Why do individuals block online ads? An explorative study to explain the use of ad blockers

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Abstract

Ad blockers are a challenging trend for online publishers, as an increasing number of individuals use ad blockers. To understand why individuals switch to the use of ad blockers, this research presents empirical findings that explain why individuals develop switching intentions. Based on migration theory, we explain that individuals’ intention to switch to the use of ad blockers are grounded in factors that pull individuals to use ad blockers, push them away from not using ad blockers, and mooring factors either hinder switching intention or determine how pull and push factors are translated in switching intentions. We conducted 42 interviews and identified relative user experience, increased performance, improved privacy protection and improved security as pull factors, dissatisfaction with online ads as push factor and computer self-efficacy as mooring factor. This contributes to theory by providing an explanation why individuals develop to ad blocker users.

Keywords

Online ads, online advertising, ad blocker, advertising avoidance, pull-push-mooring, migration theory

Introduction

There is an increasing trend of individuals installing ad blockers, which are small and easy-to-install applications blocking online ads (Kannan et al. 2016). In 2016, 309 million individuals used ad blockers, which represents a doubling of the previous year’s figure (PageFair 2016). From a user’s perspective, it is favorable to use ad blockers, as they reduce the loading time of web pages (PageFair 2016; Scott 2016) and reduce distraction (IAB 2016). However, from an online publisher’s perspective, this trend is challenging, as recent statistics report a loss of more than 20 billion US$ in 2016 due to the usage of ad blockers (PageFair 2015).

Previous research explains users’ dissociation from online ads with negative experiences and dissatisfaction that push users away from online ads, such as irritation or intrusiveness (Cho and Cheon 2004; Edwards et al. 2002; Li et al. 2002). However, this is not enough to explain users’ switching to ad-blockers fully, as for a change in IT usages also pull factors need to be involved (Bhattacherjee and Park 2014). As shown, previous research has only focused on factors that push individuals away from online ads, but has not revealed what factors pull them towards using ad blockers and which mooring factors are relevant for this context. To address this gap and the challenges, online publishers are opposed to currently, we focus on pull, push and mooring factors, to respond to the following research question:

What influences individuals to switch to the use of ad blockers?

To understand why individuals switch to ad blockers we use the pull-push-mooring (PPM) model (Lee 1966). Therefore, we conducted 42 semi-structured interviews and applied descriptive and interpretive
coding (Myers 2013) examining pull, push and mooring factors that influence individuals to switch to the use of ad blockers. Doing so, we further complete an entire understanding of factors influencing individuals’ switching to ad blockers, beyond dissatisfaction and irritation.

The manuscript is structured as follows: we start with explaining the PPM model and related research in the context of switching to ad blockers, followed by the explanation of the applied methodology. Then our findings are presented. The results and implications are discussed afterwards followed by a brief conclusion.

**Theoretical Background**

In order to understand why individuals switch to ad blockers, we base on migration theory (Lee 1966) explaining individuals’ switching behavior in general and related research focusing on the use of ad blockers.

**Pull-Push-Mooring Model**

The Pull-Push-Mooring model is based on the migration theory, which defines migration as physical movement from one place to another, thus the leave of one local situation for another (Lee 1966). Similar to that, people using ad-blockers move also from one situation to another: from the confrontation with online ads to an ad free browsing environment. To understand their decision to move, we use the PPM model to reveal factors influencing individuals to switch to ad blockers.

The PPM model can be traced back to the first studies covering migration (Ravenstein 1885), where migration is defined as the movement of a person between two places for a certain period of time (Jackson 1986) and where migration happens voluntary or forced (Lee 1966). The PPM model outlines that the decision to migrate is influenced by various factors at the origin location (push factor), the destination of the migration (pull factor) and barriers constraining migration (mooring factors) (Lee 1966). Early migration research studies migration at an aggregated-level, considering push and pull variables. For instance, push factors can be defined as negative factors that drive individuals away from their original location, such as religious or ethnic affiliation, or natural disasters (Bogue 1969). Pull factors are positive factors that attract individuals to a specific destination like superior opportunities for employment or preferable environment and living conditions (Bogue 1969). However, to get a comprehensive model with a holistic view, further factors, such as family attachments or cost of the migration, need to be considered (Jackson 1986). It is suggested that these factors should not just be considered as “intervening obstacles”, meaning to have a direct effect on migration (Lee 1966). These factors should also be considered as “intervening variables” since these either relieve or obstruct migration (Jackson 1986). Thus, researchers added mooring factors, having direct and moderating effects on migration. These refer to all personal, social or cultural variables moderating the decision to migrate (Jackson 1986; Longino 1992; Moon 1995).

**PPM Factors Explaining Individuals’ Switching to Ad blockers**

Individuals’ behavior in the context of switching to ad blockers is framed by individuals’ intention to switch to the use of ad blockers. The association between intention and behavior is validated in IT adoption research (Venkatesh et al. 2003). Consequently, based on PPM model intention to switch to using ad blockers determines the switching behavior.

We use the PPM model to investigate the pull, push and mooring factors that influence individuals’ switching behavior (see Figure 1). Individuals’ decision to switch to ad blockers is shaped by factors pulling individuals to ad blockers and factors pushing individuals away from browsing environments displaying online ads. Additionally, mooring factors can influence individuals’ intention to switch to ad blockers directly and moderate the effect of pull or push factors on individuals’ intention to switch.
Why do individuals block online ads?

Pull factors. In the context of switching to ad blockers, pull factors are those attracting individuals to switch to ad blockers. Both, IS and marketing literature have not addressed pull factors of ad blockers. Therefore, there is no research addressing pull factors that influence individuals' intention to switch to the use of ad blockers.

Push factors. Push factors are factors related to the current situation, thus to browsing environments without ad blockers. These factors push individuals to switch to ad blockers. Prior research explains that negative experiences push individuals to avoid online ads (Cho and Cheon 2004). For instance, irritation caused by online ads and intrusive design of online ads are found to influence users' behaviour (Campbell et al. 2010) and are particularly found to be the main influencing determinant of online ad avoidance (Edwards et al. 2002; Li et al. 2002). Additionally, goal impediment and perceived advertising clutter are found to have an influence of online ad avoidance (Cho and Cheon 2004).

Mooring factors. Building upon PPM model (Jackson 1986; Lee 1966), mooring factors — in the context of switching to ad blockers — influence individuals' intention to switch in two ways.

First, mooring factors constrain the intention to switch to ad blockers directly. This may lead to a situation where pull and push factors drive individual's intention to switch to ad blockers, yet mooring factors may limit individuals' intention directly. Previous literature in IS and marketing has not addressed mooring factors that limit individuals' intention to switch to ad blockers. Yet, we know from related research focusing on mooring factors that mooring factors refer to setup switching costs (Bhattacharjee and Park 2014; Chang et al. 2014). Setup switching costs are defined as the effort for initiating the use of a new product (Patterson and Smith 2003).

Second, mooring factors can moderate the influence of pull and push factors on the intention to switch to ad blockers. This means that the strong perception of mooring factors hinders individuals to develop switching intentions based on pull or push factors. Yet research has not addressed this moderating effect so far.

Since the purpose of this research is to understand why individuals intend to switch to ad blockers, we need to understand which pull, push and mooring factors exist and how they determine individuals' intention to switch to ad blockers.

Research Methodology

To gain insights into pull, push and mooring factors influencing the intention to switch to ad blockers, we conduct 42 semi-structured interviews. The age of our participants ranges from 16 to 63. According to a study in the US, 96 percent of 18 to 29-year-olds are active Internet individuals. Overall, 84 percent of over 18 years accessed the Internet in 2015 and are consequently confronted with online ads and therefore are relevant for this study (Statista 2015). Some demographical information about the interviewees is...
displayed in Table 1. For this research, semi-structured interviews are used, due to their more explorative nature.

Initially, the call for participants was posted on Facebook. Following the example of migration theory, which predicts migration, we ask for participants, who have not used ad blockers so far, as we want to focus on factors influencing the intention to switch to ad blockers before they actually switch. Our research approach is orientated to a similar research approach in the field of PPM model (Bhattacherjee and Park 2014). All participants are invited to the chair’s laboratory to take the interview. For those interviewees who are willing to participate, but could not be on site, Skype interviews are conducted. All interviews are anonymously tape recorded and transcribed with the agreement of each participant.

At the beginning of the interview, we introduce ad blockers to the participants. For this, we explain the functionalities and effect of ad blockers. We furthermore, demonstrate the usage of ad blockers by showing specific websites with and without ad blockers. After this demonstration, the interviewees’ perception of pull, push and mooring factors influencing their decision to switch to the use of ad blockers is addressed in the interview. We ask the participants, what factors play a role when deciding whether they switch to ad blockers. To distinguish between pull and push factors, we ask the participants to specify if the factor refers to ad blockers or to online ads. Factors referring to ad blockers are pull factors since individuals expected those factors from ad blockers. Factors referring to online ads in general, are push factors as they are related to individuals' current situation being confronted with online ads.

The interviews lasted between 20 and 30 minutes and were conducted during November 2016. We transcribe all interviews for coding and we then use MAXQDA 12 for coding by following the data coding procedures according to Myers (2013).

<table>
<thead>
<tr>
<th>Age (n=42; Mean 33; SD 12.47)</th>
<th>Gender</th>
<th>Employment status</th>
<th>Highest education level</th>
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<tr>
<td>16-20 5; (12%) Male 29; (69%) Student 21; (50%) High school 24; (57%)</td>
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<tr>
<td>21-30 21; (50%) Female 13; (31%) Full-time employed 18; (43%) Bachelor 11; (26%)</td>
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<tr>
<td>31-40 3; (7%) Full-time employed 3; (7%) Master 7; (17%)</td>
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<td>41-50 6; (14%)</td>
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<td>51-63 7; (17%)</td>
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Table 1. Demographic Data of 42 Interviewees

For analyzing, we first identify all statements describing the participants’ intention to switch to using ad blockers. Second, we then use descriptive coding (Myers 2013) to group similar statements. In the third step, we use interpretive coding to further group the descriptive codes (Myers 2013). Forth, we draw on PPM model (Lee 1966; Longino 1992; Moon 1995) to further categorize all coded statements into pull, push or mooring category. All statements indicating an interviewee’s switch to ad blockers, because ad blockers provide some benefit, are assigned into pull category. When interviewees relate their intention to switch to ad blockers to online ads, we categorize those statements into push category. We categorize statements that constrained individuals’ intention to switch to ad blockers as mooring factors. An example for the coding procedure is shown in Table 2. To assure objectivity, two members of the research team have coded the interviews.
Data examples

| "The nice thing about ad-blocker is that you can use websites instantly without having to see any ad." [13] | No ads displayed | Relative user experience | Pull Factor |
| "One of the main reasons why I intend to use ad blocker is that all tracking scripts are disabled." [16] | Tracking disabled | Improved privacy protection |

Table 2. Coding Procedure and Examples (in line with Myers 2013)

**Results**

In this section, we present our findings from the conducted interviews and the applied methodology. For structural reasons, we present the results according the respective factors of PPM model in three subsections (see Figure 2). The first section focuses on pull-factors influencing the switching decision, the second on push factors and the third on mooring factors. In each of these three sections, we will explain the respective findings, provide a definition of the identified pull, push or mooring factor and present some examples from the interviews.

![Figure 2. Findings Clustered Using PPM Model (Lee 1966)](image)

**Pull Factors**

In the context of switching to ad blockers, pull factors are those attracting individuals to switch to ad blockers. We identify several statements belonging into the category of pull factors and deduct four pull factors: relative user experience, increased performance, improved privacy protection and improved security, which are explained next.

**Relative user experience.** Interviewees state that they intend to use ad blockers because of the better usability of websites. Furthermore, interviewees report that they intend to switch to ad blockers because they want to work without being disturbed or distracted by online ads. We consider relative user experience in the context of switching to ad blockers as a pull factor influencing the intention to switch positively. This pull factor addresses the better usability and design experience the ad blockers create for individuals (Garrett 2010; Hassenzahl and Tractinsky 2006).
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“I intend to use an ad blocker as ad blocker enable uninterrupted work. When I am working I just do not want to be disrupted.” [18]

**Increased performance.** Faster loading times accompanied with saving data volume is mentioned as a reason to switch to ad blockers. For participants, this is particularly important when living in rural area with low Internet speed. Increased performance depicts a pull factor influencing the intention to switching positively and is understood as the decrease of loading time and the reduced downloaded data volume.

“Using an ad blocker would significantly reduce page loading time, that is why I intend to use an ad blocker.” [15]

**Improved privacy protection.** Interviewees intend to use ad blockers, because they are aware of data privacy issues related to online advertising. To solve this issue, interviewees consider ad blockers as a measure to protect individuals’ privacy. For instance, interviewees intend to use ad blockers because they disable social media buttons and the related tracking. We identify improved privacy protection as a pull factor influencing individuals' intention to switch positively. In the context of individuals switching to ad blockers, we understand improved privacy protection as individuals’ relieve of their concerns about being tracked without their permission (Zhang 2011).

“The main reason why I would decide to use an ad blocker is that it protects my privacy and disables most of the tracking technologies.” [16]

**Improved security.** Participants report that a reason why they intend to use ad blockers is the improved security. Security risks of malicious online ads can have various forms like hidden pixels in ads, malicious java script or a redirect to malicious websites. To minimize these risks, interviewees report to intend to use ad blockers. Thus, we define improved security as a pull factor influencing individuals’ intention to use ad blockers positively. In this context we consider improved security as the relieve of potential uncertain negative outcomes (Kim et al. 2008).

“I would use an ad blocker because ad blockers minimize the threat of getting stuck malicious code or the like.” [40]

**Push Factors**

Push factors in the context of individuals switching to ad blockers are factors of the current situation of browsing environments without ad blockers that influence individuals to switch to ad blockers. We reveal dissatisfaction with online ads as a push factors that influences individuals’ intention to switch to ad blockers, which is described hereafter.

**Dissatisfaction with online ads.** One reason influencing individuals' intention to switch to ad blockers is dissatisfaction with online ads. Interviewees state that the reason why they would switch to ad blockers is to get away from online ads. Four examples of dissatisfaction with online ads were highlighted throughout the interviews. First, individuals are dissatisfied with online ads hindering them to achieve their initial goal while surfing online. For example, individuals want to read an online article, but online ads like pop-up or video ads are displayed and impede them to read the article. Second, inappropriate content is revealed to be an example of dissatisfaction with online ads. For example, individuals want to read an online article, but online ads like pop-up or video ads are displayed and impede them to read the article. Second, inappropriate content is revealed to be an example of dissatisfaction with online ads. Interviewees explain that to get rid of inappropriate content about drugs, porn or hate, they intent to switch to ad blockers. Third, individuals name irritating ads as an example of dissatisfaction and for their intention to switch. For instance, interviewees complain that online ads disturb them while surfing online. Fourth, an additional example of dissatisfaction with online ads influencing the decision to switch to ad blockers are enforced ads, meaning that individuals are forced to watch an ad before they can continue to the website or service. Based on our interviews we consider dissatisfaction with online ads as a push factor influencing individuals’ intention to switch to ad blockers positively. Building upon prior research (Bhattacherjee and Park 2014), we understand dissatisfaction with online ads in the context of ad blockers switching as an affect representing individuals' overall evaluation to their experience with online ads.

“Actually, online ads annoy me so much that I just want to get rid of them. That’s why I would use an ad blocker.” [22]
Mooring Factors

PPM model indicates that mooring factors not only influence intention directly but also moderate the effect of pull and push factors on switching intention (Jackson 1986; Lee 1966). Mooring factors – in the context of switching to ad blockers – can constrain individual’s intention to switch to ad blockers directly. Additionally, mooring factors can moderate the influence how pull and push factors influence the intention to switch to ad blockers. We consider computer self-efficacy as mooring factor influencing individuals’ intention to switch to using ad blockers. First, we will outline the direct effect of mooring factors and then will explain the moderating effect of mooring factors.

Computer self-efficacy. The participants report not to have the intention to use ad blockers, as they often claimed not to have the necessary technical knowledge or skills. Interviewees report that they do not know how to install or handle ad blockers or assess the consequences. Previous research considers this as computer self-efficacy (Compeau and Higgins 1995), which reflects, in the context of ad blocker usage, the individuals’ judgment of their capability to install and deal with ad blockers. We consider computer self-efficacy as a mooring factor influencing individuals’ intention to switch negatively and moderates how pull and push factors are transferred in switching intentions. The rationale for this conceptualization as mooring factor is that computer self-efficacy represents an individual variable that has a direct influence on behavior as well as on how push and pull factors are transferred into intentions (Maier 2012).

In our interviews, we examine computer self-efficacy to have a direct influence on individuals’ intention to switch to ad blockers. Interviewees report not to have the intention to switch, as they do not know how to install or to handle ad blockers. We indicate several statements like the following.

“The point is, I don’t know how this all works or even how to install an ad blocker. So, I do not really intend to use an ad blocker.”[36]

Additionally, we reveal that computer self-efficacy has a moderating effect on how pull factors are transferred into switching intention. For instance, the effect of expected relative user experience on intention to switch is tempered, if individuals experience low computer self-efficacy. This, in turn, results in an overall lower intention to switch to ad blockers. Similar moderating effects are found for increased performance, improved privacy protection and improved security. In other words, low computer self-efficacy is examined as a moderating influence on how the pull factors are translated in individuals’ intention to switch to ad blockers.

“I would use an ad blocker, as it makes surfing to a better experience, but installing an ad blocker seems so complicated. I don’t think I can handle this. Therefore, I do not want to use an ad blocker”[11]

Furthermore, we reveal a moderating effect of computer self-efficacy on how the push factor is transferred in switching intention. For instance, participants state their dissatisfaction with online ads, yet due to low computer self-efficacy they had less intention to switch to using ad blockers. This means that computer self-efficacy depicts a mooring factor that moderates the effect of the push factor dissatisfaction on individuals’ intention to switch to using ad blockers negatively.

“Most of the online ads are just annoying, yet I do not consider using ad blockers as I am not familiar with all that technical stuff.”[2]

Discussion and Implications

The number of ad blocker users has doubled over the previous year’s figure causing online publisher to lose 20 billion US$ (PageFair 2015, 2016). Yet, literature has not addressed the issue of ad blocker usage, therefore this paper aims at addressing this gap. The goal of this research is to identify pull, push and mooring factors influencing individuals’ decision to switch to ad blockers. With this research, we provide several theoretical and practical implications discussed below, followed by possible limitations of the study at hand.

Theoretical Implications

This research contributes to theory by revealing pull, push and mooring factors that drive individuals’ intention to switch to use ad blockers. Prior research focuses only on push factors and reveal that most
individuals try to avoid online ads when they have negative experience with online ads (Cho and Cheon 2004; Edwards et al. 2002; Li et al. 2002). Yet, these studies do not explain whether negative experiences push individuals to ad blockers, which per se enable individuals to avoid dissatisfaction with online ads. Our results are in line with previous research (Cho and Cheon 2004) that dissatisfaction with online ads pushes individuals away from online ads. We then argue, based on migration theory, that this does not explain individuals’ intention to switch to ad blockers fully. To explain switching to ad-blockers, we additionally focus on pull factors that influence individuals’ intention to switch to ad blockers. Therefore, we contribute to theory by revealing relative user experience, increased performance, improved privacy protection and improved security as influencing pull factors. With this, we begin laying a sound foundation to understand individuals’ switching behavior in the context of why individuals switch to ad blockers. This research furthermore contributes to theory by revealing mooring factors that hinder individuals’ intention to switch to using ad blockers and moderate the effect of how pull and push factors are translated into switching intentions. We identify computer-self efficacy as mooring factor, which is in line with previous research suggesting that individual differences influence user behavior as well as determine how and why beliefs are translated into intentions (Maier et al. 2012).

Finally, recent research in the stream of technology usage has discussed that individuals develop workarounds when being confronted with situations they are not happy with (Laumer et al. 2017). In that respect, we contribute that switching intention and individuals’ switch to ad blockers is a workaround for the context of using IT voluntarily. This means that – when being dissatisfied with online ads – individuals are free in switching to an ad-free online context and thereby create a better online experience. This means that future research can use switching intentions as a behavioral intention variable to measure how and why individuals create workarounds in the context of voluntary IT use.

**Practical Implications**

With this paper, we support online publishers to understand why individuals switch to ad blockers. With this knowledge, online publishers can fight on two fronts: first, they can fight the root cause of ad blockers, as they can improve their online ads and minimize the push factor that drive individuals’ intention to switch to ad blockers. With improving online ads, online publishers can simultaneously alleviate some of the pull factors, like relative user experience. Second, online publishers can use these findings as a basis to convince individuals to disable their ad blockers on websites, e.g. by pointing out to advertise in a non-disturbing and user-friendly way. Considering privacy concerns and dissatisfaction with online ads, we see that there is a need to bring transparency into data collection and data tracking in online advertising. Leaving individuals in the dark about whom is collecting which data about them, individuals will respond with reluctance and avoidance. With this paper, we show that current data tracking and data collecting practices of online advertising raise serious problems, which need to be tackled by all organizations in the online marketing industry.

**Limitations and Future Research**

Our study is not free of limitations. First, the number of participants is limited to 42 and reduces the generalizability of this study although it should not be regarded as a criterion of reduced quality (Sarker et al. 2013). Second, in contrast to previous research using PPM model to explain a switch between technologies, we use the PPM Model explaining a switch of non-use to use of ad blockers. Third, the distinction of pull and push factors is not unambiguous and could lead to different categorization. For instance, dissatisfaction with online ads is categorized as push factor but could be categorized as pull factor, as a reason to use ad blockers could be to get satisfied with online ads. Yet, it is important to note that a negative push factor doesn’t necessarily need to be a positive push factor. Fourth, in this research, we do not concentrate on specific forms of online ads or on specific advertising environments, and rather took a general perspective. Future research should validate these findings for specific ad formats like native ads and for specific environments like social media or mobile advertising. Furthermore, we just focused on the intention to switch to ad blockers. Further research should take usage of ad blockers into focus and quantify the findings at hand. As this research considers individuals’ switching behavior, future research should examine individuals’ behavior through the sages of trial, adoption and use (Barelka et al. 2015) of ad blockers to get a comprehensive picture.
Conclusion

Users switching to ad blockers is a challenging trend for online publisher as they have lost more than 20 billion US$ in 2016 due to individuals having used ad blockers (PageFair 2015). This paper aims at explaining users’ intention to switch to ad blockers. We reveal that dissatisfaction with online ads is a reason to use ad blockers. Ad blockers are attractive to use due to the following reasons: Ad blockers improve the privacy protection and security by disabling tracking technologies and online ads. Furthermore, ad blockers provide additional benefits like making surfing more comfortable. Yet, switching to ad blockers is limited by mooring factors. A reason why individuals do not intend to switch to ad blockers is because they have not the technical knowledge how to install or handle it.

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