A Study on the Roles of Online Advertising Blockers on Determinants of Consumer Buying Behavior

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Abstract: Many systems and businesses use cyberspace for online advertising to introduce their products and services, but the emergence of online advertising blockers (adblockers) and the widespread desire of cyberspace users to use these technologies have vastdimensions and implications for the Internet advertising ecosystem that seems to have been neglected by many experts. The present study aimed to investigate the role of Internet advertising blockers on determinants of consumer buying behavior. The statistical population consisted of users in the age range of 20 to 40 years as the most common users of cyberspace. The present study was conducted using structural equation modeling (SEM). The data collection tool included a questionnaire with the Likert scale which was validated and confirmed using confirmatory factor analysis (to confirm validity), and Cronbach's alpha coefficient (to confirm reliability). The results confirmed that the widespread use of online advertising blockers, despite their widespread use, had significant effects on reducing customers' purchase intention, consumers' awareness of products and services, brand association in deciding to buy, and consumers' perceived quality of the brand.

Keywords: Blockers; Online Advertising; Consumer Behavior; Purchase Intention; Brand Association

1. Introduction and problem statement

Marketing is a process by which companies create value for customers and establish a very strong relationship with them to create value for themselves (Cutler and Armstrong, 2013). Based on this belief, the current world is the world of advertising. Advertising is the most powerful knowledge-making tool in introducing a company, channel, service, or idea. Advertising has a significant widespread field so that if advertisingis constructive and attractive, it can create a positive image in the audience, in addition to making them somewhat interested in the subject, encouraging them to accept and recognize the products and brands. (Shafiei Nikabadi et al., 2017).

In today's world, with the increasing advancement of technology, in the field of communication and the need for advertising on a larger scale and the ability to reach a large number of people in the community, the Internet has been proposed as one of the most important tools for advertising (Mohaghar et al., 2017). Advertising that is constantly exposed to the eyes of the audience through mass media such as television, radio, newspapers and other media and leads him to the desired channel and services. (Khoram Rad, 2016).With the advent of the Internet and the World Wide Web, this platform has become one of the most important marketing channels used to convey messages and information to consumers (Levin et al., 2013). Although digital advertising as a primary marketing communication platform has played an important role in digital marketing today, in recent years many users have sought to enhance their web experience, as well as protect their privacy and protect themselves from annoying ads. And they use blockchain technologies, so many companies use websites and online advertising as their advertising tools to sell their products and services, and marketers spend billions of dollars every year on online advertising. However, the audience of these ads (consumers) has more control over whether or not to receive these ads than other advertising tools, because it is the Internet that determines how much and when, online ads. Be presented to them or not at all (Kargankar et al., 2013).An overview of the available evidence indicates that more than 617 million Internet users use this software to block advertising messages. In 2012, the phenomenon of end-users blocking ads was hardly significant. Its rapid growth began the following year. In 2013-2017, the number of people blocking ads on desktops increased from 54 million to 236 million. At the same time, since 2015, the number of people blocking ads on mobile devices has been growing rapidly, reaching 380 million in 2017.

This phenomenon is mainly developing in Asian countries. In the vast majority of cases, ads are blocked by end users who use extensions available for almost all Internet browsers (Volki et al., 2018).Now with the emergence and promotion of online ad blockers and the promotion of users' use of various technologies and software to prevent the display of these ads using methods such as rejecting content or hiding its elements, this ambiguity about the impact of these blockers on the ability Internet advertising is created in attracting customers to websites and persuading them, what are the effects and consequences of expanding the use of this blocker on the main cycle of digital marketing, consumers, brand and marketing strategies. From this and in the present

study, the researcher seeks to answer the main questions: What effect does the use of online ad blockers have on consumers' buying behavior?

2. Online advertising and its role in digital marketing

The internet activity of organizations is almost more than expected so that organizations encourage their customers to visit their websites. Tools such as text messages, publication,and printing of advertising well indicate the literature of large companies in using websites to communicate with their customers (Jahanian et al., 2015).Internet advertising is a type of digital advertising that is very important in marketing activities, because today the Internet is very easy to access, the number of users is increasing day by day and in the current situation has become a common and dominant business model. (FankenBergro et al., 2012). The results of many researches show that today a large number of people tend to the Internet and use it, and this attraction provides the conditions for a positive effect on people's attitudes toward Internet advertising (Bagherjiran et al., 2015).

In fact, the use of the Internet platform for advertising has made it possible for any company or organization, through Internet sites to be able to easily obtain the necessary information about customer feedback regarding its products or services and as a result, customer views. Pay attention to the type and quality of your products and services quickly, which indicates the increasing importance of online advertising (Krim et al., 2016),In other words, Internet advertising makes it possible to provide more information about products and services and creates a two-way communication between the organization and the audience (Kirkova et al., 2015). Therefore, companies use online advertising to sell more of their products and services, along with higher return on investment (Huang et al., 2015). Considering that the cost of advertising on the Internet is lower than other advertising media and companies can communicate with their audiences through a careful planning that are scattered in different parts of the target market and are easily accessible through traditional advertising systems. (Hanafizadeh et al., 2012) It also provides the possibility of access to new markets in expansion and also provides global and overnight access to the company's products and services for everyone (Kirkova et al., 2015)

2-1. Online advertising blockers and their effects on the digital marketing cycle

Advertising refers to theimpersonal communication and introduction of a product or service via various carriers in exchange for receiving money for for-profit or non-profit organizations, or individuals who are specified in the messages.Commercial advertising is a dynamic science that takes on a new shape every day with social, political and economic changes and finds a special content in different environments according to beliefs, customs, culture and religion. Advertising means conveying a message, introducing something to others or pretending to be good or bad, and includes visual and spoken messages to promote an idea or product from a source through advertising channels to specific groups or to the whole community. It is transferred and paid for.

Digital advertising as a factor that is closely related to the development of e-commerce, despite the increase in the cost of advertising, has faced many tensions for reasons such as the swallowing of much of its resources by various methods and the development of blocking technologies. Is. The use of blocking software, in addition to desktop computers, has also become common on mobile devices (Wilki et al., 2018).From the users' point of view, adopting such solutions has advantages such as making it easier to work with online resources and improving privacy and increasing security. They pay a certain amount to publishers (Schiller et al., 2018).

So when users and consumers use software and ad blocking methods on their devices, they cut off the revenue stream to publishers, which in many cases is the main source of revenue. For example, according to estimates, the losses incurred in the advertising revenue of the top 100 publishers through blockers amount to more than $ 1 billion, and it is predicted that due to the development of the use of these blockers, this figure will increase significantly. Increase. Examining the main reasons for users and consumers of these softwares indicates that these consumers use blockers for three main reasons: the high volume of advertisements that Internet users encounter in the electronic space; 2) aggressiveness and high and abnormal volume of tilate; 3) Digital advertising does not match the interests of Internet users (Wilki et al., 2018). In the first case, as shown, as e-commerce continues to grow, investment in digital advertising is also on the rise, which means it will increase even more in the coming years.Therefore, in order to minimize the effects of ad blocking, it seems that institutions active in the digital advertising ecosystem, especially publishers, should focus primarily on two other reasons related to the development of this phenomenon (Tadri, 2020). The key issue seems to be to minimize the forms of advertising that are aggressive and annoying to the user, so in the context of these results and the continued sustainable operation of the digital advertising ecosystem, it is essential that the advertising industry be able to provide users with alternatives to block ads. They value from their own point of view and consider the expectations of users (Katna et al., 2018).

Tadri (2021) argues that although online consumer spending is reduced by approximately $ 14.2 billion a year due to ad blockers. However, because they reduce consumer search activities in information channels, they cause consumers to turn to brands they have experienced in the past in their choices (Tadri, 2021). Due to the existing theoretical gap and very few and scattered studies on the effects of blockers on the factors influencing and stimulating consumer buying behavior, the present study seeks to investigate the effects of advertising blockers on the components of consumer buying behavior. Which is proposed in the form of Figure (1) as a conceptual model of the research:
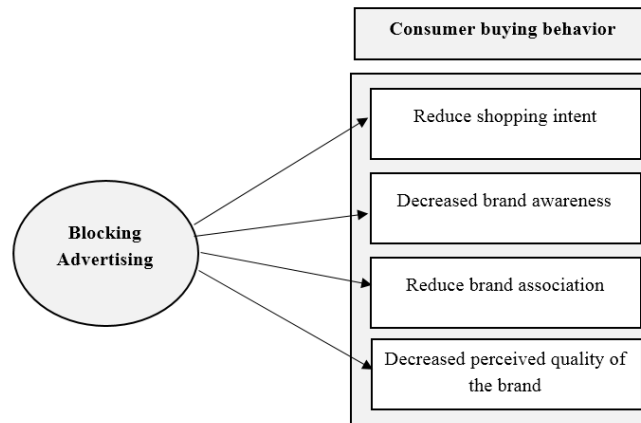

Figure 1. Conceptual model of research (adapted from library studies)

Therefore, the hypotheses of this research are: Hypothesis 1: Advertising blockers have a significant effect on reducing customers' intention to buy. Hypothesis 2: Advertising blockers have a significant effect on reducing consumer awareness of the brand. Hypothesis 3: Advertising blockers have a significant effect on reducing brand association. Hypothesis 4: Advertising blockers have a significant effect on reducing the perceived quality of consumers of the brand.

3. Research methodology

The present study was applied and had a survey-correlational and quantitative type. The statistical population consisted of Internet users in the age range of20 to 40 years as the most populous age group of Internet users. Due to the uncertainty of the statistical population, according to the Morgan table for communities of more than 10 thousand people, the sample size was equal to 385 people and sampling was done by simple random sampling. Data collection in this research is of field type.

Data and information related to this research have been collected using library resources and information related to research hypotheses using a questionnaire with a five-point Likert scale. Validity confirmation in this study was calculated using confirmatory factor analysis and its reliability was calculated equal to 0.7 using Cronbach's alpha formula. Data analysis was performed using descriptive and inferential techniques, Kendall coordination coefficient and structural equation methods and using PLS software. The calculated results of Cronbach's alpha indicate the desirability of the questionnaires.

Table 1.Results of Cronbach's alpha coefficients

Alpha coefficient	Number of items	Research variables
0/783	5	Reduce shopping intent
0/851	3	Decreased brand awareness
0/798	3	Reduce brand association
0/834	6	Decreased perceived quality of the brand

4. Results

Before entering the research hypothesis test, the accuracy of questions about research variables must be ensured; hence, the confirmatory factor analysis was used at this stage.For factor analysis, KMO statistical indicators and Bartlett test are used to determine the ability to perform factor analysis on the collected data. The KMO index is used to examine the severity of cross-correlations between questions and variables. This index is in the range of zero to one. If the value of the index is close to one, the data are suitable for factor analysis.

Depending on how careful the researcher is to remove the questions, the criterion value is introduced from 0.5 to 0.7 for national loads.

Table 2. KMO test results and Bartlett research variables

	KMO	Bartlett test		
		Test (x^2)statistics	Degrees of (df)freedom	Probability of significance (P-VALUE)level
Reduce shopping intent	0/758	111/241	15	0
Decreased brand awareness	0/691	51/522	36	0
Reduce brand association	0/749	57/368	17	0
Decreased perceived quality of the brand	0/739	85/369	10	0

According to the results in Table (2), for all research variables, the KMO index values of Bartlett test have a significance level of 0.0, so the data have the necessary desirability for analysis. Another important point in applying factor analysis is the calculation of the correlation matrix. This matrix is a set of correlation coefficients between a number of variables. The results shown in Table (3) indicate a favorable correlation between the research variables.

Table 3. The degree of correlation between the main variables of the model

		Reduce shopping intent	Decreased brand awareness	Reduce brand association	Decreased perceived quality of the brand	Online ad blockers
Reduce shopping intent	Number	18	18	18	18	18
	Pearson correlation	1	0/89	0/73	0/78	0/81
	sig	0/0	0/0	0/0	0/0	0/0
Decreased brand awareness	Number	18	18	18	18	18
	Pearson correlation	0/89	1	0/67	0/79	0/87
	sig	0/0	0/0	0/0	0/0	0/0
Reduce brand association	Number	18	18	18	18	18
	Pearson correlation	0/73	0/67	1	0/77	0/83
	sig	0/0	0/0	0/0	0/0	0/0
Decreased perceived quality of the brand	Number	18	18	18	18	18
	Pearson correlation	0/78	0/79	0/77	1	0/82
	sig	0/0	0/0	0/0	0/0	0/0
Online ad blockers	Number	18	18	18	18	18
	Pearson correlation	0/81	0/87	0/83	0/82	1
	sig	0/0	0/0	0/0	0/0	0/0

Overall fit of the research model in the partial least squares method, the fit of the model is determined by calculating the value of GOF. 0.447 for GOF confirms a very good fit of the overall model.

Table 4. Results of the overall fit of the research model

	The coefficient of determination R^2	Shared values Communalit	GOF
Reduce shopping intent Decreased	0/479	0/598	
brand awareness	0/483	0/537	
Reduce brand association	0/561	0/493	GOF=0/427
Decreased perceived quality of the brand	0/417	0/452	
Online ad blockers	----	0/523	
Average	0/388	/52	

5. Discussion and conclusion

Even though digital advertising is becoming a dominant method of advertising in different markets of products and services, the widespread use of advertising blocking technologies has become a potential threat to the effectiveness and promotion of this advertising. However, researchers have neglected the consequences and effects of the desire and success of using these blockers on the life cycle of online advertising, and the effects that can have on each actor of this ecosystem, including consumers, advertisers, and publisher, marketers, and brands) as there are few studies in this field.

The aim of this study was to investigate the effect of using blockers on factors affecting purchasing behavior and how consumers make decisions. The brand and the decrease in the quality perceived by the brand by customers, which can be due to the lack of viewing ads by Internet users, were examined using PLS software, which is described in the following: Hypothesis 1: Advertising blockers have a significant effect on reducing customers' intention to buy.The value of the standard path coefficient is equal to 0.7, which shows the positive effect of the variable of commercial advertising blockers on the reduction of consumers' intention to buy. Also, according to the value of t statistic is equal to and greater than the limit value of 1.96, it can be said that the use of ad blockers has a significant effect on reducing the intention of customers to buy.

Therefore, as the widespread use of these technologies makes users less exposed to online advertising and their behavioral stimuli, they are less inclined to buy, this finding is consistent with the results of studies (2021). Hypothesis 2: Advertising blockers have a significant effect on reducing consumer awareness of the brand. In testing the above hypothesis, the value of the standard path coefficient indicates the effect of ad blockers on reducing consumer awareness, and the value of t is equal to 2.18 greater than the limit value of 1.96. It can be said with high confidence that blockers Advertising has a significant effect on reducing consumer awareness. As a result, the hypothesis of the effectiveness of ad blockers on reducing consumer awareness is accepted. Comparing the above result with other researches, it can be said that this finding of the present study is consistent with the previous findings of Wilki et al. (2018) and Tadri et al. (2021).

Hypothesis 3: Advertising blockers have a significant effect on reducing brand association. The value of the standard path coefficient is equal to 0.679, which shows the positive effect of the variable of commercial advertising blockers on the reduction of brand association among consumers. Also, according to the value of t statistic is equal to and greater than the limit value of 1.96, it can be said that the use of ad blockers has a significant effect on reducing consumer brand association. Because the expansion of the use of these technologies causes users to gradually become less exposed to consumers' advertisements and its special benefits become less visible to consumers and gradually diminishes in his memory over time, this finding Consistent with the results of gradual studies (2021).Hypothesis 4: Advertising blockers have an effect on reducing the quality of consumers' perceived meaning of the brand. The value of the standard path coefficient is equal to 0.567 which shows the positive effect of the ad blocker variable on reducing the perceived quality of consumers of the brand and the value of t-statistic is approximately equal to 11.985 which is larger than the border value. 1.96 It can be said that the use of ad blockers has a significant effect on reducing the perceived quality of consumers.

Based on this, it can be acknowledged that the use of online ad blockers, despite the willingness of users to use them in order to avoid the onslaught of massive and aggressive ads that threaten them, due to the impossibility of widespread information to this Careers expose them to reduced purchase information and lack of association with the desired brand when deciding to buy. Imposing the costs of searching for information or relying on previous experiences to buy a product is another consequence of using ad blockers. Therefore, future researchers are suggested to consider the impact of this technology on other stakeholders of the online

advertising ecosystem in the present studies, considering that the present study focused only on the role of using blocking software on consumers.

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