Perceived intrusiveness, consumer attention, and intent to purchase: The moderating effect of celebrity preferences

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Abstract

This study aims to investigate the moderating effect of celebrity preferences on the relationship between perceived intrusiveness, consumer attention, and intent to purchase by applying Stimulus-Organism-Responds (SOR) Theory as a foundation. A total of 310 questionnaires were used in this study. This study uses the Structural Equation Modelling (SEM) Analysis approach by dividing a sample into two groups: (1) preference and (2) non-preference. A total of 155 samples filled out advertisements that matched respondents' preferences and 155 samples filled out advertisements that did not match respondents' preferences. The finding of this study are: (a) perceived intrusiveness is negatively affects consumer attention, (b) consumer attention positively affect intent to purchase, (c) celebrity preference moderates the effect of perceived intrusiveness on consumer attention, in a way that the higher celebrity preference will reduce the effect of perceived intrusiveness on consumer attention, and (d) celebrity preference moderates the influence of consumer attention on intent to purchase, in a way that the higher celebrity preference will strengthen the influence of consumer attention on intent to purchase. This finding could indicate the presence of intrusive advertising if the ad matches the preferences of the audience, then the ad will still get the attention of the audience and even affect the consumer’s intention to buy.

Keywords: Celebrity preference, perceived intrusiveness, consumer attention, intent to purchase, Stimulus-Organism-Responds (SOR Theory)

1. Introduction

The online video site is one of the fastest-growing segments of online media; therefore, the online site is considered by advertisers and marketers as attractive media channels for ad placement (Lee, Ham, & Kim, 2013). The rise of internet media has gradually replaced the advertising function of traditional media such as radio, television, and print media. According to the IAB digital video excellence center, in 2020, the proportion of online video advertising has reach 48.3%. Even in 2025, the IAB predicts that 61.6% of the total internet users in the world will stream ad videos. This implies that more than 3 billion people have the opportunity to find video ads when they watch videos on the internet. The more internet users, the

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greater opportunity for ad providers to get consumers' attention. Consumers are influenced by several factors in determining purchases, such as quality, price, brand, and product advertising (Miswanto et al., 2020). All these factors are listed in the video ads on the internet. By creating attractive video ads, marketers can attract more consumers to buy the advertised product. Thus, the goal of marketers can be achieved to attract viewers’ attention and influence their purchase decision.

Mid-roll video is the most common type of video ad we come across nowadays. This ad appears in the middle when someone is streaming a video. Development of mid-roll video ads through 2021 has resulted in skippable and non-skippable mid-roll ad formats. The skippable format is a mid-roll video ad format that we can skip after the ad runs for 5 seconds. In contrast, the non-skippable ad format is a video playback ad format that we can't skip until the ad is finished. Survey results show that more than 70% of viewers miss a skippable video ad after running for 5 seconds. Although the benefits are quite large, the mid-roll video ad format that appears suddenly that forces viewers to watch and wait for the ad to finish can annoy the viewer's mind. This disturbing feeling is called as perceived intrusiveness (Li et al., 2002). Because of this, they tend to have negative perceptions of online advertising (MacKenzie et al., 1986).

Previous researchers examined the consequences of intrusive advertising. According to Wang (1997), a successful website is a site that can provide information and entertain viewers. However, advertisements that display content unrelated to the search for user information are considered more disturbing (Smith, 2011). It is because internet users are too busy to pay attention to commercial messages on social media (Fenton & Barassi, 2011). Even other academics, such as McCoy et al. (2007) showing that viewers can skip or close the ad. It means that mid-roll video ads programs are useless for attracting audiences, and marketers have to work harder to create less distracting ads. Many respondents do not like advertisements that cannot be skipped because they are not given the opportunity to miss relevant or irrelevant advertisements to watch. On the other hand, (Goldfarb & Tucker, 2011) found that intrusive advertising can influence purchase intention, but the advertisement must be relevant to the content sought and according to the match of the audience. This is also confirmed by the findings of Hall (2015) states that Youtube viewers will feel like they are forced when they see unattractive skippable ads for the first 5 seconds, but if skippable ads attract viewers, they do not use the skip feature because they are very interested in the content of the ad. It means the skippable ad doesn't always have a negative impact on the audience.

One way to reduce the level of intrusiveness is to create advertisements that match the audience's preferences (Goldfarb & Tucker, 2011). The preference in this study is the match between the audience in the advertisement and the Kpop star as the brand ambassador. Why should K-POP? Because currently, the number of K-pop fans in Indonesia continues to increase, especially among teenagers. According to the results of a survey conducted by BLIP, an organization that researches K-pop, Indonesia is ranked 2nd out of 10 countries with the most K-pop fans in the world. So it's no wonder that most teenagers are crazy about K-pop stars from South Korea in Indonesia. Several K-pop idols have successfully become advertisement stars in Indonesia. For example, one of the K-pop idol groups from JYP Entertainment, Twice, became the brand ambassador for the beauty product "Scarlet whitening" from Indonesia. Fans are interested in seeing the ad because the ad star is their favorite idol. Celebrities act as a source of consumer reference in making purchases. Therefore, nowadays, many companies use K-pop stars as brand ambassadors because of their popularity.

Kang (2020) research proves that a person's love for his favorite celebrity can reduce skepticism towards online advertising. Consumers' trust in their favorite celebrity positively affects how they receive advertising messages. No matter how annoying an advertisement is, if it matches the celebrity who advertises, it will still get the attention of the audience, then the sense of disturbance will be reduced.
Finally, this study wants to prove that something negative (perceived intrusiveness) can also positively impact the viewer (attention). Then, when people feel attracted to advertisements that advertise their favorite K-pop stars, they have the potential to have the intention to buy.

2. Literature review and hypothesis development

Stimulus-Organism-Response (SOR Theory) is a psychological theory of perception. This theory was adopted from the theory of environmental psychology and developed by Mehrabian and Russell in 1974. This model is applied between the three components, stimulus, organism, and the reaction shown to the stimulus (response). The basic assumption of the S-O-R theory is that cause of behavior change depends on the quality of the stimulus (stimulus) (Eroglu et al., 2001). When the stimulus is rejected, the ad is not effective enough in influencing the individual as an organism. However, when the stimulus is received, it means that it is effective in influencing the individual. The second component is an organism. The interior processes of an organization consist of individual actions in understanding, experiencing, and thinking (Eroglu et al., 2001). Consumer attention is like being treated as an organism in this study. After the five senses capture the stimulus, people will perceive it and followed by analysis (response). The SOR model is often used by marketers to determine the interaction between market and customer responses to stimuli through buying, eating, and shopping activities.

Figure 1. SOR Theory framework

**Perceived intrusiveness and consumer attention**

When accessing a website, internet users might intend to find certain information (Bang et al., 2018; McCoy et al., 2008). Due to the goal-oriented behavior of online users, any advertisement placed within the content is considered intrusive. Perceived intrusiveness refers to a person's perspective or psychological implications as a result of their disturbed cognitive processes (Li et al., 2002). Consequently, consumers may ignore advertisements that bother them.

Internet users are focused on the purpose of obtaining material, according to Li et al. (2002); therefore the existence of online advertising hinders their capacity for the desired goal. This argument is confirmed by the findings of McCoy et al. (2007), who revealed that pop-up ads are not successful and tend to be annoying, even causing consumers to leave the site. According to Smith (2011), advertisements that display content not related to the search for user information are also seen as more intrusive. Furthermore, according to Fenton and Barassi (2011), internet users are too bored to pay attention to commercial messages on social media. Other academics, such as McCoy et al. (2007), even suggested that viewers should consider skipping or closing the ad. This means that intrusive advertising on the internet is not effective enough to attract consumer attention.

**Hypothesis 1 (H1): Perceived intrusiveness has a negative impact on consumer attention.**

**Consumer attention and intention to buy**
Marketers want their target consumers to spend more time with their advertisements because that is their goal (Hammadi & Qureishi, 2013). Academics and industry experts have debated the causes behind consumers' lack of attention to advertising. First, customers are bombarded with too many ads. The second problem is that customers have lost faith in the validity of advertising messages. The third point is excessive ad duration. The fourth point is that customers have a wide choice of media channels (Teixeira, 2014). One of the causes of the company's inability to meet marketing objectives is the lack of customer attention to internet advertising. Alalwan (2018) finds a relationship between elements of social media advertising and intention to buy. Apart from advertising elements, brand names can influence consumers' purchase intentions (Mirabi et al., 2015). According to research by Abdurrahim et al. (2019) on the AISAS model in marketing, attention has a beneficial and substantial impact on customer decisions to buy certain goods. This suggests that when customers are addicted to advertising, they will seek more information about the promoted item, increasing their chances of making a purchase. According to Van Boven et al. (2010) research, customer attention can increase the strength of emotional reactions. Based on the description above, the second hypothesis can be formulated as follows:

**Hypothesis 2 (H2): Consumer’s attention has a positive impact on purchase intention**

**Celebrity preference as a moderator**

Several previous studies have examined how celebrity preferences can influence consumer buying behavior. The results of research conducted by Kang (2020) stated that people's love for their favorite celebrities can reduce skepticism about online advertising. The same thing was also stated by Tran et al. (2019) in their research which found that consumers believed more in messages conveyed by their favorite celebrities. Consumers' trust in their favorite celebrities positively affects the way consumers receive advertising messages. This is also reinforced by the results of research from Bell and Buchner (2018), which states that intrusive advertising is proven to be effective in increasing brand preference if audience preferences match it. The more appropriate the ad to consumer preferences, the higher audience's level of attention. Another study showed that celebrity endorsement of the company has a more powerful and productive impact than non-celebrity endorsements (Seno & Lukas, 2007). From the explanation above, it can be concluded that intrusive advertising can still attract attention if it is by the preferences of the audience. So that the researcher formulates the hypothesis as follows:

**Hypothesis 3 (H3): Celebrity preferences moderate the relationship of perceived intrusiveness to consumer attention**

**Hypothesis 4 (H4): Celebrity preferences moderate the relationship of consumer attention to intention to buy.**

3. **Data and research method**

This study used primary data of questionnaires that were distributed online using the google site. This research used quasi-experimental research designs. When it is impossible to randomize people or groups to treatment and control groups, quasi-experimental approaches involving the development of a comparison group are most commonly utilized. Ex-post impact evaluation designs are always like this. For the rule of randomization, it may also be essential to employ quasi-experimental designs. The sample in this study was 310 data that was divided into two groups. Researchers used the purposive sampling technique by setting several criteria. First, respondents are active internet users and often stream videos. Second, the respondent is a fan of Korean pop, etc.
Figure 2. Conceptual Model and Hypotheses

Questionnaire Design

A questionnaire in the form of a closed-ended question was employed in this study, and it will be distributed online through the Google Site. A Likert scale was used to measure the results of this investigation. A person's opinions, reasoning, and perceptions regarding phenomena are measured using the Likert scale (Sugiyono, 2008). The 5-point Likert scale was employed in this investigation.

Figure 3. Flowchart of Collecting Data

Data Collection Technique

The flow chart in Figure 3 illustrates how a respondent took part in this survey. The researcher will create a kind of scenario in which the respondent is viewing the Covid-19 news on the website to accurately assess the intrusion of the mid-roll video ad. While the respondent is watching the news, a non-skippable...
15-second mid-roll video ad will be placed. Ads that matched of K-Poppers are used in this study, as well as ads that did not match the interests of K-Poppers. So that, it can be seen how the respondent's behavior when faced with annoying ads that match their preferences and annoying ads that didn't match their preferences.

**Measurements**

- **Perceived Intrusiveness**
  The level of perceived intrusiveness was assessed using a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." "When the commercial was played, I think it was...distracting, upsetting, forceful, interfering, and invasive".

- **Consumer Attention**
  Consumer attention was assessed using a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." Participants reacted to the statement, "I paid careful attention to the ad; the ad required my attention."

- **Purchase Intention**
  Purchase intention was measured using a 5-point Likert scale that measured respondents' attitudes from "Strongly Disagree-Strongly Agree." Participants responded to the statement, "I am willing to buy the product."

- **Celebrity Preference**
  Celebrity preference was measured using a dummy variable. 0 indicates the ad category that matches the respondent's preference, while 1 indicates the ad category that does not match the respondent's preference.

**Multigroup SEM Analysis**

Research usually involves data sourced from several different population groups. Multigroup analysis in structural equation modeling (SEM) is another form of moderation analysis but uses categorical variables or grouping variables. All respondents in this study were k-poppers, so this research involved data from two different groups, advertisements that matched k-poppers' preferences and advertisements that did not match k-poppers' preferences. The k-poppers and non k-poppers respondent data groups where this group has a major influence on the variance of the data studied.

Standard data analysis for cases like this can cause residual heterogeneity problems so that solutions must be found that can provide better model reliability. In structural equation modeling, this condition can be accommodated by the multigroup modeling approach. Variables that are used as groups are also generally moderator variables so that some researchers solve this multigroup problem by using a moderator variable approach. To estimate the effect of multigroup, we used the Chi-square difference test with "Stats Tools Package Software" as a tool to see whether it is significant or not.

4. **Result and Discussion**

**Sample and Characteristics of Participants**

Respondents who participated in filling out the research questionnaire were 155 people; each of the respondents answered two questionnaires. Demographic conditions of respondents who took part in this survey based on gender were only 7.4% male and 59.7% female, then respondents aged 17-25 years were 53.7%; over 26-35 years as much as 12.6%; and only 0.9% of respondents aged over 36 years. Then, the proportion of junior and senior high school education is 26%; Diploma (D1-D4) 6.9%; Undergraduate 32.5% and Postgraduate only 1.7%. Furthermore, the duration of watching videos in a day, 18.6% of
respondents watched online videos for less than 1 hour; 29.9% of respondents watch videos online for 1-3 hours, and 18.6% of respondents watch videos online for more than 3 hours.

**Data Analysis and Discussion**

- **Validity Test**
  Confirmatory Factor Analysis (CFA) is used for validity testing by looking at the value of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO MSA). The resulting value must be greater than 0.5 (> 0.5) so that factor analysis can be carried out. Each item on each variable is valid because it has a value greater than 0.5.

- **Reliability Test**
  The reliability coefficient was calculated by Cronbach's alpha. Alpha Cronbach of variables was: perceived intrusiveness 0.971, consumer attention 0.893, purchase intention 0.897, and the hedonism personality was 0.911. These show that the questionnaire has the required reliability because they have a Cronbach's alpha value >0.60.

- **Model Accuracy Test**
  Evaluation of the criteria for the goodness of fit in this study can be seen in the table below along with the suggested cut of value:

<table>
<thead>
<tr>
<th>The goodness of Fit Index</th>
<th>Cut-off Value</th>
<th>Result</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square</td>
<td>The smaller the better</td>
<td>100.424</td>
<td>Poor</td>
</tr>
<tr>
<td>GFI</td>
<td>&gt; 0.90</td>
<td>0.927</td>
<td>Good</td>
</tr>
<tr>
<td>AGFI</td>
<td>&gt; 0.90</td>
<td>0.889</td>
<td>Poor</td>
</tr>
<tr>
<td>TLI</td>
<td>&gt; 0.90</td>
<td>0.964</td>
<td>Good</td>
</tr>
<tr>
<td>CFI</td>
<td>&gt; 0.90</td>
<td>0.972</td>
<td>Good</td>
</tr>
<tr>
<td>RMSEA</td>
<td>&lt; 0.08</td>
<td>0.070</td>
<td>Good</td>
</tr>
</tbody>
</table>

The results of the Table 1 analysis show each category index model in this study. it can be seen that the value of GFI is 0.927 and AGFI of 0.889. The RMSEA value is 0.070 less than 0.08. Then, the value of CFI and TLI, respectively 0.964 and 0.972, are greater than 0.90 meaning that this research model can be said to be a good model.

**Hypothesis Testing Results and Discussions**

In this study, hypotheses were tested using IBM AMOS version 22 and additional software called "stats tools package" to analyze multigroup. Codes 0 and 1 were used to conduct multigroup moderation testing. The preference category was code 0, while the non-preference category was code 1. The following tables show the processing results:
Table 2. Hypotheses Results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Estimate</th>
<th>p-value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₁ Perceived intrusiveness has a negative impact on consumer attention</td>
<td>-0.522</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>H₂ Consumer attention has a positive impact on purchase intention</td>
<td>0.750</td>
<td>0.000</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Table 3. Multigroup Moderation Results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Pref.</th>
<th>P-value</th>
<th>Non-pref.</th>
<th>P-value</th>
<th>z-score</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₃ Celebrity preference moderates the impact of perceived intrusiveness on consumer attention</td>
<td>-0.662</td>
<td>0.000</td>
<td>-0.581</td>
<td>0.000</td>
<td>-0.554*</td>
<td>Supported</td>
</tr>
<tr>
<td>H₄ Celebrity preference moderates the impact of consumer attention on purchase intention</td>
<td>0.875</td>
<td>0.000</td>
<td>0.601</td>
<td>0.000</td>
<td>-1.933*</td>
<td>Supported</td>
</tr>
</tbody>
</table>

The impact of perceived intrusiveness on customer attention has a p-value of 0.000 and a negative estimation coefficient of -0.522, as shown in the table above. Since the p-value is less than 0.05 (<0.05) and the coefficient is negative, the first hypothesis is supported. This suggests that the higher of distractions, the less likely the consumer is to be attracted to see the ad. Users, on the other hand, are more likely to see ads if their level of distraction is low. This implies if the ad is less intrusive, people will be more likely to watch it. Therefore, marketers should create less intrusive ads to keep viewers interested.

The result suggests that respondents did not like advertisements that cannot be skipped because they are not allowed to miss relevant or irrelevant advertisements to watch. This result is also in accordance with the statement of MacKenzie et al. (1986) and Smith (2011) that consumers tend to have negative perceptions of online advertising because it tends to interfere.

The impact of customer attention on intention to purchase has a p-value of 0.000 and an estimate value or the positive coefficient of 0.750, as shown in the table above. The positive coefficient and the obtained P-value less than 0.05 (<0.05) imply that the second hypothesis is supported. When online video ads attract someone, they may want to find out more about the benefits and uses of the advertised product, so their intention to buy will increase. These findings confirm the results of a study conducted by Abdurrahim et al. (2019) and Alalwan (2018) regarding the AISAS model in marketing, which states that attention has a positive and significant effect on consumer decisions in purchasing certain products.

Based on the table above, celebrity preference managed to moderate the effect of intrusiveness on customer attention. P-value 0.000 is smaller than 0.05 (<0.05). The presence of celebrity preference can reduce feelings of being disturbed so that consumer attention will increase. Then, ads with preference and non-preference categories showed a slight difference between the estimated values of -0.662 and -0.581. A negative estimate value indicates that it will still attract attention if the ad meets a viewer's preferences.

Furthermore, the z-score value is -0.554*. The sign (*) indicates that celebrity preferences have a substantial moderating effect on the relationship between perceived intrusiveness and consumer attention. This shows that the presence of annoying ads can still attract attention if the audience likes the star of the
ad. These findings confirm the results of a study conducted by Kang (2020) that people's love for their favorite celebrities can reduce skepticism about online video advertising. The same thing was also stated by Tran et al. (2019) that consumers believed more in messages conveyed by their favorite celebrities.

The last hypothesis is supported. Celebrity preference has been demonstrated to have a large moderating influence on the link between consumer attention and intent to purchase. The P-value of 0.000, which is less than 0.05 (<0.05) demonstrates it. Furthermore, as predicted values of 0.875 and 0.601 shows, people's purchase intentions for advertising items in the preference and non-preference categories are a little bit different. As seen by the positive coefficient, celebrity preference has been demonstrated to strengthen the link between customer attention and intent to purchase. The moderating impact of celebrity preference on the link of consumer attention to purchase intention is proved to be substantial when examined from the z-score value of -1.933* displayed in the table above. This indicates that the greater people's attention to the ad presented by the idol star, the higher their intention to buy. The ad estimate has a larger value than in the non-preference category in the preference category. This demonstrates that advertisements using K-Pop stars that display when consumers access content on the internet successfully affect people's purchase intentions compared to advertisements featuring non-Kpop stars. These findings confirm the results of a study conducted by Seno and Lukas (2007) that celebrity endorsement of the company has a more robust and productive impact on attracting consumer buying interest than non-celebrity endorsements.

5. Conclusion

This study focuses on the moderating effect of celebrity preferences on the relationship of perceived intrusiveness, consumer attention, and intent to purchase. The study focused on video mid-roll ad that is considered the most intrusive among internet users. Multigroup is used in this study to divide into ads that match preferences and ads that don't match preferences. Internet users are often bothered by mid-roll video ads when accessing content on the internet. The effect of the level of intrusiveness is different for each individual depending on how they perceive advertisements as disturbing. The use of K-pop idols as advertising stars has indeed been proven to attract the attention of fans which will ultimately have the potential to buy, even though the ad is in the midst of people while watching content on the internet. This study uses a sample of respondents who are all K-pop fans to prove it. This study uses multigroup to divide the categories of ads according to respondents' preferences and ads that do not match respondents' preferences. Based on the results obtained, all hypotheses are supported. As expected, perceived distraction was shown to have a negative effect on consumer attention. If consumers are interested in advertising, it may attract buying interest. Furthermore, celebrity preferences were shown to moderate the relationship between perceived intrusiveness and consumer attention. Thus, the ad will still be able to get the attention of the audience if the audience has liked the celebrity who is the star of the ad.

Based on the results, discussion, and conclusions described above, some suggestions that can be given to further researchers are as follows: 1) Further research can use other alternative methods, for example by using pure experimental methods or direct interviews to assess the perceived level of intrusiveness 2) Future researchers are expected to be able to use advertisements with unknown brands so that the advertising results can be truly accurate. Certain types of mid-roll video advertisements such as mid-roll music videos, mid-roll video games, or mid-roll movie trailers, and 3) Further researchers are advised to add variables related to the respondent's personality; this is because everyone has a different personality tendency.

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