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ABSTRACT

This research-in-progress intends to investigate the characteristics of online advertisements and online videos in the online video websites. Specifically, we investigate how advertisements with different types and sizes can cause online users to perceive the advertisements to be intrusive and lead them to closing the advertisements. Based on the psychological reactance theory, we theorize how the interactivity of online videos can strengthen the effects of perceived intrusiveness of advertisements. We will conduct an experiment to test the hypotheses and evaluate the proposed research model. This study intends to contribute to the human-computer interaction literature by investigating how advertisements' characteristics can interact and jointly influence online users' perception of advertisements in the online video websites. Moreover, it intends to contribute to the digital advertising literature by studying the aversive effects of advertisements in the specific context of online video websites.

Keywords

Interactivity of videos, online advertisements, online video websites, psychological reactance theory, YouTube.

INTRODUCTION

Since Google acquired YouTube for USD 1.6 billion in 2006, whether and how the online video websites can generate profits have attracted the attention of industry practitioners and academic researchers. The revenue source, i.e., digital video advertising, have been increasing in the past years from USD 1 billion in 2009 to USD 4.9 billion in 2016 (IAB 2017). According to Interactive Advertising Bureau (IAB 2017), digital video advertising refers to the advertisements that appear before, during, or after digital video content in an online video (i.e., pre-roll, mid-roll, post-roll video advertisements). Digital video advertising also refers to the in-video overlay advertisements that appear over part of the digital video content. Figure 1 shows examples of an in-video overlay advertisement (on the left) and a display advertisement (on the right). It is possible for online users to close an advertisement by clicking on the "x" sign at the top right corner of the advertisement at any time.

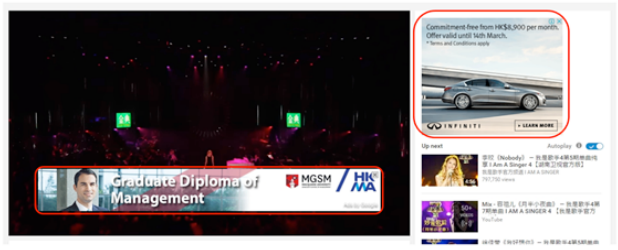

Figure 1. Examples of Advertisements in YouTube

Due to the growing trend of digital video advertising (or commonly referred to as online video advertising), researchers have started to investigate how to improve the effectiveness of digital video advertising. Goodrich, Schiller and Galletta (2011; 2015) investigated the impacts of characteristics of pre-roll video advertisements, i.e., the advertisements that appear before the online video content, on perceived intrusiveness of advertisements and subsequent marketing outcomes. They found that longer, informative, and humorous video advertisements were perceived as less intrusive. The intrusive advertisements were found to negatively affect online users' attitudes toward both the advertised brand and the host website. Luo, Jiang and Yi (2012) proposed that providing online users with a video advertisement choice would lead to better memory performance of the advertisement and more favourable attitudes toward the advertisement. While these studies enhanced our understanding of digital video advertising, they have mainly focused on the pre-roll, mid-roll, and post-roll video advertisements. There is very little research on the effectiveness of in-video overlay advertisements. Different from the pre-roll, mid-roll and post-roll video advertisements that occupy the whole video area which prevents online users from viewing the online videos, in-video overlay advertisements only occupy a small part of the video area.

Digital video advertising is believed to have several advantages over the traditional display-related advertising (e.g., banner advertisements), including higher click-through rate, better brand favourability and purchase intention (Cole, Spalding and Fayer, 2009). While it still remains an issue to motivate online users to look at the

display advertisements (Ghose and Todri-Adamopoulos, 2016) or even click on these display advertisements (Li, Lin and Chiu, 2014), the traditional display-related advertising (e.g., banner advertisements) play a key role in Internet advertising, including advertising on the online video websites. The Interactive Advertising Bureau (IAB 2017) reported that display-related advertising generated USD 8.7 billion and digital video advertising generated USD 4.9 billion in 2016. Even the most popular online video website, YouTube, allows its advertising clients to place display advertisements. A display advertisement is typically next to the online video (see Figure 1).

There are two distinct features that distinguish the in-video overlay advertisements and the display advertisements from the pre-roll/mid-roll/post-roll video advertisements. The in-video overlay advertisements and the display advertisements do not interrupt online users' viewing of online videos. In addition, online users can close these two types of advertisements at any time. These two differences make it possible that online users may not exhibit similar responses to the in-video overlay advertisements and the display advertisements, compared with the pre-roll/mid-roll/post-roll video advertisements. An objective of this study is to investigate online users' aversive responses to in-video overlay advertisements and display advertisements in the context of online video websites. By complementing prior studies that mainly focused on the pre-roll, mid-roll and post-roll video advertisements, this study intends to enhanced our understanding of advertising on the online video websites. To extend the contribution, we leverage on the psychological reactance theory and take a further step to theorize on how the aversive responses will be more prominent when the online video is interactive than when the online video is non-interactive. In this research, we aim to address the following two questions:

- How will online users respond aversively to online advertisements with different types and sizes in the online video websites?
- How will the interactivity of online videos influence online users' aversive responses?

The rest of the paper is organized as follows. In the next section we discuss the theoretical background, followed by the development of hypotheses. Next, we discuss the proposed research methodology. We conclude with a general discussion on the expected contributions of this research.

THEORY AND HYPOTHESES DEVELOPMENT

Advertisement Characteristics and Perceived Intrusiveness

In this paper, we focus on two characteristics of advertisements, i.e., type (in-video overlay advertisement vs. display advertisement) and size (small vs. large). We investigate how these two characteristics and their interactions influence online users' perception of advertisement intrusiveness. Morimoto and Chang (2006) defined perceived advertisement intrusiveness as "the degree to which an unwanted marketing communication interferes with an individual's cognitive process and tasks, as well as the interference with media contents …" in the context of email and direct mail marketing. In the context of online video websites, we define perceived advertisement intrusiveness to be the degree to which an online advertisement interferes with the content of online video and online user's video viewing activity. Compared with a display advertisement, we expect that an in-video overlay advertisement induces stronger perceived advertisement intrusiveness. The display advertisement is presented in a separate region from the online video. Even though the display advertisement may distract online users from the content of online video, the display advertisement does not interfere with the content of the online video by blocking partially the online video. In contrast, the in-video overlay advertisement that blocks certain part of an online video will interfere with the content of the online video and prevent online users from viewing the complete content of the online video. Thus, we propose the following hypothesis:

H1: The perceived advertisement intrusiveness is higher for the in-video overlay advertisement than the display advertisement.

We propose that the size of an online advertisement strengthens the relationship between advertisement type (in-video overlay advertisement vs. display advertisement) and perceived advertisement intrusiveness. Even though the increase in size for both in-video overlay advertisement and display advertisement will make it easier for online users to notice the advertisement and to be distracted by the advertisement, an increase in size of the in-video overlay advertisement implies that a greater part of the online video is blocked. Blocking a greater part of the online video will lead to greater interference with the content of the online video and online user's video viewing activity. Hence, we hypothesize:

H2: Advertisement size will strengthen the relationship between advertisement type and perceived advertisement intrusiveness.

Psychological Reactance Theory and Interactivity of Online Video

Psychological reactance theory proposes that when people perceive their freedom to be threatened, they will have a psychological reactance in response to the threat and intend to restore their freedom (Brehm and Brehm, 1981). Psychological reactance theory consists of four important elements: perceived freedom, threat to freedom, reactance, and restoration of freedom. People with high perceived freedom believe that they can freely perform a behaviour (behavioural freedom), and express their emotions (emotional freedom) and attitudes (attitudinal freedom). Threat to freedom refers to the factors that

impose limitations on their behavioural freedom, emotional freedom, and attitudinal freedom. Reactance is a motivational reaction to the threat of freedom so as to restore or regain the freedom.

In the context of online video websites, online users enjoy the freedom to view online videos in which they are interested. The presence of a display advertisement that is next to the online video and the presence of an in-video overlay advertisement that is on top of the online video could be regarded as threats to their freedom. Both the display advertisement and in-video overlay advertisement could possibly distract them from concentrating on the content of online videos. The in-video overlay advertisement even blocks certain part of the online video. We propose that online users' regard of an advertisement as a threat to their freedom is manifested as the perceived intrusiveness of the advertisement. When online users perceive an advertisement to be intrusive and limiting their freedom to view the online video, reactance is formed so as to remove the threat to freedom and to regain the freedom. An effective and available way for online users to remove the threat to freedom (i.e., the advertisement) is to close the advertisement by clicking on the "x" sign at the top right corner of the advertisement. We propose that:

H3: Perceived advertisement intrusiveness has a positive effect on online users' intention to close the advertisement.

An online video can be made interactive by incorporating clickable items into the video. As shown in Figure 2, in the middle of an interactive video, online users are asked to click on a particular item among several alternatives. Different from the non-interactive video where the content is fixed, the content of an interactive video will vary based on the items clicked by online users. We expect that online users' perceived freedom is higher for the interactive online videos than for the non-interactive online videos. An interactive video gives online users the opportunity to make a choice by clicking on one item among the alternatives. As their choice can influence the displayed content of the online video, online users would feel a sense of freedom of control over the online video.

Figure 2. Example of an Interactive Online Video

We posit that the interactivity of online video can moderate the relationship between perceived intrusiveness of advertisement and intention to close the advertisement for two reasons. First, the interactivity of an online video gives online users a sense of freedom of controlling the online video. Online users' perceived freedom is higher for the interactive online videos than for the non-interactive online videos. With higher perceived freedom, it is easier for online users to notice that their freedom of viewing the online video is threatened by online advertisements. Second, the interactive online video typically requires online users to click on an item among the alternatives. It is possible for an in-video overlay advertisement to (partially) block the content of certain items. As shown in Figure 2, an alternative ("STAY HOME") is partially blocked by an in-video overlay advertisement. The (partial) blocking could prevent online users from evaluating each of the items completely and cause unexpected annoyance with the advertisement. Thus, online users are more likely to react to an intrusive advertisement. Based on the above discussion, we propose that:

H4: The interactivity of online video strengthens the relationship between perceived advertisement intrusiveness and intention to close the advertisement.

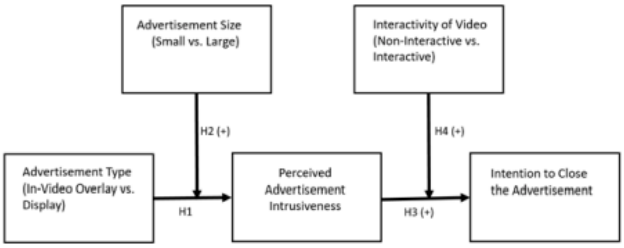

Figure 3. Research Model

PROPOSED RESEARCH METHODLOGY

We plan to conduct an experiment to test the hypotheses of the proposed research model. A 2x2x2 between-subject full factorial design will be employed with three factors: advertisement type (in-video overlay advertisement vs. display advertisement), advertisement size (small vs. large) and interactivity of video (non-interactive vs. interactive). The between-subject design is chosen over within-subject design in order to avoid carryover effect in different conditions and improve the internal validity. 180 undergraduate students (30 students per group) will be recruited for the experiment. A homogenous group of students can help to control for endogeneity. To control for differences in demographic characteristics of students, they will be randomly assigned to an experiment condition.

In order to eliminate possible confounding effects, a hypothetical website will be set up for the experiment purpose. The design of the hypothetical website will be based on YouTube, the most popular online video website. Multiple pre-tests will be conducted to select the experiment materials. In particular, we will pay attention to the design of the display advertisement and in-video overlay advertisement to ensure that the advertisement content is similar across the two types of advertisement.

To check the validity of manipulations, analysis of variance (ANOVA) will be conducted to check whether the manipulations of advertisement size and interactivity of video are successful or not. As multiple measurement items will be used to measure perceived advertisement intrusiveness and intention to close the advertisement, a PLS structural equation modelling (PLS-SEM) package, SmartPLS will be used to assess the measurement model, in terms of composite reliability, indicator reliability, convergent reliability and discriminant reliability. After that, SmartPLS will be utilized to evaluate the structural model. First, we evaluate the model with only the direct effects of advertisement type, advertisement size, perceived advertisement intrusiveness and interactivity of video (Aiken and West, 1991). Second, a model with both direct effects and moderating effects will be examined. The product-indicator approach will adopted to measure the interaction terms (Chin, Marcolin and Newsted, 2003).

EXPECTED CONTRIBUTIONS

This research is intended to investigate online users' aversive responses to online advertisements in the context of online video websites. Specifically, we investigate how the type and the size of advertisements can lead to the aversive consequence of closing the online advertisements. We further investigate how the interactivity of online videos plays a moderating role in the relationship between perceived advertisement intrusiveness and online users' intention to close the advertisements. By investigating the advertisement type, advertisement size, and interactivity of online video in a holistic model, we intend to make three contributions. First, we contribute to the human-computer interaction literature by investigating how advertisement characteristics can interact and jointly influence online users' perception of advertisements in the online video websites. Second, in the specific context of online video websites, we contribute to the digital advertising literature by studying the aversive effects of advertisements. We also examine the utility of applying psychological reactance theory in this specific context. Finally, we attempt to understand how the effect of perceived advertisement intrusiveness on intention to close the advertisement are contingent on interactivity of online video. The findings from this research can also provide practical implications for online video websites.

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