



Does in-Stream Video Advertising Work? Effects of Position and Congruence on Consumer Responses

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ABSTRACT

The success of video streaming social networking sites (e.g., YouTube) is reliant upon savvy integration of advertising into massive amounts of user-generated content. These sites must weigh when, where, and how much advertising should be utilized to increase profit without causing irritation. This study examined two key variables related to streaming advertising (i.e., ad position and contextual congruence), and tested their impact on anger, perceptions of intrusiveness, and narrative engagement. Utilizing an online experiment ($N=327$), we found that mid-roll ads led to higher levels of perceived intrusiveness and anger than pre-roll ads. Anger and perceived intrusiveness were shown to significantly mediate the effect of mid-roll ad placements on ad and brand attitudes, with anger also mediating purchase intention. Though narrative engagement did not mediate the relationship between ad placement and resulting outcomes, we identified a sequential anger-narrative engagement mediating effect that shaped ad and brand outcomes. Theoretical and practical implications are discussed.

KEYWORDS

Online advertising; mid-roll advertising; congruence; anger; perceived intrusiveness

Social networking sites are confronted with decisions related to advertising practices that traditional media conglomerates have wrestled with for decades. This includes determining how much advertising should be deployed, where it should be placed, and when it should reach the consumer. These considerations are challenging to implement in a heavily saturated online information environment. On YouTube alone, twenty-four thousand hours of content is uploaded to its website every hour (Maheshwari, 2017). Whereas commercial interruptions during traditional television programming are carefully considered and strategically integrated on a program-by-program basis, online platforms must rely on algorithms and savvy content creators to dictate when and where their advertisements (ads) will appear. Accordingly, advertisers consistently adapt their advertising approaches by changing when, where, and how ads appear as a means for combatting

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consumer behaviors that often revolve around advertising avoidance (e.g., Brinson et al., 2018).

In addition to ad position, the success of an ad is also largely dependent upon the contextual elements of the environment wherein it is placed. Advertising that disrupts the viewing experience can lead to negative evaluations (Wang & Calder, 2006, 2009). Therefore, apart from ad placement, it is similarly important to consider the role of congruity between the advertising message and the media context in which it appears (Kim et al., 2017; Shen & Chen, 2007). Accordingly, the present study explores the role of ad position and contextual congruence on subsequent ad-related responses in the context of online video narratives.

Literature review

In-stream video advertising and forced exposure

In 2019, online advertising expenditures in the United States reached \$123.8 billion, accounting for 56.5% of the total advertising spend (Warc, 2020a). Video advertising in particular accounted for 17.2% of the total Internet spending in 2019 at \$21.3 billion and has seen a 1074.9% increase since 2011 (Warc, 2020b). As advertisers become increasingly reliant on digital advertising, more work is needed to test the effects of online advertising served across a variety of contexts (Belanche et al., 2017; Li & Lo, 2015; Wang & Calder, 2006).

Online advertising leverages many of the textual, audio, and visual strategies that have been used for decades in traditional advertising messages. Still, it is the unique user experiences afforded by today's online technology that have transformed how the users interact with ads. Li and Lo (2015) observed that while television advertising and online video are directed at similar sensory systems, the effectiveness of each format differs based on the unique environments that each cultivates. Thus, evaluating how consumers perceive and evaluate advertising in a variety of emerging online contexts is of significant value. Wang and Calder (2009) noted:

As advertisers search for more and more ways to “integrate” advertising and content, a better understanding of the interaction of the two is becoming all the more important. Marketers want to take more advantage of context, or media engagement, as a way of coping with a trend toward ad avoidance. (p. 554)

When evaluating the efficacy of an online video ad, the format, timing, and contextual influences should all be taken into consideration (Li & Lo, 2015).

Taken further, the central determinant of the effectiveness of an ad is inherently connected with whether it advanced the particular purposes of an online advertising campaign (Belanche et al., 2017). As such, if the

objective of video advertising is to drive recognition of an ad, a disruptive online video advertisement may be more effective for advertisers (Brechman et al., 2016; Li & Lo, 2015; Williams, 2020). However, if the objective is to foster favorable audience attitudes, to what extent can in-stream interruption influence these outcomes?

While a primary aim of advertising placements involves being noticed, the nature of advertising disruptions can be categorized along a continuum of intrusiveness (Riedel et al., 2018). The negative attitudinal consequences of forced ad exposure are reflected by the degree to which a placement blocks a user's access to editorial content (McCoy et al., 2008). The diverse permutations of online advertising formats are marked by varying levels of forced or involuntary exposure (Cho, 1999). For example, Kim (2018) observed that banner ads "interrupt users' activity less and are easy to ignore" (p. 847), whereas a pop-up ad can block a user's goal of interacting with a website. In the realm of video advertising where consumers' goal-oriented activities are even more amplified (Campbell et al., 2017), this continuum of intrusiveness similarly exists. While both pre-roll and mid-roll ads induce forced exposure among consumers, the former involves an ad viewing scenario prior to the main video content, whereas the latter is featured with displaying commercials in the middle of video viewing. Such difference in turn, as shown in empirical research, brings about varied advertising outcomes among consumers.

According to the Persuasion Knowledge Model (PKM), consumers tend to develop conceptual and attitudinal knowledge about advertising that allows them to cope and respond to persuasive appeals across a variety of media contexts (Boerman et al., 2012; Friestad & Wright, 1994). When an individual is better able to anticipate commercial messages, they are also more likely to avoid the advertising altogether, or process the message in line with their personal goals (Friestad & Wright, 1994). As such, Jeong (2011) found that ads appearing early in a television program were more positively evaluated than those appearing later. Further in the context of in-stream advertising, while mid-roll ads were found more recognizable than pre-roll ads (Li & Lo, 2015), streaming platforms such as YouTube still favor pre-roll advertising for its comparative superiority in attenuating consumers' resistance and avoidance (Ha, 2017).

Prior literature has demonstrated that midway commercial interruptions in television advertising can even rejuvenate consumers' viewing experience by re-focusing viewer attention toward the program thereby leading to positive program viewing outcomes (Nelson et al., 2009). Still, the effects of ad disruption are highly nuanced and dependent upon the context in which an ad appears. For social media platforms such as YouTube, users strive for continuous streaming of novel content in videos with shorter narrative

forms as compared to television programs. Thus, ads appear more sporadically and sometimes more frequently than before. In this case, in-program interruptions could incite ad avoidance (Joa et al., 2018). In other words, mid-roll ads might not be well received compared to those in television viewing context. In what follows, prominent underlying mechanisms are discussed to account for negative advertising outcomes resulting from mid-roll advertising.

Ad position and consumer responses

Affect and perceived intrusiveness

When ads are embedded within media content and perceived as interruptive, they may elicit a host of affective and cognitive responses. *Anger*, among all affective responses, is directly informed by theory of psychological reactance which posits that humans respond to environmental threats to their individual freedom in a way that allows them to restore control over a situation (Brehm, 1966). As such, favorable consumer responses benefit from enhanced user control (Hanus & Fox, 2017). Yet, mid-roll ads force viewers to attend to the commercial message at a point when they are actively attending to the video, which takes away their freedom to control the viewing experience. In contrast, pre-roll viewing affords the viewer the opportunity to wait for the obstacle of the advertisement to be removed in advance of fully attending to an online video. As a result, compared to pre-roll ads, mid-roll ads might agitate consumers to a greater degree.

Aside from negative emotions, consumers might also evaluate mid-roll ads as intrusive. By nature, advertising is disruptive, which according to Edwards et al. (2002), exacerbates ad-related responses when viewers encounter an advertising message. One's perception that an ad is intrusive rises when an ad comes across as distracting, disturbing, forced, intrusive, or obtrusive (Brechman et al., 2016; Edwards et al., 2002). In line with this reasoning, compared to pre-roll ad, mid-roll ad might induce more perception of intrusion in that it inhibits the complete viewing experience. Taken together, it is predicted that:

H1: Mid-roll ads will elicit more anger and be seen as more intrusive than pre-roll ads.

These negative experiences have detrimental effect on advertising effectiveness. In the advertising literature, a variety of outcomes have been used to test the efficacy of an ad in the marketplace. This study utilizes three of the more commonly used advertising outcome variables including attitude toward the brand, attitude toward the ad, and purchase intention. Understanding how placement and congruity influence these outcomes is

of interest to creative agencies, media agencies, social media influencers, and media platforms alike. These three outcome variables are used to inform ad effectiveness and will be referred to in subsequent mentions as advertising outcomes.

Previous literature suggests that anger can mediate the outcomes of advertising and significantly influence audience responses to commercial messages (Madhavan et al., 2019; Youn & Kim, 2019). For example, Coombs and Holladay (2007) observed that a response of anger toward an ad results in lower purchase intention. Thus, it is likely that anger arising as a result of an unfavorable experience with a mid-roll advertising placement will negatively influence advertising outcomes. Stated formally:

H2: Anger will mediate the relationship between ad placement, leading to more negative advertising outcomes.

In a similar vein, perceived intrusiveness has been found to negatively impact on consumer attitude and purchase intentions in online advertising (e.g., Goodrich et al., 2015; Varnali, 2014). Thus, it is predicted that perceived intrusiveness resulting from exposure to a mid-roll ad will attenuate advertising effectiveness.

H3: Perceived ad intrusiveness will mediate the relationship between ad placement, leading to more negative advertising outcomes.

Narrative engagement

In addition to advertisers, content creators on video sharing platforms must also attend to effects of ad placement in that consumers' negative reactions toward mid-roll ads might carry over to their video content, most of which are strongly narrative-oriented such as the video blog (vlog). As such, the effects of anger and perceived intrusiveness as a result of ad placement in a forced exposure context may also produce other downstream effects related to narrative engagement which is conceptually similar to that of narrative transportation and absorption. Wang and Calder (2006) describe narrative transportation as the process through which a "person not only attends to information but also is absorbed into the narrative flow of a story in a pleasurable and active way" (p. 151). Any disruption to this absorption then, can negatively impact the enjoyment and engagement with the narrative (Bilandzic & Busselle, 2008). While Brechman et al. (2016) demonstrated that exposure to repeated commercial interruptions during the viewing of an online television show can lead to more negative attitudes toward an ad, more work is needed to understand the mechanisms beyond emotions that might influence this outcome. One explanation is that advertising disruptions may compete with the cognitive and emotional resources directly involved in narrative engagement processes

(Bilandzic & Busselle, 2008). It is predicted that the effect of ad placement on narrative engagement will take place such that:

H4: Mid-roll ads will lead to lower levels of narrative engagement than pre-roll ads.

The relationship between advertising and program narratives works both directions; the ad can influence the perception of a narrative, and the narrative experience can influence the evaluation of an ad (Wang & Calder, 2009). Researchers have examined the role of narrative disruption in a variety of advertising scenarios, demonstrating that ads placed in the middle of more engaging viewing contexts (e.g., narratives) lead to less desirable attitudinal outcomes than those placed in less engaging viewing scenes (Durkin & Wakefield, 2008; Gillespie & Joireman, 2016; Kalch & Bilandzic, 2017; Wang & Calder, 2006).

In line with this reasoning, anger and perceived intrusiveness toward interruption brought about by mid-roll ads might deteriorate narrative experience when enjoying online streaming services, thereby leading to negative advertising outcomes. As such, affective and cognitive interruptions would divert people's attention from their primary task (Bezdek & Gerrig, 2017; Rejer & Jankowski, 2017). Such a break in absorption, according to Bilandzic and Busselle (2008), might decrease people's engagement with narrative processing. Hence, it is predicted that the mediating role of the anger-narrative engagement sequence and the perceived intrusiveness-narrative engagement sequence can explain how advertising outcomes might be subject to ad placement in the following ways:

H5: The anger-narrative engagement sequence will mediate the relationship between ad position and the outcome variables of interest, such that compared to pre-roll ads, mid-rolls ads will elicit a higher level of anger, which will reduce narrative engagement, thereby leading to more negative advertising outcomes.

H6: The perceived intrusiveness-narrative engagement sequence will mediate the relationship between ad position and the outcome variables of interest, such that compared to pre-roll ads, mid-rolls ads will elicit a higher level of perceived intrusiveness, which will reduce narrative engagement, thereby leading to more negative advertising outcomes.

Contextual congruence and consumer responses

Context matters not only in regards to *where* an ad is positioned within a video, but also pertaining to the fit between an ad and its adjacent video. Concerning the consistency between an ad message and its surrounding content (Edwards et al., 2002), congruence effects have been examined extensively in the advertising literature. Although previous work has mostly focused on television advertising (Kamins et al., 1991) and magazine advertising (Moorman et al., 2002), the unique experiences of online video

advertising has invited additional research on the topic (Belanche et al., 2017; Li & Lo, 2015; Moorman et al., 2002). Specifically, online users tend to be goal-oriented, are often consuming shorter forms of video content, and regularly switch tasks. Thus, the nature of online video viewing is drastically different from that of other mediums, including television, which tends to revolve around the singular goal of engaged consumption.

Overall, previous literature suggests that by drawing the natural link between one's expectations and received information, seeing an ad congruent with its hosting video allows for more fluent information processing (Belanche et al., 2017; Germelmann et al., 2020; Janiszewski & Meyvis, 2001), strengthens ad informativeness (Phillips & Noble, 2007), and helps to attenuate ad annoyance (Edwards et al., 2002), which can lead to positive attitudes toward advertising (Moore et al., 2005). Therefore, one would expect increased contextual relevance between ad and video could create a seemingly seamless experience and remedy discrepant consumer responses caused by ad positioning as previously hypothesized.

However, another line of advertising research endorses the incongruence effect instead, such that incongruent information in an ad might contradict consumers' expectations, thereby making the ad more memorable by engaging consumers' cognitive elaborations to a greater extent (Lee & Schumann, 2004). Germelmann et al. (2020) observed that while congruity allows for fluency in processing, incongruity evokes greater levels of attention and persuasion knowledge (PK). Specifically, even if an ad is placed in the middle of the video, in lieu of evoking anger and intrusion, presenting information irrelevant to the video might enhance consumer engagement with the ad and facilitate favorable consumer attitudes (Dahlén et al., 2008).

In light of aforementioned mixed propositions, how does ad placement impact on consumer responses when its contextual congruence varies in online streaming advertising? The following research questions are proposed:

RQ1: Is there be a significant interaction between ad position and ad congruence on (a) anger and (b) perceived intrusiveness?

RQ2: When anger mediates the relationship between ad position and the advertising outcomes, will this relationship become more or less prominent depending on the ad's contextual congruence with video?

RQ3: When perceived intrusiveness mediates the relationship between ad position and the advertising outcomes, will this relationship become more or less prominent depending on the ad's contextual congruence with video?

Taken further, given the theoretical link between anger, perceived intrusiveness, and narrative engagement, contextual congruence might moderate the effect of ad position on narrative engagement via anger and perceived intrusiveness or directly. As such, enhancing contextual relevance has been

found to increase audience involvement with message processing (Myers et al., 2014) and lead to positive consumer evaluations (Germelmann et al., 2020). Yet, in contemporary interactive media environment wherein consumers are constantly distracted by other media content, launching contextually incongruent ads to cause narrative disruption might have its own benefits in serving consumers' need for divided attention (Janssens et al., 2012). Based on the diverging literature, a set of research questions exploring how (in)congruence effects might moderate consumer reactions to different ad placements are proposed:

RQ4: When narrative engagement mediates the relationship between ad position and the advertising outcomes, will this relationship become more or less prominent depending on the ad's contextual congruence with video?

RQ5: When the anger-narrative engagement sequence mediates the relationship between ad position and the advertising outcomes, will this relationship become more or less prominent depending on the ad's contextual congruence with video?

RQ6: When the perceived intrusiveness-narrative engagement sequence mediates the relationship between ad position and the advertising outcomes, will this relationship become more or less prominent depending on the ad's contextual congruence with video?

Method

To explore the above hypotheses and research questions, a 2 (ad position: pre-roll vs. mid-roll) x 2 (contextual congruence: incongruent vs. congruent) between-subjects online experiment was conducted in accordance with procedures approved by the institutional review board. In the present study, a sample of college students who tend to be savvy social media users and hold more favorable attitudes toward social media advertising was utilized (Chu, 2011). Participants were recruited from several undergraduate communication courses at a large-sized state university in the northeastern United States in exchange for extra course credit. An alternative extra credit assignment was made available for those not wishing to participate. Students desiring to be a part of the study were provided with a link to an online Qualtrics survey. After consenting to participate in this study, participants were randomly assigned to an experimental condition and instructed to watch a video wherein an incongruent or congruent ad was positioned in the beginning or middle of the video. After viewing the video, participants completed the questionnaire assessing their perceptions and attitudes.

Sample

A total of 327 individuals participated in this study. The sample consisted of females ($n = 246$), males ($n = 80$), and an unknown who preferred not to

indicate gender. The age of the sample ranged from 18 to 24 with a mean of 19.71 ($SD = 1.07$) years. Among all, 234 self-identified as Caucasian (71.6%), 37 as Asian/Pacific Islander (11.3%), 20 as Latino/Hispanic (6.1%), 14 as African American (4.3%), 14 as multiracial (4.3%), 6 as Other (1.8), and 2 did not report it (0.6%).

Stimuli

Choice of video. We chose the narrative video that featured the YouTube influencer *Casey Neistat* snowboarding through the streets of New York City on a heavy snow day. This video was selected as the base for all conditions due to its viral nature on social media. On YouTube, it has been viewed more than 18 million times with at least 30 thousand user comments. The length of the video is approximately 2 minutes and 30 seconds.

Choice of ads. To manipulate ad position, the pre-roll ads were placed in the beginning of the video before participants watched the snowboarding story. In contrast, the mid-roll ads were placed in the middle point of the video as an interjection of the general watching experience.

Two 15-second ads for each condition were created in manipulating contextual congruence for stimulus sampling. All the participants were randomly assigned to watch one ad. For the congruent condition, we selected the “Nonstop flights to nonstop awesome” ad launched by Ski Lake Tahoe and the “2010 Winter Tire TV” ad launched by Nokian Tyres. Both ads were promoting products related to snowboarding; therefore, we expected them to be contextually congruent with the narrative video. For the incongruent condition, we selected the Power Cleaner Tool ad launched by Dremel Versa and the pillow ad launched by Lysol. Both ads were promoting household products with little relevance to snowboarding, and thus were expected to be contextually incongruent with the video.

Measurement

Contextual congruence. To check the manipulation of contextual congruence, participants were asked to indicate the extent to which they felt that the ads they saw “fit the video content?” It was measured on a 7-point scale where 1 = Not at all and 7 = Very well, $M = 2.78$, $SD = 1.97$.

Narrative engagement. Participants’ engagement with the narrative video was measured using the first two sub-dimensions—*narrative understanding* and *attentional focus* of the scale adapted from Busselle and Bilandzic (2009). Other sub-dimensions (i.e., *narrative presence* and *emotional engagement*) were excluded due to their low relevance to the present study. Six items

were rated on a seven-point Likert-scale and sample items include “my understanding of the video is unclear” (reverse coded), $M = 4.98$, $SD = 1.51$, Cronbach’s $\alpha = .89$.

Anger. Anger was measured using four items validated in Dillard and Shen (2005) where 1 = Not at all and 7 = Very much. For the question “As you were watching the ad in the video, how did you feel about the ad,” response items include “irritated,” “angry,” “annoyed,” and “aggravated,” $M = 2.34$, $SD = 1.53$, Cronbach’s $\alpha = .92$.

Perceived intrusiveness. Perceptions of intrusion was measured with seven items adapted from Edwards et al. (2002) where 1 = Not at all and 7 = Very much. For the question “When watching the video, to what extent did you find the ad,” response items include “distracting,” “disturbing,” “forced,” “interfering,” “intrusive,” “invasive,” and “obtrusive,” $M = 2.71$, $SD = 1.68$, Cronbach’s $\alpha = .94$.

Attitudes. On a four-item semantic differential scale (Holbrook & Batra, 1987), participants’ *ad attitude* and *brand attitude* were respectively measured. Response word pairs include “negative—positive,” “bad—good,” “favorable—unfavorable” (reverse coded), and “like it—dislike it” (reverse coded) (ad attitude, $M = 4.07$, $SD = 1.52$, Cronbach’s $\alpha = .91$; brand attitude, $M = 4.32$, $SD = 1.27$, Cronbach’s $\alpha = .91$).

Purchase intention. Participants’ purchase intention of the advertised product was measured using a four-item semantical differential scale (Bearden et al., 1984). Response word pairs include “unlikely—likely,” “probably—improbably” (reverse coded), “uncertain—certain,” and “not definitely—definitely,” $M = 3.13$, $SD = 1.56$, Cronbach’s $\alpha = .90$.

Bivariate correlations of key measured variables are presented in Table 1.

Data analysis strategy

To test H1, H4 and answer RQ1, we conducted three analyses of covariance where ad position and contextual congruence were listed as the

Table 1. Bivariate correlation.

	1	2	3	4	5	6
1. Anger						
2. Perceived intrusiveness	.61***					
3. Narrative engagement	-.09	-.04				
4. Ad attitude	-.37***	-.29***	.17**			
5. Brand attitude	-.28***	-.18***	.35***	.37***		
6. Purchase intention	-.13*	-.12*	.15**	.35***	.43***	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

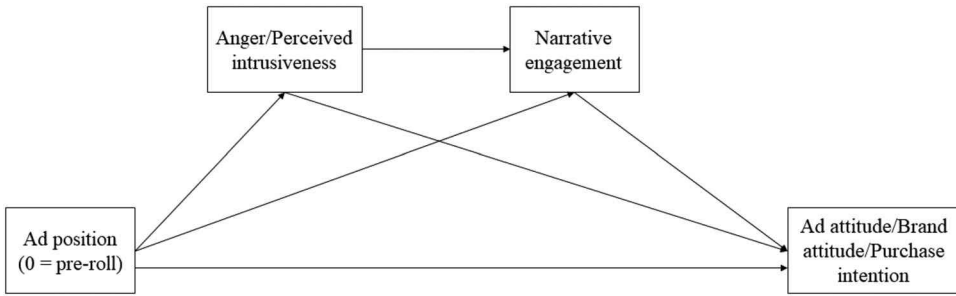


Figure 1. Serial mediation.

independent variables, with anger, perceived intrusiveness, and narrative engagement as dependent variables while controlling for ad versions.

To test H2, H3, H5, and H6 we employed the Model 6 (i.e., serial mediation) in PROCESS 3 (Hayes, 2017). Ad position was specified as the independent variable, with the two proposed mediator sequences (i.e., anger–narrative engagement and perceived intrusiveness–narrative engagement) listed as the model mediator separately. In addition, ad attitude, brand attitude, and purchase intention were listed as the dependent variable separately, and contextual congruence and ad version as the covariate. We also requested 5000 samples of bootstrapping with 95% Confidence Intervals (CI).

To test RQ2 through RQ6, we employed the Model 84 in PROCESS 3 (Hayes, 2017). Contextual congruence was listed as the moderator while other set-ups remained the same. Figure 1 and Figure 2 present model illustrations.

Results

Manipulation check

We conducted an independent-samples t-test to check the manipulation of the perceived congruence between the video narrative and the embedded ad. The analysis showed that participants in the congruent condition ($M = 4.01$, $SD = 1.88$, $SE = .15$) rated the ad content significantly more congruent with the video content than those in the incongruent condition ($M = 1.56$, $SD = 1.12$, $SE = .09$), $t(325) = 14.30$, $p < .001$. Therefore, we determined that the manipulation was successful in the expected direction.

Effects of ad position

In support of H1, we found significant main effects of ad position on anger ($F(1, 322) = 19.58$, $p < .001$, partial $\eta^2 = .06$) and perceived intrusiveness ($F(1, 322) = 67.05$, $p < .001$, partial $\eta^2 = .17$). More specifically,

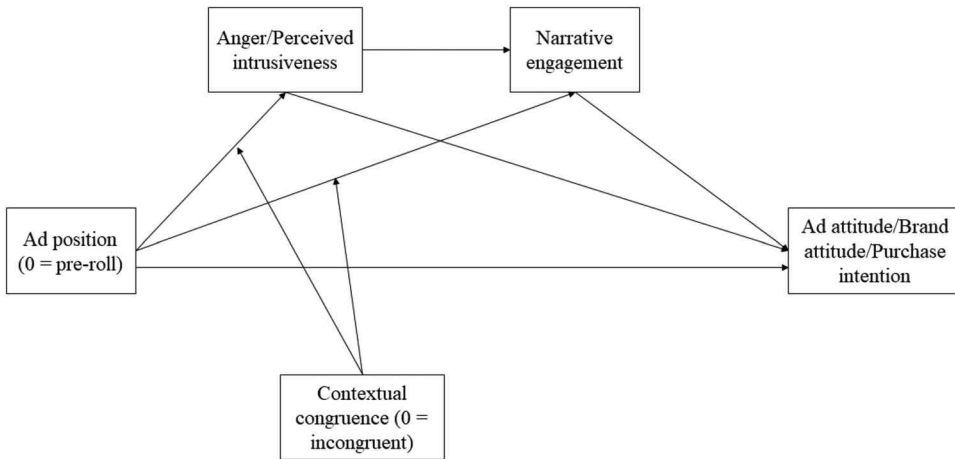


Figure 2. Moderated serial mediation with contextual congruence as moderator.

participants showed a significantly higher level of anger toward the mid-roll ad ($M = 2.68$, $SE = .11$) than pre-roll ad ($M = 1.96$, $SE = .12$), and they viewed the mid-roll ad ($M = 3.36$, $SE = .12$) as significantly more intrusive to the video watching experience than the pre-roll ad ($M = 2.00$, $SE = .12$). However, watching the mid-roll ad ($M = 5.03$, $SE = .12$) did not lead to a significantly lower level of narrative engagement than watching the pre-roll ad ($M = 4.90$, $SE = .12$), $F(1, 322) = .60$, $p = .44$, partial $\eta^2 = .002$. H4 was therefore rejected.

For mediation analyses, as shown in Table 2, we found significant mediation via anger on advertising outcomes such that compared to pre-roll ads, mid-roll ads elicited significantly more anger toward the ad, which led to more negative ad attitude and brand attitude, and less purchase intention. A similar pattern was found when the driving mechanism was perceived intrusiveness on both ad attitude and brand attitude. Therefore, H2 was supported, while H3 was partially supported with significant mediating effects of anger on all of the outcome variables other than purchase intention.

In further exploring the anger–perceived intrusiveness–narrative engagement sequence as the mediator, Table 2 shows that compared to pre-roll ads, induced anger toward mid-roll ads significantly reduced participants' engagement with processing the narrative video, which further worsened their ad attitude and brand attitude. Although no similar significant mediation was found on purchase intention via anger or on all three advertising outcomes via perceived intrusiveness, the direction of indirect effects remained consistent. Hence, H5 was partially supported with significant mediating effects of the anger–narrative sequence on all of the outcome variables other than purchase intention, while H6 was rejected.

Table 2. Mediation.

	Indirect effect				
	Direct effect	IV-M1-DV	IV-M2-DV	IV-M1-M2-DV	Total effect
Ad attitude	B = -.26, SE = .16, p = .10	B = -.24, BootSE = .07, 95%CI [-.39, -.05]	B = .03, BootSE = .03, 95%CI [-.02, .10]	B = -.01, BootSE = .01, 95%CI [-.03, -.0003]	B = -.48, SE = .17, p = .004
Brand attitude	B = -.05, SE = .13, p = .73	B = -.17, BootSE = .05, 95%CI [-.28, -.07]	B = .06, BootSE = .05, 95%CI [-.03, .15]	B = -.02, BootSE = .01, 95%CI [-.05, -.001]	B = -.18, SE = .14, p = .20
Purchase intention	B = -.22, SE = .17, p = .21	B = -.09, BootSE = .04, 95%CI [-.28, -.01]	B = .03, BootSE = .03, 95%CI [-.02, .10]	B = -.01, BootSE = .01, 95%CI [-.03, .0003]	B = -.29, SE = .17, p = .09
M1 = Perceived intrusiveness					
Ad attitude	B = -.20, SE = .18, p = .26	B = -.30, BootSE = .08, 95%CI [-.47, -.14]	B = .04, BootSE = .04, 95%CI [-.02, .13]	B = -.02, BootSE = .01, 95%CI [-.05, .003]	B = -.48, SE = .17, p = .004
Brand attitude	B = -.01, SE = .14, p = .95	B = -.20, BootSE = .07, 95%CI [-.36, -.06]	B = .07, BootSE = .05, 95%CI [-.03, .18]	B = -.03, BootSE = .02, 95%CI [-.08, .01]	B = -.18, SE = .14, p = .20
Purchase intention	B = -.17, SE = .19, p = .37	B = -.14, BootSE = .08, 95%CI [-.30, .003]	B = .03, BootSE = .03, 95%CI [-.02, .11]	B = -.02, BootSE = .01, 95%CI [-.05, .003]	B = -.29, SE = .17, p = .09

Note.

1. IV = Ad position, M2 = Narrative engagement.
2. IV-M1-DV tests the effect of ad position on respective dependent variable via anger or perceived intrusiveness; IV-M2-DV tests the effects of ad position on respective dependent variable via narrative engagement; IV-M1-M2-DV tests the effects of ad position on respective dependent variable via proposed mediation sequence.

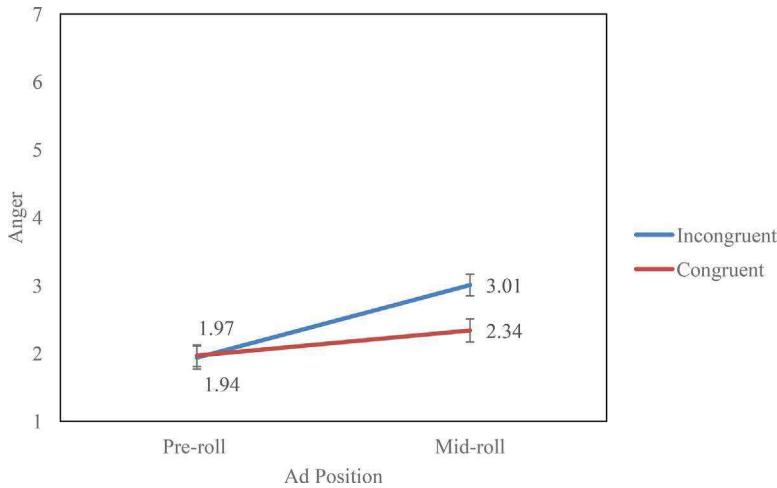


Figure 3. Interaction effect between ad position and contextual congruence on anger.

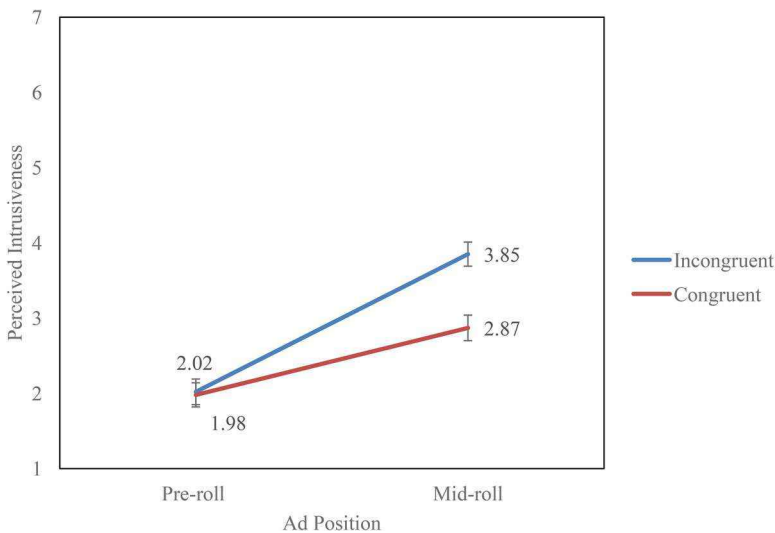


Figure 4. Interaction effect between ad position and contextual congruence on perceived intrusiveness.

Contextual congruence as moderator

In answering RQ1, we found significant interaction effects on anger ($F(1, 322) = 4.62, p = .03, \text{partial } \eta^2 = .01$) and perceived intrusiveness ($F(1, 322) = 7.96, p = .005, \text{partial } \eta^2 = .02$). As shown in [Figure 3](#) and [Figure 4](#), when an ad was contextually incongruent with the video, participants' felt anger and intrusiveness heightened toward mid-roll ad more than pre-roll ad. Whereas when an ad was contextually congruent with the video, such discrepancy imposed by ad positioning considerably diminished. Among all, the contextually incongruent mid-roll ads were rated as the most anger-inducing and intrusive to the narrative video viewing

Table 3. Conditional indirect effect moderated by contextual congruence.

M1 = Anger				
DV	Moderator	IV-M1-DV	IV-M2-DV	IV-M1-M2-DV
Ad attitude	Incongruent	B = $-.36$, BootSE = $.10$, 95%CI [-.57, $-.19$]	B = $.07$, BootSE = $.05$, 95%CI [-.01, $.18$]	B = $-.02$, BootSE = $.01$, 95%CI [-.05, $-.001$]
	Congruent	B = $-.13$, BootSE = $.09$, 95%CI [-.31, $.03$]	B = $-.001$, BootSE = $.04$, 95%CI [-.08, $.08$]	B = $-.01$, BootSE = $.01$, 95%CI [-.02, $.002$]
Brand attitude	Incongruent	B = $-.23$, BootSE = $.07$, 95%CI [-.37, $-.11$]	B = $.12$, BootSE = $.07$, 95%CI [-.01, $.27$]	B = $-.04$, BootSE = $.02$, 95%CI [-.08, $-.01$]
	Congruent	B = $-.08$, BootSE = $.06$, 95%CI [-.22, $.02$]	B = $-.001$, BootSE = $.07$, 95%CI [-.13, $.13$]	B = $-.01$, BootSE = $.01$, 95%CI [-.04, $.004$]
Purchase intention	Incongruent	B = $-.12$, BootSE = $.06$, 95%CI [-.26, $-.004$]	B = $.07$, BootSE = $.05$, 95%CI [-.01, $.18$]	B = $-.02$, BootSE = $.01$, 95%CI [-.05, $-.001$]
	Congruent	B = $-.04$, BootSE = $.04$, 95%CI [-.13, $.01$]	B = $-.001$, BootSE = $.04$, 95%CI [-.08, $.07$]	B = $-.01$, BootSE = $.01$, 95%CI [-.02, $.003$]
M1 = Perceived intrusiveness				
Ad attitude	Incongruent	B = $-.43$, BootSE = $.12$, 95%CI [-.67, $-.21$]	B = $.08$, BootSE = $.05$, 95%CI [-.003, $.21$]	B = $-.03$, BootSE = $.02$, 95%CI [-.08, $.001$]
	Congruent	B = $-.21$, BootSE = $.07$, 95%CI [-.38, $.08$]	B = $.01$, BootSE = $.04$, 95%CI [-.08, $.10$]	B = $-.02$, BootSE = $.01$, 95%CI [-.04, $.001$]
Brand attitude	Incongruent	B = $-.24$, BootSE = $.09$, 95%CI [-.44, $-.06$]	B = $.14$, BootSE = $.08$, 95%CI [-.01, $.31$]	B = $-.05$, BootSE = $.03$, 95%CI [-.12, $.005$]
	Congruent	B = $-.12$, BootSE = $.06$, 95%CI [-.26, $-.02$]	B = $.01$, BootSE = $.07$, 95%CI [-.13, $.15$]	B = $-.03$, BootSE = $.02$, 95%CI [-.06, $.002$]
Purchase intention	Incongruent	B = $-.16$, BootSE = $.10$, 95%CI [-.37, $.03$]	B = $.08$, BootSE = $.05$, 95%CI [-.003, $.19$]	B = $-.03$, BootSE = $.02$, 95%CI [-.07, $.002$]
	Congruent	B = $-.08$, BootSE = $.06$, 95%CI [-.20, $.01$]	B = $.01$, BootSE = $.04$, 95%CI [-.09, $.09$]	B = $-.01$, BootSE = $.01$, 95%CI [-.04, $.001$]

Note.

1. IV = Ad position, M2 = Narrative engagement.
2. IV-M1-DV tests the effect of ad position on respective dependent variable via anger or perceived intrusiveness; IV-M2-DV tests the effects of ad position on respective dependent variable via narrative engagement; IV-M1-M2-DV tests the effects of ad position on respective dependent variable via proposed mediation sequence.

experience. Yet, we did not find significant interaction effect on narrative engagement, $F(1, 322) = 1.19, p = .28, \text{partial } \eta^2 = .004$.

In answering RQ2 and RQ3, as shown in Table 3, we found that the indirect effect of ad position on ad attitude, brand attitude, and purchase intention via anger was significant only when the ad content was incongruent with the narrative video content. The indirect effect via perceived intrusiveness on ad attitude and brand attitude, however, was significant regardless of the level of congruence. That said, this effect was more prominent in the incongruent condition than the congruent condition. This means that similar to what was observed for anger, participants perceived mid-roll ads more intrusive than pre-roll ads, thereby disliking the ads to a

greater extent when the ads were incongruent with video content than when they were congruent.

Taken further, and in answer to RQ4, RQ5, and RQ6, we found significant indirect effect of ad position on advertising outcomes via the anger--narrative engagement sequence only when the ad was contextually irrelevant to the narrative video. Again, such conditional indirect effects were not prominent via the perceived intrusiveness--narrative engagement sequence, however, the direction of effects was consistent.

Discussion

The purpose of this study was to examine the effect of ad position and contextual congruence on consumer responses to online video advertising. As predicted, mid-roll ads were evaluated as more intrusive, elicited more anger, and were thereby viewed as less favorable than pre-roll ads. Such negative reactions were likely the result of a perceived loss of personal freedom around a fluid viewing experience (Brehm, 1966; Hanus & Fox, 2017), which suggests that audiences perceived a significant barrier to their viewing goals when served with the mid-roll format.

In addition, we uncovered an indirect chain of responses that occur as a result of receiving a mid-roll advertising placement. Specifically, anger and perceived intrusiveness induced by the mid-roll position reduced participants' engagement with processing the video narrative, which in turn, negatively influenced advertising outcomes. While past literature has shown that commercial disruptions in the context of television advertising can elevate enjoyment of the program narrative (Nelson et al., 2009), in an online context, such interruptions might be less welcome due to people's expectation for continuous streaming content. Taken together, these findings support the notion that context is a critical consideration for advertisers and that forced exposure to online video ads can have deleterious consequences.

Furthermore, this work offers support for the congruence effect in advertising (e.g., Edwards et al., 2002). Specifically, congruent mid-roll ads were evaluated as less intrusive and elicited lower levels of anger compared to incongruent mid-roll ads, which served to restore narrative engagement and facilitated more favorable advertising outcomes. These findings point to the significant role of contextual congruence in fostering positive experience with in-stream video advertising.

Theoretical implications

The present study extends previous work which has demonstrated that ad recall is improved when an ad disrupts the program content (Brechtman

et al., 2016; Li & Lo, 2015). Specifically, we argue that some of the strengths of mid-roll placements in terms of recall must be considered in conjunction with the downstream attitudinal consequences of ad disruption. While Brechman et al. (2016) found that repeated mid-roll placements would stimulate greater perceived intrusiveness than single mid-roll or pre-roll placements in producing negative advertising outcomes, the present study further demonstrated that single mid-roll placement might also compromise advertising effectiveness through the lens of both affective and perceptual mechanisms.

Further, the current study extends the previous finding that congruent ads are processed more fluently than incongruent ads (Germelmann et al., 2020). A fundamental reason for the negative effects of mid-roll ads on viewer responses is that such ads tend to cut off the flow of viewer engagement in the middle of viewing. Since contextual congruence increases perceived fluency, it could compensate for the confusion derived from such disengagement. In the same manner, the results from this study indicate that the negative effects of mid-roll ads are mitigated when they are contextually congruent with the video.

The present study also highlights the role of anger-narrative engagement and perceived intrusiveness-narrative engagement mediation sequences in advertising on streaming services that illuminates how consumers might process (in)congruent ad interruptions. Video streaming, compared to conventional media formats, merits an explication of its unique characteristics for the advertising context. As such, since streaming platforms afford more seamless experience than before, the nature of ad disruption matters in terms of both its positioning and its integration to streaming content. For digital advertising research then, this study further implicates the importance of understanding context, platform, and delivery of advertising messages online (Daugherty et al., 2017). To make the findings of this study more generalizable, future research should seek to test the role of ad placement across different social media contexts with a sample that is more reflective of the general public.

Further, the goal-oriented nature of video viewing on YouTube was likely to have had a profound influence on the outcomes of this study. Given that past research on television disruption has even demonstrated the positive effects of advertising disruption on viewing outcomes (Nelson et al., 2009), the primary difference in the findings surrounding the negative outcomes of disruption may be rooted in the more active nature of online video viewing. In contrast to more passive traditional television viewing, online users can actively choose from never ending amounts of available content. While recommendations and algorithms certainly shape viewing decisions, it is critical for ongoing work to examine the role of disruption

and congruity when users vary in their viewing goals. Future research in this domain should examine how certain affordances of social media videos, including skip buttons, advertising markers, and other visual cues might mitigate the negative consequences of ad disruption. Future work would also benefit from being conducted in a lab setting to offer a more controlled viewing environment.

Managerial implications

This work has several managerial implications. First, because many YouTube videos utilize narratives and storytelling as a means to connect with audiences, it is critical for YouTube and other platforms to consider whether some genres of content are better suited for mid-roll advertising. To increase contextual congruence, social networking sites should strive to optimize algorithms that naturally identify when storylines are ebbing and flowing to best determine when and where an ad should appear. Interjecting an ad during a particularly moving scene or engaging moment can promote negative emotional states that can be transferred to the advertisement.

Similarly, content creators should carefully consider the ways in which ads might negatively impact perceptions of their channel. Given that social media content creators have some level of control surrounding the placement and frequency of ads that appear within their channels, creators should consider whether the nature of their content lends itself to mid-roll advertising. Specifically, a mid-roll advertising disruption might cause a once highly engaged viewer may become less interested in a given narrative. Whenever possible, content creators should consider the type of engagement that they desire to foster with their audience and how advertising positioning strategies should fluctuate based on the nature of the content that is being produced. Future empirical work should test the effects of ad disruption on perceptions of influencers as insights in this realm may shape influencer advertising strategies.

Lastly, advertisers should recognize that mid-roll placements can be a strong format for driving campaigns where awareness is a key metric (Brechman et al., 2016; Li & Lo, 2015). Yet, in instances where a campaign's primary goal is to build brand image, other less intrusive formats, including pre-roll ads may be most beneficial. Additionally, advertisers should consider how new and emerging forms of advertising may disrupt media consumption experiences that were once advertising free. While consumer persuasion knowledge associated with traditional mid-program advertising disruptions are relatively stable, new forms of advertising take acclimatization. It is possible that the negative effects of mid-roll advertising on ad

and brand outcomes will become less pronounced as consumers become more accustomed to their presence. Accordingly, brands should consider ongoing testing to determine whether a particular format bodes well for them given the nature of their broader campaign objectives.

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