in order to reduce the dissonance. On the contrary, in the absence of choice, viewers are

passively exposed to a video advertisement and they fail to experience any unpleasant dissonance as they did not actively choose to watch the video advertisement of their own accord. Hence, we hypothesize:

H3: Individuals who are provided with a video advertisement choice will adopt a more favorable attitude towards the video advertisement, compared to those who are not presented with any choice and are hence passively exposed to the video advertisement.

A favorable attitude of users is always a target to achieve as it is a crucial indicator of users' subsequent behavior (Ajzen 1991; Ajzen and Fishbein 1980). The behavioral consequences of A_{ad} have been investigated by many researchers. For example, Biehal et al. (1992) found an independent and positive effect of A_{ad} on brand choice as well as an indirect effect through attitude towards a specific brand. In addition, the work by MacKenzie et al. (1986) examined four alternative models and suggested the dual mediation hypothesis model, which argues that A_{ad} influences brand attitude both directly and indirectly through brand cognitions, is superior. Actually, the significant explanation power of A_{ad} has been documented by previous empirical studies (e.g., Batra and Ray 1986a; Gardner 1985; MacKenzie et al. 1986; Mitchell and Olson 1981) and in current research, we also expect a positive impact of individuals' favorable A_{ad} on their purchase intentions. Therefore, we hypothesize:

H4. Individuals' purchase intention of an advertised product is positively related to their attitude towards the video advertisement which presents that product.

Moderator - Differentiability of the Choice-set

Prior studies have identified the composition of a choice-set as an important factor that may alter the effects of choice. As we discussed previously, the number and type of options are suggested to influence choice effect significantly. The relationship among options within one choice-set, however, is seldom investigated. People make choices based on their relative preferences for available options, therefore different relationships among choice options may lead to diverse choice processes and outcomes. Moreover, choice decision and satisfaction with the chosen option are both affected by the fluency of the choosing process so that it is important to identify the situations in which the choosing process is facilitated or inhibited. In this study, we would like to look into the relationship among choice options from the angle of choice-set differentiability, which is defined as the extent to which users perceive the choice options as different from each other in terms of users' relative preferences. According to this definition, a choice-set of high differentiability implies that users prefer one option significantly more than others. On the contrary, a choice-set of low differentiability indicates that users perceive all options as similar in terms of their preferences.

Prior research has verified that when choice alternatives are similar, choosers are less willing to commit to the chosen option, compared to choosers in the condition of differentiated choice options (Dhar 1997). Based on this finding, we argue that, when facing a high differentiability choice-set, users would be more committed to the chosen option due to their stronger preference for it. Consequently, the motivational effect of choice would be enhanced. At the same time, if the choice-set is of low differentiability, it is less likely for users to form a strong commitment to the chosen option as they perceive all choice options as equivalent. In this case, the motivational impact of choice might diminish. In the context of choice-based video advertising, when faced with a video advertisement choice-set of high differentiability, viewers may find one video advertisement apparently better than the others, e.g., more interesting or creative. Then they will be more motivated to watch the advertisement as well as to devote greater attention to it. Alternatively, if after browsing the video advertisement options, people find all video advertisements similar in terms of their preferences, it is probable for them to make a random choice subsequently. In this situation (a low differentiability choice-set), the motivational impact of choice might not be as strong as that in previous condition.

Regarding users' A_{ad} , the moderation effect remains. As we argued previously, the favorable attitude towards the chosen video advertisement is a result of individuals' post hoc justification of their choosing behavior. In the condition of a high differentiability choice-set, it is easy for individuals to justify their choice because they have apparently a stronger preference for the chosen video advertisement. Therefore, we expect the beneficial impact of choice on A_{ad} to increase due to the smooth attribution process. In contrast, the choosing and justification becomes difficult when people face a low differentiability choice-set. Having video advertisement options that are similar in terms of preferences, people will experience

difficulty in making a choice as well as in inferring their attitude. Consequently, the positive effect of choice on attitude is believed to be weakened by the difficult attribution process. Hence, we hypothesize:

H5. The effect of choice on individuals' attention towards their chosen video advertisement would be stronger when the choice-set is more differentiated.

H6. The effect of choice on individuals' attitude towards their chosen video advertisement would be stronger when the choice-set is more differentiated.

Methodology

For the present study, we aim to use a laboratory experiment to test our hypotheses. There are two reasons for applying this methodology. First, it allows us to control the general research environment, while systematically manipulating key interest variables between groups to which participants are randomly assigned. Second, an experiment is best for testing direct casual effects (Fromkin and Streufert 1976).

Experiment Procedure

We will inform participants that this study is about users' online viewing behavior and ask them to view three specified video clips in sequence on our experimental website. A video advertisement will be placed before the last video clip. However, the control group will encounter no choice prior to watching the video advertisement while subjects in the treatment group will be given an opportunity to choose a video advertisement to watch.

The manipulation of the differentiability of the choice-set is a critical issue in our study. A pre-study will be conducted in which we plan to search for pictures representing products/brands² and ask a different group of participants to indicate their preferences on a Likert-type scale for those products/brands. After obtaining average preferences for each product/brand, we intend to use confidence intervals to group the advertisements into choice-sets incorporating three pictures, i.e., a Tukey's "honestly significant differences" test will be applied (Abdi et al. 2009). For choice-sets of high differentiability, people tend to manifest differing desirability among these products/brands while for low differentiability choice-sets, people do not show differing desirability among the three products/brands.

Measurements

The Tobii X60 eye tracker will be applied in this study to capture users' attention to various information on the entire webpage. This monitor-based unit enables participants to move their heads naturally while tracking their eye movements. In this study, the main area of interest (AOI) is the playing window of videos. In the follow-up survey, questions pertaining to users' perceived control, A_{ad} , purchase intention, etc, will be included. As memory should be reflected in the amount of relevant information generated, we examine this by testing whether subjects in the choice group would remember more information about the video advertisement in a free recall and recognition section than those involved in the control group right after the experiment. Day-after recall is also applied to test participants' memory. Participants' demographic information and their experience of Internet usage will be collected finally. In addition to the questionnaire, we will conduct a short interview in which subjects talk about their experiences during the task. This qualitative data would be used as back up for our findings.

Discussion

In this study, we investigate the impact of choice-making among undesired choice options on users' behavior and attitude. Although we have seen considerable research on the determinants of user behavior and attitudes, ours is one of the first studies to investigate the effects of undesired choice options,

² The products or brands are not available in the local market. This enables us to eliminate the impact of individuals' prior knowledge about the products/brands of their preference.

especially in the context of online video advertising. It will extend our understanding of the impact of choice, especially regarding the persuasion literature. In addition, different from prior IS research which mainly has focused on the determinants of users' choice, this study emphasizes the impact of the choice per se. It is an important complement to the scarce research in this stream. Lastly, by considering the characteristics of choice-sets, we identify the situations in which the impact of choice could be moderated by its composition. This helps to further confirm the prior knowledge that the beneficial impact of choice is not universal.

The practical importance of this work is obvious. Witnessing the growing spending on online video advertising, advertisers remain concerned about its effectiveness. By providing the opportunity of choosing an advertisement to view, we could motivate viewers into devoting more attention to and having better memory of video advertisements. More importantly, an unfavorable A_{ad} is always seen as a critical defect of online video advertising strategies. By adding a tricky step, i.e., asking viewers to choose an advertisement for themselves, we could expect the enhancement of users' A_{ad} as well as their enhanced purchase intention of the advertised product. Last but not least, this study puts forward a solution on how to efficiently take advantage of choice-based video advertisements, i.e., differentiating one advertisement option from others. The more people like the representative of your advertisement than the representatives of other advertisements, the greater will be the beneficial impact of choice.

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