The motivations of Internet users to avoid online advertisements by employing ad blocking extensions

An exploratory quantitative research

by

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Abstract

This thesis explores the motivations of online users to avoid online advertising by employing ad blockers. Ad blocker is the filtering technology that blocks online advertising from appearing. Four motives have been identified: privacy concerns, annoying advertisements, browsing experience, and malvertising. The motives examined are aiming to reveal the importance of each one of them in the blocking activity. The research follows a quantitative methods design, with data being collected through 202 self-completion online questionnaires. An exploratory factor analysis was conducted along with a multiple regression analysis in order to reveal the linearity of the independent variables with the advertising avoidance. Three of the four variables were found to have a significant relationship with the blocking activity, while malvertising is not considered an important factor for the generated model. This research raised implication for companies, digital marketing practitioners, online content publishers, and website operators.

Keywords: ab blocking, advertising avoidance, online advertising, motivations, Internet users

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1 Introduction

Advertising has always been an essential tool at the hands of corporations to inform and stimulate consumers' demand for buying products and services. Since the penetration of Web 2.0 in 2002, there is a tendency for companies to gradually allocate a more significant proportion of their media budget in online advertising while spending less on offline advertising. The year 2018, is reported to be a milestone year for digital media spending since it is forecasted that global online spending will surpass the traditional television spending for the first time (Business Insider, 2018). The vast spread of social media along with the ease of targeting the suitable audience right on time encouraged companies to increase their digital advertising spending continuously and according to CNBC (2017), by 2020 half of all global advertising budgets will be spent in online advertising.

With the expansion of online advertising strategies, new ways of digital advertising types have emerged from social media ads, banner ads, google display ads, retargeting ads, flash ads, native content ads to video ads. The typical Internet user is being bombarded daily with all this paid content. To control this exposure, the phenomenon of ad blocking has raised. Ad blocker is the name given to the filtering technology that blocks unwanted online advertising from appearing at the user while browsing a website or other Internet application, allowing him to consume only the native content in a web page (Thomas, 2018).

The extended use of ad blocking is changing the whole Internet once again. According to PageFair and Adobe's (2015) Global Ad Blocking Report for 2014, the number of active desktop ad block users around the globe has grown 41% in the time span of a year, reaching the number of 198 million users globally in January 2015. The most recent data provided by PageFair (2017) show that the desktop ad block users have reached the number of 236 million globally by the end of 2016. Moreover, a significant tendency is revealed for mobile ad blocking, entering the number of 380 million mobile ad blocking users during the year of 2016 (PageFair, 2017). The population of world Internet users for 2017 is estimated to be 4.15 billion users (Internet World Stats, 2018), with an approximate correspondence of 6% of desktop users and 9% of mobile users currently blocking online advertisement. As Searls (2015) states, if this extensive usage of ad blocking is a boycott, it can be considered the most massive boycott ever happened in human history. According to Business Insider (2017), by the end of 2018, 30% of all Internet users will be using ad blockers as a way to limit their exposure to the digital advertisement.

Ad blocking's vast spreading indicates the willingness of Internet user to start setting limits to online advertising, along with taking control of their online exposure (Thomas, 2018). As a result, the dramatical rise of this global adoption is putting digital publishers at risk of going out of business or locking their premium content behind paywalls. Since the adoption of ad blocking technologies from a more significant proportion of users, the projected loss of digital

publishers for the year of 2016 was evaluated as $41.4 billion in advertising revenue globally (PageFair and Adobe, 2015).

Previous academic studies in advertising have focused on the preconscious effects of advertisements on users (Janiszewski, 1988), the function of online behavioral advertisement (Ha, 2008; McDonald & Cranor, 2010; Yoo & Kim, 2005; Goldfarb & Tucker, 2012; Van et al., 2013), and the consumer's beliefs about online advertising (Mueller & Andrea, 2001; Qi & Agichtein, 2010; Dao & Sundar, 2007; Stammerjohan & Coulter, 2005). Behavioral attributes of the consumer exposed to advertisements has been examined such as their tolerance towards advertisements (Bax & Stourm, 2017; Cho & Cheon, 2004; Goldstein et al. 2014; Hohnhold, O'Brien & Tang, 2015), their feelings concerning their browsing experience (Nielsen, 2007; Ado, 2012; Marvin, 2013; Pag, 2015; Melicher et al. 2016), the users' concerns about privacy issues raised by the personalized online advertisements (Wu, Lin & Lin, 2011; Shelton, 2012; Estrada-Jiménez et al. 2017; Wang et al. 2015; Baek & Morimoto, 2012), how user's power can influence their online behavior (Magee & Galinsky, 2008; Burçak & Gilly, 2012), and the users' online attitudes (Ducoffe, 1996; Briggs & Hollis, 1997; Schlosser et al. 1999; Singh & Dalal, 1999; Rodgers & Thorson, 2000).

As for ad blocking usage Miyazaki (2008), Mitchell & Valenzuela (2005), Yoo (2009) and Scott (2017) have studied how ad blocking operates and shared some basic knowledge in regard to this technology. Constandinides (2014) has focused on why online users avoid online advertising, but no sufficient academic studies have been conducted concerning the phenomenon of ad blocking and the efforts of the Internet user to resist the online advertisement. Most of the currently available ad blocking studies tend to be unreliable or conflicted (Thomas, 2018) since their majority is conducted by advertising companies or federations.

With this research we would like to investigate the ad blocking use of the users based on their motivations to block online ads. Since the ad blocking usage is in a global rise, and the online advertising loss daily increases, we consider our research to be valued as an up to date and important contribution to the research area of online advertising, in order to better understand the online user.

This research aims to shed light on the motives of users when trying to avoid advertisements by employing ad blockers from a desktop or laptop device. Four motivations have been identified as the most crucial when online users are blocking advertisements and are going to be examined. Moreover, with our work, we would like to contribute to the broader theory of understanding online consumers and the behavior of Internet users towards online advertising. Our findings could provide useful insight for better digital strategies implemented by companies, digital marketing practitioners, online content publishers, and website operators. Lastly, with our research, we are aiming to provide an unconflicted image of the current situation.

To be able to provide a well-rounded answer to our research question three literature streams have been identified: Online behavioral advertising, Advertising Avoidance, and Motivations of employing ad blocking. The literature stream of the Motivations of employing ad blocking break down to 4 motives. Those motives have been noted as the most crucial through annual

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reports conducted by PageFair - a leading ad serving network trying to deliver online ads even to ad blocking user- and the study about Ad Blocking in Greece conducted by TailWind EMEA, Focus Bari and Oriel (PageFair, 2017; TailWind, 2016). The 4 motives are Privacy Concerns, Annoying Advertisements, Browsing Experience, and Malvertising. Every one of these 4 motives concludes to a Hypothesis that our research is aiming to provide a solid answer. Prior to the literature streams, the Research Question and purpose of the research is stated.

1.1   Research question and purpose of the research

Our research is trying to investigate the relationship between the 4 identified motives with the usage of ad blockers reaching out to the following research questions:

"Which motives are considered to be crucial for the online user to avoid advertisements by using an ad blocking technology?"

The purpose of this research is to analyze and evaluate the impact of the online user's motivations in their decision to use an ad blocker. The study also aims to develop a deeper understanding of the user's behavior towards online ads. The user's motivation for using ad blocker will be analyzed based on four different factors as stated above. Each of them will be measured and evaluated. This research is relevant as it will provide businesses a point of departure to understand the motivation of online users before developing appropriate online digital strategies. An exploratory quantitative study based on self-completion questionnaires will be conducted to accomplish the research goal.

2   Literature Review

Understanding consumer's online advertisement perspectives influenced by their web-behavior are current objectives of marketing research. Janiszewski (1988) state that consumers can be affected unconsciously by advertisements. As Janiszewski (1988) supports, consumers can generate a positive attitude towards brands that are using advertisements, even if the consumer does not recall being exposed to any advertising stimulus.

In recent years, the online users have complained that "they are fed up with the bombardment of unnecessary online advertising that devalues and interrupt their experience online" (Wu, Lin & Lin, 2011). Moreover, hackers have used the online advertisements to trap online users. According to this situation, 6.9% of sponsored links resulted in the downloading of malware from malicious websites in 2007 (Shelton, 2012). Furthermore, Shelton (2012) also states that privacy advocates are concerned about the personal data that online advertisements can collect, which could lead to public discrimination in the areas of financial services and healthcare.

Thus, ad blocking came into existence, and a large number of online users have adopted it. Online ad blocking can be accomplished in different technical ways, but most of the work has to be done at the user's computers (Miyazaki, 2008). Whenever the browser starts to download an advertisement, the ad blocker first compares the source address to the known source list to decide whether to download the advertisements (Mitchell & Valenzuela, 2005). Usually, the majority of the ads blockers are released to the public for free. The dominant ad blocking software, Adblock Plus, was created in Germany by Wladimir Palant in 2006 (Yoo, 2009). As recently as 2012, ad blocker usage was uncommon, but lately, its adaptation has risen sharply (Scott, 2017). The online experience can be more efficiently anonymized by blocking online ads.

Online ad blocking is generated because of the inundation of online advertisements. Websites and publishers in order to monetize their content, serve online advertising tailored to their audience. Online advertisements can be served as videos, audio, graphics or animation. They may be solicited or unsolicited. Their forms include e-mail messages, text or graphics hyperlinks, corporate logos, pop-up messaging, official websites, mentions in other sites, microsites, contests and banner ads (Ducoffe, 1996; Briggs & Hollis, 1997; Schlosser et al. 1999; Singh & Dalal, 1999; Rodgers & Thorson, 2000). Advertisement's ability to control information can affect its interactive nature (Bezjian Avery et al. 1998). After a prominent study of online advertising, it was discovered that the predictors of web advertising were valued informativeness and entertainment (Ducoffe, 1996).

Yuan and colleagues (1998) raised the question about whether the traditional practice of bundling advertisements with content will prevail or become less frequent on the Internet, compared with conventional media. Constantinides (2014) investigated why people avoid

advertising on the Internet, and the three main reason for online advertising avoidance were: online ads considered as obstacles to perceived browsing goals, perceived ad clutter, and prior adverse experience.

One crucial area of online advertising is related to consumers' beliefs and attitudes about online advertising. According to the literature, there are two key perspectives about consumer' beliefs and attitudes: firstly, beliefs and attitudes are equivalent and interchangeable (Mueller & Andrea, 2001). Secondly, attitudes toward advertising are influenced by beliefs about advertising (Mueller & Andrea, 2001). Nevertheless, depending on recent literature, more and more views agree on the second view about beliefs and attitudes towards online advertising (Qi & Agichtein, 2010). According to traditional media theories, consumers' beliefs and attitudes towards ads can influence the choice to view any form of online advertising (Singh and Dalal, 1999). Explicit or implicit message information can urge the beliefs to be formed (Singh and Dalal, 1999) and attitudes may be influenced by emotional experiences such as entertainment and stimulation, as well as cognitive experiences such as information (Ducoffe, 1996) and behavioral experiences (Schlosser et al., 1999). Consequently, it is crucial to understand consumers' attitudes towards online advertising, whether or not advertisers want to succeed in this medium.

Based on previous researches conducted by companies, the most significant proportion of ad blocking users in the US are among the age of 25-34 years old, with men being 34% more likely than women to use an ad blocking software on their desktop or laptop computers (PageFair, 2017). The results of PageFair (2017) for the year of 2016 indicate that the demographics have broadened than as previously anticipated, or the usage of ad blocking technology is becoming a mainstream habit. The majority of Internet users in Greece who either block ads or not, based on data collected in 2016, are willing to see online advertisements in order to continue to browse free content. However, 20,9% of the ad blocking users are eager to commit to a payment based model to access a website's content in an ad-free environment (TailWind, 2016).

2.1 Online behavioral advertising

Online behavioral advertising (OBA) is a digital advertising method that is focused on the behavior of the consumption of content of the Internet user (McDonald & Cranor, 2010). The Internet advertising network can predict the specific interests and preferences of different consumers promptly through OBA, to selectively expose consumers to their advertisements. (Yoo & Kim, 2005). The primary purpose of OBA is to display advertising information that matches the specific interests of individual Internet users (Goldfarb & Tucker 2012; McDonald & Cranor 2010). Therefore, consumers can get useful advertising information without having to endure random, annoying, unrelated ads (Goldfarb & Tucker 2012; McDonald & Cranor 2010). However, it can not be ignored that using OBA conflicts with consumer privacy. OBA can track online activities, collecting personal behavioral data, and disseminating online users information (McDonald & Cranor 2010). The majority of users do not understand how third-party cookies are used in OBA and how their online activities are

being tracked (McDonald & Cranor, 2010). Nowadays, advertisers are continually using new, unknown methods of tracking, and it is hard to stop OBA tracking even if online users opt out (McDonald & Cranor, 2010).

In the current years, online marketers and advertisers have realized that even though the targeted consumer needs to be well specified, over personalized advertising based on the user's information can lead to advertising irritation or advertising avoidance (Baek & Morimoto, 2012). As a consequence, delivering relevant advertisement can be considered as interruptions that will negatively influence the web user's experience (Baek & Morimoto 2012). On the other hand, the ability to target a well specified segment of usera provides an opportunity for advertisers to shift away from short-term approaches of digital advertising, focusing on more longer-term relationships with audiences, regaining trust through investment in a strategy of fewer, better ads (Ha, 2008). In today's digital world, personalized and targeted advertisements are formed based on online data of users collected by advertisers. Such data include games played, music listened, travel websites visited, videos watched, blogs visited, as well as everything else a user's do on the web (Abrams & Schwarz, 2007).

According to research, it is found that personalized advertisements can cause crucial privacy issues in regard to how personal information is treated and the anxiety of potential abuse of this information (Baek & Morimoto 2012; Phelps, Nowak & Ferrell 2000). OBA has caused serious concerns, mainly because online consumers do not understand how OBA works clearly and how to control their online behavior disclosure (Miyazaki, 2008). Since OBA is a new type of covert persuasion strategy, it is difficult for consumers to efficiently deal with this strategy, mainly due to its invisibility (Miyazaki, 2008). Advertising network companies claim that OBA does not violate privacy because they do not track personal identity information. In fact, not many consumers are aware of behavioral tracking, and only a relatively small number of consumers know how to customize advertising messages (McDonald & Cranor 2010; Van et al. 2013).

As shown in the latest research of Purcell et al. (2012), two out of three Internet users are afraid that their online behavior has been scrutinized without their permission. Nowadays, online advertisements can be found everywhere on the web. That leads to the increasing level of annoyance by the advertisements, which results to the degradation of users' browsing experience (Ado, 2012; Marvin, 2013; Pag, 2015; Melicher et al. 2016). The rise of ad-blocking technology in recent years as shown by PageFair (2017) could be an act by the Internet users to get back the control of their exposure to online advertising.

2.2   Advertising avoidance

Advertising avoidance describes the various actions that media consumers take to limit their exposure towards advertisement (Speck & Elliot, 1997). The act of advertising avoidance is a renowned habit for content consumers expressed by individuals across media. The main reasons for advertising avoidance according to Speck and Elliot (1997) are the following. First, consumers do not need more information for a low priced frequently purchased product

(Speck & Elliot, 1997). Second, the content that they are consuming absorbs them, and the advertisement seems more like a distraction (Speck & Elliot, 1997). Third, they are loyal to a competitor brand and are unwilling to receive conflicting information, and finally, they might find the advertisement tedious, old-fashioned, or offensive (Speck & Elliot, 1997). On the digital environment, online advertising avoidance usually signals the intention of the content consumer to distant himself from the advertisement, by deliberately not clicking the ad or clicking away the ad (Jun & Sang, 2017).

Content consumers according to Vakratsas and Ambler (1999) responds to the advertising stimulation with cognitive, affective, and behavioral ways. They also state that the order of these responses depends on the level of the user's involvement. The cognitive component of ad avoidance includes the consumer's beliefs about an object (Cho & Cheon, 2004). The affective component reflects the consumer's feelings or emotional reactions to this object (Cho & Cheon, 2004). The behavioral component defines the actions other than consuming the advertisement such as scrolling to avoid ad banners or clicking away from pages containing ads (Cho & Cheon, 2004). Chang-Dae (2017) applied the three advertising responses to online behavioral advertising. Based on his work cognitive advertising avoidance occurs when the Internet user deliberately ignores advertising messages. Affective advertising avoidance represents the distaste or disturbance that the content consumer feels when experiencing a tailored, targeted advertisement (Chang-Dae, 2017). Behavioral advertising avoidance involves the user's action to leave the page that hosts the advertisement, avoid clicking on the advertisement or try to block the advertisement (Chang-Dae, 2017).

Previous studies on online advertising avoidance have found that Internet users avoid online ad messages because of perceived ad clutter (Cho & Cheon, 2004). Ad clutter is the condition of being exposed to an overwhelming amount of ad messages that cause irritation. This irritation can be caused due to prior knowledge of a negative experience, and because the ads obstruct their intended browsing goals (Cho & Cheon, 2004). The study of Li, Edwards and Lee (2002) showed that online content consumers perceive online advertisement as more intrusive than in other forms of media, as well as there is a tendency for them to develop negative attitudes which may make them unwilling to return to this website again. According to the study conducted by Jun and Sang (2017), online advertising consumers have the highest advertising avoidance concerning the examined media: tv, newspaper, radio, magazine, direct email, and the Internet.

Based on the studies presented, our research will consider Advertising Avoidance and especially behavioral response as examined by Cho and Cheon (2004), and Chang-Dae (2017) identical to the usage of ad blockers for the online users. Advertising Avoidance will be the Dependent Variable of our study in the effort to examine the relationship of online user's motives to avoid online advertisements by using an ad blocking technology.

2.3   Motivations of employing ad blocking

The advertisements' attitude has been a major research are over decades (Dutta-Bergman 2006; Homer 2006; Homer and Yoon 1992; Speck and Elliott 1997). Various researchers have stated different aspects of employing ads blocking (Hansen & Wänke, 2009; Strick et al., 2009). Over the previous centuries, scientists from different disciplines have explored the concept of power, along with extensive research especially in the area of sociology and psychology (Magee & Galinsky 2008). Researchers state that one of the key human concerns (Magee & Galinsky 2008) that constantly influences behavior, is power. The endemic phenomenon of human nature is the execution of exposure to power (Yoo, 2009). Thus the whole human behavior is influenced by omnipresent effects of power shape (Yoo, 2009). This shape can be employed to the online behavior along with the usage of ad blocking. When the consumer feels anxious and tedious about online advertisements, human power will stand out and play an important role to the user's action of choosing to use specific tools to block online advertising and protect user's right; that is one way to reveal power influence behavior (Burçak & Gilly, 2012).

According to previous studies, there is a positive correlation between the promotion of advertising and the impact of advertising on sales and the likability and persuasion of advertisements (Haley & Baldinger, 1991). However, as time goes by, consumers are getting tired of being bombarded with online ads. When the online advertisements contain useless information for the consumers, these consumers will perceive these ads as invaluable, leading to increasing consumers' irritation and ad avoidance (Dao & Sundar, 2007). The situational variables will affect the contingent of consumers perceived intrusiveness, and when advertisements are served in a chaotic environment and are irrelevant to the goals or interests of Internet users, web users will assume that ads are more intrusive (Stammerjohan & Coulter, 2005). At that time, the consumer will adjust his attitude about online advertisement (Diao & Sundar, 2007).

According to the theory of reasoned action based on a scale of attitudes of Internet advertising, Sukpanich and Chen (1999) stated that three different constructs influence Internet advertising attitudes: awareness, preference, intention or motive. Online users who decide to use ad blocking could be based on their motivation and desire to control unsolicited advertisements when they are surfing the Internet so they can maximize their focus on goal-oriented content. These users' decision is also fit in an immediate gratification pattern since the norm of self-interest drives this pattern (Sukpanich & Chen, 1999). Miller (1999, p. 17) claim " is the motivation that leads to making those choices that provide the best results for one's own narrowly-defined goals." Even though, the human behavioral motivation cannot get a general explanation from self-interest consistently (Miller and Ratner, 1996; Miller and Ratner, 1998). When people feel their self-interested decision making has occurred on a costs and benefits basis, people make decisions that will impact their lives (Chong et al. 2001; Gerbasi & Prentice, 2013). That motivation is similar to anyone who adopts the usage of ad blocking technology.

Accordingly, this research will focus on the attitude of motivation. The online motivation is quite essential and can help to explain the behavior of online individuals. The definition of motivation is ''activating orientation of all current actions toward a positively valued goal state'' (Rheinberg, 2005, p. 15). Motivations of using ad blocking will be divided into four parts to analyze and interpret detailedly.

2.3.1 Privacy Concerns

The current infrastructure of the web along with the way personalized advertisement is delivered to the Internet user is considered to be a promising method for advertisers to reach their targeted audience (Gironda & Korgaonkar, 2018). Advertisers in an effort to reach their targeted audience, occupy ad brokers that are responsible for delivering the advertisement to the web users based on the user's online profile (Wang et al. 2015). This profile is created based on the user's preferences and interests that are tracked during his browsing on the web (Wang et al. 2015). This scheme of delivering personalized advertising based on the user's data has risen privacy concerns and risks for the end user (Estrada-Jiménez et al. 2017; Gironda & Korgaonkar, 2018; Wang et al. 2015). Privacy concerns according to Westin (1967), is the degree up to which the consumer feels that he might be incapable of preventing the disclosure of his personal data to others.

There is an ever-growing proportion of content consumers feeling that they have no control over their personal data, along with concerns of not being aware of what a company knows about them and how this information is being used (Baek & Morimoto, 2012). The primary concern related to user's privacy is stemmed from the notion of misuse of this amount of personal data by the advertising platforms (Gironda & Korgaonkar, 2018). Data misuse can be in forms of data leakage, unauthorized collection, and sharing with third parties without the user's consent (Estrada-Jiménez et al., 2017).

As invasive advertisement can be defined an advertising message that is highly personalized and accurately targeted, due to the excessive personal information that it contains, and can be perceived as disturbing or hostile by the Internet user (Gironda & Korgaonkar, 2018). The invasive tactics of personalized advertisement, according to Simonson (2005), make consumers generate significant resistance to the advertisement since they are feeling that their private information is threatened, and consequently they guard themselves by opposing to those practices that track and store their data. An act of opposition by the online user, can be considered as simple as installing an ad blocker extension at the web browser.

Zhu and Chang (2016), on the one hand, claim that perceived invasive tactics of online advertisement can result in discontinuous usage of the medium serving personalized advertisements. On the other hand, the high perceived relevance of the advertisement can moderate the user's privacy concerns since those two factors were found to have a negative correlation (Zhu & Chang, 2016). However, in regard to privacy concerns, it was found that perceived invasiveness has a negative correlation with the personalized advertisement (Gironda & Korgaonkar, 2018). The study of Chang-Dae (2017) revealed that privacy concerns related to the personalized advertisement is positively correlated with advertising

avoidance. We would like to examine the relationship of privacy concerns and advertising avoidance in the terms of ad blocking usage, therefore we will test the following hypothesis.

H1: Privacy concerns have a positive relationship with advertising avoidance.

2.3.2   Annoying Advertisements

Internet advertisements, on the one hand, can deliver benefits to both advertisers and web users, providing a rich, quick and accurate message for products, services or business information to the target group (Becker-Olsen, 2003). On the other hand, the user has seen the underlying aspects of the Internet since ad clutter, and Internet ads impede their goals (Cho & Cheon, 2004). Hence, underlying aspects of Internet advertising that cause annoyance and are perceived intrusive by the user have also been examined and cannot be ignored (Cho & Cheon, 2004). The Internet's ads are not subtle, creative or exciting for online users (Cho & Cheon, 2004). The term ad annoyance is used to refer to the "degree to which an ad irritates viewers" (Aaker & Bruzzone, 1985 p.48). Aaker and Bruzzone (1985, p.48) use the words "provoking, causing displeasure and momentary impatience" as the features to describe annoying ads. The increasing number of advertisements and media fragmentation lead the user to a feeling of harassment (Bax & Stourm, 2017). As a consequence, Bax and Stourm (2017) found that online users are increasingly becoming information editors and technicians to avoid content and advertising messages that are not of their interest.

Along with the users being less tolerant of annoying advertisements, the growth of ad-blocking technology adoption also increases and becoming a significant threat to the websites' profits (Bax & Stourm, 2017). Most online users feel that annoying ads are the ads that interfere with their enjoyment of the online content (Lambrecht et al., 2014). So, the majority of Internet users adopted ad blocking to control the annoyance of advertisements (Hohnhold, O'Brien & Tang, 2015). The advertisements containing violent or offensive content prevent the creation of a better Internet environment that enhances the Internet users' experience (Rohrer & Boyd, 2004). On the contrary, annoying advertisement, in the long run, will generate a significant profit for the publisher (Rohrer & Boyd, 2004). Nevertheless, the annoyance caused to the users from these ads is known, advertising networks will still publish those ads because of their profitability by letting aside the irritation that is caused to the web user (Lambrecht et al. 2014). Besides, the definition of nuisance is different according to the various advertising platforms. Eventually, the advertising platforms will not stand by the Internet users' attitudes about annoying advertising (Lambrecht et al. 2014).

However, whether the online users adopt a blocking technology or not, online digital advertisements are the most annoying type of ad for the web consumers due to the delay they cause to the loading of the website's content or just because they can obscure user's access (Wilbur, Xu & Kempe, 2013). For online users, the long-video ads before short videos were the more irritating type of online ad, followed by ads that travel as long as the users are scrolling down the website pages (Wilbur, Xu & Kempe, 2013). Hence the most Internet users when suddenly encounter with these ads will become upset (Wilbur, Xu & Kempe,

2013; Ali, Jelodar & Mirabedini, 2015). Not all media owners and advertisements are similar, but for the ad blocker user, publishers will be judged by the weakest link, the most annoying pop-up window, and the worst digital operator (Lambrecht et al. 2014). For online advertisers and publishers, it is vital to consider what are the effective advertisements that can create value for them (Gritten, 2007). Therefore, the publishers and advertisers can refresh their relationship with online users, through communication of their real value and by delivering better-quality content to regain the trust of users and reduce the annoyance of online ads for users (Gentry, 2016).

H2: Annoying advertisements have a positive relationship with advertising avoidance.

2.3.3   Browsing Experience

It is impossible for websites to provide free content and continue operating. Therefore the need for advertisements is mandatory to support their operation and profitability (Ha, 2008). Thus, websites support their economic stability through online ads as their significant income source (Ha, 2008). However, the advertisements appear on the Internet have weakened the online users browsing experience and loading time of content (Nielsen, 2007). The most consumers saw online ads as a factor that negatively affects their online experience; therefore, users almost never look at anything that looks like an advertisement on the Internet (Nielsen, 2007). This is because, when users are surfing the Internet, a torrent of information will appear in front of their eyes (Zhou & Duan, 2016). For users, the good browsing experience is that they can access the useful website content quickly and to save their precious time (Lieberman, Van Dyke & Vivacqua, 1999; Zhou & Duan, 2016). Therefore, users want to access relevant content according to their browsing intentions and ignore interferential information since the most critical factor of the user's browsing experience is searching for information in a goal-oriented manner (Zhou & Duan, 2016). Most of the time, many advertisements are classified as useless information and can affect the user's browsing experience (Dirk, 2017). Due to that, ads will be seen as highly intrusive while they interfere with their set goal (Bagozzi & Dholakia, 1999). Thus, online users label online ads as senseless, ineffective, uninformative, and unmemorable (McCoy et al. 2007).

Due to excessive advertising space on most of the websites, a mass proportions of the user's bandwidth is expended into loading the advertisements along with the rest of the website (Goldfarb & Tucker, 2014). The New York Times (2015) took a study on 50 news websites in 2015. It was found that the websites' ads accounted for more than half of the websites' data, resulting in doubling the loading times in comparison to the time is needed to load the websites' native content solely (New York Time, 2015). Thus, users adopted ads blockers as a tool to decrease the loading time of a website and improve their browsing experience (Goldfarb & Tucker, 2014). Utilizing an ad blocking software can help users to cut down the unacceptable pop-up window advertisements, and in page ads, so the users can search the content quicker (Shawn, 2016).

Researchers and practitioners are often looking for methods to evoke a pleasant online experience for users; these methods can develop better websites for users (Hassenzahl,

Diefenbach, & Göritz, 2010; Hassenzahl & Tractinsky, 2006). However, online ads are often ignored by them. The fact is that online advertisements may evoke users' negative experience and decrease users' browsing experience (Diao & Sundar, 2004; Hassenzahl, Diefenbach & Göritz, 2010). The online ads are different from TV advertisements. For example, if people try to avoid the TV-commercials, they can change the TV channel and return to the programme when the ads have finished, whereas online users cannot change the websites to skip the ads like they avoid the TV-commercials. As a consequence, the online advertisements may interrupt Internet users browsing experience from their current online activities. That will result in the negative impact on users browsing experience (Wilbur, Xu & Kempe, 2013).

H3: Perceived positive browsing experience has a positive relationship with advertising avoidance.

2.3.4 Malvertising

Online advertising for some users can be useful, for others annoying, and for some others invasive. Some may find advertisements to be an integral part of their browsing experience, and others are using ways to avoid them entirely. But can online advertising be harmful to a criminal level? According to Mansfield-Devine (2014), online advertisements provide just the right tools to cyber-criminals to attack web users' operating systems, computers, and thereinafter their personal data. The term Malvertising is introduced, which is described as the distribution of malware, spyware, and other forms of cyber-attacks delivered through online advertisement in the same way as legitimate advertisements would (Mansfield-Devine, 2014; Mansfield-Devine, 2015; Sood & Enbody, 2011).

To better understand how Malvertising works, a simplified description by Mansfield-Devine (2014; 2015) is provided. Firstly, the cybercriminal places ads at authorized advertising networks that deliver online ads to websites; even though sometimes Malvertising can be served directly from the malicious advertiser's servers (Mansfield-Devine, 2015). Secondly, since websites have no authority over which ads will be served to its visitors, ads are being served to the web users as a personalized ad based on his online behavioral track record (Mansfield-Devine, 2015). Lastly, by clicking on the ad, the malicious ad can either deliver the malware instantly through a maliciously crafted Flash file or redirect the user to a malicious website where the user can be exposed to an abundance of harmful content (Mansfield-Devine, 2014).

The attack caused by Malvertising, most of the times is delivered in the form of a redirecting ad, and without the prior knowledge of the hosting website (Mansfield-Devine,2014). A web user could think that browsing a reputable website is considered to be safe but not; no matter how high profile or not the website is, a Malvertising ad can be shown anywhere (Mansfield-Devine, 2015). In February 2014, came into the spotlight that Malvertising ads were delivered through YouTube advertisements served by Google's ads network (CNBC, 2014). In 2016, numerous US users of news websites were victims of Malvertising attempts, including the websites of New York Times, BBC, AOL and the NFL (The Guardian, 2016). The Malvertising attack resulted in users being locked out of their computers and had to provide a payment in order to restore them (The Guardian, 2016). As Rahul Kashyap said about

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Malvertising "The scale of this problem is as large as the Internet itself" (found in Mansfield-Devine, 2014).

H4: Malvertising has a positive relationship with advertising avoidance.

In order to revise the four hypothesis created by the literature stream of the motivations of employing ad blocking, the following model (Figure 2.1) is introduced to depict the relationships of the Independent Variables with the Dependent Variable.
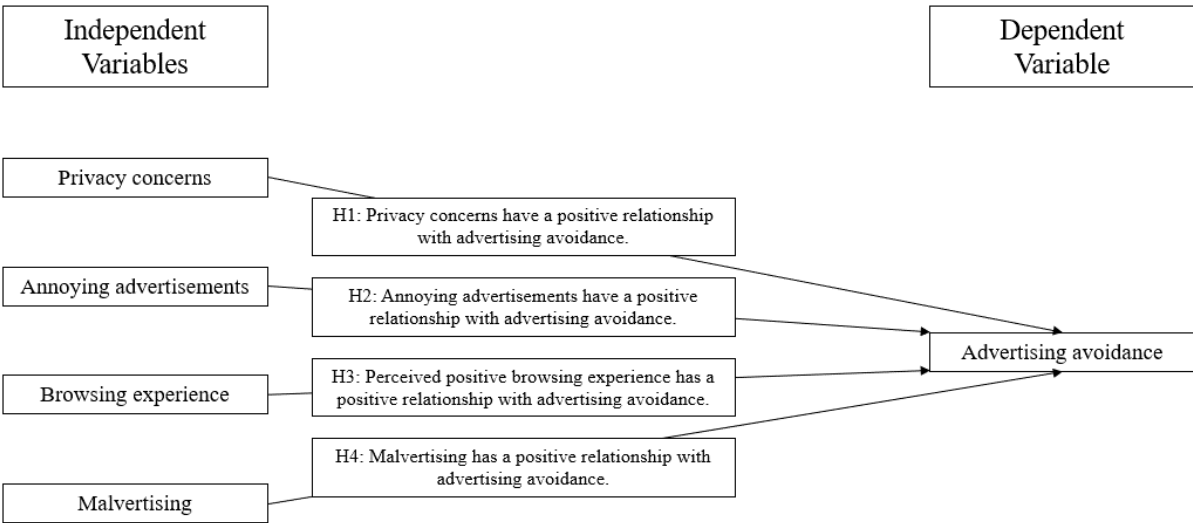

Figure 2.1 Integrated model of the four Independent Variables and the Advertising Avoidance

3 Methodology

To conduct our research, we need to specify the target group of our study and the data collection methods of the primary data required. The sampling process, as well as the sample size needed for the analysis, will be specified so that the results can provide reliable and useful insights. The choice of the analytical methods that will be used for the analysis of the data will be discussed along with the main research variables and statements derived from the 5 factors of the literature review. Finally, measurement and scaling of the 5 factors will be presented.

3.1 Specification of the target group and data collection

The population that this research will cover is both men and women, over the age of 18 years old, that are currently using ad blocking or have used an ad blocking technology in the past, and the ad blocking usage is accomplished through their desktop or laptop device.

In order to achieve the research objectives, quantitative methods will be utilized. To obtain the required quantitative data from the ad blocking users, online surveys have been used in the form of self-completion questionnaires. To research the impact of the online consumer's motives in their decision to use ad blockers, the questionnaire consists of 21 questions including 4 questions about demographics, 5 questions about online ad blocking and advertising avoidance, and 12 questions about the 4 defined motives to use ad blocking. The full questionnaire can be found in Appendix A.

The online questionnaire was shared through Facebook, using private messages and public posts in the authors' walls as well as in groups of university students in Lund and Malmo, Sweden. The questionnaire remained active in a time span of 4 days and collected data from the 4th of April until the end of the night of the 7th of April 2018.

In total, 220 completed questionnaires were collected, and 202 of them are valid and qualified for our analysis. The questionnaire contained one control question "Are you currently using an Ad blocking technology or have used it in the past on a desktop or laptop device?". Respondents who answered no were disqualified from our research, and the questionnaire was completed without collecting any more data from them. A number of 18 responds fall in this category.

3.2   Sampling process and sample size

Convenience sampling was utilized for the collection of the responses of our research. Ad blocking users that block advertisements through mobile devices are beyond the purpose of our research. The responses were gathered from online users that are currently blocking or have blocked ads in the past using a desktop or laptop device. This parameter was clearly stated in the introduction text of the questionnaire as well as in the control question.

According to Roscoe (1975), determining sample size should abide by the following approaches: a) The size of research sample should be less than 500 and more than 30 to appropriate fit in the most researches. According to the Central Limit Theorem, when the size of members are starting from 30, the distribution of sample means is close to the normal distribution (Abranovic, 1997). b) During the multivariate research, the size of the sample should be calculated according to the number of variables. In general, the sample size is several times larger than the variables' number in the research, usually ten times or more. For our research, there are four Independent Variables, and each of them contains three different items with a total of twelve items. There is one Dependent Variable that contains three items. Thus, five variables in total, with fifteen items require a sample size of at least one hundred and fifty valid respondents. Our data were collected using an online questionnaire that received 220 responses in total, and 202 respondents are currently using an ad blocking technology or have used it in the past on a desktop or laptop device. Thus, 202 respondents' data are available for our research, and our collected data are eligible for analysis.

3.3   Choice of analytical methods

The analysis of the acquired primary data will be conducted with the use of the software package of IBM SPSS Statistics. An Exploratory Factor Analysis (EFA) will be executed to identify underlying relationships among the Independent Variables. The reliability of the factors generated by the EFA will be examined.

For the analysis of the 4 hypotheses, standard Multiple Regression Analysis will be utilized. The Dependent Variable for each hypothesis is Advertising Avoidance. The four Independent Variables are derived from the following 4 factors: Privacy Concerns, Annoying Advertisements, Browsing Experience, and Malvertising. The analysis is aiming to test the validity of the 4 hypotheses as well as to reveal the relationship of the four Independent Variables with the ad blocking usage.

3.4   Measurement and scaling

In order to test our model, a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) was used. Four latent constructs were measured in this study; Advertising Avoidance, Privacy Concerns, Annoying Advertisements, Browsing Experience, and Malvertising.

Measurement of Advertising Avoidance was based on the work of Cho and Cheon (2014) in regard to the consumer's responses to the advertisements. Every latent construct was measured on a three-item scale. First, Privacy Concerns were measured on a scale modified by Dolnican and Jordaan (2007) and Gironda and Korgaonkar (2018). Second, Annoying Advertisements items were based on Gritten (2007), Bax and Stourm (2017) and Ali, Mirabedini and Jelodar (2015). Third, Browsing Experience was based on Nielsen (2007) and Zhou and Duan (2016) Fourth, Malvertising has not been measured in a previous academic work based on our best current knowledge, so a three-item scale was created based on the work of Lambrecht et al. (2014), Estrada-Jimenez et al. (2017) and Mansfield-Devine (2015).

3.5   Main research variables and items

In this section the 5 main research variables will be listed accompanied by the items that were used to measure each one of them.

Table 3.1 Research variables and items

Variables	Items
Advertising Avoidance	1) I intentionally ignore ads on the Internet (Cho & Cheon, 2004). 2) I hate ads on the Internet (Cho & Cheon, 2004). 3) I take action to avoid ads on the Internet (Cho & Cheon, 2004).
Privacy Concerns	4) I support efforts to ensure my personal information is kept safe (Dolnican & Jordaan, 2007). 5) I feel uncomfortable when my personal information is shared without my permission (Dolnican & Jordaan, 2007). 6) I am concerned about collection of my personal information by personalized advertisers, because of what others might do with it (Gironda & Korgaonkar, 2018).
Annoying	7) I consider online advertisements to be annoying

Advertisements	(Lambrecht et al. 2014).
	8) I become upset when I am suddenly encountered with online ads (Ali, Mirabedini & Jelodar, 2015).
	9) I have no tolerance of annoying ads (Bax & Stourm, 2017)
Browsing Experience	10) I almost never look at anything that looks like an advertisement on the Internet (Nielsen, 2007)
	11) I see online ads as a factor that negatively affects my online experience (Nielsen, 2007)
	12) I consider it to be a good browsing experience when I am able to access the useful website content quickly (Zhou & Duan, 2016)
Malvertising	13) I worry that ads may be infected with viruses, spyware, or malware (Mansfield-Devine, 2015)
	14) I think that by blocking ads I can protect myself and my device from malicious advertisements (Estrada-Jimenez et al. 2017)
	15) I think that malicious advertisements cannot be served in a reputable website (Mansfield-Devine, 2015)

For the analysis of the data collected item "I think that malicious advertisements cannot be served in a reputable website (Mansfield-Devine, 2015)" has been reversed, since as stated in the literature review, Malvertising ads can be shown anywhere, even at websites that are considered reputable (Mansfield-Devine, 2015).

3.6   Philosophy of research

Research philosophy refers to "the development of knowledge and nature of that knowledge" (Saunders, Lewis & Thornhill, 2007, p107). Scandura and Williams (2000) stated the reasons why philosophy is becoming significant in the field of modern research. There are three reasons: first, the research patterns can be more clear by studying philosophy, which can assist researchers to find out the appropriate model (Scandura & Williams, 2000). Second, researchers can avoid inadequate and irrelevant studies during the research journey through cognition and study of the philosophy (Scandura & Williams, 2000). Third, depending on the limitation of different subject's structure, philosophy can provide suggestions about the adjustment of the research design. What exactly will be done during the research is a significant point for research philosophy. It includes the hypotheses that support research and enhances strengthening (Scandura & Williams, 2000). During our research, research philosophy helped us to understand in depth how our research data should be collected,

analyzed and used. Two main constructs are to be considered in the philosophy of research: ontology and epistemology (Saunders, Lewis & Thornhill, 2007).

3.6.1 Ontology

Ontology is a branch of philosophy which refers to "nature of reality" (Saunders, Lewis & Thornhill, 2007, p110). The majority of philosophy's topics are discussed based on the ontology (Scandura & Williams, 2000). There are two aspects of ontology: Objectivism and subjectivism. Saunders, Lewis and Thornhill (2007) state that the objectivism refers to the social entities of social actors, while the subjectivism describes that social actors create the social environment.

Identification of ontology at the beginning of our research process was crucial since it plays an essential role in determining the research design (Bryman, 1984). After that, we adopted objectivism view to approach the research. Since our research objective is to explore the motivations of the users to use an ad blocker, we need to explore the relationship between the user's motivations and the usage of the ad blocker. The viewpoint of objectivism is that knowledge is objective and quantifiable (Bryman, 1984). Thus, we chose the quantitative method to be applied to our research. Finally, according to objectivism, we adopted a positivism Epistemology to gain knowledge about the users' motivations of ad blocking usage.

3.6.2 Epistemology

Epistemology refers to "How to gain knowledge about the nature of the world" (Saunders, Lewis & Thornhill, 2007, p31). Epistemology influences the researcher's way of thinking and affects the research process. Researchers can choose and adopt the more appropriate epistemological method to explore the specific area of their interest (Saunders, Lewis & Thornhill, 2007). Saunders, Lewis and Thornhill (2007) state that there are two epistemological positions: positivism and interpretivism.

For our research, we adopted positivism as the guiding Epistemology. Positivism claims that there is only one single objective reality to any researched phenomenon (Hudson and Ozanne, 1988). Thus, we took a controlled and structured approach to the research. First, we identified a clear research topic that is to examine the online users' motives that are considered crucial when they adopt an ad blocking technology. Then, we constructed four appropriate hypotheses in accordance with literature review. Each hypothesis assumes the relationship between a specific motivation with the use of ad blockers. Next, the quantitative method was employed for our research, and a questionnaire was created for the collection of the primary research data. Since statistical techniques are central in positivist research, well-structured and specific research techniques are used to uncover the single and objective reality (Carson et al. 2001). Therefore, we conducted the analysis of the data with the use of the software package of IBM SPSS Statistics to ultimately discover the reality of the relationship among the users' motives with the usage of ad blocking. By following this deductive approach, we are aiming to test the validity of the theories that helped us generate those four hypotheses.

4 Analysis

In order to analyze the data collected from the self-completion questionnaires, we will conduct an Exploratory Factor Analysis to identify relationships among the variables being examined. The factors created by this procedure will be tested for their reliability through a Reliability Analysis utilizing Cronbach's alpha. Following, Descriptive Statistics will be presented for the data collected and the five variables. Finally, we will run a Multiple Regression Analysis to test the four hypotheses generated in Literature Review part. This analysis will provide us with valuable insights to either accept or reject our hypotheses and aid us to give a solid answer to our Research Question.

4.1 Factor analysis

From the previous literature review, 4 Independent Variables were identified as the motivations for online users to avoid online advertising when they are browsing the Internet. The Dependent Variable of our study is Advertising Avoidance, and the 4 Independent Variables are Privacy Concerns, Annoying Advertisements, Browsing Experience, and Malvertising. The Dependent Variable and the 4 Independent Variables lead to 15 items aiming to measure their relationship among them. Answers were collected through a self-completion questionnaire using a 5-point Likert scale, where 1 = strongly disagree and 5 = strongly agree. In order to identify underlying factors that explain the relationship among this set of variables, an Exploratory Factor Analysis (EFA) will follow to determine the factor structure (Field, 2016).

We run the Factor Analysis for the 15 identified items, using a fixed number of 5 extracted factors. Principal components analysis is selected as the extraction method. Principal components analysis and principal axis factoring usually result in similar solutions, and the sample is assumed to be the population (Field, 2016). Thus, the results are limited to the sample used (Field, 2016). Varimax is selected as the rotation method. Varimax maximizes the dispersion of loadings within factors, by loading fewer variables high on each factor (Field, 2016). Thus, more explanatory clusters of factors are created that simplify the interpretation (Field, 2016). For the analysis, small coefficients with an absolute value below 0,30 were suppressed.

From the Total Variance table shown in Table 4.1, we can observe that 5 factors are extracted from SPSS with the cumulative percentage of variance explained being given at the last column and is equal to 67,697%. This run goes above the recommended cumulative percentage of at least 60%, so we accept this 5-factor solution (Burn & Burns, 2008). Before the rotation, factor 1 accounted for 31,28% of the variance, factors 2, 3, 4, and 5 accounted for

12,26%, 10,32%, 7,26%, and 6,57% accordingly. After the rotation, factor 1 accounts for 17,39% of the variance, while factors 2, 3, 4, and 5 account for 15,92%, 14,11%, 12,09%, and 8,20% accordingly.

Table 4.1 Output of Total Variance, first run

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.692	31.281	31.281	4.692	31.281	31.281	2.608	17.389	17.389
2	1.840	12.266	43.548	1.840	12.266	43.548	2.387	15.916	33.305
3	1.547	10.315	53.862	1.547	10.315	53.862	2.116	14.107	47.412
4	1.089	7.263	61.125	1.089	7.263	61.125	1.813	12.087	59.499
5	.986	6.572	67.697	.986	6.572	67.697	1.230	8.198	67.697
6	.802	5.349	73.046						
7	.689	4.595	77.641						
8	.630	4.200	81.841						
9	.523	3.484	85.325						
10	.470	3.130	88.455						
11	.449	2.991	91.446						
12	.359	2.393	93.839						
13	.326	2.176	96.015						
14	.323	2.155	98.170						
15	.275	1.830	100.000						

Extraction Method: Principal Component Analysis.

According to the Scree Plot (Figure 4.1), the elbow point is shown at point 5. Thus, 5 factors are suggested to be an acceptable solution. Moreover, as shown in Table 4.2, the KMO value is 0,800 which is way above the cut-off point of 0,500 for the solution to be considered non-trivial (Field, 2016). According to Field (2016, p. 685), KMO values around the 0,80s are considered as "meritorious". The Bartlett's test of sphericity also shown in Table 4.2, has an associated probability close to 0, which is way below the significance level of 0,05. Therefore, the null hypothesis of "no substantial correlation structure" is rejected, and the 5-factor solution is supported.
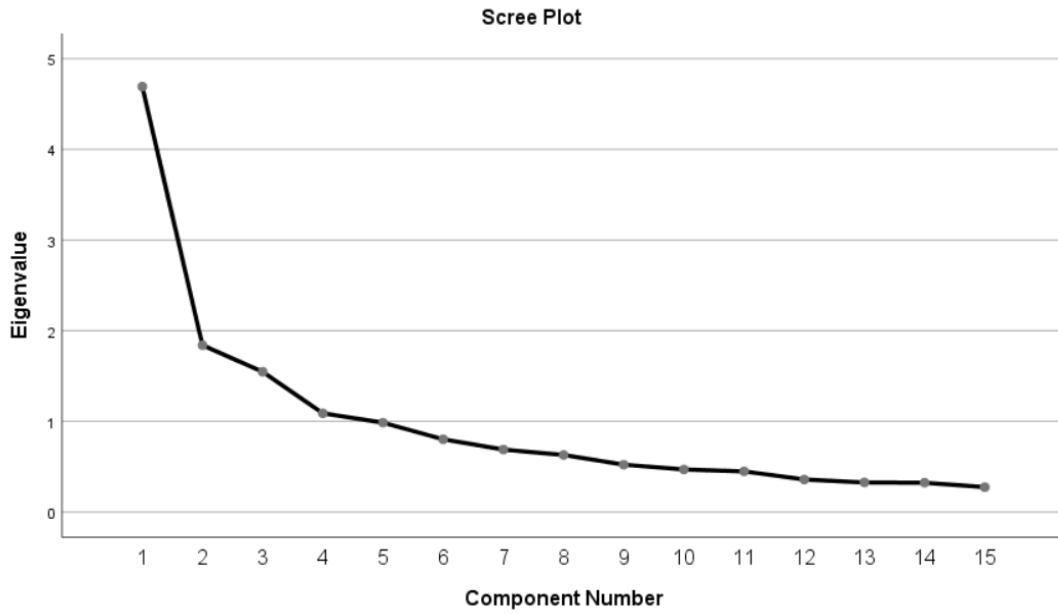
Scree Plot

Figure 4.1 Output of Scree Plot, first run

Table 4.2 Output of KMO and Bartlett's Test, first run

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.800
Bartlett's Test of Sphericity	Approx. Chi-Square	1007.825
	df	105
	Sig.	.000

Table 4.3 Output of Rotated Component Matrix, first run

Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
I almost never look at anything that looks like an advertisement on the Internet.	.742				
I become upset when I am suddenly encountered with online ads.	.723				
I see online ads as a factor that negatively affects my online experience.	.719	.359			
I have no tolerance of annoying ads.	.637				.352
I intentionally ignore ads on the Internet.		.788			
I hate ads on the Internet.		.760			
I take action to avoid ads on the Internet.		.705			.440
I consider online advertisements to be annoying.	.496	.599			
I feel uncomfortable when my personal information is shared without my permission.			.855		
I support efforts to ensure my personal information is kept safe.			.772		
I am concerned about collection of my personal information by personalized advertisers, because of what others might do with it.			.716		
I think that by blocking ads I can protect myself and my device from malicious advertisements.				.866	
I worry that ads may be infected with viruses, spyware, or malware.				.815	
I think that malicious advertisements cannot be served in a reputable website.	.390			.444	
I consider it to be a good browsing experience when I am able to access the useful website content quickly.					.835

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

By running the factor analysis for the first time, we can see at the Rotated Component Matrix (Table 4.3) that item 7 "I consider online advertisements to be annoying" is cross-loading between factor 1 and 2. Also item 15 "I think that malicious advertisements cannot be served in a reputable website" is cross-loading between factor 1 and 4. Therefore, we will run the Factor Analysis again by removing these two items. All the other options for the Factor Analysis will remain the same.

We rerun the Factor Analysis for the 13 remaining items, using the same options as in the previous run and with a fixed number of 5 extracted factors. From the Total Variance table (Table 4.4), we can observe that 5 factors are extracted from SPSS with the cumulative percentage of variance explained being given at the last column and is equal to 71,764%. This run goes above the recommended cumulative percentage of at least 60%, so we accept this 5-factor solution (Burn & Burns, 2008).

The 5-factor solution is considered acceptable according to the Scree Plot of Figure 4.2. The elbow point is shown at point 5.

Table 4.4 Output of Total Variance, second run

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.153	31.946	31.946	4.153	31.946	31.946	2.341	18.011	18.011
2	1.701	13.088	45.035	1.701	13.088	45.035	2.050	15.768	33.779
3	1.444	11.111	56.145	1.444	11.111	56.145	1.968	15.138	48.917
4	1.087	8.363	64.508	1.087	8.363	64.508	1.694	13.033	61.950
5	.943	7.256	71.764	.943	7.256	71.764	1.276	9.814	71.764
6	.688	5.291	77.055						
7	.629	4.836	81.890						
8	.476	3.659	85.549						
9	.465	3.579	89.128						
10	.425	3.272	92.400						
11	.373	2.871	95.271						
12	.331	2.544	97.815						
13	.284	2.185	100.000						

Extraction Method: Principal Component Analysis.
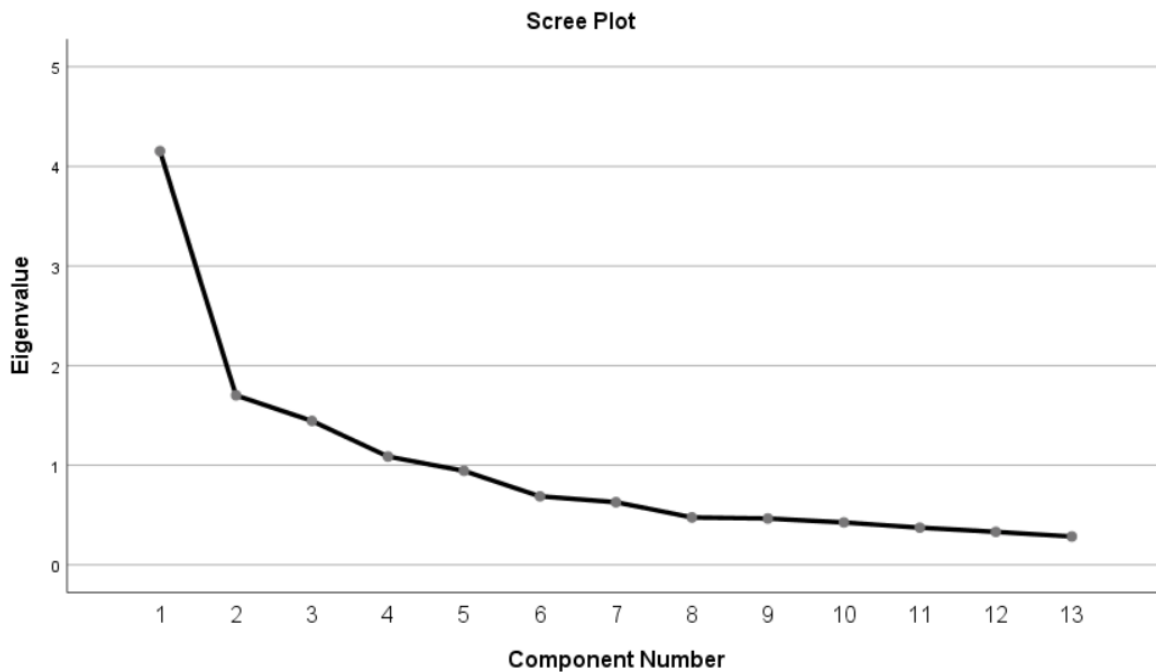
Figure 4.2 Output of Scree Plot, second run

Table 4.5 KMO and Bartlett's Test second run

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.772
Bartlett's Test of Sphericity	Approx. Chi-Square	823.286
	df	78
	Sig.	.000

As shown in Table 4.5, the KMO value is 0,772 which is way above the cut-off point of 0,500 for the solution to be considered non-trivial (Field, 2016). The Bartlett's test of sphericity also shown in Table 4.5, has an associated probability close to 0, which is way below the significance level of 0,05. Therefore, the null hypothesis of "no substantial correlation structure" is rejected, and the 5- factor solution is supported.

The Communalities table shown in Table 4.7 can indicate the variances of the variables that each item explains. The extraction method used is the "Principal Components", therefore the initial communalities for each variable are 1.000. The 5 top factors explain between 86,1% to 74,5% of the variances of the variables. Communalities with proportion above 50% are deemed acceptable (Burns & Burns, 2008). All of the 13 items analyzed are above the 50% limit, with the lowest communality being 61,7%

The top five variables in terms of communiality are:

1. I think that by blocking ads I can protect myself and my device from malicious advertisements. (0,861)

2. I worry that ads may be infected with viruses, spyware, or malware (0,781)

3. I consider it to be a good browsing experience when I am able to access the useful website content quickly. (0,763)

4. I intentionally ignore ads on the Internet (0,752)

5. I take action to avoid ads on the Internet. (0,745)

24

Table 4.6 Output of Rotated Component Matrix, second run

Table 4.7 Output of Communalities, second run

Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
I intentionally ignore ads on the Internet.			.827		
I hate ads on the Internet.			.751		
I take action to avoid ads on the Internet.			.684		.487
I support efforts to ensure my personal information is kept safe.		.795			
I feel uncomfortable when my personal information is shared without my permission.		.853			
I am concerned about collection of my personal information by personalized advertisers, because of what others might do with it.		.724			
I become upset when I am suddenly encountered with online ads.	.723				
I have no tolerance of annoying ads.	.671				.471
I almost never look at anything that looks like an advertisement on the Internet.	.759				
I see online ads as a factor that negatively affects my online experience.	.739		.317		
I consider it to be a good browsing experience when I am able to access the useful website content quickly.					.832
I worry that ads may be infected with viruses, spyware, or malware.				.831	
I think that by blocking ads I can protect myself and my device from malicious advertisements.				.902	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Communalities

	Initial	Extraction
I intentionally ignore ads on the Internet.	1.000	.752
I hate ads on the Internet.	1.000	.712
I take action to avoid ads on the Internet.	1.000	.745
I support efforts to ensure my personal information is kept safe.	1.000	.682
I feel uncomfortable when my personal information is shared without my permission.	1.000	.734
I am concerned about collection of my personal information by personalized advertisers, because of what others might do with it.	1.000	.660
I become upset when I am suddenly encountered with online ads.	1.000	.617
I have no tolerance of annoying ads.	1.000	.676
I almost never look at anything that looks like an advertisement on the Internet.	1.000	.679
I see online ads as a factor that negatively affects my online experience.	1.000	.669
I consider it to be a good browsing experience when I am able to access the useful website content quickly.	1.000	.763
I worry that ads may be infected with viruses, spyware, or malware.	1.000	.781
I think that by blocking ads I can protect myself and my device from malicious advertisements.	1.000	.861

Extraction Method: Principal Component Analysis.

The Rotated Component Matrix shown in Table 4.6 leads us to the creation of the following 5 factors.

Table 4.8 Factors generated from the Exploratory Factor Analysis

Factors	Statements
Factor 1 Annoying Advertisements	1. I almost never look at anything that looks like an advertisement on the internet (I.10) 2. I see online ads as a factor that negatively affects my online experience (I.11) 3. I become upset when I am suddenly encountered with online ads. (I. 8) 4. I have no tolerance of annoying ads. (I. 9)
Factor 2 Privacy Concerns	1. I feel uncomfortable when my personal information is shared without my permission. (I. 5) 2. I support efforts to ensure my personal information is kept safe. (I. 4) 3. I am concerned about collection of my personal information by personalized advertisers, because of what others might do with it (I. 6)
Factor 3 Advertising Avoidance	1. I intentionally ignore ads on the internet (I. 1) 2. I hate ads on the internet (I. 2) 3. I take action to avoid ads on the internet (I. 3)
Factor 4 Malvertising	1. I think that by blocking ads i can protect myself and my device from malicious advertisements. (I. 14) 2. I worry that adds may be infected with viruses, spyware, or malware. (I. 13)
Factor 5 Browsing Experience	1. I consider it to be a good browsing experience when I am able to access the useful website content quickly. (I. 12)

A discussion about the 5 factors generated from the EFA will follow.

Factor 1: Annoying Advertisements

In accordance with Table 3.1 "Variables and Items", two items from the variable of Annoying Advertisements and two items from the variable of Browsing Experience have loaded for the 1st factor. The 4 items combined together better describe the annoyance that is caused to the Internet user when he is encountered with online ads, therefore, the factor is named Annoying Advertisements.

Factor 2: Privacy Concerns

The items loaded for this factor are the same items as in the variable Privacy Concerns of Table 3.1. Thus the 2nd factor is named Privacy Concerns.

Factor 3: Advertising Avoidance

The items loaded for this factor are the same items as in the variable Advertising Avoidance of Table 3.1. Thus the 3rd factor is named Advertising Avoidance.

Factor 4: Malvertising

The items loaded for this factor are the two out of the three items as in the variable Malvertising of Table 3.1. Thus the 4th factor is named Malvertising.

Factor 5: Browsing Experience

The item loaded for this factor is the one out of the three items as in the variable Browsing Experience of Table 3.1. Thus the 5th factor is named Browsing Experience.

Based on the 5 factors created by the EFA, a Reliability Analysis, and a Descriptive Statistics presentation will follow along with the Multiple Regression Analysis.

4.2   Reliability Analysis

Through the reliability analysis, we are aiming to validate that the questionnaire generated from the EFA consistently reflects the variables that we are measuring (Field, 2016). That means that the same respondent could get the same score on the questionnaire if he completes it again in a different time period (Field, 2016). The measure of scale reliability that we will use is the Cronbach's alpha (α), and the analysis will be conducted on the 5 subscales individually.

1. Subscale 1 (Advertising Avoidance): items 1, 2, 3
2. Subscale 2 (Annoying Advertisements): items 8, 9, 10, 11
3. Subscale 3 (Privacy Concerns): items 4, 5, 6
4. Subscale 4 (Malvertising): items 13, 14
5. Subscale 5 (Browsing Experience): item 12

Since the EFA generated only one item for subscale 5 (Browsing Experience), we cannot run reliability analysis for this subscale. The single item scale measuring Browsing Experience will be considered reliable by the authors.

We run the Reliability Analysis on SPSS, and the results of the Cronbach's alpha value are shown in Table 4.9. According to Field (2016), α value in the region of 0.7 to 0.8 is a good indicator of reliability. The four subscales examined, all have α values well above 0.7 so the subscales have a good reliability.

Table 4.9 Cronbach's Alpha for the 5 subscales

Reliability Statistics		
	Cronbach's Alpha	N of Items
Advertising Avoidance	0.756	3
Annoying Advertisements	0.763	4
Privacy Concerns	0.748	3
Malvertising	0.762	2
Browsing Experience	Single item	1

Based on the Item-Total statistics tables found in the Appendix B, the items used for the subscale 1 (Advertising Avoidance), subscale 2 (Annoying Advertisements), subscale 3 (Privacy Concerns), and subscale 4 (Malvertising) have item-total correlations above 0.3 which indicates that the items correlate with the overall score of the subscale and should not be dropped (Field, 2016). Furthermore, from the same tables, we can see that the items used for the subscale 1 (Advertising Avoidance), subscale 2 (Annoying Advertisements), and subscale 3 (Privacy Concerns) have α values "if the item deleted" lower than the overall α value of their subscale. According to Field (2016), since those values are lower than the overall α value of the subscale, if we delete one of the items we would not improve the reliability. Therefore no item should be deleted. As for subscale 4 (Malvertising), we do not get α values "if the item deleted", since the subscale is measured by 2 items.

According to the previous analysis the scales used for Advertising Avoidance, Annoying Advertisements, Privacy Concerns, Malvertising, and Browsing Experience all have high reliability.

4.3   Descriptive Statistics

Based on the valid filled in questionnaires, the 202 respondents fall into the following demographics. As for their gender, 43.6% (88) were defined as males, 55% (111) as females,

and 1.5% (3) as another gender. As for the age groups, 22.8% (46) are between 18-24, 65.8% (133) are between 25-34, 9.4% (19) are between 35-44, 2% (4) are between 45-54, and there were no respondents over the age of 54 years old. The highest level of education of our respondents lay on the following: 1.5% (3) primary school, 11.9% (24) high school, 33.7% (68) bachelor's degree, 44.6% (90) master's degree, 6.9% (14) PhD degree, and 1.5% (3) other education level.

In regard to the ad blocking usage, 71.3% (144) of the respondents are currently using an ad blocking technology on a desktop or laptop device and 28.7% (58) have used an ad blocking technology on a desktop or laptop device in the past, but they are not currently using this technology. 54.46% (110) of the respondents block all the ads when they are browsing the web using a desktop or laptop device, while the rest of the respondents use ad blockers in specific websites based on their content. The proportion of the ad blocking users that block advertisements on a particular type of website can be found in Figure 4.3. An analytical table of the graph can be found in Appendix C. The top 3 website types on which our sample uses or have used ad blockers are entertainment websites with 81.19%, social networking websites with 75.74%, and news websites with 71.78%.
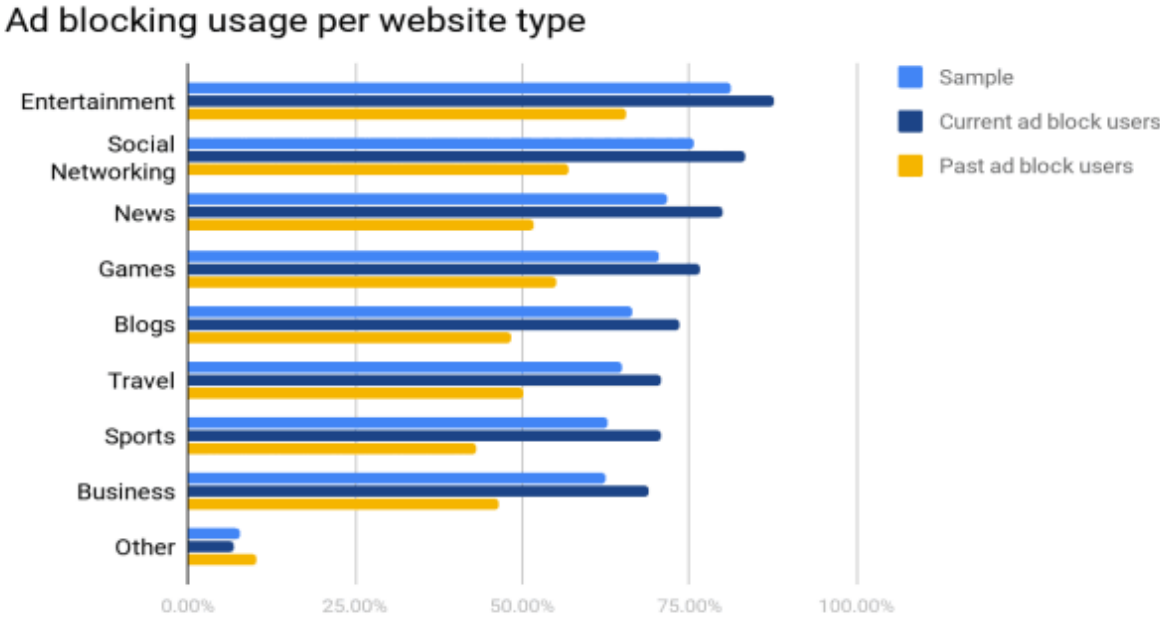
Figure 4.3 Current and past ad blocking usage per website type

The 63.19% of the online users that are currently using an ad blocker block all the advertisements when they are browsing the web. The top 3 website types for these users to block ads are entertainment websites, social networking websites, and news websites. Only the 32.76% of the users that used to block advertisements in the past blocked all the ads during their browsing. The top 3 website types that those users used to block ads are entertainment websites, social networking websites, and gaming websites. We could assume that past users are not currently using ad blockers due to the fact that they were not heavy

users since the 2 out of 3 would not block all the online ads but would enable their ad blockers in specific types of websites.

The descriptive statistics of the factors created from the EFA will now be interpreted. The factors of Advertising Avoidance (0.7845), Annoying Advertisements (0.78121), Privacy Concerns (0.7643), and Browsing Experience (0.80935) have relatively small standard deviation compared to their means. Thus ratings of these factors are close to the mean. Malvertising's standard deviation is equal to 1.00097 which is relatively high compared to its mean, which indicates that the rating can vary from high to low in regard to the mean. All of the factors are negatively skewed; therefore they are skewed to the left with means being less than the corresponding medians. Negative skewness indicate that the frequent scores are found at the higher end of the distribution (Field, 2016) The factors of Advertising Avoidance (1.908), Privacy Concerns (2.223), and Browsing Experience (2.2443) are leptokurtic distributed. Thus many scores are distributed in the tails (Field, 2016). Annoying Advertisements (-0.078) and Malvertising (-0.352) are platykurtic. Therefore the distributions are thin in the tails and tend to be flat (Field, 2016). According to Field (2016), all of the factors deviate from normality due to their lack of symmetry and their pointiness. A detailed presentation of the descriptive statistics can be found inTable 4.10, the corresponding histogram of each factor can be found in Appendix D, and the answers collected for the 15 items can be found in Appendix E.

Table 4.10 Descriptive Statistics based on the EFA

Descriptive Statistics									
Variables	Mean	95% CI for Mean		5% Trim. Mean	Median	Variance	SD	Sk.	Kur.
		Lower	Upper						
Advertising Avoidance	4.1254	4.0166	4.2343	4.1944	4.3333	0.615	0.78453	-1.137	1.908
Annoying Advertisements	3.8515	3.7431	3.9599	3.8889	4.0000	0.610	0.78121	-0.514	-0.078
Privacy Concerns	4.2129	4.1068	4.3189	4.2880	4.3333	0.584	0.76426	-1.347	2.223
Browsing Experience	4.4356	4.3234	4.5479	4.5336	5.0000	0.655	0.80935	-1.581	2.443
Malvertising	3.8663	3.7275	4.0052	3.9263	4.0000	1.002	1.00097	-0.747	-0.352

4.4   Main Analysis and Discussion

The main analysis of our research will be conducted using a Multiple Regression Analysis (MRA). MRA is a technique for estimating the value of the dependent or criterion variable Y from values of two or more other independent or predictor variables X (Burns & Burns, 2008). The four independent variables will be entered into the model. The method that we chose for the model is the Enter method. In the Enter method, the predictor variables are forced into the model, giving no power to the experimenter over the order in which predictors are entered (Field, 2016).

The multiple regression equation for our analysis is the following:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Transcribed based on our 5 variables:

$$AA = \beta_0 + \beta_1 AN + \beta_2 PC + \beta_3 MA + \beta_4 BE + \varepsilon$$

where:

AA   is the advertising avoidance

AN   is the annoying advertisements

PC   is the privacy concerns

MA   is the malvertising

BE   is the browsing experience

β_0 is the slope

β_1 is the effect of annoying advertisements

β_2 is the effect of privacy concerns

β_3 is the effect of malvertising

β_4 is the effect of browsing experience

ε is the error

4.4.1 Multiple Regression Assumption

There are three main assumptions of Multiple Regression, that according to Field (2016) should be taken into consideration when we run a MRA. Those assumptions are: the linearity of relationship of the residuals with the predicted scores, the assumption of normality of the residuals, and the assumption that the predictors are not highly correlated therefore there is no multicollinearity (Field, 2016).

In order to check whether there is a linearity of relationship, we have to look at the ANOVA table shown in Table 4.11. The hypotheses to check for the significance of the multiple linear regression equation are:

H0: random error model

H1: the multiple linear regression model, $AA = \beta_0 + \beta_1 AN + \beta_2 PC + \beta_3 MA + \beta_4 BE + \varepsilon$

The results show that F statistic falls below the significance level with an associated probability close to zero ($F = 20.526$, $p < 0.01$). Therefore, the null hypothesis of random error model is rejected and we accept the multiple linear regression model. The regression model could fit our data.

Table 4.11 Output of the Multiple Regression Analysis ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.392	4	9.098	20.526	.000[b]
	Residual	87.320	197	.443		
	Total	123.712	201			

a. Dependent Variable: Advertising Avoidance

b. Predictors: (Constant), Browsing Experience, Malvertising, Privacy Concerns, Annoying Advertisements

As for the normality assumption of the MRA ,we are going to examine the histogram and the normal probability plot shown in Figure 4.4 and Figure 4.5 accordingly. The histogram shows some deviations from the normal curve, but the normal probability plot shows that residuals hover around the straight line. Therefore, we accept the normality assumption.
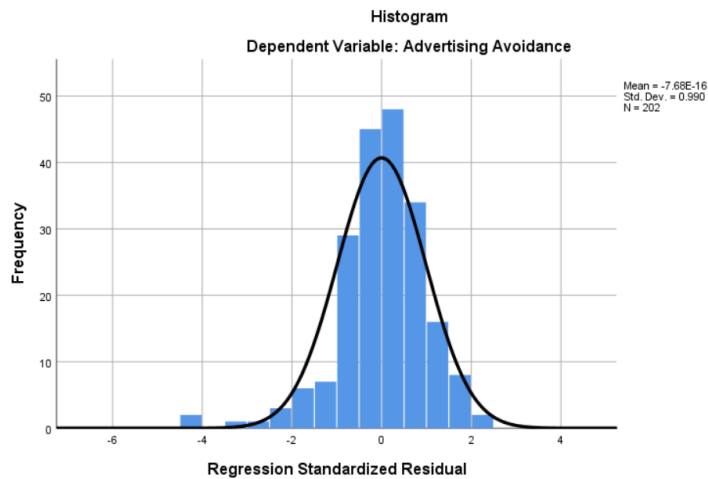
Histogram
Dependent Variable: Advertising Avoidance

Figure 4.4 Output of the standardized residual plot

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Advertising Avoidance
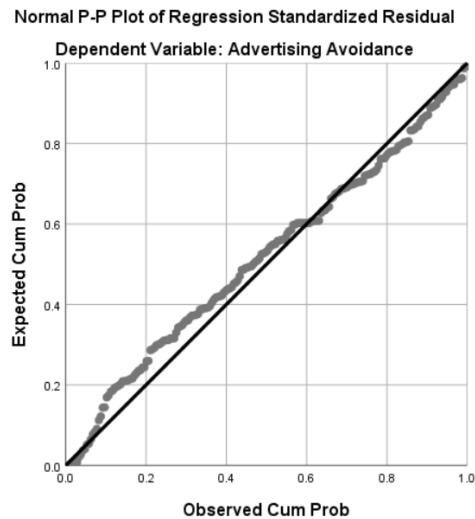
Figure 4.5 Output of the normal probability plot

According to Field (2016), the largest VIF value for a predictor should not be greater than 10, the tolerance statistic for each predictor should be greater than 0.2, and the average VIF should not be greater than 1. At Table 4.12 we can observe that VIF values for all the predictors are well below 10 and their tolerance statistics are above 0.2; the lowest tolerance statistic is equal to 0.824. To calculate the average VIF, we add the values for each predictor and divide by the number 4 which is the total number of predictors used in the model. The average VIF is 1.1785 which is very close to 1. Multicollinearity is not a problem for our model.

Table 4.12 Output of the coefficients of the regression model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.105	.363		3.045	.003					
	Annoying Advertisements	.378	.066	.377	5.715	.000	.478	.377	.342	.824	1.213
	Privacy Concerns	.130	.067	.127	1.937	.054	.299	.137	.116	.839	1.192
	Malvertising	.056	.051	.071	1.095	.275	.237	.078	.066	.856	1.168
	Browsing Experience	.180	.062	.186	2.912	.004	.318	.203	.174	.876	1.141

a. Dependent Variable: Advertising Avoidance

All of the Multiple Regression assumptions examined are met, thus, we can proceed with the interpretation of the multiple regression. Before the main interpretation we check the coefficient of multiple determination. The coefficient of multiple determination R Square and adjusted R Square are shown in Table 4.13. The R Square (0.294) and the Adjusted R Square (0.280) indicate that between 28% to 29,4% the variation of Advertising Avoidance through the usage of ad blockers is explained by the four independent variables.

Table 4.13 Output of the coefficient of multiple determination

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.542[a]	.294	.280	.66577

a. Predictors: (Constant), Browsing Experience, Malvertising, Privacy Concerns, Annoying Advertisements

b. Dependent Variable: Advertising Avoidance

4.4.2 Interpretation of results

The results of the MRA based on our model are shown in Table 4.12. As suggested by the results, Privacy Concerns have a positive and significant relationship with the Dependent Variable ($\beta = 0.130$, $p < 0.1$), which implies that the higher the privacy concerns that an online user has, the higher will be his motive to avoid online advertisements. Hypothesis 1 is supported. Annoying Advertisements have a positive relationship with Advertising Avoidance ($\beta = 0.378$, $p < 0.01$), implying that the more annoying the advertisements are, the higher is the probability of avoiding advertisements. Therefore hypothesis 2 is supported. Browsing Experience has a positive and significant relationship with Advertising Avoidance ($\beta = 0.180$, $p < 0.05$), implying that a perceived positive browsing experience is highly associated with avoiding online advertising when the user wants to access the useful content of a website, supporting hypothesis 3. Therefore, perceived negative browsing experience signifies that the users probably are not avoiding the advertisements. Based on the results, Malvertising has a positive but not significant relationship with Advertising Avoidance ($\beta = 0.056$, $p > 0.1$), indicating that malvertisements are not considered a motive for the online users to block advertisements. This could be explained from the insights gained from our questionnaires that

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the majority of the users are not informed that malicious advertisements can be served from reputable websites. Thus, hypothesis 4 is not supported.

Based the results of the MRA, the multiple regression equation is the following:

$$AA = 1.105 + 0.378AN + 0.13PC + 0.056MA + 0.18BE + \varepsilon$$

The absolute magnitude of the Standardized Beta Coefficient indicates how strong the predictor is in contributing to the prediction of the dependent variable (Burns & Burns, 2008). The strongest predictor is Annoying Advertisements with an absolute magnitude of 0,377. The second strongest variable is Browsing Experience with an absolute magnitude of the standardized beta coefficient equal to 0,186, followed by Privacy Concerns (0,127). The variable Malvertising has the lowest absolute value equal to 0,071, which make it the weakest independent variable.

4.4.3   Discussion

Data collected from the 202 respondents of our questionnaire reveal that ad blocker users tend to show relatively high proportion of cognitive, affective, and behavioral advertising avoidance. Over 87% of them intentionally ignore ads on the Internet, about 80% hate online ads, and more than 79% take actions to avoid online ads. Those responds support our intention to consider Advertising Avoidance identical to the usage of ad blockers.

Our first hypothesis is supported by our analysis but is considered to be a relatively weak predictor of the Dependent Variable. As we can accept that H1 is supported, Privacy Concerns have a positive relationship with advertising avoidance in regard to the use of ad blockers. Users are blocking ads in an effort to reduce the feeling of losing control over their data, and reduce the level of concern of how collected data would be used by the advertising providers. This can be considered as a form of resistance of the users to safeguard their privacy along with their data. Since they block the ads, personalized messages cannot be displayed and their data cannot be utilized by the advertising providers.

The variable Annoying Advertisements is considered to be the strongest indicator for Internet users to avoid online advertisements. Hypothesis 2 has been supported for our model revealing that Annoying Advertisements have a strong positive relationship with advertising avoidance. Respondents reveal that they become upset when they are suddenly encountered with ads while browsing, and when those ads are perceived as annoying their tolerance is relatively low. Advertisements are considered as a degrading factor for their experience. However, Internet users do not constantly utilize their ad blockers. Based on our data, about half of the respondents (45.54%) are blocking the entire volume of the ads on the web. The rest 54.46% utilize ad blockers only on specific websites and based on their content. It could be said that the first half has no tolerance for ads and consider any advertising message on the web as an annoying message. The second half decides on which types of websites to block the ads, and based on its browsing activates or deactivates the ad blocker.

Hypothesis 3 tested whether perceived positive browsing experience has a positive relationship with advertising avoidance. Our model supports hypothesis 3, therefore there is a positive relationship between the variables. Users highly perceive that a good browsing experience is to be able to access the useful website content quickly, therefore they use ad blockers to maintain this positive browsing experience levels.

Our results show that Malvertising, even though has a positive relationship with advertising avoidance, this relationship is not considered significant based on our sample. Therefore, Malvertising won't affect the Internet user's decision to avoid advertising by using ad blockers, and hypothesis 4 is rejected. Based on the data collected, users show that they are not familiar with how Malvertising works. Even though our data show that users are familiar with the existence of malicious ads that could harm their devices or steal their personal data, the majority of our respondents believe that malicious ads cannot be served by a reputable website, which in fact is a wrong notion. As discussed in the literature review, even reputable websites can serve malicious ads, and that is because website operators do not have control over which ad will be presented to the user (Mansfield-Devine, 2015). The ads that are served to users, infected or not with malicious software, are determined by the advertising provider. Thus, Malvertising does not have a significant relationship with ad blockers, due to the users lack of knowledge. In our opinion, if users were knowledgeable about how Malvertising works, ad blockers usage would have a significant relationship with the variable.

5 Conclusion

This research examined the relationship between the motivations of online users to avoid online advertising by using an ad blocking extension on their web browser. The four motivations researched and analyzed are: Privacy Concerns, Annoying Advertisements, Browsing Experience and Malvertising. Generally, the first impressions of advertisements are positive, since based on the literature some users can show excitement when advertisements give them the opportunity to browse useful and latest information about a product or service. However, after some reflection and based on our data, most users have strained back from the preliminary excitement and expressed their annoyance towards online ads. They are concerned about privacy issues, such as how their personal information is exposed while they are browsing, how this information is being treated and what if those ads are infected with malicious software. Moreover, due to the growth of online advertising and new media in the recent years, an explosion of online advertisements has occurred with ads appearing in every corner of the Internet. The ads impede user's Internet experience from different aspects and with varying degree. Due to that, users are becoming less tolerant of online advertisements and are keen to adopt ad blockers to protect their online experience.

We utilized a self-completion online questionnaire to collect the users' authentic opinions in an effort to examine the motivations of the users to avoid online advertisements using an ad blocker. In total, 202 completed and valid questionnaires were collected and utilized for our analysis. The respondents were all ad blocking users, that are currently using an ad blocking technology or have used it in the past on a desktop or a laptop device. The results of this questionnaire were analyzed using quantitative methods, and this analysis revealed the linear relationship between the examined motivations and the advertisement avoidance through the use of ad blocking.

Our results show that three of the variables examined have a positive and significant relationship with the phenomenon of ad blocking. Annoying Advertisements, Privacy Concerns, and Browsing Experience are crucial aspects of the Internet usage, and if the expectations of the users are not met they will react with a behavioral response; this behavioral response of advertising avoidance is the use of ad blockers. Based on our data Annoying Advertisements is the number one predictor of the ad blocking usage followed by Browsing Experience and Privacy Concerns. Even though Malvertising has a positive relationship with the ad blocking usage, our data show that it does not meet the significance level, probably because online users are not well informed about how Malvertising works and how exposed they can be when navigating the web.

5.1 Theoretical implication

Our research raises various theoretical implications in regard to the four motivations discussed. The implications will be presented separately for the four variables Privacy Concerns, Annoying Advertisements, Browsing Experience, and Malvertising. The findings contribute to the theory of understanding online consumers and are presenting a current depiction of the motivations of Internet users to avoid online advertisements.

5.1.1 Privacy Concern

Our research supports the finding of Chang-Dae (2017) that privacy concerns related to the personalized advertisement are positively correlated with advertising avoidance. Moreover, by accepting our hypothesis about Privacy Concerns, we also support that privacy concerns and advertising avoidance in terms of ad blocking usage are as well positively correlated. According to Simonson (2005), consumers generate significant resistance to the personalized advertisement when they are feeling that their information is threatened. Our analysis helped us generalize Simonson's finding to the online user who is also a consumer of invasive personalized advertisements. Therefore, we can also support our generalization that ad blocker is the mean of the opposition of the online user towards the online advertisement. Furthermore, our results support Baek & Morimoto (2012) that online users are feeling that they have no control over their personal data, and are concerned of not being aware of what a company knows about them and how this information is being treated.

5.1.2 Annoying Advertisements

Findings in this paper show that the annoyance generated from advertisements have a positive relationship with advertising avoidance, implying the more annoying the ad is, the higher is the probability of avoiding advertisements. This result is in line with previous studies of annoying advertisements (Bax & Stourm, 2017; Cho & Cheon, 2004; Wilbur, Xu & Kempe, 2013). Subsequently, the results also reveal that annoying advertisement is the number one factor that motivates users to adopt ad blocking. This result is in line with Lambrecht et al. (2014) study of the relationship between annoyance ads and employing of ad blocker. Apparently, users wish to have a better enjoyment of the online content, but the annoyance caused by ads interfere with their enjoyment. According to Bax and Stourm (2017), since users are being less tolerant of annoying advertisements, the growth of ad-blocking technology adoption also increases. However, our results show that Internet users do not constantly employ their ad blockers. Some of the users only utilize ad blocker for some specific types of websites, and based on their browsing they activate or deactivate the ad blocker.

5.1.3   Browsing Experience

We used Nielsen (2007) research in browsing experience on the Internet as a start point to test the relationship of users browsing experience and adopted ad blocking. According to the analysis result, browsing experience has a positive and significant relationship with advertising avoidance. Even more, the browsing experience is the second strongest factor that affects users to avoid advertising. The analysis result is consistent with previous studies. Online ads result in a negative impact of weakening the user's browsing experience (Dirk, 2017; Goldfarb & Tucker, 2014; Shawn, 2016). Furthermore, the analysis results also supports the previous studies that users treat online ads as a highly intrusive message (Goldfarb & Tucker, 2014).

5.1.4   Malvertising

Our research's findings contribute in the verifying of a theoretical academic background about Malvertising although the existing academic literature is mainly based on the practical function of how Malvertising works and is delivered to the online users. Even though the results for this variable weren't significant in order to explain the blocking efforts of the online users , we could state that users would block online ads if they knew how Malvertising is being delivered at their computers. The data revealed that online users are concerned about the malicious software that can be served through online advertisements providing a current image for the work of Mansfield-Devine (2014), Mansfield-Devine (2015), and Sood & Enbody (2011). Furthermore, users are aware that by blocking ads they can protect their devices and data but they consider that ad blocking usage is only necessary when they are browsing a considered to be dangerous or non reputable website. Finally, based on our literature review, we managed to create a reliable 2-items scale of Malvertising measurement based on the work of Estrada-Jimenez et al. (2017) and Mansfield-Devine (2015).

5.2   Practical Implications

Our findings can provide useful insight and guidelines for better digital strategies implemented by companies, digital marketing practitioners, online content publisher, and website operators. In this section, our proposals will be presented based on our research's findings.

Website operators should reconsider the length and proportion of ads shown on the website pages in regard to the consumers' motivations of employing ads blockers. Annoying advertisements had the highest relationship with the adoption of ad blocking technology. Users are trying not to look at advertisements on the Internet since they have no tolerance towards ads that tthey consider irrelevant with their browsing goals. In general, users treat online ads as highly intrusive content instead of the useful message. Website operators and publishers could give the option to online users to opt out from specific types of advertisements, that users consider of being annoying. If the user could define which type of

ads does not want to see or are irrelevant with his browsing goals, the website could fine-tune the types of ads that are being served.

Online consumers install ad blockers to be able to have quick access to the content that they are looking for; therefore ads should not intervene with the content. A solution to that is to provide a well-defined section on the page that ads are being served and not overlap or abuse the page's content. This is the most common practice for reputable websites, even though some website operators still tend to serve ads that autoplay music, cannot be skipped or overlap the content without the user's permission, resulting in degradation of the user's browsing experience. Browsing experience based on our results is the second strongest predictor of the ad blocking usage; therefore it should be taken into consideration. A perceived bad browsing experience provides a higher probability that the user will use an ad blocker, while perceived positive experience provides a lower probability that the user will try to avoid the ads. Based on our data, almost half of the users do not have their ad blocker always activated but choose when they want to block the ads from a website. Thus, website providers should not provoke users to enable their ad blockers due to a perceived bad browsing experience.

Based on our data, online users support efforts to ensure their personal information is kept safe when they are browsing the Internet. Moreover, they feel uncomfortable when their personal information is shared without their permission. With the rise of personalized advertising, users are concerned about the collection of their personal information by personalized advertisers, because of what others might do with it. Thus, users take action to protect their privacy by installing ad blockers. The personalized advertising is a double-edged sword. On the one hand, personalized advertising can provide interested-goal ads for specific users. On the other hand, the personalized ads are generated by collecting personal browsing data that result in rising of privacy issue. Since online users have to choose between personalized ads or privacy protection, the website operators could display a notice page on the websites page. The display page could honestly explain to users that the websites cannot be opened and run without the support of the advertisement since advertisements are the primary source of income to a website in order to keep operating and create new content. If users seem unwilling to deactivate their ad blocker permanently, the website could prompt the user to make an exception for their domain, the so-called whitelisting.

Our respondents are worried that online ads may be infected with viruses, spyware, or malware. Hence, they want to protect themselves and their device from malicious advertisements by installing ad blockers. According to these users' concerns, the operators of the websites can regularly check for hidden malvertising on their website pages, providing a secure network environment for users who visit their sites. Even though, based on our results, malvertising does not have a significant relationship with the ad blocking usage, the fact that the provider is making efforts to keep the website safe could be valued by the users in general.

A bold proposal for website operators would be to differentiate their strategy, and instead of serving ads from advertising networks, provide their advertising space to affiliate advertisements. That way, they will be able to have control over the ads that are being served, eliminate the randomized appearance of malicious ads, and evaluate which of the ads would be considered as annoying by the Internet users. By turning to affiliates, their website will still

be able to receive an income through the selling of online advertisement space and support their content generation process.

Companies and digital marketing practitioners should take into consideration all the points mentioned above when they want to design and implement their online advertising strategies. Affiliate advertising in our opinion could result in a more efficient and effective way to deliver their Internet advertising message to the online user.

5.3   Limitations and Future studies

There are numerous limitations in regard to the conducted study, such as the time span of the research, the device that the online users use to block advertisements, and the number of the motivations examined.

Firstly, the time span of the research was restricted to a period of 10 weeks. In this period, authors should spot a gap in the existing academic literature, find an interesting topic, evaluate the research design, collect primary data for the analysis, analyze the data, and come to conclusions. If time was not a factor of limitation, more primary data could have been collected, and more motivations could have been identified for this research to aid in the generalization of the model.

Secondly, our study only focuses on users that are currently blocking ads on desktop or laptop devices. The dramatic rise in the number of ad blockers in mobile and tablet devices is not examined and could be a topic of interest for future research. Also, the comparison of the findings of the desktop/laptop ad block usage and the mobile/tablet ad block usage could be of value to advertising providers, publishers, and all the companies that use online advertising to expand their business activity.

Thirdly, additional motivations of online user's advertisement avoidance could be examined to introduce a model that better describes the adoption of the ad blocking technology by them. The model generated from our research explains around the 30% of the avoidance behaviour through ad blocking technology. In order to keep our questionnaire relatively short to get adequate data in a short period of time, we managed to examine only four factors that push online users to block advertisement. Other motivations we suggest that could be tested are the protection of minors and the reduced consumption of internet data.

Future studies could examine how willing are online users to uninstall ad blockers given alternatives by the content publishers. Furthermore, it could be investigated how willing are the ad blocker users to deactivate their blockers in websites that they used to block ads, and what would be their motivations to act that way. Moreover, it would be alluring to re-examine the ad blocking usage if ad blockers become a paying service in the future since as for today most of the ad blockers are distributed to the consumers for free. Finally, we would find thought-provoking a qualitative study with interviews with business professionals of various job positions such as graphic designers, programmers, and marketing executives in regard to their ad blocking usage and behaviours.

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Appendix A

Questionnaire - Ad blocking

This questionnaire is designed to ask your opinion about Ad blocking technology and the motivations to use it.

The questionnaire is addressed to Internet users who are currently using or have used an Ad blocking technology in the past on a desktop or laptop device.

The data collected will remain anonymous.

Thank you for your time.

Ad blocking usage

Are you currently using an Ad blocking technology or have used it in the past on a desktop or laptop device?

1. Yes, I am currently using Ad blocking

2. Yes, I have used Ad blocking in the past but I am not currently using it

3. No, I have never used Ad blocking

Motivations

Please indicate your level of disagreement or agreement with each of these statements.

The five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

1. I intentionally ignore ads on the Internet.

2. I hate ads on the Internet.

3. I take action to avoid ads on the Internet.

4. I support efforts to ensure my personal information is kept safe.

5. I feel uncomfortable when my personal information is shared without my permission.

6. I am concerned about collection of my personal information by personalized advertisers, because of what others might do with it.

7. I consider online advertisements to be annoying.

8. I become upset when I am suddenly encountered with online ads.

9. I have no tolerance of annoying ads.

10. I almost never look at anything that looks like an advertisement on the Internet.

11. I see online ads as a factor that negatively affects my online experience.

12. I consider it to be a good browsing experience when I am able to access the useful website content quickly.

13. I worry that ads may be infected with viruses, spyware, or malware.

14. I think that by blocking ads I can protect myself and my device from malicious advertisements.

15. I think that malicious advertisements cannot be served in a reputable website.

Personal Information

1. Please indicate your gender.

    1) Female
    2) Male
    3) Other

2. Please indicate your age.

    1) 18-24
    2) 25-34
    3) 35-44
    4) 45-54
    5) Over 65

3. Please indicate your highest level of education.

    1) Primary School
    2) High School
    3) Bachelor's Degree
    4) Master's Degree
    5) PhD
    6) Other

4. Please indicate how many hours you spend on internet weekly (using a desktop or laptop device).

    1) Less than 5 hours
    2) 5-10 hours
    3) 10-20 hours
    4) 20-40 hours
    5) More than 40 hours

5. On which types of websites do you usually use Ad blocking?

    1) News
    2) Entertainment
    3) Sports
    4) Games
    5) Travel
    6) Business
    7) Social Networking
    8) Blogs
    9) All the above
    10) Other

Appendix B

Reliability Analysis - Item Statistics Tables

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I intentionally ignore ads on the Internet.	8.07	3.040	.564	.326	.700
I hate ads on the Internet.	8.42	2.543	.630	.398	.620
I take action to avoid ads on the Internet.	8.27	2.704	.568	.327	.695

Dependent Variable Advertising Avoidance

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I become upset when I am suddenly encountered with online ads.	11.55	5.801	.570	.328	.702
I have no tolerance of annoying ads.	11.50	6.082	.501	.258	.740
I almost never look at anything that looks like an advertisement on the Internet.	11.64	5.813	.593	.372	.690
I see online ads as a factor that negatively affects my online experience.	11.52	6.012	.586	.373	.695

Independent Variable Annoying Advertisements

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Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I support efforts to ensure my personal information is kept safe.	8.51	2.559	.589	.347	.648
I feel uncomfortable when my personal information is shared without my permission.	8.23	2.754	.573	.330	.668
I am concerned about collection of my personal information by personalized advertisers, because of what others might do with it.	8.53	2.578	.565	.319	.677

Independent Variable Privacy Concerns

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I worry that ads may be infected with viruses, spyware, or malware.	3.89	1.132	.618	.382	.
I think that by blocking ads I can protect myself and my device from malicious advertisements.	3.84	1.348	.618	.382	.

Independent Variable Malvertising
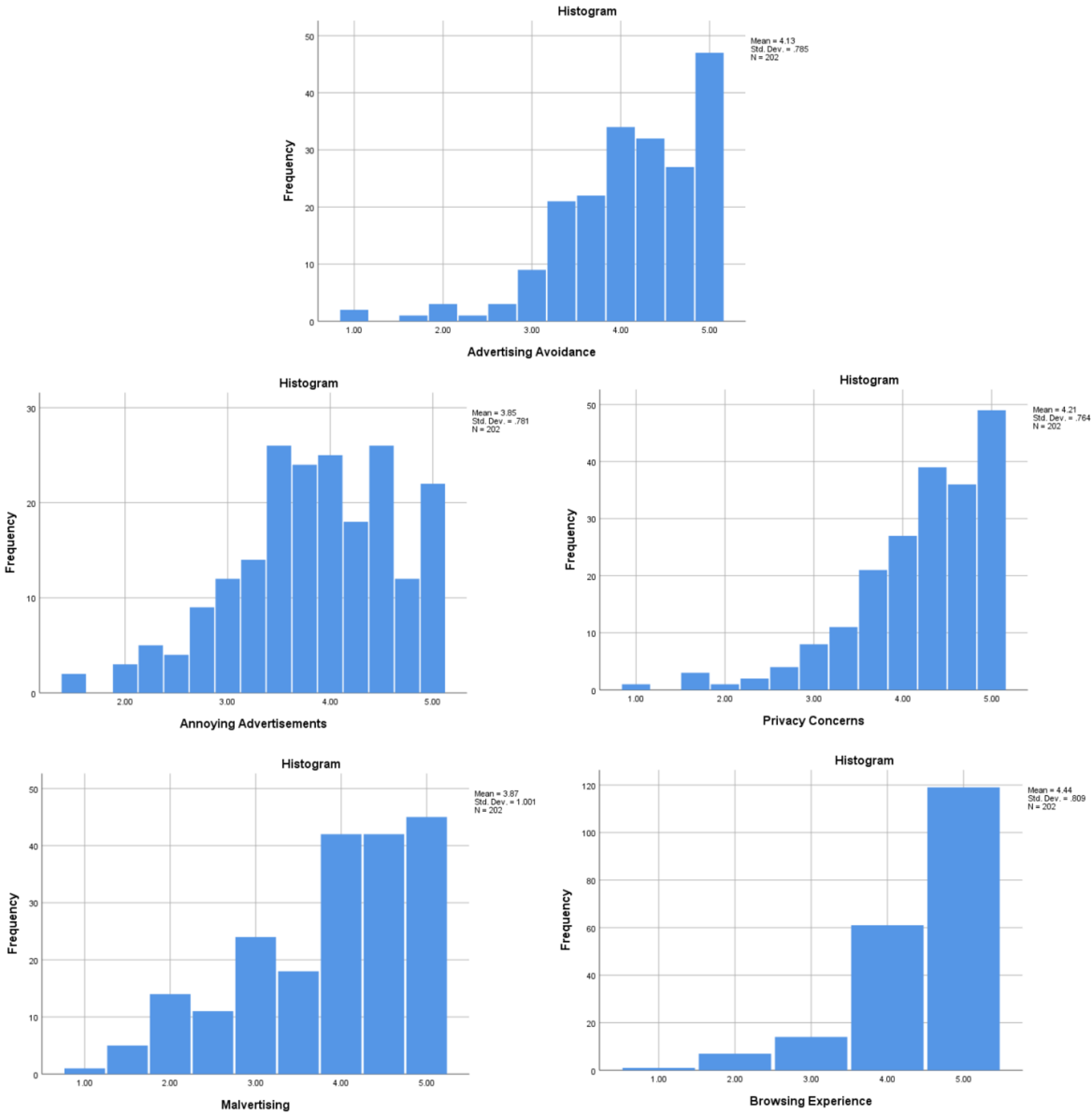
Appendix C

Ad blocking usage per website type

	Block percentage		
Website Type	Sample	Current ad block users	Past ad block users
Entertainment	81.19%	87.50%	65.52%
Social Networking	75.74%	83.33%	56.90%
News	71.78%	79.86%	51.72%
Games	70.30%	76.39%	55.17%
Blogs	66.34%	73.61%	48.28%
Travel	64.85%	70.83%	50.00%
Sports	62.87%	70.83%	43.10%
Business	62.38%	68.75%	46.55%
Other	7.92%	6.94%	10.34%

Current and past ad blocking usage per website type

Appendix D

Descriptive Statistics - Histograms for the 5 factors

Appendix E

Answers collected for the 15 items

Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. I intentionally ignore ads on the Internet.	2%	2.50%	8.40%	37.10%	50%
2. I hate ads on the Internet.	2%	5.90%	21.80%	34.70%	35.60%
3. I take action to avoid ads on the Internet.	2.50%	5.40%	12.90%	37.10%	42.10%
4. I support efforts to ensure my personal information is kept safe.	1%	4.50%	20.30%	29.70%	44.60%
5. I feel uncomfortable when my personal information is shared without my permission.	1.50%	3%	9.90%	24.30%	61.40%
6. I am concerned about collection of my personal information by personalized advertisers, because of what others might do with it.	1.50%	5.90%	14.90%	36.10%	41.60%
7. I consider online advertisements to be annoying.	1%	4%	19.30%	38.10%	37.60%
8. I become upset when I am suddenly encountered with online ads.	2%	9.40%	22.80%	33.20%	32.70%
9. I have no tolerance of annoying ads.	1.50%	9.40%	22.30%	30.20%	36.60%
10. I almost never look at anything that looks like an advertisement on the Internet.	1%	12.40%	23.30%	36.10%	27.20%

11. I see online ads as a factor that negatively affects my online experience.	1.50%	8.40%	19.80%	41.10%	29.20%
12. I consider it to be a good browsing experience when I am able to access the useful website content quickly.	0.50%	3.50%	6.90%	30.20%	58.90%
13. I worry that ads may be infected with viruses, spyware, or malware.	3.50%	13.90%	13.90%	32.70%	36.10%
14. I think that by blocking ads I can protect myself and my device from malicious advertisements.	2.50%	9.90%	17.80%	35.60%	34.20%
15. I think that malicious advertisements cannot be served in a reputable website.	5.90%	12.90%	19.30%	37.60%	24.30%