

# Does Consumer Behaviour Matters? Online Advertising Evaluation via Predictive Analytics

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## **Abstract**

**Purpose:** The purpose of this study is twofold: to access the impact of credibility, informative, pleasure and materialism on consumer's behavior towards online advertising and to explore the effect of consumer's behavior of online advertising towards informational responses.

**Design/methodology/approach:** An online questionnaire was utilized to collect the data (n=118) for this study. Data collection was focused at Seremban, Negeri Sembilan, Malaysia. The purposive sampling technique was used, involving respondents who have had online advertising experience. The multiple regression method, which is one of the predictive analytics technique, was used to analyze the data, with the assistance of SPSS Software.

**Findings:** Based on the predictive analytics via multiple regression analysis, the results reveal that informative was found to be the most significant determinant of consumer's behavior towards online advertising. Furthermore, pleasure and materialism also impacted consumer's behavior towards online advertising. However, credibility was an insignificant determinant. On the other hand, consumer's behavior of online advertising was found to be significant determinant of informational responses.

**Research limitations/implications:** Despite the fact that this study has provided new insights into the subject matter, it still has one limitation which is time constraint that have prevented researchers from conducting surveys across larger sample sizes and geographic areas. The public sample from Seremban, Negeri Sembilan would not be representative of the

population in Malaysia as a whole. Therefore, extensive sampling is recommended to increase the generalizability of the results.

**Practical implications:** Informative, pleasure and materialism can be used by marketers, firms and businesses to better create their online advertisements, as well as to increase the informational responses.

**Originality/value:** The empirical results of this study address the gap in the prevalent body of knowledge in reference to the impact of consumer's behaviour towards online advertising, as well as the effect of consumer's behavior of online advertising towards informational responses by applying the Theory of Reasoned Action (TRA). As exploration of this relationship has been developed, the study makes a novel contribution to the extant literature in the context of Seremban, Negeri Sembilan, Malaysia, thus providing insight into this subject matter, which has not been clearly examined in previous studies.

**Keywords:** Online Advertising, Consumer Behavior, Credibility, Informative, Pleasure, Materialism, Predictive Analytics

## Introduction

People tend to use the internet daily for their routine tasks. Internet became a part of daily life where it is not only a medium to get information but beyond that. Advertising will be done through a spread of media. While not advertising, customers might not understand the merchandise. The advertising and marketing portfolio consists of eight advertising methods: private sales, direct marketing, advertising, promotions and exhibitions, public members of the family and promotions, occasions and experiences, interactive marketing and word of mouth (Shah & Tiwari, 2021). Ask the salesperson to make sure to visit the retail store, ensure that there is sufficient inventory, and provide appropriate training so that the product can be delivered to the consumer (Ahmed et al., 2019) and commercials are placed on television, radio, newspapers and different advertising and marketing channels and advertisers pay advertising organizations to vicinity advertisements. As noted above, advertising relates to products.

In addition, the Internet is the most powerful weapon for communication and entertainment and to a large extent plays a role in shopping. Many new websites are opened every day, covering important news, some other necessary facts on e-commerce, etc., and other fields. These sites are ideal places to promote any types of products and also may be promoting some services because most of people around the world are tend to visit almost daily and advertising are closely relating to point of the effectiveness of advertising towards internet. Advances in transportation and technology have caused manufacturers to reconsider their decisions to improve their ability to provide product awareness (Zangnaa et al., 2020). Since these events, advertising has become an important area of economists' research (Taghipoorreynah & Cyril De Run, 2016).

Advertising can help provide consumers with information that helps them meet their needs. The effect of advertising cannot be completely determined theoretically, that is, when the company's demand curve touches its average U-shaped production and sales costs, the information or persuasiveness of the advertising and whether there are economies of scale cannot yet be determined (Battista et al., 2021). The information vision of advertising promotes the use of advertising to inform consumers about the different types of products and also the services. There is an additional vision also has been suggested of influences from advertising to consumers by "attributing additional influences to useful parts of the consumer" (Ajina, 2019).

Thus, the objectives of this study is twofold: (i) to access the impact of credibility, informative, pleasure and materialism on consumer’s behavior towards online advertising and (ii) to explore the effect of consumer’s behavior of online advertising towards informational responses. The empirical results of this study, would address the gap in the prevailing body of literature with reference to the impact of consumer’s behaviour towards online advertising, as well as the effect of consumer’s behavior of online advertising towards informational responses by applying the Theory of Reasoned Action (TRA) in Seremban, Negeri Sembilan, Malaysia. This study would also offer new viewpoints of the findings apart from previous studies. The proposed model could assist marketers, firms and businesses to identify specific factors, which have great effects on online advertising.

This paper is presented as follows. Section 2 summarizes the literature review. Next, researchers outline the methodology. Section 4 presents the results and discussion. Lastly, the conclusion.

## Literature Review

### Overview of Literature Review

Theory of Reasoned Action, TRA is explained in this literature review section together with research variables (dependent and independent) by reviewing other articles and research on the similar research topics.

### Theory of Reasoned Action (TRA)

The TRA model as shown in Figure 1 is developed by Ajzen and Fishbein (1980). This model hypothesize that behavior is determined by an individual's intention to act as a function of two other fundamental factors that reflect personal and social influence.

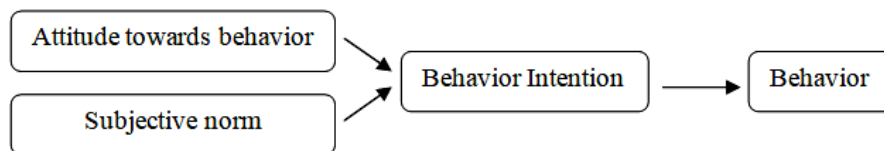


Figure 1: TRA Model

## Hypothesis Development

Online advertising has caught the attention of most advertising channels with the current revolution of the technological age. Its commercial value has grown drastically over the year. The awareness of advertising in digital media has not shown any significant increase. The methods used to analyze, classify and prioritize the relevant components (Ahmed et al., 2019). Overall, the effective elements and theoretical contributions of online advertising of consumer behavior were discussed (Shah & Tiwari, 2021).

Various researchers analyzed many factors that may affect online advertising recall, including features, browsing behavior, and the length of time users spend browsing the Internet, advertising campaigns, websites, and advertisements. Al-Azzam and Al-Mizeed (2021) studied the role of better quality advertising. Especially animation, the size and wavelength of the banner’s contribution to advertising, especially brand orientation, which may indicate how important this is.

Scholar’s observations of advertising can have a positive or negative impact. Why online advertising is becoming more and more effective, but still has not answered some questions (Idris et al., 2020). The answer is: "Marketing Value" believes that positive thinking will benefit from communication in many ways. The correlation between the

product and the music is low to support the result, which may affect the product preference for the selected wavelength.

There are different types of advertising, but the Internet is the main advertising medium that uses the World Wide Web (WWW). The research will use advertising as a medium to communicate with other people to obtain reliable information through researchable advertising (Ishikar et al., 2020). The market is at a high level. By using e-mail methods to improve the level of the audience, the discussion group is the interaction between the main group and the second group can improve the use of internet access more effectively without hesitation. The Internet plays an important role, and everyone can work without interruption (Shah & Tiwari, 2021).

The focus on customer shopping for behavior is how people spend precious resources (time, money, and energy) on patron products consists of the items you purchased, vicinity, and the wide variety purchases (Victor et al., 2018). Buy it, how regularly it is used, how to evaluate it after purchase, how it will have an effect on the future and how to get rid of it.

Based on the existing literatures, the following relationship can be hypothesized:

- H1:** Credibility is significantly related to consumer’s behavior towards online advertising.
- H2:** Informative is significantly related to consumer’s behavior towards online advertising.
- H3:** Pleasure is significantly related to consumer’s behavior towards online advertising.
- H4:** Materialism is significantly related to consumer’s behavior towards online advertising.
- H5:** Consumer’s behavior towards online advertising is significantly related to informational responses.

### Method

This methodology section summarizes the methodology used in this research including the research framework as shown in Figure 2, population and sampling, questionnaire development and statistical technique. In this study, researcher uses a quantitative-based cross-sectional research design.

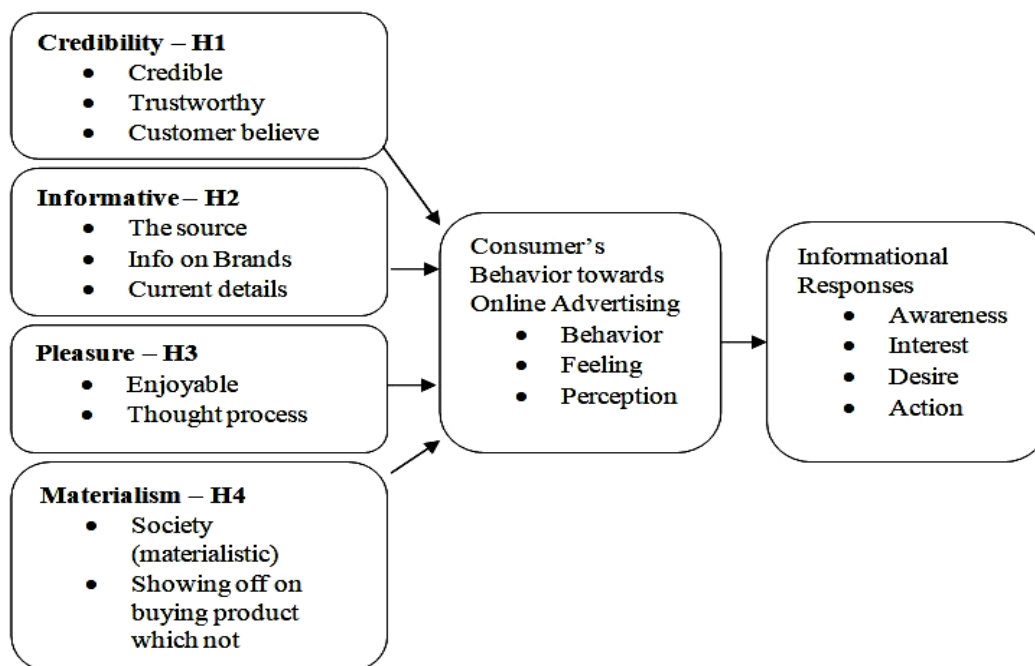


Figure 2: Research Framework

### ***Population and Sampling***

As of January 2022, Malaysia's total population was 32.98 million. According to a data report (<https://datareportal.com/reports/digital-2022-malaysia>), the number of internet users in Malaysia in January 2022 was 29.55 million. This report also highlighted that in January 2022, YouTube ads was equivalent to 79.9% of Malaysia's total internet user, Instagram's ads 52.6%, TikTok's ads 49.4%, Facebook Messenger's ads 41.1%, LinkedIn's ads 21.3%, Twitter's ads 14.9% and Snapchat's ads was equivalent to 4.6% of Malaysia's local internet user.

A quantitative method was applied through the distribution of a structured online questionnaire to the public in the Seremban, Negeri Sembilan, Malaysia, via the purposive sampling technique. The respondents have the online advertising experience. After the responses were screened, a total of 118 were found usable and valid as samples for analysis. This figure is considered reasonable for statistical analysis, as stated by Bagozzi and Yi (2012) that recommended the sample size for a study should be above 100, and if possible, above 200.

### ***Questionnaire Development***

Figure 3 shows the process flow of the questionnaire survey. Questionnaire information received by an interviewee. So these forms are forms with questions. Because the questionnaires in this survey contain structured questions and are not structured to provide information about the respondents, respondents may fill out these forms to obtain information from the responses provided (Taghipoorreynah & Cyril De Run, 2016).

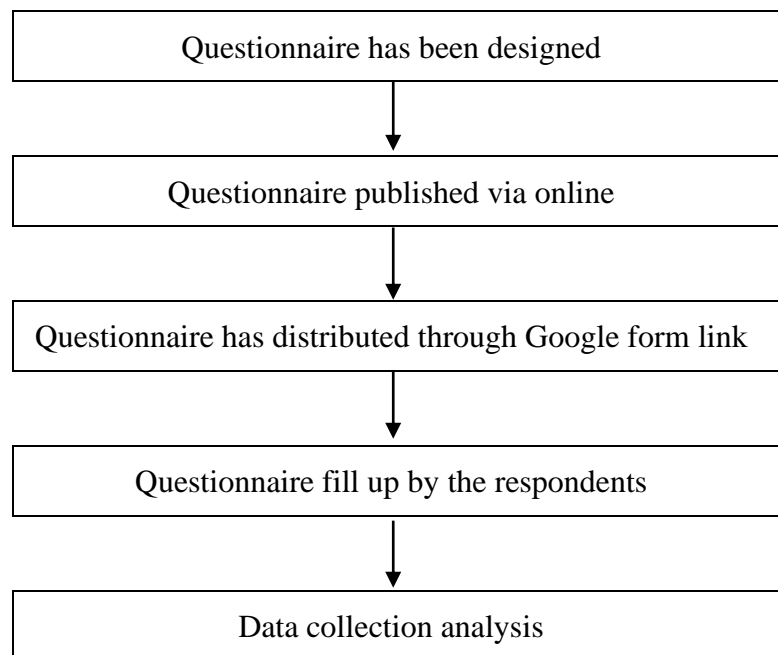


Figure 3: The process flow of questionnaire survey

First and foremost, the questionnaire has been designed according to the needs of the research. Once designed, the survey form is need to be distributed to the public by hand and as well as published towards online such as Facebook, WhatsApp groups, Twitter and other relevant mass medias which is very essential and necessary to the research. On the other

hand, the questionnaire has been distributed through Google Form link in order to get the data to move to the next step to conduct the analysis.

The questionnaire needs to be filling up by the respondents and need to be get it done to collection. After the data has been collected will further to the next process of the research. The questionnaire was adapted from the sources as below: consumer behavior towards online advertising (Shah & Tiwari, 2021) and the questionnaire has been designed Likert scale which indicates 1 as “strongly disagree” to 5 indicates as “strongly agree”.

### Statistical Techniques

In this study, researcher uses a quantitative-based cross-sectional research design contains four independent variables; (1) credibility, (2) informative, (3) pleasure, (4) materialism and a conceptual framework were established. The dependent variable in this study is the consumer’s behavior towards online advertising. The conceptual framework shown that the relationship between independent and dependent variable is shown in Figure 2.

This study uses the regression modeling, one tool and the most used of predictive analytics (Bala, 2017). Regression analysis entails looking to understand and assessing the strength in the association between independent and dependent variables.

### Findings

This section presents the findings of this research. It starts with the demographic characteristics of respondents, followed by the predictive analytics via multiple linear regression analysis. Data is analyzed using Statistical Packages for Social Sciences (SPSS).

### Demographic Profile

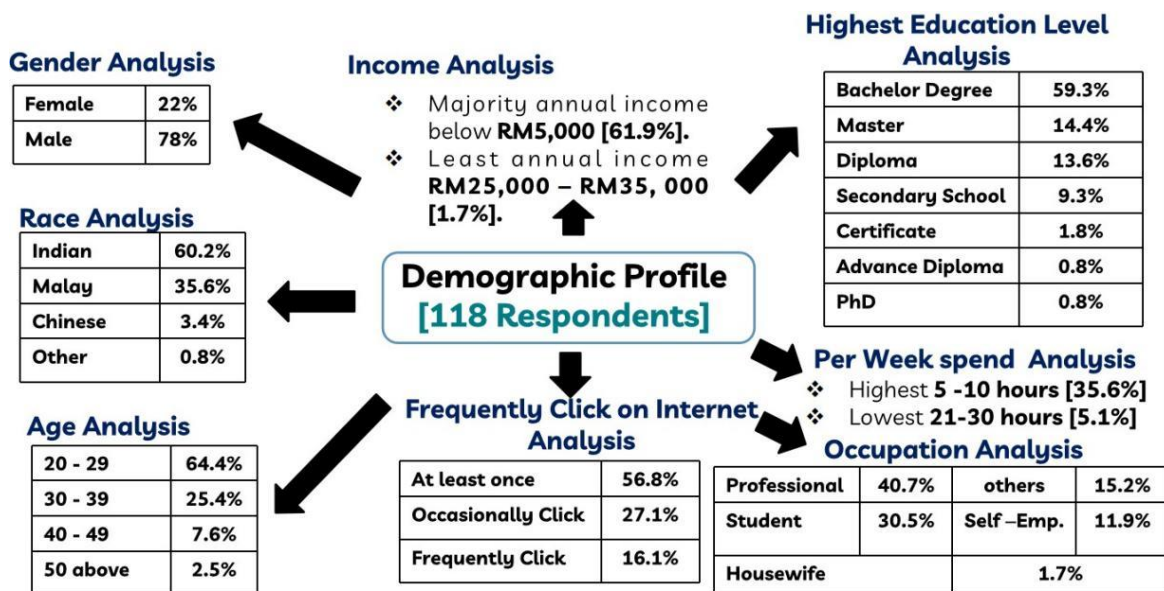


Figure 4: Demographic Profile of Respondents

According to demographic analysis, 118 respondent’s data survey has been collected. From there, we could summarize that there are 78% of male respondents and 22% of female respondents were involved in this study to accomplish the survey. There are 60.2% of Indians, 35.6% of Malays, 3.8% of Chinese and 0.8% of other respondents involved in this survey.

According to the analysis, majority respondents are the age between 20-29 which is 76%, following 30-39 (25.4%), 40-49 (7.6%) and the remaining ages are 50 and above which is 2.5% respectively. Furthermore, the highest education level analyzed as the respondents from Bachelor degree is the highest 59.3%, 14.4% Masters, 13.6% Diploma level and least number of respondents are from the background of PhD which is 0.8%.

Based on the occupation analysis, the highest respondents are from professionals (40.7%) following up 30.5% students, 11.9% self-employed, 15.7% other occupations and the least number of percentage from housewives, 1.7%.

Apart from that, income analysis has analyzed as the majority annual income is below RM5, 000 which 61.9% while the least annual income is in between RM25, 000 to RM35, 000 which is 1.7%. On the other hand, the highest per week analysis is in between 5 – 10 hours, 35.6% while the lowest analysis is in between 21 – 30 hours, 5.1%. Lastly, from the frequent user analysis can be concluded as 56.8% users use internet at least once, 27.1% user click occasionally and 16.1% users use frequently.

### ***Reliability Analysis***

Cronbach's Alpha was used for reliability analysis to assess the 6 variables. For credibility, informative, pleasure, materialism, and informational responses were all significantly above 0.90, implies the measurement scale to be stable and consistent. Table 1 summarizes of reliability assessment.

Table 1: Reliability analysis

| <b>Variable</b> | <b>Cronbach's Alpha</b> |
|-----------------|-------------------------|
| Credible        | 0.930                   |
| Informative     | 0.907                   |
| Pleasure        | 0.909                   |
| Materialism     | 0.908                   |
| IR              | 0.906                   |
| BTOA            | 0.896                   |

**Note:** IR = Informational Responses

BTOA = Behavior towards Online Advertising

### ***Inferential Analysis***

Based on Table 2, the correlation matrix table has developed from SPSS software to identify the p-value between independent and dependent variables and if the value is less than 0.01 the correlation is significant. Based on the table above could summarize that the association between BTOA to informative is the strongest ( $r = 0.805$ ) indicates informative has a positive significant to BTOA and the correlation coefficient is significant ( $p = 0.000$ ). Unfortunately, the relationship between BTOA to credible is the weakest ( $r = 0.593$ ) that reflects credible is moderately weak to BTOA. Overall, all independent variables significantly related to BTOA.

The p-value between independent to the dependent variables is 0.000, less than 0.01 that indicates it has significantly related to the variables. The value ( $r = 0.804$ ) which associated between IR and BTOA has strong positive significant between the two variables.

Table 2: Correlation matrices (Pearson)

|                    |    | Credible | Informative | Pleasure | Materialism | BTOA    | IR      |
|--------------------|----|----------|-------------|----------|-------------|---------|---------|
| <b>Credible</b>    | PC | 1        | 0.528**     | 0.651**  | 0.507**     | 0.593** | 0.468** |
|                    | S  |          | 0.000       | 0.000    | 0.000       | 0.000   | 0.000   |
|                    | N  | 118      | 118         | 118      | 118         | 118     | 118     |
| <b>Informative</b> | PC | 0.528**  | 1           | 0.699**  | 0.702**     | 0.805** | 0.750** |
|                    | S  | 0.000    |             | 0.000    | 0.000       | 0.000   | 0.000   |
|                    | N  | 118      | 118         | 118      | 118         | 118     | 118     |
| <b>Pleasure</b>    | PC | 0.651**  | 0.699**     | 1        | 0.689**     | 0.740** | 0.626** |
|                    | S  | 0.000    | 0.000       |          | 0.000       | 0.000   | 0.000   |
|                    | N  | 118      | 118         | 118      | 118         | 118     | 118     |
| <b>Materialism</b> | PC | 0.507**  | 0.702**     | 0.689**  | 1           | 0.736** | 0.769** |
|                    | S  | 0.000    | 0.000       | 0.000    |             | 0.000   | 0.000   |
|                    | N  | 118      | 118         | 118      | 118         | 118     | 118     |
| <b>BTOA</b>        | PC | 0.593**  | 0.805**     | 0.740**  | 0.736**     | 1       | 0.804** |
|                    | S  | 0.000    | 0.000       | 0.000    | 0.000       |         | 0.000   |
|                    | N  | 118      | 118         | 118      | 118         | 118     | 118     |
| <b>IR</b>          | PC | 0.468**  | 0.750**     | 0.626**  | 0.769**     | 0.804   | 1       |
|                    | S  | 0.000    | 0.000       | 0.000    | 0.000       | 0.000   |         |
|                    | N  | 118      | 118         | 118      | 118         | 118     | 118     |

**Note:** PC = Pearson Correlation; S = Sigma (2-tailed); N = Total Respondents; IR = Informational Responses; BTOA = Behavior towards Online Advertising; \*\*\*Correlation is significant at the 0.01 level (2 tailed); developed from SPSS software.

### Multiple Regression Analysis

Multiple regression analysis was used in this research as a statistical inferential analysis tool to test the hypotheses.

Table 3: Model Summary

| Model | R                  | R <sup>2</sup> | Adjusted R <sup>2</sup> | Std. Error of the Estimate |
|-------|--------------------|----------------|-------------------------|----------------------------|
| 1     | 0.804 <sup>a</sup> | 0.647          | 0.644                   | 0.55704                    |

**Note:** a. Predictors: (Constant), BTOA; BTOA = Behavior towards Online Advertising; developed from SPSS software.

Based on Table 3, the value of R square is 0.647 (64.7%) explains the variances in informational responses to BTOA while the remaining 35.3% were explaining the variances of informational responses by other factors.

Table 4: Test Significance (ANOVA)

| Model        | Sum of Squares | df  | Mean Square | F       | Significance      |
|--------------|----------------|-----|-------------|---------|-------------------|
| 1 Regression | 65.932         | 1   | 65.932      | 212.485 | .000 <sup>b</sup> |
| 1 Residual   | 35.994         | 116 | .310        |         |                   |
| Total        | 101.926        | 117 |             |         |                   |

a. Dependent Variable : RESPONSES

b. Predictors : (Constant), BTOA

**Note:** BTOA = Behavior towards Online Advertising; developed from SPSS software.



Based on Table 4, the value of F ratio is equivalent to 212.485 with the significance level of 0.000 which shows the difference between informational responses (IV) to BTOA (DV) which concludes the entire model is significance. Meanwhile, based on Table 5, the value of standardized coefficients Beta between IR and BTOA is 0.804.

Table 5: Multiple Linear Regression Analysis Coefficients<sup>a</sup>

| Model        | Un-standardized Beta | Coefficients Std. Error | Standardized Coefficients Beta | t      | Significance |
|--------------|----------------------|-------------------------|--------------------------------|--------|--------------|
| 1 (Constant) | 0.716                | 0.195                   | -                              | 3.673  | 0.000        |
| BTOA         | 0.785                | 0.054                   | 0.804                          | 14.577 | 0.000        |

a. Dependent Variable : RESPONSES

Note: BTOA = Behavior towards Online Advertising; developed from SPSS software.

### Regression Equation

From the analysis in this study, multiple regression equation has developed:

$$\text{Consumer behavior towards online advertising} = 0.305 + 0.396 (\text{Informative}) + 0.278 (\text{Pleasure}) + 0.273 (\text{Materialism}) \quad (1)$$

Next, the equation for the multiple regressions is as follows:

$$\text{Informational Responses} = 0.716 + 0.785 (\text{Behavior towards Online Advertising}) \quad (2)$$

### Hypotheses Results

Table 6 summarizes the hypotheses results of this research. From Table 6, the H1 is rejected indicates that credibility is not significantly related to the consumer's behavior towards online advertng because the Beta value is 0.113 with the significant value is 0.079.

H2 (Informative) has highest Beta value 0.460 significant value of 0.000, H3 (pleasure) has Beta value of 0.253 with the significant value, 0.001 and H4 (materialism) has the Beta value 0.239 with the significance value, 0.002 were not rejected and significantly related to the consumer's behavior towards online advertising.

Moreover, H5 also not rejected, as a result consumer's behavior towards online advertising also significantly related to informational responses. The Beta value is 0.804 with the significant value of 0.000. This shows that the consumer using internet to view online advertising has positive impact towards informational responses.

Table 6: Summary of Hypotheses Testing

| Hypothesis     | $\beta$ | p-value | Decision      |
|----------------|---------|---------|---------------|
| H <sub>1</sub> | 0.113   | 0.709   | Not supported |
| H <sub>2</sub> | 0.460   | 0.000   | Supported     |
| H <sub>3</sub> | 0.253   | 0.001   | Supported     |
| H <sub>4</sub> | 0.239   | 0.002   | Supported     |
| H <sub>5</sub> | 0.804   | 0.000   | Supported     |

## Discussion and Conclusion

118 respondents participated in this survey. The majority of the study sample consisted of Indians (60.2%) and males (78.0%). The majority of respondents are students with higher education (59.3%). Most of the respondents are between the ages of 20-29 (64.4%). Overall, the survey found that the majority of respondents spend 5 to 10 hours per week online (35.6%), with the majority clicking on online ads at least once (56.8%). This suggests that respondents typically see ads online.

As a result of statistical analysis, only H1 of the five hypotheses H2, H3, H4, and H5 was rejected. This suggests that informative, pleasure, and materialism are important predictors of consumer behavior toward online advertising. Additionally, consumer behavior toward online advertising is an important predictor of information response. Among the six structures, the mean informative value is the highest at 3.4470 and the mean credibility value is the lowest at 3.0593. The average values for the remaining structures are 3.3581 to 3.2514.

A review of the literature suggests that credibility is related to consumer behavior toward online advertising. However, this study comes to a different conclusion. This study shows that credibility is not significant to consumer behavior toward online advertising, consistent with the findings of Bala (2017). Overall, credibility index is not agreed with the research before that consumer behavior is favorable for online advertising when the advertising message is credible. Therefore, reliability does not necessarily affect consumers; Internet advertising behavior is still informative, entertaining and tangible when advertising.

The results of this study have some significant practical implications especially for marketers, firms and businesses. As the Internet becomes more and more important in people's lives, the use of the Internet is also increasing (Onewo et al., 2020). Therefore, it is strongly recommended that marketers to fully utilize the online advertisements via all possible Internet platforms other than focusing on the traditional way. As in this research, informative was found to be the most significant determinant of consumer's behavior towards online advertising, followed by pleasure and materialism. This research result provides evidence which marketers need to be considered as an important variables of online advertising when creating their online ads (Battista et al., 2021). This study also facilitates better decision-making and helps stakeholders to understand the concepts of online advertising and customer behavior easily and effectively, and also provides insight into the analysis of factors that influence customer's behavior toward online advertising (Shah & Tiwari, 2021).

The predictive analytics empirical findings of this study offer theoretical and academic contributions to the prevalent body of knowledge on consumers' behavior by providing invaluable insights of the impact of credibility, informative, pleasure and materialism on consumer's behaviour towards online advertising and the effect of consumer's behavior of online advertising towards informational responses in Seremban, Negeri Sembilan, Malaysia. Additionally, these results provide significant and unique inputs to the marketing theory, whereby informative, pleasure and materialism significantly influence the consumer's behaviour towards online advertising. Empirically, credibility is not a significant factor. Meanwhile, consumer's behavior of online advertising was found to be significantly influence the informational responses. The quantitative data analyses applied will permit future researchers to explain the significance of the current study in understanding online advertising. The empirical findings also contribute to the expanding literature on people and marketing analytics.

Despite the fact that this study has provided new insights into the subject matter mentioned above, it still has some limitations that could be explored in future studies. The public sample from Seremban, Negeri Sembilan would not be representative of the

population in Malaysia as a whole. Therefore, extensive sampling is recommended to increase the generalizability of the results.

### Acknowledgment

We thank UMP for the financial support through research grants with RDU200309 & RDU200720.

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