

“I would have never allowed it”: User Perception of Third-party Tracking and Implications for Display Advertising

Wiebke Thode, Joachim Griesbaum, Thomas Mandl

Institute for Information Science and Language Technology,
University of Hildesheim, Germany
{thodew, griesbau, mandl}@uni-hildesheim.de

Abstract

This study examines the perception on third-party tracking of German Internet users. For that purpose, 20 users without a technical background were interviewed. Results indicate that users are not aware of online tracking. They are often surprised by the magnitude of tracking programs they are exposed to during everyday life online activities like travel planning, job or product research. While the interviewees were willing to concede the theoretical advantages of such data collection, e.g. for behavioral targeting, they considered the price as too high to compensate for the loss of privacy control. The participants showed concerns that tracking could possibly lead to disadvantages in real life. In addition, behavioral targeting is assessed fairly redundant. Asked about concepts for enhanced transparency and control, the interviewed people still emphasized their distrust toward tracking. Thus, third-party tracking is a doubled edged sword for online advertising. On the one hand, it is a central means to improve the relevancy of the often unwanted display ads. At the same time, there is a great danger of increasing ad aversion for privacy reasons.

Keywords: Online tracking, Privacy, Online advertising

In: F. Pehar/C. Schlögl/C. Wolff (Eds.). Re:inventing Information Science in the Networked Society. Proceedings of the 14th International Symposium on Information Science (ISI 2015), Zadar, Croatia, 19th–21st May 2015. Glückstadt: Verlag Werner Hülsbusch, pp. 445–456.

1 Introduction

Targeting the user's interests is a central success factor of online commerce and at the core of advertised based business models on the Web. The primary example is Google, the largest advertising company in the world. Its search engine provides answer and search ads to the explicitly stated needs of users. Beyond search, users spend most of their time browsing Web pages, e.g. using social networks. Display ads on such sites are often disliked and judged as non-relevant by the users. As early as 1998, Benway & Lane (1998) coined the term Banner Blindness to describe how users ignore such ads. Tracking user behavior to enhance the relevancy of ads and leading users to Web sites fitting their commercial interests and providing relevant offers is seen as a legit aim and the future of display marketing on the Web (Booth & Koberg 2012: 9–15). For that purpose, marketing networks like Google, Facebook, Microsoft and others aim to collect as much behavioral data as possible. Such third-party tracking systems offer the possibility to track users' behavior seamlessly beyond Web site boundaries which enables Web sites to better adapt to user's interests. A recent study of the Fraunhofer SIT institute (Schneider et al. 2014) analyzed 1,600 Web sites with regard to the usage of tracking systems. The study revealed that Web sites often include many (third) party tracking services, e.g. on one single Web site as many as 174 trackers were identified. On the other hand, users are often concerned about the effects on online data collection and see little value being returned (Pearson 2012). At the same time, they do not adapt their behavior to these objections. This has been called the privacy-paradox (Barnes 2006) and provided the motivation for our research. We want to explore the knowledge, perception and reaction of the non-IT-expert German users on tracking. German Internet users are often labeled as especially hesitant to share information online (e.g. Möstl et al. 2012; Röcker 2010; Cisco 2011) in comparison to users from other countries. Therefore, we explore perception of tracking on a sample of users with a cultural background exhibiting a distinct sensitivity to privacy issues.

The paper is structured as follows. First, we give a short introduction into current research. Following that, we argue and delineate our research approach and methods. Then, the results of the investigation are presented. The paper closes with a discussion and an outlook.

2 Related literature

There is plentiful research and an ongoing discussion on online privacy. Especially with regard to social network sites (see Berger et al. 2014: 154 f. for an overview of articles on the topic of privacy and social networks) and location based marketing (e.g. Kelley et al. 2011), research states that users are concerned about their privacy. Beyond that, investigations and surveys often directly connect users' views on tracking and advertising. In an international survey of KMPG International (2011) with 9,600 participants in 31 countries, 90% of the respondents mentioned concerns about the security of personal information. Previous studies with regard to the perception of Online Behavioral Advertising (OBA) state that users in the US have strong concerns about such data collection and that the attitudes towards OBA are complex and context dependent (Ur et al. 2012: 7). Investigating similar questions with users from India, Agarwal et al. (2013) argue that users in India are also concerned about third-party tracking but “their overall attitude is more neutral”.

The two last mentioned studies are of special interest here as they both aim at a deeper understanding of users' attitudes and behavior. The study Ur et al. (2012) served as a model for our similar study for Germany.

In this study, 48 people without a background in information technology, were interviewed about their experiences, knowledge, and understanding of behavioral advertising (Ur et al. 2012). The investigation was three-fold. First, participants were asked about their opinion and knowledge of Internet advertising. Then, a 7 minute long video was shown to the subjects in order to explain OBA. Following that, more detailed questions about the user's perception of OBA were asked. Subsequently, six hypothetical browsing scenarios were presented and participants were asked about their opinion on data collection in each of the scenarios. Afterwards participants were asked about their knowledge on advertising companies and willingness to allow data collection from them. Finally, people were asked what could stop OBA. Results indicate that users recognize benefits of OBA but they also experience it as a privacy risk and are concerned about such data collection. Participants' knowledge about methods and opt-out mechanisms on OBA and advertising networks was very low. The concerns of the participants about the security of their information were also attributed to the lack of privacy controls. Participants did not know how to control data collection (i.e. Opt-

Out and Do Not Track) or attributed the ability to control data collection to their Antivirus program or the simple change of their Facebook states. Ur et al. (2012) identified substantial “mismatches between participants’ mental models and current approaches for providing users with notice and choice about OBA”. Despite a convincing methodology, there was likely a priming effect of the video, participants had to view during the study.

Agarwal et al. (2013) investigate the perception of third-party tracking and Web advertising on Web users in India. They refer their work directly to the study of Ur et al. (2012). Therefore, both studies are relatively similar but there are some differences. First, Agarwal et al. (2013) expanded the research interests to consumer perceptions of Web advertisements. Furthermore, they tried to avoid priming effects when educating users about third-party tracking and OBA. For that purpose, they prepared their own education material, an interactive PowerPoint presentation. In addition, they tried to measure participants’ sensitivity to OBA quantitatively. Therefore, a client-side browser extension was installed to extract the last 1,000 URLs in the browsing history of the participants’ computers. Users had the option to opt-out of this part of the investigation, but if they agreed, the sites in their online history were crawled and clustered according to textual similarities. After that, participants were asked to mark clusters containing sensitive areas. Finally, an interview was conducted to find individual opinions and perceptions about third-party tracking. Again, findings show, that most users were not aware of third-party tracking. Overall, the participants thought that tracking could be considered a useful idea, but there were concerns regarding the lack of transparency of the implementation and a lack of knowledge about the extent of tracking. Overall, the users displayed a neutral opinion of third-party tracking, only having concerns when personal data is extracted or the tracking results lead to bothersome marketing calls. The context in which tracking happened played an important role with the participants being more negative towards tracking of “financial investments” (59%), and adult content (51%) with some concerns being described for the topics “critical illness” (32%) and “job search” (25%). Interestingly, other aspects of third-party tracking like the danger of being exposed to ads with embarrassing and suggestive content (while others are present) are of a greater concern than being tracked.

Both studies indicate that users are skeptical but not in principle depreciative to online surveillance for OBA in form of third-party tracking. It seems, criteria of user acceptance are complex and context is an important factor. Therefore, it should be principally possible to develop OBA systems that

users perceive as really useful and not as a threat. Interestingly, with regard to OBA and third-party tracking, tools to opt out are available. But as users usually do not even possess basic knowledge on tracking methods and technologies, de facto “non-existent”. That is to say, the privacy-paradox is currently of no concern here as users usually do not possess the means to be able to adapt their behavior to their concerns accordingly – even if they wanted to. Therefore, the advertising industry still needs to deliver much and is obliged to provide transparency and information in a way which users can really understand and adapt to. Opt-out options that no one knows or understands are not really options.

3 Methodology

The goal of this study is to get insights into the perception on online tracking of German Internet users. We build on the studies of Ur et al. (2012) and Agarwal et al. (2013) and explore the attitude and knowledge of German users which are often labeled as especially sensitive to privacy issues. Our research questions revolve around the following aspects.

1. Attitude on tracking and perceived advantages and disadvantages
2. Knowledge of tracking methods
3. Context-based sensibility towards tracking
4. Approaches aiming for enhanced transparency and control

The design of the investigation can be described as a focused interview and was split into three parts. First, participants had to accomplish specific tasks on the Web (a). Second, subjects were introduced to online tracking (b). Third, test persons’ perception and knowledge on online tracking was captured in interviews (c). In the following, we will shortly describe each phase of the research design.

- a) The following six interaction tasks were carried out on the Web:
 - Task 1: financial loan offers for buying a new car
 - Task 2: planning a trip to Asia
 - Task 3: searching information about China for business relocation purposes
 - Task 4: researching a study program in business studies

- Task 5: searching for a job
- Task 6: buying a computer

A part of the tasks contained transaction-oriented sequences which required disclosure of personal information. The tasks were executed on a prepared notebook. Each user was provided with a virtual machine (VirtualBox) on which the Firefox browser (Version 30.0/Firefox for Ubuntu canonical-1.0) and the Add-On Lightbeam (www.mozilla.org/de/lightbeam) were installed.

- b) In the second phase, users were introduced to online tracking. To immediately put the topic into their personal context, the tracking systems employed by third parties during the tasks done beforehand (in a) were visualized with Lightbeam. The following figure illustrates the visualization provided by the Add-On. Each domain visited is visualized as a large triangle which is orbited by small triangles that symbolize employed third-party tracking systems (cp. fig. 1).

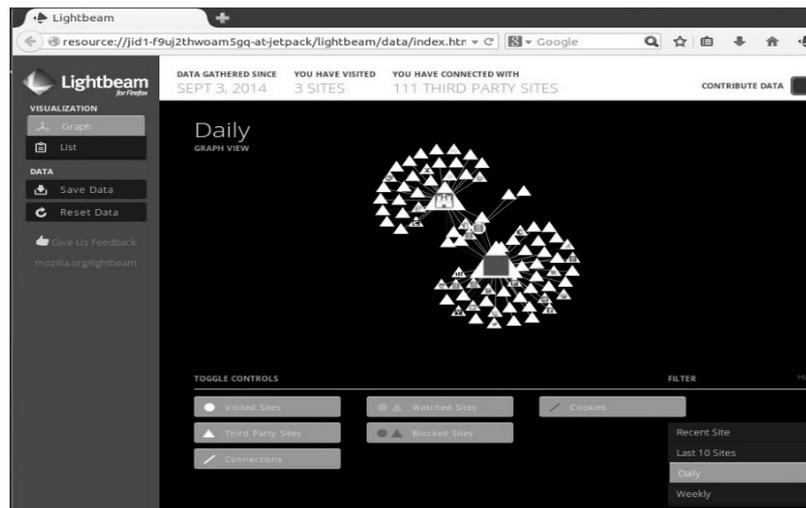


Figure 2. Example for results of lightbeam illustrating the connections between sites and tracker

In addition, a short video, a brief summary of the “Web-Tracking Report 2014” (Schneider et al. 2014), was shown to enforce the explanation.

- c) Finally, a semi-structured interview was conducted. The interview guide was structured according to our research questions as described above. We intentionally excluded students or users with a background in infor-

mation technology from our sample, which accordingly can be described as ordinary non-technical users. Therefore, the recruitment process focused on asking personal acquaintances of the first author and also getting referred to acquaintances of these acquaintances to successfully reach a number of 20 participants. The sample consisted of 7 male and 13 female subjects. Age ranged from 15 to above 60. As our study resembles a qualitative explorative research design we did not aim for quantitative measures or sub segments of the population. The goal was to get a rich picture on online tracking of non-technical German users. All interviews were executed from August 2014 until September 2014. In the following, we present the results and supplement them with quotations that illustrate the estimations and sentiments of the interviews.

4 Analysis

We structure the analysis according to our research questions. See Thode (2014) for a more detailed presentation of the results. The interviews were recorded with a smartphone and then transcribed with Windows Mediaplayer and Microsoft Word). The transcripts were categorized using inductive category development according to Mayring (2010). Overall, 24 categories were identified and related to our research questions.

4.1 Attitude on tracking

Overall, the users' attitude towards third-party tracking was negative. Although participants acknowledged targeting related values on online behavioral advertising, they considered these as insufficient to compensate for the lack of control and non-transparency of data collection. One of the users even remarked that OBA is unnecessary: “I see no advantages for the user. If I want to find something online I got ways to do so and I don't need advertisements telling me that there is something” (female, 50–60 years).

Statements regarding the user's attitude on tracking even involved characterizing it as “dangerous”: “Tracking I think is dangerous because data is being collected and used [...] and I'm becoming more transparent and controllable” (male, 40–50). One participant went as far as characterizing the

lack of information about tracking as illegal and stating that she would not have used the Internet if she had known about tracking: “It’s one thing if I’d knew what is happening when I go online, then it’s my decision and I could live with it but I would have never permitted it if I’d known what it means to go online. Consciously, I would have never allowed it” (female, 50–60). These statements include some of the more radical assertions toward tracking and in general they represent the majority of participants. However, one participant stood out in a different direction by stating: “I like it if my Internet personalizes itself for me” but qualifying that statement by adding: “but eventually everyone is responsible for themselves” (male, 30–40).

4.2 Knowledge of tracking methods

Participants were for the most part not aware that third-party tracking even existed. Therefore, the introduction into online tracking was a necessity to be able to ask about participants’ knowledge on tracking methods at all.

Participants were asked on different types of information they believed were collected through online tracking methods. Information types asked about encompassed a wide span of 16 different kinds of data, ranging from technical information (e.g. the browser used) to personal information about the user (e.g. age and credit status). Most of the participants stated that the tracker could only get personal information about them, if they disclose such information explicitly. Participants stated that information could be extracted from their social media profile (i.e. Facebook) or that the information could be estimated from the sites visited by the users (i.e. female fashion is most likely looked at by women). So far, most people were right with their estimation. But they were unable to mention concrete methods of data collection. This, in turn, led the participants to believe that it is difficult to protect themselves against trackers, which left them insecure. Some users thought that their antivirus program also included protection against tracking and considered this a method while another participant said that deleting cookies was a sound way to go. Some participants even stated that they believed that online trackers could see and do everything and that they had no limitation. “I don’t know where, I don’t know how but if they can see everything, I mean if they can see all this stuff then they can see everything” (female, 20–30).

4.3 Context-based sensibility towards tracking

In the third part of the interview, the participants were presented with different contexts of online behavior. These contexts ranged from general information seeking online (e.g. reading the news) to services which may require personal information of the users (e.g. searching for a loan). The participants were asked if and why they would have a problem with being tracked in these particular situations. The participants did show concerns when they could be identified with tracking and if they would have a disadvantage in real life. Normal activities during which the user seemingly remains anonymous were viewed as non-problematic.

4.4 Enhanced transparency and control

At the end of the interview, three alternatives for enhanced transparency and user control were discussed. The first alternative intended to enhance transparency. The second alternative focused on enhanced control of data collection. The third alternative was to enhance control of data usage.

With regard to the first alternative, participants were asked about their opinion on a concept in which information on who tracks their behavior online and what kind of information is collected. Participants stated that they do not believe, that their attitude would change even though this might be a positive development. One participant went as far as to say that the lack of information on part of the user was the only thing that prevented the users from protesting about third-party tracking: “The only reason why all the users are not running amok is that no one knows about it. The more people would know about tracking the angrier they’d get” (male 15–20).

The second alternative described, would allow users to control third-party tracking that is to prevent it in certain situations and allow it in others. This was received positively by the majority of users. Still, one fourth of the interviewees stated that they would just deactivate tracking all the time and would not cooperate with the trackers. Others believed that this would be unrealistic because the tracking companies got too much power due to the data. The participants who showed a positive reaction to this alternative were also willing to decide if they want to be tracked or not.

The third alternative discussed was the possibility to delete all the information that was collected about users. This was also judged positively. Users emphasized that their information was really deleted. Even though some par-

ticipants were prepared to delete the information manually and regularly, others saw it as a vicious cycle because they believe that they could not delete the information as fast as it would be collected.

5 Discussion and future research

Our results partially confirm the results of the investigations of Agarwal et al. (2013) and Ur et al. (2012). However, German users seem to be more skeptical and concerned about online tracking than the countries under focus in these other studies. Although users see targeting related values to OBA, these advantages are not judged as sufficient to accept third-party tracking which was widely seen as unnecessary. Some drastic statements of interviewees showed that they even consider to avoid the Internet completely. This can be related to perceived disadvantages when revealing sensitive personal information which can be connected to the user's real world identity. Knowledge on online tracking is overall, largely non-existent. This is one possible explanation for these fears. On the other hand, educating the users is no simple solution as such an approach could still lead to a strong rejection of tracking or even fears in the first place.

So what are the alternatives? In the last part of the interviews, we explored self-reported acceptance of three approaches aiming for enhanced transparency and user control. Although the presented alternatives were judged positively, users still stated their distrust to tracking and would probably opt out completely if given a low threshold opportunity. Therefore, it seems that the advertising industry and Web publishers are walking down a narrow path. A recent study of Pagefair and Adobe (2014) states "the number of people with adblock software installed has increased 69% in the past 12 months to approximately 144 million active adblock users (4,9% of all Internet users)". The important point here is, that according to the adblock study a significant part of these users (17%) install such software because of privacy concerns. Thus, even if users are not able to adapt their behavior to their concerns, the privacy paradox seems to be effecting the behavior to a somewhat lesser degree. More and more users are trying to opt out of tracking (even if in a technological often inappropriate way).. In the future, this trend may pose a threat for business models based on display advertising. On the one

hand, users often dislike display ads because of their irrelevancy. On the other hand, enhancing the relevancy of display ads through behavioral targeting, based on third-party tracking is a difficult way to go, considering the user perception of online tracking. Given the means, a significant fraction of users rather prefer to secure their privacy than tolerate third-party tracking. To build up trust on tracking on the customer's side seems to be an obvious need and one possible way to go. The results of Ur et al. (2012), Agarwal et al. (2013) and our investigation, indicate a failure of existing methods of the advertising industry to build up awareness, knowledge, and trust on third-party tracking. Maybe a widely known and trusted third-party, an independent non-commercial clearing organization which certifies online tracking methods and enterprise would be a possible start to enhance users' knowledge and acceptance on such tracking.

References

- Agarwal, L., Shrivastava, N., Jaiswal, S. & Paniwani, S. (2013). Do Not embarrass: Re-examining User Concerns for Online Tracking and Advertising. In: *Proc. Ninth Symposium on Usable Privacy and Security*, New York, USA: ACM. https://cups.cs.cmu.edu/soups/2013/proceedings/a8_Agarwal.pdf <3.1.2015>.
- Barnes, S. (2006). A privacy paradox: Social networking in the United States. *First Monday* 11 (9). <http://firstmonday.org/ojs/index.php/fm/article/view/1394> <17.12.2014>.
- Benway, J. P. & Lane, D. M. (1998). Banner Blindness: Web Searchers Often Miss “Obvious” Links. In: *Internetworking*. http://www.ruf.rice.edu/~lane/papers/banner_blindness.pdf <5.1.2015>.
- Berger, K.; Kier, J.; Kier, M. & Probst, F. (2014). A Review of Information Systems Research on Online Social Networks. *Communication of the Association for Information System*. <http://aisel.aisnet.org/cais/vol35/iss1/8> <3.1.2015>.
- Booth, D. & Koberg, C. (2012). *Display Advertising: An hour a day*. Indianapolis: Wiley & Sons, Inc.
- Cisco (2011). 2011 Cisco Connected World Technology Report. <http://www.cisco.com/en/US/netsol/ns1120/index.html#~2011> <3.1.2015>.
- Kelley, P. G.; Benisch, M.; Cranor, L. F. & Sadeh, N. (2011). When are users comfortable sharing locations with advertisers? In: *Proc. the SIGCHI Conference on Human Factors in Computing Systems*, New York, USA: ACM, pp. 2449–2452.

- KPMG International (2011). The conveyed lifestyle. Consumers and Convergence. <http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/consumers-and-convergence/Documents/the-converged-lifestyle.pdf> <3.1.2015>.
- Mayring, P. (2000). Qualitative Content Analysis. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 1 (2), Art. 20. <http://nbn-resolving.de/urn:nbn:de:0114-fqs0002204>.
- Möstl, M.; Womser-Hacker, C. & Griesbaum, J. (2012). Self-expression in Online Networks. An International Comparison. In: Jarman, F. (Ed.). *Intercultural Communication in Action*. Rockville, MD: Borgo Press, pp. 87–89.
- Pearson, B. (2012). Trust or Bust: Why Consumers are Seeing Less Value in Return for Sharing Their Information. http://customerthink.com/trust_or_bust_why_consumers_are_seeing_less_value_in_return_for_sharing_their_information
- Röcker, C. (2010). Information privacy in smart office environments: a cross-cultural study analyzing the willingness of users to share context information. In: *Computational Science and Its Applications – ICCSA 2010*, Berlin, Heidelberg: Springer, pp. 93–106.
- Pagefair and Adobe (2014). Adblocking goes mainstream. PageFair and Adobe 2014 report. http://downloads.pagefair.com/reports/adblocking_goes_mainstream_2014_report.pdf <21.12.2014>.
- Schneider, M.; Enzmann, M. & Stopczynski, M. (2014). *Web-Tracking-Report 2014* (Fraunhofer SIT Technical Reports). Stuttgart: Fraunhofer Verlag.
- Thode, W. (2014). *Ermittlung der Benutzerwahrnehmung von Onlinetracking anhand qualitativer Interviews*, Bachelor Thesis, University of Hildesheim.
- Ur, B.; Leon, P. G.; Cranor, L. F.; Shayy, R. & Wang, Y. (2012). Smart, useful, scary creepy: perceptions on online behavioral advertising. In: *Proc. Eighth Symposium on Usable Privacy and Security*, New York, USA: ACM, pp. 4:1–4:15.