Master Thesis

Radboud University Nijmegen

Why Creepy Ad is the New Black?

An Exploratory User Study to Understand Why Personalized Online Advertisements Are Creepy

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Abstract

This study explores the user perspective in privacy research and attempts to understand and describe the mechanism behind the creep emotion caused by personalized advertisement. Building on an extensive review of research on creepy ads, a series of semi-structured interviews was conducted to collect creepy ad incidences, followed by a usability evaluation of the ad explanations and ad settings of Facebook. To the author's best knowledge, this is the first work directly addressing the factors contributing to the creepy emotion caused by personalized online ads. The resulting model of the study provides a systematic tool to assess and predict the occurrence of creepy personalized online ads.

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Chapter 1

Introduction

A Lack of User Perspective

"Over the last 25 years, technology has transformed our lives in ways nobody could have imagined, so a review of the rules was needed [3]" By enforcing the *General Data Protection Regulation* (GDPR) on 25 May 2018, European Union is again at the forefront of personal data protection in this progressive digitalization era. Under GDPR, a *data subject*[1] has rights to: receive clear and understandable information; request access to the personal data; "be forgotten"; demand clear indications what use will be made of his personal data and require his/her explicit consent if companies need to process his/her data [4]. In other words, European legislators demand *more transparency* and *more understandable explanations* to personal data collection and processing practices of the *data controller*[2] and the *data processor*[3] to help users make informed decisions and take *more control*.

Indeed, companies made notable (and varied) amount of efforts to comply with the new

[1] An identified or identifiable natural person [4].

[2] The natural or legal person, public authority, agency or other body which, alone or jointly with others, determines the purposes and means of the processing of personal data [4].

[3] A natural or legal person, public authority, agency or other body which processes personal data on behalf of the controller [4].

regulation. Take the privacy policy page of mainstream social media platforms and technology companies as an example: the results range from laundry-list style plain text (e.g., Instagram [5] and Snapchat [6]), to additional summaries (e.g., Linkedin [7]), to slightly more colorful presentations (e.g., Twitter [8]), and to seemingly sophisticated illustrations and animations (e.g., Google [9] and Facebook [10]). However, if we take a step back, we may soon wonder: does merely providing *more* transparency satisfy users? If in the perfect world, we managed to provide full transparency in everyday plain language, would it be enough? What do "clear" and "understandable" mean to users? Perhaps, despite the cheerful legislative progress, an important perspective slips between legislators and companies: the *user* perspective.

A previous study suggests that users were already burdened by the amount of information available [11]. Users were yet to be able to incorporate the available information in their decision-making process. In a recent study, Kim et al. found that exposing unsavory data collection and inference practice could reduce the ad effectiveness [2]. This might sound like common sense, but its implication is profound: only aiming to provide more transparency (especially of unacceptable practices) is not enough to make users happy. Since the algorithm and practices behind are usually considered trade secrets, the full disclosure may not even be a feasible option.

So the answer to *"what do users want"* is indeed relevant. It may lead us to go beyond *more* transparency to *better* transparency. From the company points of view, as part of the user experience, it could be a strong motive to convince companies to put user's privacy concern into perspective. At the end of the day, user's satisfaction is indeed the "golden standard," rather than what we assumed is the best for users.

Creepy Ad Is the New Black[4]?

There are many possible subjects to approach the user perspective on privacy. Among them all, the author zoomed in to a particularly interesting intersection among users,

companies, and legislators: *the creepy personalized advertisements*.

In order to provide free-of-charge services to the user, companies serve ads and charge their business partners. Consequentially, advertising has become the backbone of many modern technology companies. For instance, the advertising revenue of Facebook and Google accounts for 98% and 85% of their 2017 annual revenue, respectively [13, 14]. And thanks to the technological advancement, *personalized ads* can help advertisers find users who are more likely to be interested in the advertised product [15], and may reduce the number of irrelevant ads users would see [16].

While serving more personally relevant online ads does have a positive direct effect on purchase intention, a previous study shows that exposure to behavioral tailoring also attenuates the positive direct effect by *five percent* [1]. Indeed, ads are often perceived as unwanted, unwarranted, and annoying. They also raise many privacy concerns because extensive data collection is the premise to successful personalization. Improving the ad experience in respect of data protection and privacy can have a substantial impact. This reduction of purchase intention can be attributed to the *creepiness* factor —a sense that somebody is watching, tracking, following, assessing, and capitalizing on users' personal information or online activities that he perceives as private [1]. The very word *"creepy"* has become a buzzword to describe many of our experiences with personalized online ads. Most of the literature merely use it as a label, implying a negative personalized ad experience, in order to substantiate the existence of users' privacy concern. However, *why* we think personalized ads are creepy? *What* exactly creeps us out? The positive impact of earlier, more simplistic tailoring, in concert with consumer reactions to recent, more sophisticated and data-driven practices, suggests that there is a blurry line between the positive outcome and intrusive experience [1]. What may define this line?

[4] *"(Something) is the new black."* is used to say that something is the most popular [12].

The Study

In light of these observations, this exploratory study attempts to understand and describe the mechanism behind the creep emotion caused by personalized advertisement. Due to a lack of literature directly addressing the creepy emotion in the privacy-related field, the author first surveyed studies across several disciplines to draw inspiration for the possible cause of creepy emotion. A review of research on creepy ads and a series of semi-structured interviews were then conducted to collect descriptions of creepy ad incidences. Each interview also included a usability evaluation of the ad explanation and ad settings of Facebook.

This work primarily contributes to filling in the gap of understanding the mechanism behind the creepy personalized ads. To my best knowledge, this is the first work directly addressing the factors contributing to the creepy emotion caused by personalized online ads. Secondly, this study was empirically designed and grounded, based on descriptions of real creepy ad incidences and observations and feedback of live Facebook ad system from actual users. The study, therefore, offers a unique and cohesive view to connect the factors leading to creepiness with the effectiveness of the current system setup. The resulting model of the study provides a systematic tool to assess and predict the occurrence of creepy personalized online ads. Lastly, practical design guidelines were proposed to help advertisers improve their ad practices and provide legislators with baseline methods to regulate advertising platforms.

The rest of the paper is arranged as followed. In Chapter 2, the key concepts used throughout this paper are defined, and research questions are motivated and formalized. An extensive literature review on creepy ads is then offered in Chapter 3. In Chapter 4, the experimental design, research process, and analysis methods are documented. Chapter 5 reports the results. And finally, the author unpacks the implication of proceeding results, points out the limitation of the study, and proposes possible future research topics in Chapter 6, before concluding the study in Chapter 7.

Chapter 2

Conceptual Development

Before studying creepy personalized online ads, it is necessary to define what is creepiness and what is personalized ads. Also, to recommend design guidelines, one needs to understand the criteria of a well-explained system. This chapter formalizes these definitions and introduces key definitions and terminologies for the later discussion. The research questions of this study will be formulated at the end of the chapter to define the scope.

2.1 Creepiness

Creepy

1. causing an unpleasant feeling of fear or slight nervous (similar to scary)

2. strange in a way that makes you feel nervous (similar to spooky)

—— Oxford dictionary [17]

Have you ever creeped out by a clown? How do you feel about their seemingly happy face expressed by their surreal makeup? Have you wondered what is behind the mask? Psychologist McAndrew discussed why clowns creep us out in [18], referring to Rami Nader, who studies coulrophobia, the irrational fear of clowns. Rami believed that the

phobia is fueled by the fact that clowns hide their true identities and feelings by wearing makeup. It is the inherent *ambiguity* surrounding clowns that make them creepy. They are somehow *unpredictable*: you never know if you are about to get a pie in the face or be the victim of some other humiliating prank. Their *highly unusual* appearance (the wig, the big red nose, the makeup, the odd clothing) only magnifies this unpredictability of what the clown might do next. Evolutionary psychologists suggested that we evolved to use creepiness to maintain vigilance when facing *uncertainties*. They proposed that creepiness is related to the "agency-detection" mechanisms, which protect us from predators and enemies. For example, if we hear the sound of something moving in a dark alley when walking down a dark street, we will be likely to raise our level of arousal and attention, as if there is a willful "agent" present to do you harm. Compared to the potentially fatal consequences resulted from a lack of response to a true threat, the loss of overreacting is relatively minimal [18, 19]. The results in McAndrew's own study [20] also indicates that *unpredictability* is an important component of creepiness.

In the context of technological diffusion research, many technological innovations in the past, such as the train and the telegraph, were described as "creepy," mainly because social values and technological capabilities were yet to line up [21, 22]. According to Tene and Polonetsky, these innovations usually involve either the deployment of a new technology or new use of existing technology. In some cases, they push against societal conventions (e.g., the telegraph was considered "playing god" [21].) In other cases, social norms and human cognition simply had yet to be established to mediate a novel situation or experience (e.g., the "train sickness" [21].) Similarly, in recent privacy researches, creepy activities were described as "not exactly harmful, do not circumvent privacy settings, and do not technically exceed the purposes for which data were collected" [22]. In a word, *creepiness* can be defined as following (adapted from [20, 22]):

> **Definition 1a.** *Creepiness* is the *anxiety* aroused by the *ambiguity* and *unpredictability* of the precise nature of an unpleasant or fearful but not really harmful experience, and/or a threat;
>
> **Definition 1b.** *Creepiness* is the *uneasiness* to cope with the *uncertainty* that

one is not really sure how to react to the situations described in **Definition 1a**, due to contradicting to/lacking social norms and/or the novelty of the experience.

In short, the key to creepiness is *the uncertainty about possible threads* and *the uneasiness due to a lack of social norm*.

2.2 Personalized Advertisements

Good advertisements resonate with the targeted consumer. One of many processes to achieve that is called STP[1]. In an early example, Paul Lazarsfeld analyzed the behavioral data (occasions where laundry services are used) and suggested that marketers should target housewives with advertising for laundry services after announcements of births, deaths, and weddings [24]. Although this targeting process is not new to marketers, the rapid development of technologies has largely expanded the capability to *segment* and *reach* the targeted consumer. Instead of targeting broad consumer groups, companies can obtain finer and finer segments by placing "*cookies*[2]" to track customer behaviors. Cookies can be placed either by a first party[3] or third parties[4], depending on the origin of the page's content [26]. Third parties, including advertising networks, analytic companies, and social networks, can set a unique identifier on a user's computer to associate visits from different websites with the same computer [26]. It was reported that a small number of third parties have increasingly served content on a larger number of pages, enabling them to track users across large portions of the Internet [26, 27]. Besides, advertisers and advertising networks, such as Facebook, can also partner with data brokers to further refine their user profiles [28].

Regarding the reach, nowadays, marketers are no longer limited to advertising via TV,

[1] Segmenting, targeting, and positioning [23].

[2] A small piece of data passed back and forth between a server (which typically hosts the website) and a client (which is typically the user's web browser) [25].

[3] The page that the user is explicitly visiting [26].

[4] Companies that contract with the first party allowing them to place content, visible or not, on that page [26].

radio, and other broadcast media, hoping to reach the target group. Via the Internet, they can use the profile to target and reach consumers across the web and advertise to the right customer at the right time in the right place: on websites, on consumers' social network page, and even next to consumer's emails [26].

For the purpose and the scope of this paper, the specific targeting technique discussed in this paper is *personalization* or *personalized advertisements*. In [1], Barnard surveyed several terminologies related to personalized advertisements: tailored advertisements, customized advertisements, contextual advertising, and behavioral advertising. In user modeling literature, personalization is a "rules-based" practice, where a company uses users' personal online profile to divide users into segments, and subsequently deliver products, promotions, and information designed specifically for these segments [29]. In the marketing and advertising literature, personalization has been used as a catch-all term [1]. In [30], White et al. defined personalization as "a specialized flow of communication that sends different recipients distinct messages *tailored* to their individual preferences or characteristics." In [31], Baek and Morimoto defined personalization as "a form of *customized* promotional messages that are delivered to each consumer through paid media based on personal information." In both definitions, the user information used to individualize the ads can include demographics, psychographics, lifestyle, interests, or (online and physical) behavioral information.

According to the definitions above, tailored ads and customized ads are equivalent to personalized ads. The other two concepts, contextual advertising, and behavioral advertising are related but distinct to personalized ads. Both techniques aim to improve the relevance of the ads. Contextual advertising is relevant to the content on the web page the user is browsing, whereas behavioral advertising is relevant to the user *himself*, including the user information mentioned above [1]. In other words, behavioral advertising is a subset of personalized ads. The term *personalized advertising* then defined as follows:

> **Definition 2.** *Personalized advertising* is a practice, in which a company collects various user information (demographics, psychographics, lifestyle, in-

> terests, browsing history and behavior, etc.) to profile users, and delivers tailored products, promotions, and message to individual users based on the aggregated probability of relevance from such profile.

This study limits the discussion to *online* personalized ads (especially sponsored posts in the Facebook news feed,) although some findings from studies of other personalized ads may be used to draw inspiration along the discussion. It also bases the discussion on the *perceived* advertising practice of users, which is not necessarily the *actual* practice used by the advertiser.

In this paper, the notion "*Facebook ads*" refers to the sponsored posts blended in the news feed, unless otherwise specified. Since Facebook offers various forms of ads on its Facebook.com website, Facebook tablet apps, and Facebook mobile apps, detailed considerations of this research choice are motivated in Section 4.1.

Among all the personalization strategies, one of them is to include personally identifiable information (PPI) in the content [32]. In [1], Barnard suggested that the PPI serves as cues to remind the user that the ad is specifically designed for him/her. Table 2.1 adapted from the same study lists the typology of tailoring cues in the online environment. These cues not only signal users that the ad is personalized but also remind them what information advertisers may know. When personalization takes relevance *too far* and crosses the line into *invasiveness*, a pervasive sense that the marketers are *watching*, *tracking*, *following*, *assessing*, and *capitalizing* on information or online activities that the user perceives as *private*, the "*creepiness*" occurs. For example, marketers create messages using information that is too personal, or the ad appears in contexts that are too private.

For the convenience, the notion "*creepy ads*" refers to "*creepy personalized online ads*" in the rest of the paper, unless otherwise specified.

Table 2.1: Typology of tailoring cues in the online environment (adapted from [1]).

Type of cues	Tactics
Demographic	*Endorser demographic matching* (e.g., photo, icon, text that includes an endorser representative of a particular group of people to which the viewer is known to belong)
	Product demographic matching (e.g., a women's pants ad delivered to a known female)
Psychographic	*Referencing interests* (e.g., explicit (Skiing is written in Facebook profile) and inferred (from posts, likes, shared, etc.))
	Peer preference matching (e.g., "(your friend) also likes..." on sponsored posts)
Behavioral	*Re-targeting* (e.g., photos of products the user has already viewed)
	Product recommendations based on past purchases (e.g., product in the similar category to past purchases)
	'Similar others' behavior matching (e.g., "others like you like the following products...")

2.3 Explanatory Goals of a Recommendation System

As discussed above, personalized ads essentially aim to recommend more relevant ads to users in order to improve the ad performance, creating value for both advertisers and users. From a system perspective, it can also be described as a *recommendation system*. Therefore, the explanations and settings of Facebook ads are also explanations and settings of a recommendation system. The explanations and settings of Facebook's ad system consist of three main components: ad-SPecific explanations (SP) "Why am I seeing this ad," GeNeRal explanation (GNR) of its ad practices "About Facebook Ads," and ad SeTtings (ST) "Ad Preference" (see illustrations in Appendix B). For the convenience, if not specified, the discussion will address all ad explanations and settings of Facebook as a whole. And regarding the explanation of a recommendation system, Tintarev and Masthoff proposed seven explanatory goals, which are used to guide the design and evaluation of recommendation explanations. The rest of this section was adapted from her previous work [33, 34] in the context of Facebook and personalized

ads.

Intuitively, explanations can provide *transparency* and *expose the reasoning and data* behind a recommendation. An example from Amazon can be "Customers Who Bought This Item Also Bought...". Explanations can also serve other aims such as helping to inspire user trust and loyalty, increase satisfaction, make it quicker and easier for users to find what they want, and persuade them to try or purchase a recommended item. For instance, an explanation that aims to *explain why the user may or may not want to try an item* (effectiveness) may be formulated as "You might (not) like Item A because...". In contrast to the previous example, this explanation does not necessarily describe how the recommendation was selected - in which case it is *not transparent*. Therefore, the explanatory goals allow us to explore other possibilities to improve users' satisfaction.

What's more, the underlying algorithm of a recommender engine may limit the types of explanations that are feasible, while the system developer can also deliberately choose the types of explanations that do not reflect the underlying algorithm. This is particularly the case for computationally complex algorithms. Such limitations force the developer to consider the trade-offs between different explanatory goals, for instance, satisfaction (as an extension of understandability) and transparency.

Transparency: Explain how the ad system works

An explanation aiming for better *transparency* will be set to clarify *how* an ad is recommended. Transparency and should be differentiated from *justification*: while transparency should honestly describe how the recommendations are selected and how the system works, justification can be decoupled from the recommendation algorithm. For instance, the explanation describes the input and output of the system but it does not the system uses a Bayesian classification method or the intermediate steps in between. Several reasons may drive developers to opt for justification rather than genuine transparency: algorithms that are difficult to explain (e.g., latent semantic analysis where the distinguishing factors may not have a clear interpretation); protection of trade secrets; and the desire for greater freedom in designing the explanations..

Scrutability: Allow users to tell the ad system it is wrong

Following transparency, explanations may facilitate users to exert control over the recommendations by correcting system assumptions where needed, or make the system *scrutable*. Scrutability can base on both transparency and justification. For example, users may understand that adaptation in the system is based on the information in their profile, that this information is volunteered by themselves, and that they can change their profile to scrutinize the system and control the personalization. They manage to change the personalization but still does not understand exactly what happens within the system. In other words, the explanation is not (fully) transparent but it offers some form of justification. Additionally, a study found that users are not likely to scrutinize on their own. Extra effort is needed to make the scrutability tool more visible. Previous study also found that giving users choices and control could reduce privacy concern [1, 35].

Trust: Increase ad system/Facebook's credibility to users

Previous studies indicate that transparency and scrutability increased user trust. A user may also be more forgiving, and more confident in recommendations, if they understand *why a bad recommendation has been made*. Trust in the recommender system could also be dependent on the accuracy of the recommendation algorithm.

Persuasiveness: Convince users to click on the ad

A persuasive explanation may increase user's acceptance of the system or the given recommendations, attempting to gain benefit for the system rather than for the user. Persuasiveness can be measured by the rating changes between the purchase intent with an explanation facility and the one without.

Effectiveness: Help users to find relevant ads

An effective explanation would help the user evaluate the quality of suggested items according to their own preferences. By definition, it is highly dependent on the accuracy or relevance of the recommendation algorithm. Similar to persuasiveness, it can also be calculated by the rating changes between the rating before consumption with an explanation and the one after consumption. For example, users rated a book, once after receiving an explanation, and a second time after reading the book. If their opinion on the book did not change much, the explanation was considered effective.

Efficiency: Make explanation access faster and easier

Explanations may make it faster for users to decide which option is most suitable for them. Efficiency may be improved by allowing the user to understand the relationship between competing options. For example, when choosing a digital camera, by selecting "Less Memory and Lower Resolution and Cheaper", users can refine the search result to find a cheaper camera if they are willing to accept less memory and lower resolution. Efficiency can also be measured by the easiness to access the explanations and settings.

Satisfaction: Make the use of the ad system enjoyable

Explanations have been found to increase user satisfaction with, or acceptance of, the overall recommender system. Direct satisfaction measurements can be asking users whether the system is enjoyable to use, or if users like the explanations themselves. One (qualitative) way to measure satisfaction would be to conduct usability testing such as think-aloud method, in which participants spontaneously share their thoughts and reactions while conducting the instructed task. From the objective notes of everything that users say, usability issues can be identified and even quantitative metrics can be applied, such as ratio (e.g., the ratio of positive to negative comments) and frequency count (e.g., the number of times the participant was frustrated). It is also arguable that users would be satisfied with a system that offers effective explanations. However,

there may be trade-offs between effective explanations and the overall satisfaction (e.g., requiring a large cognitive effort of the user).

2.4 Research Questions

In this study, the author tried to trace the cause of creepy ads and explain these potential causes by key elements of creepiness and land the findings to practical guidelines for system design, the research questions are formalized as follows:

RQ1. What aspects of personalized ads cause creepiness and why?

RQ2. How can advertisers improve their personalized advertising practices, particularly by reducing creepiness, given the result of **RQ1**?

To kick off the investigation, Chapter 3 will summarize the potential depending factors of creepy ads from previous studies and highlight common themes among these studies.

Chapter 3

Related Work

We already know that *the uncertainty* and *unpredictability of potential threads* and *the uneasiness due to discrepancies of social norms* are two key elements of creepiness. We also know that when studying the creepy emotion and user experience, the *perceived* practice of creepy ads is more in interest than the *actual* practice is. Lastly, explanations can not only improve transparency but also enable various goals of a recommendation system. With that, this chapter offers a literature review of recent research efforts, especially addressing the creepy emotion and users' privacy concerns about personalized ads. The author organized different pieces of the literature by shared themes, attempting to sketch a draft codebook in preparation for the analysis of the semi-structured interviews. Details of the research process and analysis are documented in Chapter 4.

3.1 Overall Attitude to Personalized Ads

Generally speaking, people expressed mixed feelings about personalized online ads. In [26], Ur et al. found that the existence of ads is *justified* because it pays for free online services, a strategy considered "*smart*." Nevertheless, one common point shared among most participants in the same study is to have less obtrusive ads: "I'm ok with it as long as it doesn't interfere with what I am trying to do." Indeed, online ads are often

considered *unwarranted* and *intrusive*. And intrusiveness has been defined in [1, 36] as interference with the user's media content, cognitive/task performance, or privacy. Substantial *privacy concerns* about personalized online ads were also found in previous studies [26, 37, 38]. Personalized online ads also trigger a variety of actions and reactions. Among those, negative effects of personalized online ads include *irritation*, *avoidance*, *ignoring*, *message rejection*, and *source derogation* [26, 30, 31, 39, 40]. Some users are left *helpless* and *frustrated*: "all the companies are out to make money, so I do not see it stopping" [26].

3.2 Depending Factors of Creepy Ads

Data collection practice

The most prominent creepy factor mentioned in the literature is the *unexpected data collection practice*. Users "understand ads support free content but do not believe data are part of the deal" [41], suggesting that users can justify seeing ads but may not expect extensive or aggressive data collection practices. They are aware of a variety of sources to collect their data: browsing history, web searches, Facebook account, cookies (without knowing the technical details), emails, and online purchases, etc. However, they *do not exactly know* how they work [26].

In the social media environment, a quote from [35] says, "I keep everything to myself that I do not want people [on Facebook] to know in the first place." According to the [35], this shows that most people are content with their level of privacy on Facebook and other social media and they expect that nothing on social media is truly private. An alternative interpretation of this quote (per the author) can be that users only expect information shared publicly/online (even it may not be visible to other people) is used. Such expectation may explain why users are surprised to find out these data collection practices may be more extensive than they expect. For example, users "were surprised to learn that browsing history is currently used to tailor ads" [26]. And users' personal interactions with friends and their profile page information are meant for friends, not

marketers, to see [1]. Their concerns about privacy invasion are elevated when users become aware that a marketer has acquired their personal information *without permission* [42]. Particularly, in [2], Kim et al. inductively shows that consumers deem the practice acceptable (or not) based on whether their personal information was: 1) obtained within versus outside of the website on which the ad appears, and 2) stated by the consumer versus inferred by the firm (the latter of each pair being less acceptable). The categorization of all the practices included is illustrated in Table 3.1. Such categorization was based on the "information flow" theory of Kim et al.. She asserted that unacceptable practices violate social norms of information flow and result in negative reactions.

Table 3.1: Facebook ads practices factor analysis results (adapted from [2]).

Dimension 1: Within-website tracking
Facebook pages (e.g., companies, celebrities) that I have liked;
Facebook networks that I belong to (e.g., school, workplace);
Facebook groups that I am part of Facebook pages (of companies, celebrities, etc.) that I have visited;
Facebook advertisements that I click on;
Another company's website that I've logged into using my Facebook ID;
My current location that I stated on my profile
Dimension 2: Cross-website tracking
My past purchase history on another company's website;
My past browsing history on another company's website;
My past search history on a search engine;
My past visits to another company's website;
Another company's website that I've logged in without using my Facebook ID
Dimension 3: Stated personal information
My gender that I stated on my profile;
My sexual orientation that I stated on my profile;
My relationship status that I stated on my profile;
My age that I stated on my profile;

My family members that I listed on my profile
Dimension 4: Inferred personal information
My sexual orientation that Facebook inferred based on my Facebook usage;
My relationship status that Facebook inferred based on my Facebook usage;
My age that Facebook inferred based on my Facebook usage;
My gender that Facebook inferred based on my Facebook usage;
My current location that Facebook inferred from my computer's unique IP address;
My family members that Facebook inferred from my Facebook usage

Perhaps, the *Target* (a US-based supermarket) *pregnancy ad story* is the most cited creepy ads incidence. A father once outraged and thought that Target tried to encourage his 17-year-old daughter to get pregnant by sending coupons for maternity clothes and infant items. He then found out his daughter was indeed pregnant. Target managed to infer the pregnancy by her purchase history and knew the girl's due date even before her father did [43]. This example demonstrates why inference and personalized ads can be perceived as too invasive.

Sense of Being Followed/Monitored

Users said they do not like the idea of being *monitored*. They were scared of being *tracked* [26]. One tactic known as "retargeting" or "remarketing" in the online environment is a typical example to trigger such emotion. In March 2010, Google made its remarketing service available to all AdWords (a Google ad service platform) users. Remarketing allows advertisers to target customers, who have visited a certain web page or browse certain content, and create ads for the related product or promotion [44]. A New York Times article [43] reported a consumer described this tactic as "creepy," even for those who understood how the technology works. As discussed in Section 2.2, retargeting has reached such level of precision that consumers are left with a sense of being *stalked* and *watched* "as they roam the virtual aisles of online stores," according to the journalist [43].

What's more, the mere intrusive appearance of ads can also increase perceived threat or lack of control (as the ad interrupts the browsing experience or appears in a private context, for example) [36]. When the ad appears in contexts that are *more private*, the attitudes towards personalized ads are increasingly negative. For example, emails or social networking is regarded as more private than news or shopping site [45].

Broadly speaking, tailored messages, which convey highly distinctive knowledge of users' personal traits, and the appearance of ads in private contexts can threaten users' perceived ability to avoid being closely observed [1].

Type of Information Involved

Attitudes towards the data collection practice have also been found to depend on the type of information involved. Barnard showed that user attitudes toward tailored online media were increasingly negative when the tailoring involves information that was *more personal*. Specifically, behavioral information, such as websites visited is regarded as more personal than demographic information, such as age or school. Attitudes towards tailored political ads are especially negative [46, 47].

Perceived Utility

In [26], Ur et al. found that personalized online advertising is perceived *useful* to find things users are interested in. It helps users see more relevant ads, get better deals, and have a better browsing experience. In contrast, some participants perceived *no utility* in receiving related ads. Users have different attitudes towards data collection in different scenarios, which could be boiled down to the *perceived utility* of the ad to justify the request. They allowed data collection in scenarios of planning a vacation, shopping for a car and car loan, looking for a job, shopping online for food and household goods, and reading news, but only a few permitted data collection while they searched for STD treatments for a friend. Users gave consent because those scenarios were perceived as *harmless* and might result in cheaper prices for them: "there may be a sale on something

I wanted anyway [26]."

Control of Personal Data

Creepiness may emerge as increasing amounts of highly individualized user information are collected, because users feel that they are "too identifiable to the marketer" and their personal identity is "too well known" [1]. Not only precise profiling is concerning, to some, *incorrect result* of profiling is also problematic: "I feel like they are stereotyping me. I find this to be offensive"; "sometimes you click things by accident, it could be someone else using my computer" [26].

From the media reports about *data leaks* and technical mechanisms to *circumvent* privacy protection, as well as users' belief that the websites either *sell* or *share* their users' information without permission, some concern about losing their *autonomy* to handle their private information and being *threaten* by unknown third parties [26, 31, 48–50].

In fact, the possibility to abuse users' personal information and use it against them is also not groundless. A Wall Street Journal article reported a controversial pricing strategy of Online travel agency Orbitz [51]. Based on user consumer data, it aggregated that web visitors browsing on an Apple computer tended to spend more money on hotel rooms than those browsing on PCs. Orbitz charged Mac users more than PC users and featured them with more expensive hotels. Although price discrimination and sloping demand curve are classic concepts in Economics 101, it raised ethical discussion on potential unfair results [52]. Mainly because the strategy may unintentionally lead to price discrimination among ethnic groups, not reflecting the actual willingness or needs of the consumer [53, 54]. Another case from media planning agency PHD was described as "the grossest advertising strategy of all time." It suggests that marketers should serve ads featuring beauty tips and tricks, beauty rescues, dressing for the success, etc. on Mondays, especially in the morning, because women feel less attractive on these "prime vulnerability moments." They also suggest that similar ads could potentially perform better when individual women are stressed, sick, or crying. Monitoring women's activity on sites like Twitter and Gmail to capture keywords that indicate

emotional distress can help identify these most insecure moments to boost sales [55].

These findings will be used to guide the initial step to analyze the interviews. And as new information and observations unfold, findings from both sources will jointly shape the final model in Chapter 6.

Chapter 4

Method

To serve both theoretical and empirical goal of this study, a unique method was designed to collect data in order to understand creepy ads and suggest targeted guideline for system improvements. The author first explains how the design of the study could help answer the research questions and then documents the research process and key configurations/statistics in detail. Particularly, the connection and interaction between different parts of the procedure are also highlighted.

4.1 Design and Considerations

The author started with drawing inspirations from cross-disciplinary literature (psychology, privacy policy, marketing, etc.) to formulate a sounded definition of "creepiness" (Chapter 2). Then, a preliminary set of possible causes of creepy ads was derived from previous studies in the same literature review process (Chapter 3). Next, a series of semi-structured interviews were conducted to collect descriptions of creepy ad incidences, which were later used to verify causes previously derived and conclude new ones emerged from the incidences. Furthermore, to understand users' feedback on current ad settings and explanations, each interview was also followed by a usability evaluation on SP, GNR, and ST of Facebook. Additionally, to provide more context to

interpret the interview data, respondents were asked to share how they use Facebook and other popular social media, as well as their attitude towards Facebook ads and privacy issues. Finally, the author formalized the explanation of possible causes and their conditions from both interviews and literature and proposed a complied explanatory model. Joint with the feedback on Facebook's explanations and settings, the model served as a base for the prediction of creepiness and recommendations to improve future system design.

Facebook was carefully chosen as the main research subject, including its news feed sponsored post (ads presented as regular posts. See Figure E.1a), ad-specific explanations "why am I seeing this ad," general ad practice explanations "Learn about Facebook Ads"(Figure E.2c and Appendix B), and ad settings "Ad Preference" (Figure E.2d). This choice was motivated by the following considerations. First of all, due to the diversity of personalized online ads, zooming in one homogeneous type of ads in a specific online environment provides fair comparisons among incidences. Similarly, since companies follow varied strategies to present ad explanations and ad settings, focusing on one system allows standardized experimental process and interpretation of results in the same context. As one of the largest advertisement networks, Facebook has industry-leading advertising capabilities and offers arguably most sophisticated and comprehensive explanations. While Google's advertising capability, explanation, and settings are on par to Facebook's, most Google ads are scattered across Internet and search-based (e.g., ads in a search result and web pages), it is not as convenient to design a standardized process to capture them. Comparatively, Facebook fences a relatively isolated environment for the experiment, allowing me to collect uniform data and connect actual ads with ad settings. Last but not least, considering recent controversies raised by Facebook, the design implication derived from its system could be highly empirical, valuable and relevant.

4.2 Respondents

Twelve respondents participated in the study. The primary recruitment criterion is one should "have experienced creepy ad(s) before," primarily in Facebook and/or Instagram. Some also mentioned incidences in Gmail, Linkedin, Snapchat, and web pages. Since the interviews were meant to be qualitative and exploratory, respondents were recruited by convenient and snowball sampling.

50% of the respondents are female. Their age ranges from 22 to 50 ($mean$ = 29.4, $median$ = 25, SD = 8.6.) They represent a diverse academic background, nationality, occupation, and industry. However, the sample is skewed to experienced Facebook users (the number of years since registration: $mean$ = 8.8, $median$ = 8.5, SD = 2.4) and highly-educated population (83.3% hold pre-master's degree or higher). Details of the demographics are shown in Figure 4.1. And individual profiles can be found in Appendix A.

4.3 Interview and Usability Evaluation

Each interview session consists of three parts, lasting from 40 to 60 min. 8 out of 12 (66.7%) respondents were interviewed face to face. Others were conducted via *Skype for Business*, which allows the interviewee and interviewer to share their screen and see each other during the interview.

Before the interview, respondents were asked to fill in a pre-interview questionnaire (see Appendix C.) In the questionnaire, the author explained why and how he would collect, use, and process the data. Specifically, he asked for consent to record, transcribe, and analyze these data for research purpose. Basic background information was also collected. For all interviews via *Skype for Business*, a conference call invitation was sent to each interviewee in addition to the pre-interview questionnaire. Interviewees can access and test the link enclosed in the invitation prior to the actual interview. Once the interviewer and interviewee were connected in the call, the interviewee was given

a PDF format instruction file (see Appendix E) and viewed it later when instructed.

The actual interview and usability evaluation were divided into three part. The full discussion guide can be found in Appendix D.

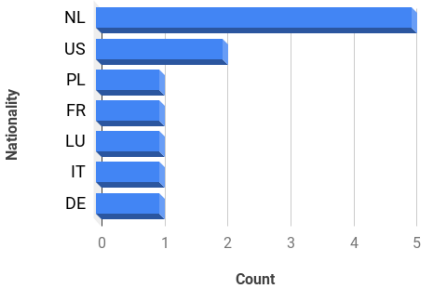
Part A Usage of Facebook and creepy ad incidences

After a brief warm-up (self-introduction), respondents were asked about a) their general use of Facebook and other social media, b) their attitudes toward Facebook ads, and c) particular creep ads incidences they had.

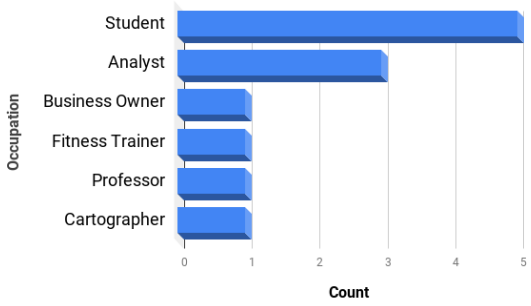
Part B Usability Evaluation on Facebook

All respondents (except for R8, who deleted her Facebook account) were given a printed or digital copy of task instruction to browse their Facebook page (see Appendix E.) They then had some time to go through the task and were asked if they would like to permit interviewer to view and record their browsing process. By design, this allowed the author to collect creepy ad incidences even if the respondents refused to participate in the usability evaluation. Fortunately, all 11 respondents (who participated in the full-length interview) gave their consent. In face to face interviews, the author sat side by side with the respondent. In virtual interviews, respondents were asked to share the screen while the camera was on (so that the author can observe their non-verbal reactions).

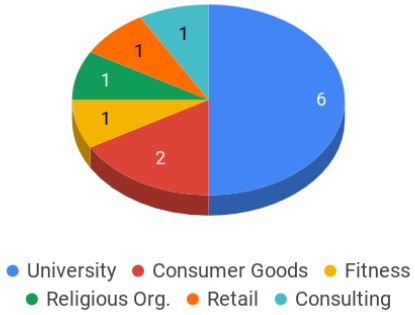
Respondents were first instructed to log in their Facebook account and take screenshots of the first three sponsored posts (ads) in their news feed and its corresponding SP. They then moved on to browse the GNR and went through ST. Unlike the "think-aloud" method, respondents were *not required* to share their feeling and thoughts during the task. Instead, thoughts and spontaneous comments were only encouraged (not mandatory) and documented if they wanted to share. Such an approach allows respondents to *pay constant attention* to test the system rather than busy switching among reading, thinking, and speaking. Meanwhile, for those who are naturally "talkative" and



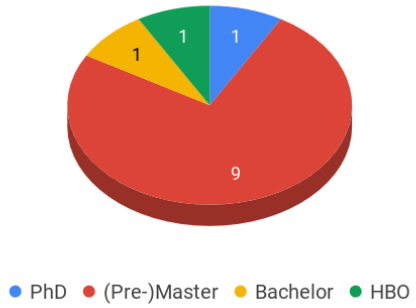
(a) Distribution of nationality



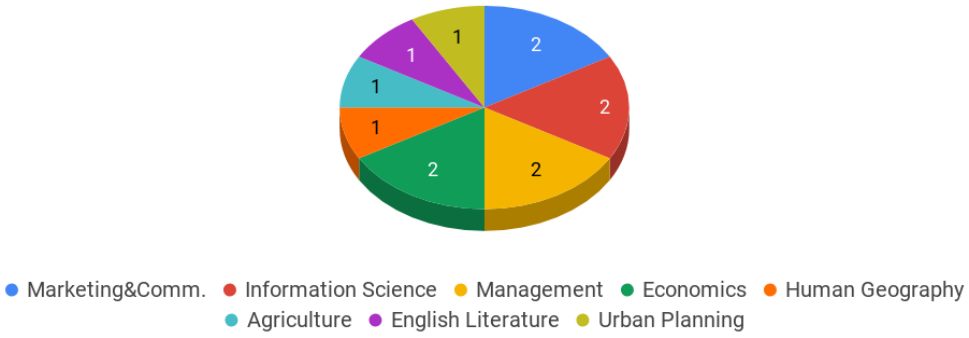
(b) Distribution of occupation



(c) Distribution of industry



(d) Distribution of education level



(e) Distribution of education background

Figure 4.1: Demographics of all respondents.

comfortable to multi-task, additional information can be obtained to enrich the analysis.

Following the observation and usability study, respondents were asked to share their feelings and opinions from the task.

Part C Knowledge of and attitude to privacy issues

Lastly, Respondents self-defined their level of privacy concern and shared their knowledge of privacy-related issues (both about general privacy concerns in cyberspace and about Facebook ads.)

Few respondents were asked about the type of information they were willing to share to generate ads and if they will pay for ad-free Facebook in the early phase of the study. However, the question used turned out to be too broad to derive valuable insights. Therefore, this section was dropped. For the consistency, this section was not analyzed and reported.

4.4 Coding

All recordings were transcribed and coded. The coding process consisted of three rounds, each of which focused on one aspect of the study.

Round A: Attitudes towards online ads and ad incidences

A mix of deductive and inductive approach was used in this round of coding. From the literature review, descriptions of possible creepy ad factors were derived and translated into a codebook. The author first went through all transcriptions to code all specific ad experiences, including creepy and non-creepy ones. Note that the author only included ads *with comments* from usability evaluation since he primarily focused on the SP instead of the ads (although they were valuable additional observations). Each incidence was numbered for the ease of reference. Next, all incidences were coded using the codebook developed earlier. Due to the exploratory nature of the study, new codes

were added if they were not captured by existing codes. *Seven conditions* were derived from the list of codes, resulting in *six types* of ads. Finally, *six aspects* were concluded based on the findings from both literature review and interviews in the final model.

Round B: Facebook system feedback

The author chose a deductive approach to attribute each comment and feedback to one of the seven possible explanatory goals of a recommendation system proposed by Tintarev and Masthoff in [33, 34]. Since the comments and feedback to the system were not prompted by specific questions regarding certain goals, qualitative frequency tables on spontaneous mentions of each goal could provide an interesting observation on the relatively prominent goal(s) on the top of user's mind. Since the semi-structured interview allows a varied level of follow-ups questioning, the frequency counts in these tables are the number of the respondent (instead of the number of mentions) to provide a fair comparison.

Round C: Social media usage and attitudes towards privacy issues

Inductive coding was used in this round to capture the remaining data after round A and B. Key topics include respondents' usage of social media (especially Facebook) and their attitudes towards privacy issues. This supplementary information helped to interpret the findings from round A and B. It also helped to re-examine the interpretation in round A and B from a potential counter-evidence perspective to avoid confirmation bias.

4.5 Reporting

Since the sample was not (and was not meant to be,) randomly selected, the findings reported are exploratory and interpretive. Only essential pieces of data were presented or quoted in the body of the paper to illuminate the explanation captured by important codes. Additionally, the number of respondents mentioning certain codes is shown as tables. Because the responses from semi-structured interviews are spontaneously

volunteered by respondents, these tables provide a sense of frequency rather than implying statistical significance. Finally, upon the completion of this paper (being graded and published), all raw data will be deleted (to comply with GDPR).

Findings and observations of the interviews and usability evaluation will be documented in Chapter 5. Further interpretation of both literature review and interviews, as well as the diagram of the proposed model, will be illustrated in Chapter 6.

Chapter 5

Result

In total, the author collected 44 ad incidences (in which respondents shared their reactions and comments) from all 12 interviews. 19 (43.2%) of them were considered creepy. This chapter focuses on reporting seven conditions concluded from the observations and categorizing ad incidences based on these conditions. The chapter starts with the overall attitudes toward personalized ads, setting a stage for the introduction of different ad types, which are illustrated by diagrams. Each diagram shows the condition(s) and its "creepy factors," which explain why a combination causes creepiness. The chapter ends with clustered feedback on Facebook ad system and a brief summary of the actions triggered by creepy ad experiences and the browsing task. Relevant quotes are shown as needed to demonstrate the results. The quotation format is shown as follows:

Verbatim. ..... Respondent# (R01), Age (34) or Ad incidence# (#22))

5.1 Overall Attitude to (Facebook) Personalized Ads

Presentation of the ads

Users had a mixed feeling toward the fact that Facebook ads were blended with non-sponsored posts. Some *appreciated the subtlety*, which minimizes the interruptions, while others *expected more distinctions* so that they would not unintentionally click on them. And perhaps, because of this low-key presentation, users did not realize they saw so many ads every day until they were interviewed. For some, they were *overwhelmed* by the number of ads they saw.

Table 5.1: Frequency table of the ad presentation. (TBU)

Code	Frequency	Code	Frequency
Well presented	5	Too many	4
Blurry/subtle	3	Unwanted/unwarranted	1
		Intrusive/interrupting	1

*Facebook present their ads in a very **low-key** [and] **subtle** way. I think they really learn to specialize how to present ads in a way that is not overwhelming to the user or too annoying or something like that.* R04, 22

*What I do not like are those ads that are shown as regular posts so you really need to take care to find out whether something (...) is an actual post or (...) an ad. Sometimes (...) it is **blurry**, the border between ads and non-ads post.* R03, 40

Sometimes I'm sure what are ads what are not. R07, 25

*That's funny I know I get this interview, I **was not aware** I get so many ads.* . R09, 50

*They are **nicely presented**. They are **too many** but the way they show to me is quite convenient. (...) It's just an ad platform.* R12, 25

I do not like that you got a lot of ads. R10, 25

*I am **bombarded** with ads the whole time.* R05, 27

Ads were also perceived *unwanted* and *distracting*, mainly because they interrupted the browsing experience and made it difficult to find the desired content, for example, the posts and shared links from friends instead of sponsored ones.

*They are **unwarranted**. I do not want them. I did not ask for them. (...) But also they are a bit **invasive**. I think ads can be definitely **annoying** and **distracting**. (...) I'm more interested in knowing about or seeing the pages I followed, posts from my friends, but not ads. (...) I hate pop-ups. I hate the one that once you click on it, this pop-up kind of thing.* R04, 22

Justification of the ads

Generally speaking, users *justified* the existence of online ads, because the ads "paid" for the free content/service and showing ads was a "*smart*" strategy (R06, 35). Some also justified the utilization of personalization was just to make the ad *work better* for users.

Table 5.2: Frequency table of the justification of the ads. (TBU)

Code	Frequency	Code	Frequency
Exchange for free content	4	Better than random	3
Smart strategy	1	To give good ads	1

*Facebook earns its money with [ads]. So the internet itself is pretty much ad-driven. So it's kind of **expected** that ads are displayed over there.* R03, 40

I can understand that the ads and the data collection are what makes Facebook a free public platform. R04, 22

Facebook needs to make money while providing us with free services. R07, 25

> *I understand that it is part of their business model to give you the ads (...) That's behind all the fun stuff under the surface. (...) They probably want to give you good ads (...) [and]* ***use as much data as they can****.* R05, 27

Since the online ads were somehow *unavoidable* to exchange for free content/services, they preferred to see personalized ads because it was "*just better than other ads*" (R05, 27) and "*could be worse*" (R01, 34).

> *I think there is going to be ads on my news feed* ***no matter what*** *(...) I mean I do not need all of these puppy ads or something. As annoying as it is, I'd rather have stuff like that than things that are horrible or annoying or noxious. I guess they are all noxious, but I'd rather be stuff that I have been* ***shown interest in****. Versus things that I do not care about.* R01, 34

> *If I have to have Facebook feeds I'd like to have them to be* ***related*** *to myself rather than* ***totally random****.* R02, 24

5.2 Conditions and Typography of Creepy Ads

Six types of ads were concluded from the study:

- Type C1: Showing ads in inappropriate context;
- Type C2: Involving sensitive data;
- Type C3: Using unacceptable/unexpected data collection practices;
- Type CX: Offering incomplete explanations;
- Type N: Being ignored or triggering non-creepy negative emotions;
- Type P: Specifying the beneficial and harmless purpose of data usage.

Among them, Type C1 to CX are creepy ads. All other reactions and non-creepy ads are generally explained in Type N and P, for the creepy ad was the primary focus. All types

of ads and their corresponding conditions are illustrated by six diagrams (Figure 5.1 to Figure 5.6).

An overview of all ad incidence is listed in Table 5.3. The full description and verbatim can be found in Appendix F. Note that creepiness of Type CX ad is not triggered by the ad *itself* but its SP. Therefore, each Type CX ads are categorized in addition to one other ad type. See further discussed in Type CX: Offering incomplete explanations.

Seven conditions determining the type of ads are introduced and described alongside each type of ads. They are: **A) appropriacy** of ad context, **B) relativity** of the cues, and ad subjects, **C) sensitivity** of the data used, **D) certainty** and **E) acceptability** of the data collection practices, **F) relevance** of the ad subjects, and **G) completeness** of the explanations.

Table 5.3: Distribution of all ad incidences.

Ad Type	Total	Respondent											
		R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12
Total	**44**	**4**	**4**	**2**	**5**	**4**	**3**	**1**	**2**	**2**	**5**	**8**	**4**
C1	**1**							1					
C2	**1**												1
C3	**17**	1	2		1	2			2	2	2	3	2
P	**3**		1		1							1	
N	**23**	3	1	2	4	2	3				3	4	1
CX*	**5**				2						1	2	

*Each Type CX ads are categorized in addition to one other ad type.

Type C1: Showing ads in inappropriate context

> *I can also see ads in the Facebook messenger app. I feel that is a bit **too much**. (...) [They] make me feel that Facebook is **watching** me while I'm talking.* ..... R07, #14

Users first react to the context where they see the ad. **Appropriacy (Condition A)** of an ad is defined as how appropriate it is to show an ad in a certain context. In the only incident in this category (F.3), R07 saw ads in his messenger app interface (e.g., Figure F.3 in Appendix F). The verbatim shows that inserting ads in between the online

conversation made users feel *watched* and *monitored*. The diagram of Type C1 is shown in Figure 5.1.

Figure 5.1: The diagram of Type C1: Showing ads in inappropriate context.

Type C2: Involving sensitive data

> *I [have a certain health issue], I think I look into solutions about [the health issue], and then I have the ads on Facebook, that's already something I* ***do not feel comfortable*** *about it. It's already* ***too much*** *(...) I searched for the solution on my own but I do not want a sponsored ad.* ..... R12, #5

Once users start noticing the content, the ad's relevance cues (e.g., demographic, psychographic, and behavioral. See Table 2.1) are examined for relativity. **Relativity (Condition B)** is defined as to what extent, users can relate the subject or other information mentioned in the ad to themselves, their activities, or recent interactions with the system. If users could do so, they then judge if they are comfortable to the information or subject included in the ad. **Sensitivity (Condition C)** of the data is measured by how sensitive and personal certain data is to the user. Highly sensitive data could be sensitive data in a general sense (e.g., medical conditions, income, and social security number) or secrets (e.g., weaknesses), which should only be known by a selected group of people. They were concerned that this information may be *undesirably spread*:

> *Once it starts to become personal and eventually about some health concerns (...) it's like* ***entering the privacy too much****. (...) I wouldn't like to see any weaknesses. (...) I do not want to share this information[health concerns] because I'm afraid that they would share with other companies and potential future employers. That's something I concerned about.* ..... R12, #5

The diagram of Type C2 is shown in Figure 5.2.

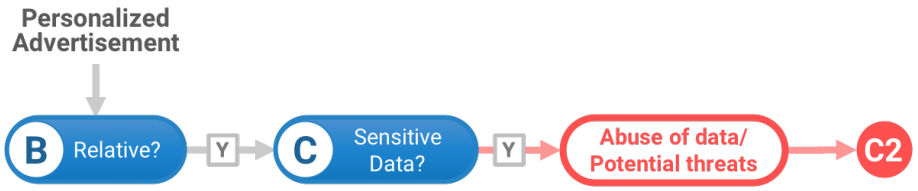


Figure 5.2: The diagram of Type C2: Involving sensitive data.

Type C3: Using unacceptable/unexpected data collection practices

I was telling my parents about it[Radler beer] on Skype. And all of the sudden it showed up on my news feed on ***the next day****. I thought that was weird because I* ***had not had typed*** *it anywhere. It was the only conversation (...) And that happened a couple of times and I cannot remember other examples but that happened.* ..... R01, #22

Table 5.4: List of Type C3 ads.

#	Resp.	Subject	Time Lag	Perceived source of data
3	R12	Car tire	Next day	Verbal conversation
4	R12	Contact lenses	Right after	Verbal conversation; Profile image analysis
6	R11	Music festival	Few days	Verbal conversation; Searches
7	R11	Food festival	Few days	Verbal conversation; Searches
9	R10	Cookie (snack)	Next day	Whatsapp app conversation
10	R10	Music festival	Few days	Searches
11	R09	Jacket	Few days	Messenger app conversation
12	R08	Web-store	Same day	Verbal conversation
13	R08	Holiday	Same day	Whatsapp app conversation

Table 5.4: List of Type C3 ads.

#	Resp.	Subject	Time Lag	Perceived source of data
15	R05	PHP	Few days	Verbal conversation
16	R05	Holiday	Right after	Verbal conversation
17	R04	Flight	Few days	Verbal conversation
20	R02	Beer	Next day	Verbal conversation
21	R02	Shop	Same day	Location
22	R01	Beer	Next day	Verbal conversation
31	R09	Ticket	Few days	Messenger conversation
40	R11	Holiday	Few days	Verbal conversation

Seventeen out of nineteen (89.5%) creepy incidences are categorized in this type, which is the most common one in this study. Certainty and acceptability of the ad practices are the keys to this type of creepy ads.

Certainty (Condition D) of the ad practices is defined as how clear the perceived ad recommendation mechanism is to the user. The recommendation mechanism includes all data collection practices used to generate ads, for example, data collection, information inference, and profiling, etc. Based on the cues used in the ad, the user 1) linked them to (perceptually) known practices or 2) perceived that certain ad practices were used in order to make sense of the situation. The knowledge of existing data collection practices will be further discussed in Section 5.4.

As shown in Table 5.4, ad incidences in this category are about ordinary everyday subjects, ranging from travel destinations, food, online shops, to clothing. These subjects by themselves are usually not embarrassing or related to sensitive information in our daily social life. However, they are typically *new* and *unfamiliar* to the user.

My sister [and I] looked for a particular kind of earrings. (...) [The shop assistant said]

> *maybe you can look at this and this shop. And then when she[my sister] went on Facebook, she saw there is an ad for that shop. (...) that is really funny because we* ***have never heard of that*** *and then the ad popped up.* ..... R08, #12

> *The scariest situation I've ever had was at a party, I was drinking a Dutch beer* ***I've never seen it before****. (...) I've never googled it or did something with it.* .... R02, #20

Additionally, these subjects were usually introduced to the user on a private occasion or in recent activity. And he/she typically could not recall any search or browsing activities prior to or after that "exposure". In other words, they could not link the data collection to known practices. For example, the most common occasion is in a verbal conversation:

> *My father told me he needed new tires on his car.(...) We were* ***talking in the kitchen****. (...) The next day,* ***without googling anything****, because I was not ready yet to do his task, I already had ads about tires on my phone.* ..... R12, #3

On Skype:

> *I* ***was telling my parents about it on Skype****. (...) I thought that was weird because I* ***had not had typed it anywhere****.* ..... R01, #22

And on Whatsapp:

> *I* ***was talking with a friend in Whatsapp*** *(...) about a brand of cookie in Italy. And then after one day I got the ad on Facebook.* ..... R10, #9

Moreover, the exact new and unfamiliar everyday subject appeared in an ad shortly after the user encountered it (as shown in Table 5.4). It is *timely* and very *specific*:

> *All of the sudden it showed up on my news feed* ***on the next day****. (...) How quickly. I'm like oh my god I was just telling my parents about it last night. (...) Just the timing. I would be talking about it and within a day it showed up. I mean who talks about Radler beer? And then having it come up is* ***very specific****.* ..... R01, #22

> *The scariest situation I've ever had was at a party, I was drinking a Dutch beer **I've never seen it before**. (...) I've never googled it or did something with it.* .... R02, #20

> *I was talking with friends and we were talking about holiday destinations and **the exact destination** came up. **While we were talking I had to go to the bathroom**. I checked my phone, and the first ads I saw is the destination.* ..... R05, #16

Because of the "*timely appearance*" of the ads, users suspected that the advertiser "listened" to their private conversations, tracked their location, and used them for advertising. Although users may have a hard time to believe that these practices were actually used, *assuming the worst case scenario* (that they did) appeared to be the only rational way to explain their experience (Path I in Figure 5.3).

> *I thought well this is really a **coincidence** or they might use some audio data. **I do not know. I'm not sure.*** ..... R05, #16

> *Like the one with the holiday, it **almost seems like** they are looking at what you are talking about in Whatsapp and use them for ads.* ..... R08, #13

> *I think it's just **too much of the coincidence** that you **cannot exclude** that they are tracking your voice at least.* ..... R12, #4

> *I usually thought [if] I googled something I can see it or [it is] related to me, not just saying or drinking it. **The connection isn't that obvious to me**.* ..... R02, #22

Once users established a perception of the ad practices, they assessed their acceptability. **Acceptability (Condition E)** is defined as how acceptable the perceived practices are in comparison to social norms (i.e., information flow, as defined in [2]). The comparison can lead to one of the following outcomes:

- if the perceived practice is acceptable under current social norms, it's *in line with the social norms*;

- if the perceived practice is not acceptable under current social norms or even against them, it *violates the social norms*;
- if no social norms are available to be compared against, it results in *a lack of social norms*.

The latter two outcomes are considered *unacceptable* and will cause creepiness. Certain practices*went beyond user's expectation*, leaving the user feeling *surprised*, *watched*, *invaded* and *spied on* (Path II in Figure 5.3). These practices include listening to the ambient sound via cell phones, monitoring private online conversations, and tracking locations without user's awareness.

> *I'm sure they [are] watching or find a sort of way [to know] how I found it. (...) They are **watching** over my shoulder.* ..... R09, #11

> *It's possible for them to record what I said at night (...) Building ads upon this thing[ambient voice] is **pretty scary**. (...) I was honestly **surprised** and **scared**.* ..... R02, #22

> *So that is when I really realize that Facebook can really be **pretty creepy**. How did this happen? I do not recall typing on any flights to Buenos Aires, but from the conversation somehow maybe this happened. This is still an unsolved mystery that I found pretty **weird**. (...) I hope we are not transitioning to a phase of digital technology where these programs and tools are able to recognize what you are saying, like verbal, orally, and then tailor ads like that. Because that would be **incredibly invasive** to me. That's just way **too much**.* ..... R04, #17

> *That's where it gets a little bit **creepy**. That would mean they actually know what you are talking about and that is **spying on** you.* ..... R08, #12/#13

For some, they may also associate the ad to their search or browsing activities on that particular subject. Although many users already *knew* that their browsing behavior and search activities (both inside and outside Facebook) were tracked and used to personalize ads (as mentioned in Section 5.4), users perceived that the advertiser acquired their information (either by direct data collection or indirect inference) *without their*

explicit consent. Some *expected* that only publicly available information (post, likes, etc) and explicit interest (e.g., information in the Facebook profile) were opt-in to be used. Therefore, collecting information outside of Facebook and inferring information or interest from explicit information were considered *unacceptable* (Path II in Figure 5.3). Acceptable and unacceptable ad practices will be further discussed in Section 5.4 along with the feedback on Facebook ad explanations and settings.

*I didn't even **like** their page. So that's a bit **weird**. I didn't **share** it as well.* . R10, #10

The diagram of Type C3 is shown in Figure 5.3.

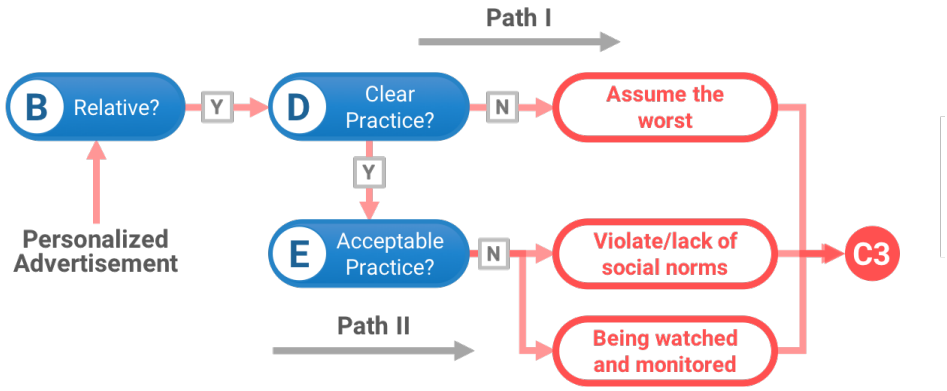


Figure 5.3: The diagram of Type C3: Using unacceptable/unexpected data collection practices.

Type N: Being ignored or triggering non-creepy negative emotions

Table 5.5: List of Type N ads and frequency table of related descriptive codes.

Ad#	1, 2, 8, 18, 19 23-25, 27-30, 32-39, 41, 43, 44		
Code	**Fr**	**Code**	**Fr**
Mechanic/repeating	6	Known/After decision	4
Intrusive/interrupting		Painful/angry/embarrassing	4
Stereotyped	2	Did not get negative sentiment	1

The majority of the non-creepy ads were generally unrelated or irrelevant to users and ignored by the user. "*Unrelated*" means that users cannot relate the activity to themselves (Path I in Figure 5.4). And "*irrelevant*" means that users can relate the cues and subjects and the ad practice was clear and acceptable, but the ad was *uninteresting* to them (Path II in Figure 5.4).

> *Unless they are surprising or shocking, I just scan through and scroll through them. And I **do not even pay attention** (...) I just **skip** right over them.* R01, 34

When irrelevant and unrelated ads appeared *repetitively*, they causes various negative emotions, such as *confusion*:

> *They are really pretty dresses. I never wear a dress. So that to me is **never relevant**. (...) There are always these holiday dresses show up. I've never bought a dress. (...) I've **never rationally traced** where those come from.* ..... R01, #23

Some users were *annoyed* by the repetitive appearance of the products that they searched even *just once*. Some also reported the ad tried to persuade them *after they made the decision*. Essentially, the ad system *incorrectly induced* users' interest from search behaviors and failed to capture *the swift of interest* over time.

> *My perception is that **the relevance is not too high**. Because most of the ads shown to me I already found something so they are **not helping** me at all. (...) It reminds me of something I already found a solution for it.* R12, 25

> *There are some websites I entered **by accident** (...) but they **keep on reminding** me about flights to Hong Kong. I'm **not planning** to go to Hong Kong. I just wanna to check how much it is. (...) Some websites like [a clothing brand], you sniff, enter it, and go off. Then boom! Shoes [are advertised] for the next month! (...) I'm getting these ads **after I've made the decision**. So like I wanted to go with my friends [to Greece] and we look [it] up. (...) we [eventually] went to a different destination. And they **keep on suggesting** about Greece, but we are not going to take [it].* ..... R11, #25/#39

Lately, I have been searching for a hat not even for myself. And now all kinds of ads of hats turn up. (...) It introduces a lot of ***randomnesses****. The hat ads happened to me* ***for weeks*** *just because I searched for a particular type of hat to see what it is like. I did not even buy it. (...) [They are]* ***not always [relevant]****. Too often they are based on* ***my current interests that are not always long-term****, like the hat example I gave. I once searched for hats and I continue seeing them for 2 weeks.* ..... R03, #32

Sometimes it is good to get ads about the dress I've wished or liked in other websites, but I do not want to be screamed in the face "pay for me", "pay for me". It will probably make me overspend. It is ***smart*** *but make me* ***paranoid****. (...) I just feel a lot of them I* ***already know****.* R06, 35

The incorrect inferences, especially the ones that are opposite to users' actual interest and value, can further trigger *irritation*, *pain*, *embarrassment* or a sense of being *stereotyped*.

I searched for vegan things it doesn't mean that I'm vegan. They are ***putting me in buckets****, which I do not really feel I'm part of. (...) [I believed that] if I clicked "like" or "smile", they infer that I am left-wing or right-wing politically. I'm fine to get political ads but* ***it should be correct ones****. I do not wanna see right-wing ones. (...) One of my relatives is of infertility and Facebook shows her pregnancy ads all the time. It is very* ***painful****.* ..... R06, #2/#24/#33

When underwear ads show up on my Facebook, (...) that just makes me ***uncomfortable*** *and I do not know why they are there. (...) I have sort of this fear of underwear and sometimes I have put* ***embarrassing*** *stories about underwear in my Facebook. I think that's why it pops up, which now I regret having shared these funny stories 'cause now I'm just confronted by these underwear ads now. (...) They do not know* ***the context I'm speaking on****. I could be talking about a topic that I hate. If I'm talking about Trump, and how much I do not like him, I do not wanna see Trump in my news feed. Whereas if* ***in my profile****, oh I love [several TV shows], [that's] the context [of] the most thing I like. I put a keyword but the context is that I do not like that. Suddenly pumping up and showing up in my news feed* ***drive me crazy****.* ..... R01, #38

I've been looking for jobs back in [a US city]. There is one job. This company spe-

*cialized in travel and cruise and vacations for lesbian women. I've then seen the ads for lesbian cruises on Facebook. (...) I'm not a lesbian or anything but two this is clearly from this page I've visited. I went to this travel website to this company, but it's **weird** seeing it being shown on the Facebook.* ..... R04, #41

The diagram of Type N is shown in Figure 5.4.

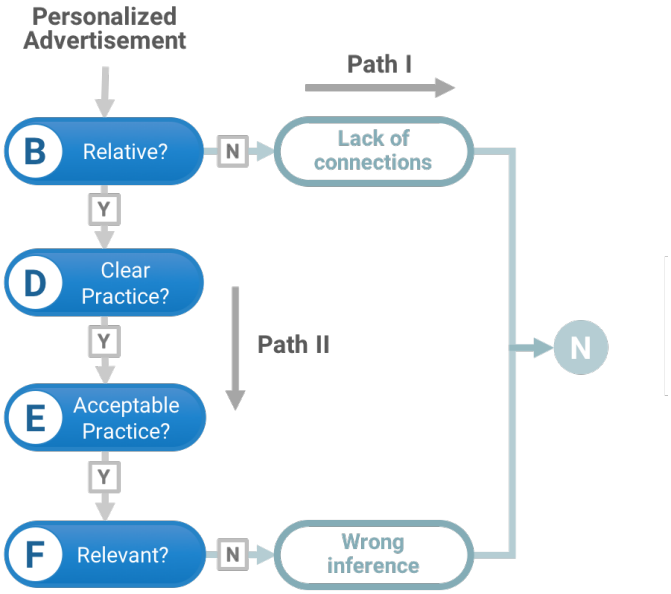


Figure 5.4: The diagram of Type N: Being ignored or triggering non-creepy negative emotions.

Type CX: Offering incomplete explanations

(Saw a clothing brand's sale promotion ad.) I checked it[the brand's website] this morning because I saw the 50% discount. (...) I think they saw I checked this morning, so they want to convince me to go back to the website to check the sale.

*(Read the SP.) It is very **vague**, it doesn't really tell why you should be [shown this ad]. It's a bit **creepy** because they say they want to target you because you are into shopping fashion, you are age 18 to 35, and you are living in the Netherlands, but then I link it to what I did this morning in my browsing history, and I realized that this morning I was looking into the website. I think **it's linked**, because how it's possible. ... R10, #8*

Table 5.6: List of Type CX ads.

Ad#	6-8, 18, 19

In the case above, R10 linked her recent activity to the appearance of the ad. However, since the explanation failed to mention such a connection, she felt creepy and that the linkage was purposefully concealed from her. Thus, in Type CX ads, the creepiness of the ad emerged or was intensified after users read the SP. The explanation *itself* became a source of creepiness, while it was meant to help. More discussions on SP can be found in Section 5.3. The diagram of Type CX is shown in Figure 5.5.

Figure 5.5: The diagram of Type CX: Offering incomplete explanations.

Type P: Specifying the beneficial and harmless purpose of data usage

> *Sometimes I think it's quite **useful** (...) I'm looking for a graduation dress on [an online fashion website]. And then I will often have commercials with different dresses from [the website]. So I could actually find something because what they suggest is actually quite **well engineered**.* ..... R11, #26

Table 5.7: List of Type P ads.

Ad#	26, 28, 42

If the ad was shown in appropriate context, did not involve sensitive personal data, and its ad practices were clear and acceptable, users will arrive the final crossroad: to assess the **relevance (Condition F)** of the ad. Relevance is a distinct but related condition of relativity. While relativity only concerns about the perceived connection between the ad and the user, relevance indicates how well the ad captures the interest and actual needs of the user. For example, a non-beer drinker found that an ad included the exact beer brand, which she had never seen or heard before her private conversation a moment ago (R01, #22). In this case, the cue prompted the possible connection between

the ad and her activity but it did not reflect her real interest. In a few cases, personalized online ads were perceived as *useful*, *convenient*, or as a *reminder*.

> *It can be **convenient** [if] I wanna buy a car and then a car thing comes up. Wow, that's convenient. Or the dress is on discount or something.* R11, 23

> *If I searched for a pair of shoes before [that] I thought is **pretty cool**, and I forgot about it. Then I got a **reminder**. And I'm like, ok, maybe let me take a look at it again. (...) I also think it can be beneficial to have customized ads.* ..... R02, #42

When asked her attitude toward personalization in general, R08 referred to Spotify. She recognized it offers *concrete benefit* ("*the music that you like*"), believed that only *specific data* ("*the music you are listening to*") were tracked, and *perceived no risk* to share such data. When further asked if Spotify also used some of the unacceptable practices that Facebook used, she somehow accepted the possibility given a clear purpose and benefit Spotify offers.

> *I use Spotify a lot. They also use recommending algorithms. I think in that setting, it[personalization] works really great, because you find the music that you like, [they] make the playlist for you, and that's really good thing. (...) I do not see that it is something bad for your privacy. **Because the thing they are tracking is the music you are listening to**. And that's **not really something other people can't know**. (...) I think Spotify probably goes beyond that because they probably have more information about you more than just the music you listen to. But I mean I do not really know how that works. But at least I see **the purpose** of it.* R08, 23

From the ad effectiveness perspective (measured by Click Through Rate or CTR[1]), if the ad was *indeed relevant* to the user, the user mostly clicked on the *discount ads*. Although a few users did not click on the discount ads due to *a lack of trust* to online ads, they searched outside of Facebook to check the promotion details. Namely, these ads successfully passed the promotion message even users didn't click through them to access the details.

[1] The number of click-throughs per ad impression, expressed as a percentage [56].

Because I'm a consumer on a budget, I am captivated by the price. (...) If I'm really interested in and the word "discount" or "sale" on there, I'm gonna click on it. R04, 22

*I will **not believe** them[the discount ads] in Facebook **as much as** I see them on the website. So if I am looking for a great discount in holiday deals, for example on Facebook, then I will **trust it less** than if I went on the actual website of the company that I saw the discount from. (...) Sometimes I'm very skeptical. So I know that is not true so I'm often just like "what is this". (...) they just want me to click on it and it's actually something else.* R11, 23

*I'm currently looking for a new laptop. Facebook projects that, one ad would give me 10% reduction, I'll probably **interested**. (...) If they collect information in a legitimate [and] acceptable way. I think such ads will be ok. I'll make use of the reduction, otherwise I'll just boycott. (...) [legitimate way] such as likes of the pages, the profile I put in the Facebook.* R03, 40

The diagram of Type P is shown in Figure 5.6.

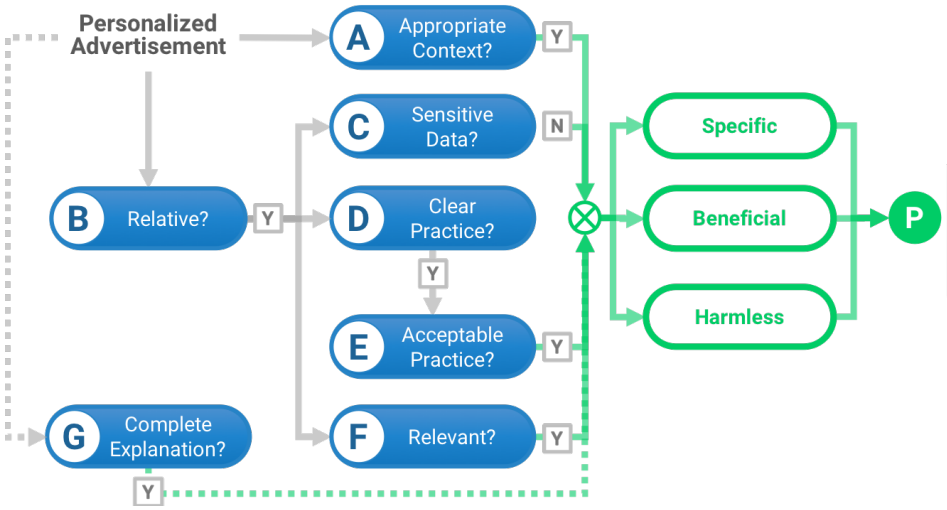


Figure 5.6: The diagram of Type P: Specifying the beneficial and harmless purpose of data usage.

5.3 Feedback to Ad Explanations and Settings

Transcripts of all interviews were examined and deductively coded to one of the seven explanatory goals. The frequency (# of users mentioned) of each goal was split into positive and negative.

Table 5.8: Frequency table of seven explanatory goals and corresponding codes.

Explanatory Goal	Positive	Negative
Transparency	5	5
Scrutability	3	2
Trust	1	6
Persuasiveness	0	1
Effectiveness	0	0
Efficiency	0	2
Satisfaction	5	6

One of the first and the most interesting findings about the Facebook ad explanations and settings is that *almost none* of the users were aware of either one of them, except for R01 (who configured her ST after the massive media coverage about the Cambridge Analytica scandal of Facebook), R03 (who knew SP), and R08 (who did not participate the usability evaluation since she deleted her Facebook account). For R03, who did know Facebook offers SP, he did not bother to "*take the time to read*" that because "*it's pretty obvious [why they show me the ads] most of the time and most of the explanation was pretty obvious.*" Perhaps, he did not justify spending the time to read the explanation or go through the settings if *no valuable information was offered*. He simply clicked "hide this ad" if he did not want to see that ad again. R03 also complained that the link to the GNR is "*hardly visible*." Besides, users were *not proactively* looking for explanations and settings even when they encountered creepy ad incidences.

> *I'm surprised because I've **never** looked at them. I did not know there is an ad section where you can see how they manage it.* R10, 25

> *I like this interview because I've got to explore the pages from Facebook I **did not even bother to investigate**.* R04, 22

Probably [the explanations and settings are] ***better than I expected****. I* ***did not see it before****.* R05, 27

I think it[GNR] is interesting. I may go back. I did not know it was there. So I may go back to read it on a very boring rainy afternoon. (...) if people started freaking out about it and it became a big scandal (...) or if people were having arguments and debated about it, then, I will probably go back to read it. (...) Unless there is a controversy comes up, ***I probably will not read it****.* R01, 34

Users generally *appreciated* that companies give them opportunities to understand how the system works and options to adjust the ad settings, despite their *skepticism* and *critics* to the system or to the explanation and settings. Knowing more about the system also *increased their trust* to Facebook but it was not trustworthy enough to share their data. Users perceived better control over the system with ST.

I think it's ***nice*** *they offer it. (...) At least they are saying something about it.That's* ***cool*** *I guess. (...) it's pretty* ***interesting*** *to see based on what interest and connections to friends and family my ads are based upon actually. (...) honestly,I'm* ***impressed*** *that I can block one specific ad.So that's* ***pretty nice*** *that you can hide topics and can have a look at that based on which of your information and based on which likes they give you the ads.* R02, 24

I'm ***thankful*** *of the options. (...) That gives me* ***safe, autonomy****, and the* ***choice****.* R04, 22

I ***like*** *that they are showing it. At least if you do not like it you can turn if off.* R07, 25

[After seeing the explanation] I'm a bit ***more positive*** *but I still do not want to share anything because it's* ***not trustworthy****. (...) I understand how it works a bit. So if you understand something you have to be* ***less afraid*** *of it.* R09, 50

GNR was considered well presented in plain language and with friendly illustrations.

*They are quite **transparent** about their practice and they are pretty **understandable**. And their looks are quite **good**.* R05, 27

*It looks like they've done a **good** job. Facebook adds a lot of pictures and things to **make people easy to understand** (...) Nobody is going to read the fine print. If you gonna do it, make it colorful.* R01, 34

*The way they put it with nice picture, very easily explained, so it **doesn't frighten** you.* R12, 25

However, both R04 and R06 were *skeptical* about the language that GNR used, because they thought it was "*overly simplified*." This "*dumped down*", and seemly "*non-invasive*", "*friendly*", "*harmless*", and almost "*innocent*" explanation is *deceiving*. It made users think they understood it (but not necessarily did) and would rather see personalized ads. Some users criticized that it did not *thoroughly explain the process* and *clarify the implication* by using these practices. They felt that Facebook was *hiding* information from them and therefore, *doubted its credibility*.

*Facebook does present it in a very **harmless** way, oh we use your information to better tailor the content to you and connect you with people, and we are doing you a favour. So people can easily go, yeah, this is nice: Facebook is doing this for me. Personalization is everywhere today. So Facebook **gets away with that**. (...) [Facebook] make[s] you feel there are some incentives to support the ads. (...) I'm gonna be **skeptical** for this forever (...) They are **funded** by us.* R04, 22

*I prefer to read accurate and raw text that is **honest**.* R06, 35

*I think it's really **vague**. I understand it should be basic (...) I know how it works with cookies and single sign-on. I'd like to have more explanation. So maybe in the settings they have more technical explanations, but I find it very bad. I'm not 100% sure they are transparent. I **do not want too technical language**, but I want to understand more how they target you. (...) [For example,] if they look at my browser, if they look at the website, etc. What does it mean [by] the Facebook pixel. And how can you turn it off.* R10, 25

> *I think no it's **not useful**, because even if you do not give them the permission to use this data for the ads on your Facebook page, but it doesn't mean that they are not allowed to use the data at all (...) Actually there are **more behind it** (...) because they say **what they are doing** but not **what they can achieve** with these kind of tools.* R12, 25

> *I'm also curious about **what is not explained**.* R03, 40

> *If you change [the ST] they will give you **the feeling** that you control them but they will still store them in a way. They will say they currently do not use it. (...) I do not really know and **trust** them.* R07, 25

Furthermore, the amount of demonstrated information can be overwhelming and burdening to read and digest.

> *Now I see it's **complicated**, there are **so many** [information and settings]. The nature of the ads is **crazy**.* R04, 22

> *It's gonna **take a longer time** [to read through].* R11, 23

To better navigate the explanations and settings, R02 suggested that the system could add a search function so that users can access information that they are interested in.

> *I mean **an overview** would be nice, like in the front page, **what you'd like to read about**. And here you just have to go through everything and search for yourself [in the current design].* R02, 24

Users complained that the SPs were incomplete, vague, and "far-reaching".

Most of the users shared negative feedback on the SP—*incomplete*, *vague*, and "*all the same*" (R04, 22; R07, 25)—since they *expected* that the ad was personalized.

> *I was talking to my friend I wanna go to [a music festival] yesterday, and it is telling me to get this ticket. But I'm getting [it] only because I'm aged 18 to 27 and living in the*

> *Netherlands? That's it? I think **it's more than that**. It's **incomplete**.* ..... R11, #6

> *I'm **not sure** if they are **completely honest**. For example, there is an ad about [a chilly sauce]. It says people ages between 18 and 40 who lives in the Netherlands. That's the only explanations and I think they should be more to it that [why] they are targeting me. (...) And the same for all the other explanations as well. So they are not providing **any specific information**.* ..... R02, #44

> *I think it's very **vague**. It is **always the same stuff** [in all SPs]. Oh we wanna reach a broad audience like 18 to 45, female under 29 (...) I guess that's why Facebook does present these ads to millions of people. It's **a broad umbrella**.* ..... R04, #18/#19

Users demanded *more specific* explanations, especially the ones addressing how Facebook captivated users' data. They wanted to know "*where they[users' data] were picked up from*" (R12, 25). When asked about his expectation to the level of specificity, he referred to Netflix: "*Because you like or watch this and that, we recommend you this video. That is a concrete example [for me]*".

For R02, he believed that people "*at least in our age knew more or less why the ads are shown to them.*" "*It wouldn't be shocking*" to him if the explanation of the sauce ad showed that, for instance, five days ago he browsed recipes using that sauce. And Facebook would be "*more trustworthy*" to him and he would not change Facebook usage due to this explanation. Therefore, the current explanation (targeting "people ages between 18 and 40 who lives in the Netherlands") was "*too narrow*" and he felt that Facebook did not "*take it seriously*" (R02, #44) In another case, R03 was skeptical about the explanation of a TV show (see figure F.7, "the broadcast wants to reach people who live in the Netherlands") because the show was only broadcast in France and Germany (R03, #43). In other words, he doubted the credibility of Facebook and its ad system.

Alternatively, if we assumed Facebook provided the right information, the generic explanations (e.g., "18–45 years old" and "recently lived in the Netherlands" in page 52, line 9 and Figure F.4) indicated that the ad targeted a broad and general audience. Namely, it was not (highly) personalized. Perhaps, the *discrepancy* between users' ex-

pectation and the actual targeting strategy triggered such negative sentiments to the explanations and the ads.

Additionally, R04, who doesn't drink beer, found the recommendation "far-reaching" because "they send me these ads based on someone else's activity, with this person I do not even interact with," according to the explanation at the top of the ad (see example in figure F.2).

Finally, as discussed earlier in Type CX creepy ads, if the SP was perceived to "*hide*" an obvious connection between the user's activity and the appearance of the ad, it could trigger creepy emotion.

5.4 Ad Practices and Information Acquired

This section reports users' comments on various ad practices and types of information involved in the personalization of the ads as they learned about Facebook's ad practices and the information that it collected and responded to other open questions during the interview see the question list in Appendix D).

Users were generally aware of many tracking ad practices, such as collecting data from public posts, public profile, search history, and browsing behavior.

> *First of all, they will analyze with whom I am a friend, where I'm clicking on, what I'm liking, reacting with emotions too, analyzing this kind of stuff. From these, they will extract my interest [and] then also check what I'm searching for, within Google or other apps. From my understanding, once you login Facebook, if you make any movements outside of Facebook, they will still be able to track what are you doing. I do not know how precisely, for example if you watch a video on YouTube they can also tell how long you have been watching it, then if you like it, giving it thumbs up. Basically from collecting data, probably profiling me.* R12, 25

Users also believed that these practices were used across the network and the collected

data is shared among companies and that websites either *sold* or *shared* their information without telling the users.

> *With the fact that Facebook, Whatsapp, and Instagram are from the same company, they use the data from each other too.* R10, 25

> *If think about these platforms, they probably using the same data sourcing companies, so I feel like Facebook is closely connected to other major platforms, like the Amazon. so I think, based on our activities across multiple platforms, not just from Facebook to present their ads.* R04, 22

"Cookie" was the most mentioned terminology, despite users could seldom articulate how exactly it works.

> *For example, when I was looking for discounts, they saw that I always would go to the last minute or discount holidays not on the premium or exclusive ones. So I think they not only do they do cookies, I do not know how exactly it works and if cookies do that, but exactly to see you how do I maneuver how do I go.* R11, 23

> *I'm not entirely sure but I mean they somehow have connections between my Google behaviour actually, and the ads. So I assume there are cookies keep track what I googled before, then they make things to it. I think that is a technical area.* R02, 24

Among all the revealed practices, the most commented one was **Facebook pixels** (see Figure B.2 in Appendix B). Users found it surprising and concerning because they "*do not even need to be logged in*" to be tracked (R11, 23). They were also annoyed because Facebook can "*track you without notifying you*" (R03, 40). R08, who deleted her Facebook account, shared similar concern because "*they even profile people who are not using Facebook*" and "*they are weird and going too far*". Other surprising practices included tracking location/GPS data and "profile matching", in which Facebook based on the example profile of "ideal users" provided by its customer to target alike user segment (see Figure B.4 in Appendix B).

Precisely because of the high relevance, users were overwhelmed by the amount of information Facebook knew about them and how capable Facebook is to *infer* their information without users sharing it explicitly. They were also annoyed by some of the randomnesses introduced.

> *How do they know I'm away from the family? Seriously, how do they know? They know everything! (...) Hotmail users, Wifi users, returned from travel 2 weeks ago (in a surprised tone) (...) I'm so* ***shocked****! I know that they knew a lot. I knew that there are is lot going on, but I did not know it's* ***in such extent****. They also look at my friend's likes. [And] I do not know the GPS etc. (...)* ***the amount of information****, plus they can* ***deduct*** *a lot of information (...) like away from home.* R11, 23

> *It's a wild mix of things are and are not correct. (...) There is also some derived categories I supposed to be interested in, like the mattresses, which is I do not know anyone has mattresses as hobby or something, you buy a mattress about 10 years or something. The fact that they derived that is sort of* ***random****. It was not as random as I couldn't completely recognize myself in it.* R03, 40

5.5 Privacy Concerns and Triggered Actions

In the user evaluation task, users were given freedom to alter their ad settings if they want. Majority of the users turned off all of the personalization options (see Figure E.2d). Perhaps this was driven by the detailed examination of the ad explanations and settings, as well as the "recapitulation" of all the previous creepy ad incidences. Certain practices triggered users to turn them off immediately:

> *For the GPS, if I were in a car dealership, then I would get car ads. Perhaps the car dealer decides that. That could be crazy. So how do I block this?* R11, 23

> *I've already gone through and* ***turned off*** *a lot of the functions and disabled them because I* ***do not want or need them****.* R04, 22

When asked about why, the remaining two users who did not adjust any settings said "*I do not really care*" (R07, 25) and "*I have nothing to hide*" (R02, 24). For them, creepiness and other "privacy concerns" were just "bad feelings." Invading users' privacy hindered the right of users and was not right, but they did not perceive threats from these practices and they did not have "secrets" to hide.

> *I **do not really care**. I can imagine some people who do not like the customized ads may want to turn it off.* R07, 25

> *Even they listen to my phone call with my mum, for example, there is nothing interesting (...) A waste of time. (...) A friend of mine said I do not want them to listen to it. That's my privacy. Basically, I can understand that part but it's not problematic that much. (...) I do not see a trade-down for me which is affecting me negatively.* . R02, 24

As mentioned earlier, the amount of information burdened users to understand and adjust the settings according to their preference. For instance, R03 understood the implication of the abuse of personal data and privacy. However, considering the time he needed to process a large amount of information, the ever-growing popularity of these ad practices, and the benefit and convenience of Facebook, he felt *defeated* and *unjustified* to spend the time to make sure his setting is in place.

> *It's **a lot of information** and I'm **not necessarily interested** in spending time controlling what kind of ads that I see in Facebook. (...) I had **not been justified** that I do not want to spend my time on this. (...) there are moments you **question yourself** whether you should delete your Facebook account and spend a lot of time in tuning your settings, or go completely offline. And ultimately, you decide that you just **continue** doing what you have been doing and get used to it.* R03, 40

> *It seems like we are going to a world **where everything will be shared**. We need to kind of **give up**. (...) **Everybody wants to track you.** (...) It doesn't seem like you can do something about it. Or you avoid doing something.* R10, 25

> *People do not really act on it. (...) maybe they think they **cannot do anything about it**.* R08, 23

Moreover, users were conflicting on using Facebook while bombarded by ads and (partially) giving up their privacy. Almost all users' primary reason to use Facebook was to connect with their family and friends "in the distance" by scrolling through the news feed, commenting/tagging on posts, and chatting over messenger. Some also used Facebook as a trusted integrated news source or an essential tool for their work and study. Although alternatives existed, it would have been much more difficult or even impossible to accomplish these tasks. For instance, R04 realized how much she relied on Facebook. In addition to social networking, she also needed Facebook to find an apartment: "*if you do not have one, it may be hard to find a place to live.*" Concerning another case of hers about Amazon Prime membership ads, she was presented with its promotion multiple times at decreasing prices. Although she did want the membership and finally bought it at a fairly low price, she felt deceived yet appreciated to the ads.

> *Ultimately, I feel **defeated** as a user. (...) They are profiting from our data but also they are doing their service. I hate Facebook because without it, **it's hard to feel like you exist**. (...) I realized that Facebook had such a huge presence and power when I started looking for housing. (...) It holds such an important role in our everyday life and just crazy.* R04, 22

> *I saw three ads over a period of time. One was only USD 12 per month (...) another one is like USD 10.99 per month (...) the third one (...) a flat payment of USD 49 [per year]. (...) What is actually crazy is that they got me on the much cheaper one. So those ads are really powerful. These algorithms are **so great at tailoring your preferences** (...) by clicking on the ads, you kind of get drown in. (...) I felt **deceived** and I felt **pissed**. Because after Facebook deceived me, they still got me to click on these ads and subscribe to Amazon Prime. (...) these ads are **unwanted**, but in the end they also **served** me, because I got the best price. (...) So yes I **hate** the ads. In some regards, I **appreciate** for them.* ..... R04, #28

Finally, as the author finalizing this thesis, R08 "stopped boycotting" and re-activated her Facebook account since "*all [school name] information is posted on Facebook so I need an account for staying up-to-date*". Perhaps, even though Facebook's ad practices "*go too far*" (R08, 23) and we are bombarded and crept out by its personalized ads, we do not

have many choices but live with it.

Chapter 6

Discussion

In previous chapters, the author presents possible conditions, as well as the typography of creepy personalized ads and corresponding explanations from both literature review (Section 3.1, 3.2) and interviews (Section 5.1, 5.2). In this chapter, he will further interpret, enrich, and compile the proposed diagrams in Section 5.2 and formally unpack six aspects to predict the occurrence of creepy ad experiences. Based on this compiled model and the feedback from the Facebook ad system (Section 5.3), several empirical recommendations were proposed to guide the system design. Lastly, the limitations of the study and future research directions will be presented.

6.1 Overall Attitude to (Facebook) Personalized Ads

Online ads are usually considered *unwanted*, *distracting* and *intrusive*, mainly because they interrupt the browsing experience and make it difficult to find the desired content ([26, 36]; Table 5.1). Facebook's blended-in presentation strategy of its news feed ads indeed minimizes the interruptions, but users also complained that Facebook tried to sneak in a lot of ads and lure users to click on the ads (see quotes in page 31, line 4). Generally speaking, users *justified* the existence of online ads, because it is a "*smart*" strategy ([26]; R06, 35) to use ads to "pay" for the free content/service (see Table 5.2).

Given the online ads were *unavoidable*, users preferred personalized ads since they were more relevant than random ads ([26]; Table 5.2).

6.2 The (Complied) Diagram of Different Ad Types

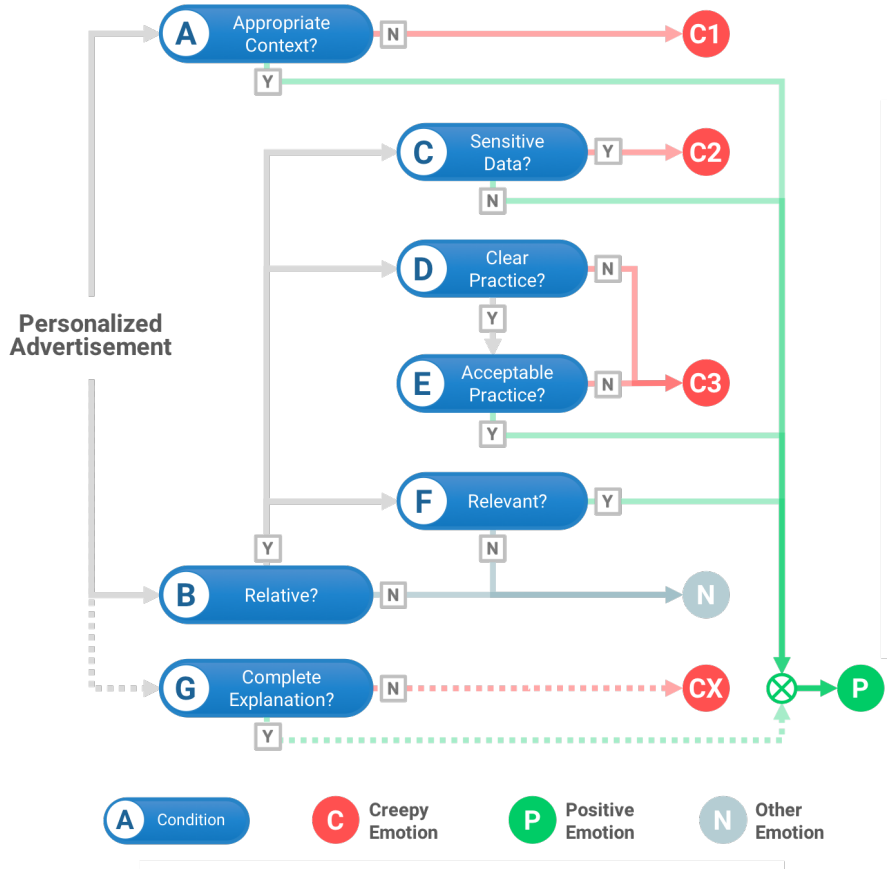


Figure 6.1: Conditions and the compiled diagram of all ad types.

Figure 6.1 shows the compiled version of all diagrams proposed in Section 5.2. All types of creepy ads are predominantly triggered by one of the eight *conditions*, which can be generalized to six *aspects* to assess and predict the possible perceptual outcome (ad types) of a certain ad, as shown in Figure 6.2. *Explanations* (or "*Creepy Factors*") derived from interviews and literature are also added to the diagram to further illustrate the connections between each ad type and its triggering condition(s). Note that

for the convenience, the sequence of eight conditions (A to G, except for H) follows the logic from the general ad environment to the content of the ad. Although this was not specifically addressed in the study, to some extent, it does imply the inferred thought process of users (see further discussion in Section 6.6).

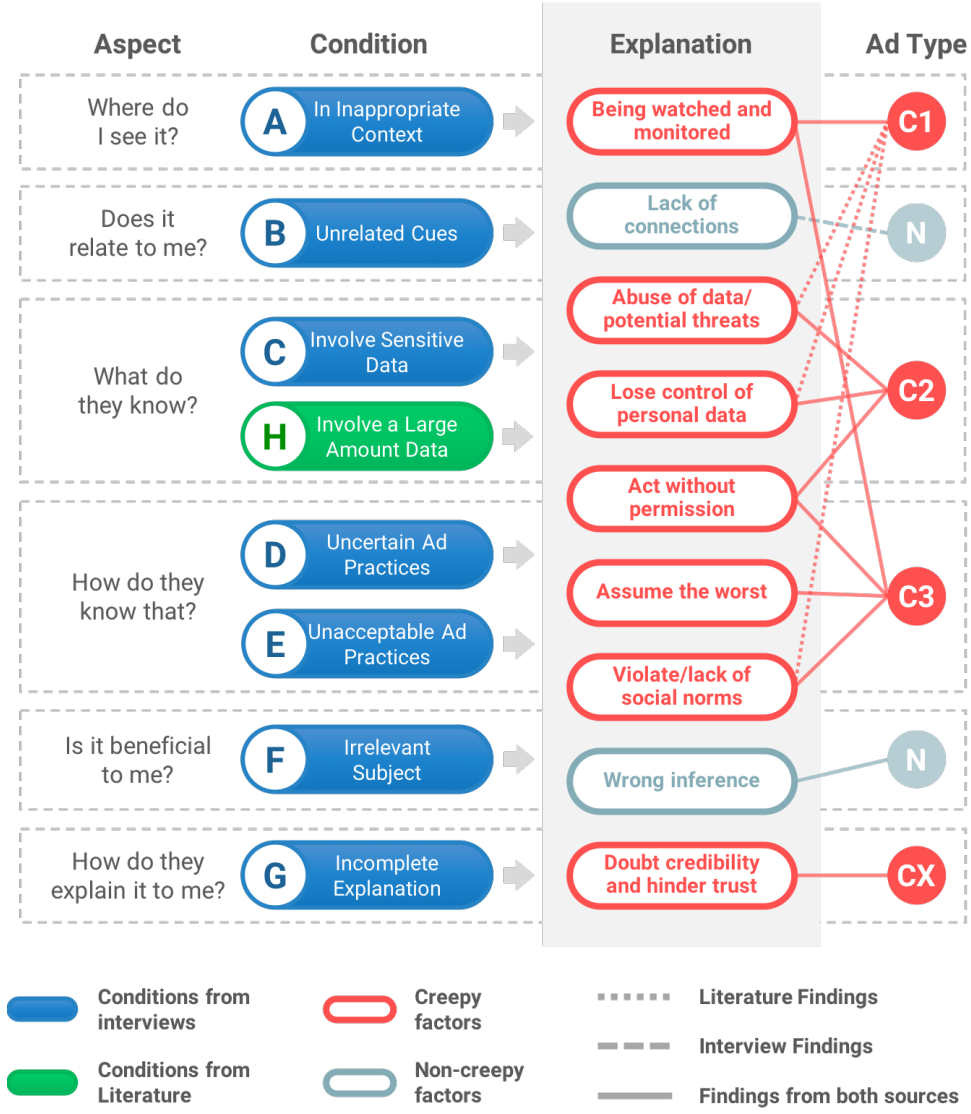


Figure 6.2: Assessment aspects of personalized ads.

Aspect: (I) *"Where do I see it?"*

Condition(s): (A) Appropriacy of the ad in its context

Related ad type: (C1) Showing ads in inappropriate context

Users first react to the ad's *appropriacy*, which depends on how private or public the ad context is. Inserting ads in a private context, such as online conversations (R07, 25), emails, or social networking [45], signals the presence of the advertiser. Users consider its presence inappropriate and feel *watched* and *monitored*, resulting in Type C1 creepy ads. Perhaps, because these conversations are expected to stay among participants, the presence of the ad violates social norms of the information flow [2]. Lastly, the intrusive appearance of ads can also increase *perceived threat* or *lack of control* of personal data [36]. The more private the context is, the more negative users' attitudes towards personalized ads are [45].

Aspect: (II) *"Does it relate to me?"*

Condition(s): (B) Relativity of the cues and ad subjects

Related ad type: (N) Including unrelated or irrelevant cues and subjects

The majority of the non-creepy ads were either *unrelated* or *irrelevant* to users. When the user starts noticing the ad, its relevance cues (e.g., demographic, psychographic, and behavioral. See Table 2.1) are examined for *relativity*. If users could not relate the subject or other information mentioned in the ad to themselves, their activities, or recent interactions with the system, the ad will likely be *ignored* or cause *confusion* and *annoyance* (see Table 5.5). These negative reactions substantiate the findings from [26, 30, 31, 39, 40], summarized as *irritation*, *avoidance*, *ignoring*, *message rejection*, and *source derogation*. Additionally, if we assumed Facebook provided the right information, the explanations of ads targeting broad audiences (see page 52, line 9) will potentially *hinder users' trust* since users *expect* that the ad is personalized. For "irrelevant" cases, see **Aspect** (V) *"Is it beneficial to me?"*

Aspect: (III) *"What do they know?"*

Condition(s): (C) Sensitivity and (H) Quantity of the data used

Related ad type: (C2) Involving sensitive/a large amount of data

If users could relate the cues to themselves, their activities, or recent interactions with the system, they will then judge if sensitive information was included in the ad. If users perceived that the ad was based on sensitive personal information, the ad will likely be a Type C2 creepy ad. Highly sensitive data can be sensitive data in a general sense (e.g., medical conditions, income, and social security number) or secrets and/or intimate information, which should only be known by a selected group of people. In [26], only a few respondents permitted data collection while they searched for STD treatments for a friend. In [45], Barnard defined sensitivity as how *personal* the data is. She found that users' attitudes toward tailored online media were increasingly negative as more personal information was involved. Specifically, behavioral information was regarded as more personal than demographic information. Users were concerned that unknown third-parties will *abuse* this information or even use it *against* them.

Going beyond the sensitivity of the information, creepiness emerged as *increasing amounts* of highly individualized information were collected ("too identifiable to the marketer" [1]). Based on media reports about *data leaks* and technical mechanisms to *circumvent* privacy protection, as well as the belief that websites either *sell* or *share* their users' information without telling them ([26]), users concerned about *losing their autonomy to handle* their private information and *being threaten* by unknown third parties [26, 31, 48–50].

Aspect: (IV) *"How do they know that?"*

Condition(s): (D) Certainty and (E) Acceptability of the data collection practices

Related ad type: (C3) Using unacceptable/unexpected data collection practices

Users also wonder how did advertisers obtain their information, namely, the data collection practices. In Type C3 creepy ads, *certainty* and *acceptability* of the data collection

practices are two conditions to consider.

Based on the cues used in the ad, the user may link it a *known* practice. According to the findings of this study and previous research (e.g., [26]), users were aware of a variety of data collection practices, but they *do not exactly know* how they worked. However, in most of the Type C3 cases found in this study, the *ordinary* subjects included in these ads were usually *newly introduced* to the user on a private occasion or in a recent activity without any recent and traceable related search or browsing activities. Because of the "timely appearance" of the ad, *assuming "the worst"* — that certain unacceptable or unexpected ad practices were used — appears to be the only rational way to explain their experience. Especially for ads based on behavioral cues, the *timing* of its appearance plays an important role in linking the cues and the recent activities or interaction to the system.

Once users established perception of the ad practices, they assessed their acceptability. If the perceived practices violated the social norms or there were a lack of social norms, they will be considered *unacceptable* and cause creepiness. Although users already expected a certain level of tracking was happening, they did not know how *extensive* and *capable* the advertiser was until they read the explanations, went into the settings, and found out how accurate the inferences were. Practices, such as listening to the ambient sound via cell phones, monitoring private online conversations, tracking locations without user's awareness and explicit consent, and extensively inferring users' information, *go beyond user's expectation*, leaving the user feeling *surprised*, *watched*, *invaded* and *spied on* (see page 40, line 10; [26]). Their concerns about privacy invasion are elevated when consumers become aware that a marketer has acquired their personal information *without permission* [42].

> **Aspect:** (V) *"Is it helpful or beneficial to me?"*
>
> **Condition(s):** (F) Relevance
>
> **Related ad type:** (N) Including unrelated or irrelevant cues and subjects

In an "irrelevant" ad, the user could relate the cues or subjects to their activities or themselves and the ad practice was clear and acceptable, but the ad was *not interest-*

ing to them. Similar to "unrelated" ads, they were generally "ignored". When they appeared *repetitively*, they seemed more likely to attract users' attention and cause various negative emotions. Particularly, the repetitive appearance of the products searched just once *annoyed* users, presumably because of *the incorrectly assumed interest* induced from search behaviors or the failure to capture *the swift of interest* over time. If the incorrect inference went even further, such as opposing to users' actual interest and value, it will further trigger *irritation*, *pain*, *embarrassment* or senses of being *stereotyped* ([26]; see page 43, line 15). The actual emotions triggered was found to vary and depend on individual value, interests, and personality.

> **Aspect:** (VI) *"How do they explain it to me?"*
>
> **Condition(s):** (G) Completeness
>
> **Related ad type:** (CX) Offering incomplete explanations

The explanation *itself* can also become a source of creepiness. If the explanation failed to include the "obvious" connection between the ad and the user (e.g., certain data collection practices), users will doubt the credibility of the system and hinder the trust in it (page 12, line 15 [33]; quote in page 44, line 7).

> ***"The Holy Grail"***
>
> **Related ad type:** (P) Specifying beneficial and harmless purpose of data usage

If the ad was shown in appropriate context, did not involve sensitive personal data, and its ad practices were clear and acceptable, users will reach the final crossroad: the *relevance* of the ad. If the ad indeed captured users' real interest, under certain scenarios, it will be perceived as *useful*, *convenient*, and *beneficial*. These scenarios includes helping to *discover new options* (e.g., R11, #26), *reminding* past interest (e.g., using retargeting tactics, R02, #42), and resulting in *savings* ([26] except for the one related to STD); quotes on page 47, line 1). Users are willing to share their data when they perceive *harmless* and are presented *specific purpose* to use their data (e.g., scenarios related to location data [57]; six scenarios tested in [26] except for the one related to STD). The Spotify example (R08, 23) also imply that when the goal of the personalization *aligns*

with users' objective to use the system, the user is more likely to accept the practice since it is in favor of them. Perhaps, since users' intention is not to see the ads but to connect with their social network, they are more skeptical and critical about the ad practices.

Indeed, it is not easy to avoid all the pitfalls and benefit from personalization tactics. According to [1], tailored messages conveying highly distinctive knowledge of users' personal traits (namely, "related" to users) can threaten users' perceived ability to *avoid being closely observed*, especially in remarketing (e.g., "creepy" and "left with a sense of being stalked and watched" [43]). According to the compiled model (Figure 6.1), the occurrence of creepiness was conditioned by other three aspects and four conditions. Each condition can potentially result in creepiness and other negative reactions and therefore, attenuate the positive effects of personalization. Theoretically, one ad can trigger multiple reactions under different types of ads. For instance, a creepy ad seen in an inappropriate context (C1) may be perceived using unacceptable practices (C3) to collect sensitive personal information (C2). However, in consideration of very limited attention span in the modern digital environment, advertisers can hardly retain users to examine other aspects after an initial negative reaction occurs.

6.3 Feedback on Facebook Ad System

First of all, Facebook's explanations and settings were *not well-known* to users. And they were *not proactively looking for* them either, a finding shared with [33] (users are not likely to scrutinize on their own). Offering explanation and settings was generally appreciated. It was found to increase *trust* to the system and *sense of control*.

Specifically, GNR was considered well presented in plain language and with friendly illustrations. However, using the plain language was also perceived as deceiving and over-simplified. User expected that explanations should be not only understandable but also specific enough to help users to make good decisions. Similarly, users complained that the SPs were *incomplete*, *vague*, *skeptical*, "*all the same*", and "*far-reaching*".

Users demanded *more specific* explanations, especially the one addressing how Facebook captivated the information. For some, with some prior knowledge of ad practices, being specific and "telling the truth" wouldn't be shocking or change their behavior but instead, make it "*more trustworthy*"; whereas, the current explanation can make them feel that Facebook did not "*take it seriously*" (R03, 40). In other words, offering non-specific explanations could be *worse* than offering no explanation at all, especially when the explanation *conflicts* the perception of the practice, or the practice is unacceptable (as indicated in [2]). Finally, what further complicates the story is that the amount of demonstrated information was already overwhelming and burdening to read and digest.

Lastly, the revealed ad practices and the amount and accuracy of the information Facebook captured can be surprising and concerning despite users' general knowledge and expectation of "tracking" and other data collection practices. "Cookie" was well-known but not well understood. And Facebook Pixel, collecting location data, and profile matching techniques were among the most frequently mentioned surprising practices. The information listed in the ST was mostly accurate, relevant, and traceable. Yet, some randomness existed.

6.4 Triggered Actions

Ironically, after all, users seemed to show a relatively low interest to spend time learning about the ad practices, going through the list of information acquired by Facebook, and adjusting the ad settings. Only when asked to go through them, users started to concern. Some perceived that creepiness and other "privacy concerns" were just "bad feelings" and that invading users' privacy was not right but not threatening as well. In addition, they did not have any "secrets" to hide (R02, 24). Therefore, they "*do not really care*" (R07, 25). These users are usually unaware of the implications of losing privacy. Some expressed *helplessness* and *frustration* to the issue. They are defeated by the popularization of tracking ([26]; R10, 25), overwhelmed by the amount of information available (R03, 40; R10, 25; R04, 22), and do not know what exactly they can do

(R08, 23). At the end of they, they found it difficult to resist Facebook's convenience and leave it completely. Perhaps, they are waiting for a good alternative to switch. And it's happening: half of the respondents indicated that they used Instagram more and more often than Facebook.

6.5 Design Implications

With that, the following 12 recommendations are proposed.

(1) **If used, personalization should be explicitly indicated.**

To avoid the perception that the advertiser is hiding information from the user, a right expectation should be set if the ad was indeed generic and broad. For example, use "broadly targeting" in the explanation to differentiate them from the personalized ads.

(2) **Avoid showing ads in the private context/environment** (to avoid Type C1 creepy ads).

(3) **Avoid using sensitive/inferred data, or ask explicit consents before collecting and using it.**

If sensitive information cannot be avoid, offering reasons and justifications to soften perceptions of creepiness and decrease threat [1] . System designers can also consider reminding users of their consent alongside the ad and make it easy to withdraw the consents.

(4) **Tighten the threshold when inducing interests of users.**

Since relevance is the cornerstone to the success of personalization, more conservative thresholds may be applied to improve the accuracy and avoid cases such as the recurrent appearance of irrelevant subjects, which the user only searched once.

(5) **Consider alternative retargeting tactics (instead of showing the exact same product) and longer time lapse.**

While showing the exact same product with a short time-lapse may annoy users and be linked to unacceptable data collection practices, longer time-lapse and recommendation of similar products may mitigate the creepiness and highlight the benefit offered to a user (e.g., help discover new options). [1] also shows that **Adjusting the timing** of behaviorally tailored ads by leaving more time in between the website visit and serving the ad could potentially have a positive impact on users' reactance.

(6) **Consider proactively offering explanations to reduce the uncertainty and "blank space" for users to fill in.**

[26] shows that existing explanations and settings are not effectively reaching users. Indeed, users need to deliberately look for SP (in the hidden menu of news feed ads) and GNR (two "hidden" link embedded in the ST page). And according to cases in Type C3, users are likely to "assume the worst" if they were left to "imagine" what was not explained. In [1] direct marketing study, when the justification for the high level of personalization was not provided, consumers had a negative reaction to a highly tailored marketing message, especially when the offer is of low utility. Proactively offering explanations may help to minimize the uncertainty of the practice and increase the credibility of the system.

(7) **Include specific examples and data source in SP.**

Offering a generic and vague explanation could be worse than offering no explanation at all. Users may be more satisfied to the explanation if at least one specific example is given (e.g., a Netflix style recommendation, "You may be interested in *PRODUCT A* since you watched recipe *VIDEO B*, which uses *PRODUCT A*, five days ago.").

(8) **When using peer endorsement to cue relevance, consider the strength of the social connection.**

Peer endorsement can be used to cue relevance [1, 33]. However, not all endorsements of users' social network have equal effect and relevance. The strength of the social connection should be taken into account.

(9) **Try to align the goal with users' main purpose to use the platform**

Although viewing ads are not likely to be the main purpose for users to use Facebook, the personalized ad can better align with the context. For instance, Google shows multiple options from various retails of the same product when a user searches for it. Instagram allows influencers on the platform to tag and insert links to products appearing in the post. Perhaps, Facebook can provide links to the products mentioned in the news feed, instead of showing explicit ads as a separate post.

(10) **Assist users to navigate the explanation and settings.**

The amount of information demonstrated in the explanations and settings are overwhelming and difficult to process in the relatively short period of time. [26] asserted that users should not need to be a technologist to be empowered to control the use of their information. He suggested giving consumers a reasonable set of choices that they can customize in a small amount of time. This may potentially improve the efficiency of the system (page 13, line 10). For example, a search function suggested by R02, 24and the wizard style walk-through in Google.

(11) **Continuously educate the public via journalism.**

Thanks to reports from media, more people are aware of privacy issues behind the convenience of modern digital technology. Take the food label case as an example [2]. In food labeling, in response to the concern of small subsets of consumers, firms often respond with putting labels of higher transparency. In turn, those who did not initially seek such information may begin to pay attention to such labels and even update their preferences. Similarly, many consumers may start to demand more transparency as it becomes more common.

(12) **Encourage and incubate alternatives.**

From the microeconomics and competition perspective, Facebook and other tech giants could be potentially considered a monopoly. Recently, Germany antitrust watchdog already started taking action against Facebook in late 2018, potentially giving users more options.

6.6 Limitations and Future Research Directions

Despite the originality and the cheerful results shown so far, several limitations should be taken into account.

First of all, restricted by the resources and time of a master thesis study, the sample size was kept to minimal. By focusing on the depth of each interview, the author managed to cover several connected topics and unpack the connections among these topics (from broader privacy concerns to creepy ad cases, and to the feedback of a live ad system). Moreover, only important and interesting findings were reported from the semi-structured interviews. Such qualitative work is not mean to be generalized but contribute as a foundation work, proposing models and hypothesis and inspiring further validations. As mentioned in Chapter4, the sample is skewed to highly educated, who may possess and be exposed to more knowledge and concerns of privacy and personalized ads than the general public. The snowball and convenient sampling method, as well as the qualitative work in general, do not provide statistical insights on the distribution of each (creepy) ad type.

Related to the sample size, individual difference such as different level of privacy concerns may affect the attitude toward personalized ads, perceived creepiness to certain practices, and expectation to the system settings. Future studies may leverage the various statements and conditions revealed from this study to establish "privacy profiles" and exploit the potential differences among them. Some preliminary and qualitative difference were already seen in the study (some users do not care about keeping their personal data in control, while others are more sophisticated and educated, see page 56, line 1). What's more, since the technological advance accelerates rapidly and new media reports and privacy studies continuously update the level of understanding among the public. A tracking study could be valuable to illustrate the shift of public opinions upon these topics.

In a high level, the proposed diagrams (Figure 6.1 and Figure 6.2) provide a framework to assess and predict the outcome of a certain personalized ad given its "status" of

each condition. However, prior to the empirical application of this model, the precise measure of the condition and its "status" should be defined. Due to a lack of foundation works of creepiness in psychology, the explanations of the connection between each ad type and the "creepy factors" are preliminary and illustrative. Yet, whether the sequence of conditions (A to G) reflects the real thought process of users and how different creepy types may overlay to each other is another interesting topic worth further investigations.

Since the study focusing on exploring the mechanism of creepy ads, the author did not deep dive in the acceptability of different data collection practices under different situations or scenarios. Building on the work of [26] and [2], one could conduct a quantitative test to investigate the determining factors for users to give consent to data collection. Such result will be complimentary insights to the proposed model.

Regarding the design implications, again, due to the exploratory nature of the study and restrictions of resources, the proposed design guidelines were not tested in a real user interface or demo system environment. These directional proposals, especially with many competing options to optimize the explanations on top of the overwhelming amount of information (see page 13, line 17, to improve the satisfaction given competing options), require further testing to determine the optimal solution.

Last but not least, many barriers may prevent advertisers from taking actions to improve their practices. Per [22], creepiness exposes "a rift between *the norms of engineers and marketing professionals and those of the public* at large". Advertisers need more data to produce "good ads" while protecting their trade secrets. Regulatory efforts will also be in sake to mitigate the possibility that the company may manipulate people's emotion to get away from their legal and moral obligations. However, with the current legislation, the algorithms behind are still mysteries for outsiders and the public technical capability falls far short in comparison to the one of the private sector. This "self-regulating" situation may not be changed until we have joint governmental forces to crack down these legislative and technological barriers.

Chapter 7

Conclusion

This study aims to answer the follow research questions:

> **RQ1.** What aspects of personalized ads cause creepiness and why?
>
> **RQ2.** How can advertisers improve their personalized advertising practices, particularly by reducing creepiness, given the result of **RQ1**?

Concerning **RQ1**, the author proposed a comprehensive theoretical framework (Figure 6.1 and Figure 6.2), including six assessment aspects and seven conditions, to assess and predict one of the six possible emotional outcomes of a personalized ad given its "status" of each condition. Each type of ads is explained based on one of the seven "creepy factors." Future work should aim to define and measure the conditions and "status" prior to empirical applications.

Regarding **RQ2**, 12 design guidelines from various perspective, including ad context, content, recommendation strategy, explanation, and policy-making, are also proposed to give directional recommendations for further validation.

As a closing remark, we are indeed living in a world, where being "left alone" is becoming a luxury. We quickly lose our "safe distance" while enjoying all the convenience offered by modern technological development. However, even though we may justify

seeing ads and giving away some of our privacy to exchange for the "free" service, we still expect limitations on what the advertiser can and cannot do. We should still be able to reserve pieces of our own identity, to live as a human with dignity.

> *I know it's part of the deal when you sign the user agreement for Facebook (...) to have Facebook being a free public platform, but I think there should be some* ***limitations****. (...) they are using these billions [of profit] to contribute to research how to better invade people's privacy like in the form of ads and tailored content. I do wish there is more ownership for users. I wish users have more say on what is shared (...) So they should have some* ***accountability****.* R04, 22

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Appendix A

Individual Respondent Profiles

Table A.1: Individual respondent profiles.

#	Nat.	Age	Gender	Ocp.	Ind.	Edu BG	Edu Lvl	Facebook Usage	
								Years	Frq
R01	US	34	F	Cartographer	Religious Organization	Human Geography	Master	11	Daily
R02	DE	24	M	Student	University	Management	Pre-Master	9	Daily
R03	NL	40	M	Professor	University	Information Science	PhD	12	Daily
R04	US	22	F	Student	University	Marketing&Comm.	Bachelor	8	Daily
R05	NL	27	M	Analyst	Consulting	Economics	Master	7	Daily
R06	NL	35	F	Fitness Trainer	Fitness	English Literature	Master	13	Weekly
R07	FR	25	M	Student	University	Urban Planning	Master	7	Daily
R08	NL	23	F	Student	University	Information Science	Master	9	Daily
R09	NL	50	M	Business Owner	Retail	Agriculture	HBO	4	Daily
R10	IT	25	F	Analyst	Consumer Goods	Management	Master	8	Daily
R11	PL	23	F	Student	University	Marketing&Comm.	Master	10	Daily
R12	LU	25	M	Analyst	Consumer Goods	Economics	Master	8	Weekly

Appendix B

Facebook General Explanations

Figure E.2a and Figure E.2b shows how to access Facebook's general explanation of its ad practices (GNR). Figure B.1 to Figure B.5 shows key slides of the GNR.

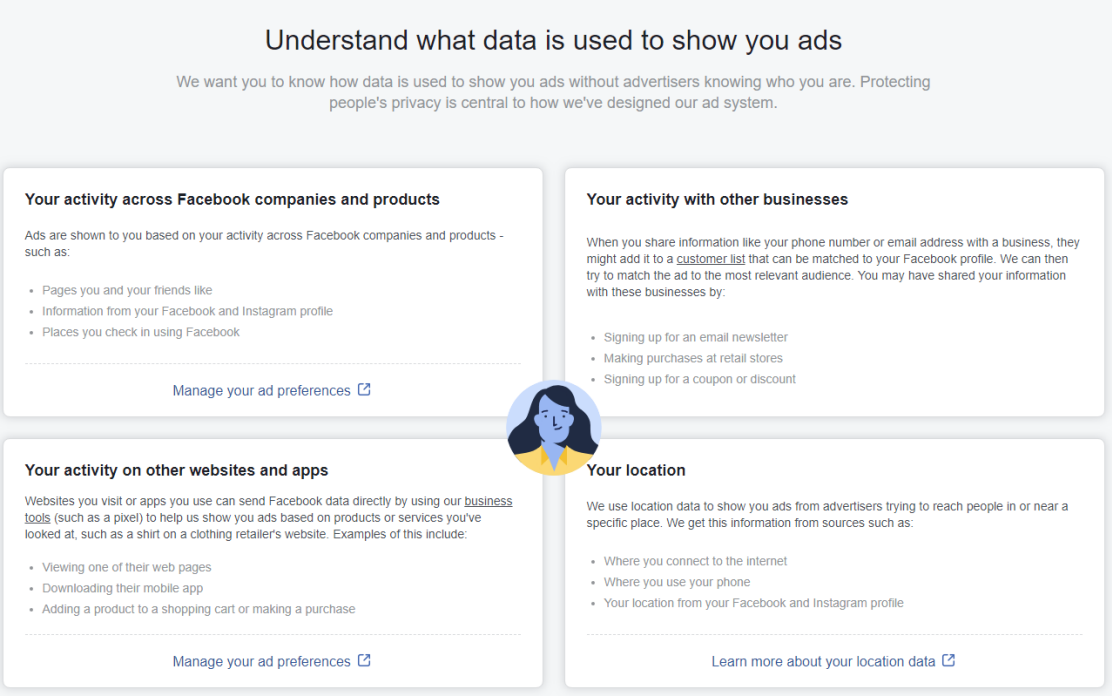


Figure B.1: "Understand what data is used to show you ads" from GNR.

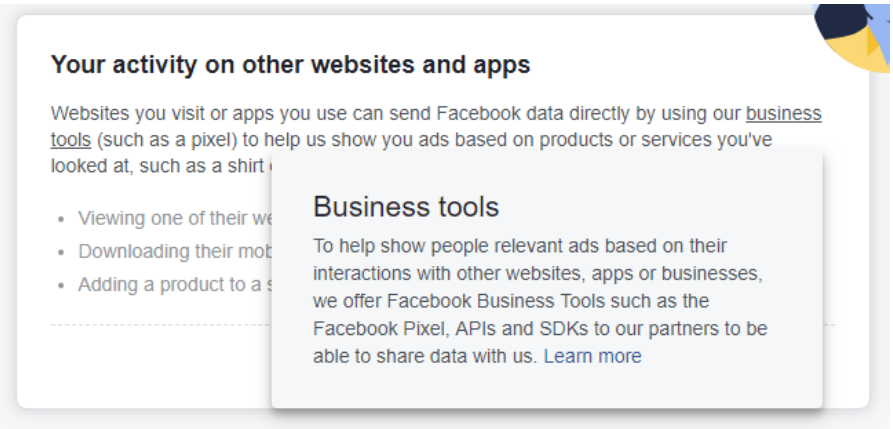


Figure B.2: Zoom-in view of Figure B.1: Facebook Pixel (and other business tools).

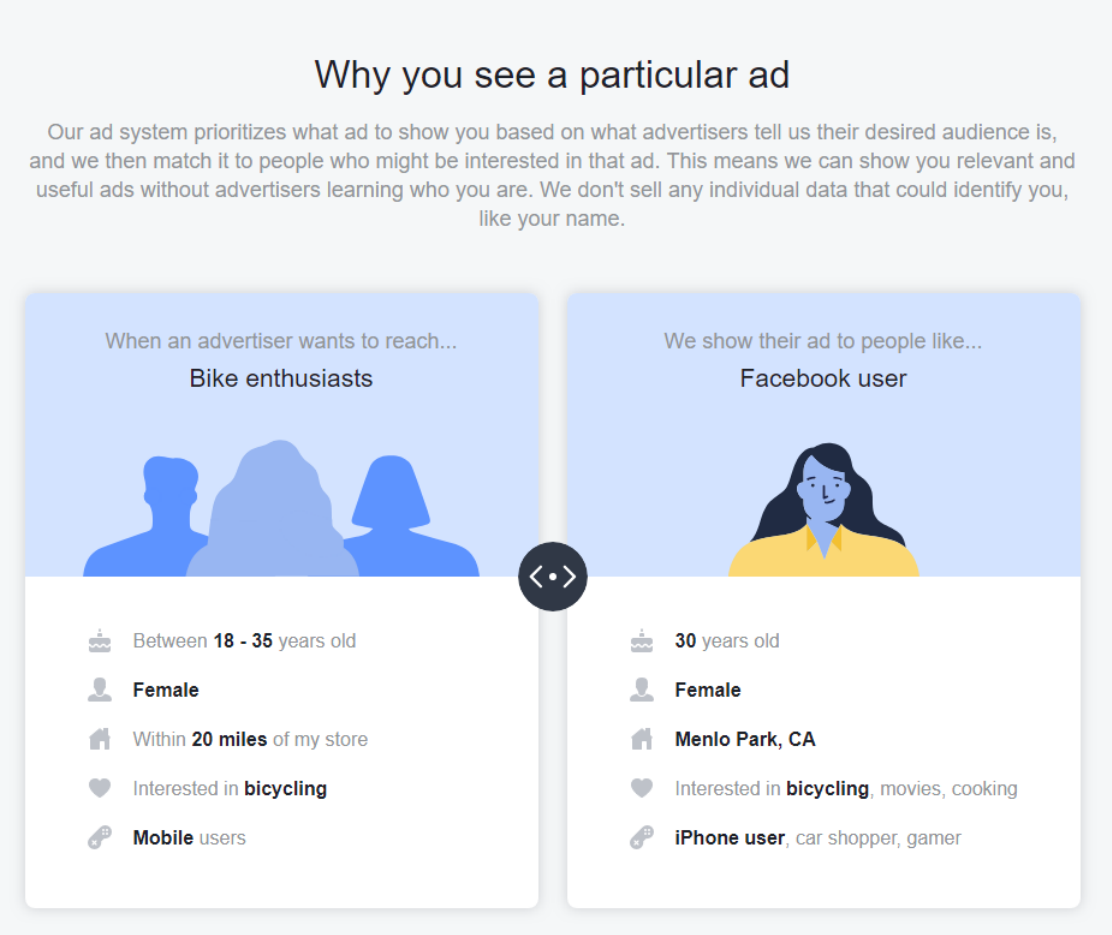


Figure B.3: Explanation of personalization.

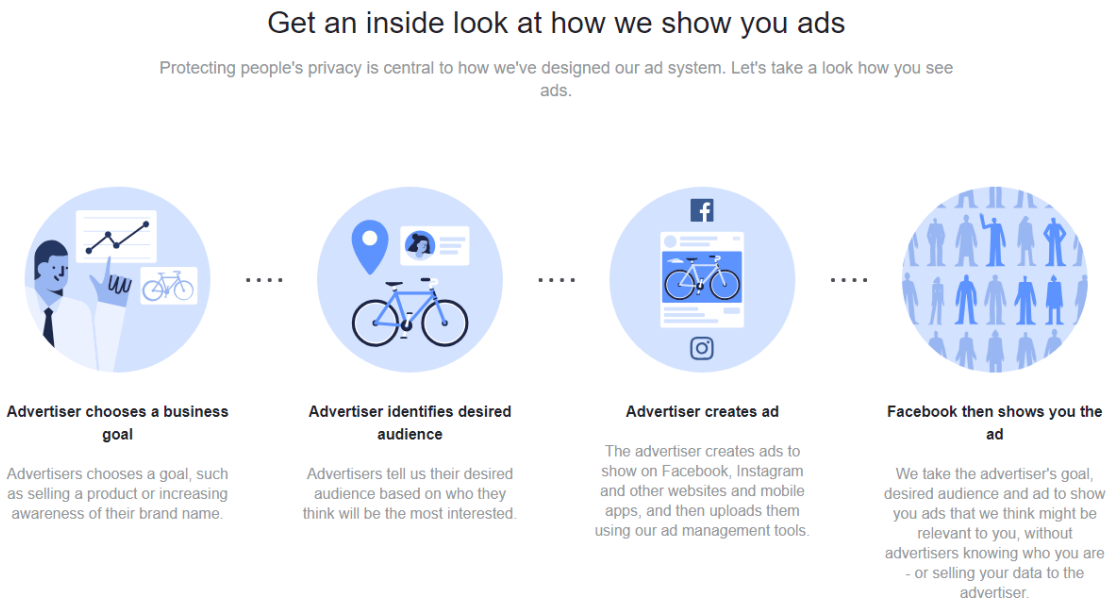


Figure B.4: "Get an inside look at how we show you ads" from GNR (profile matching).

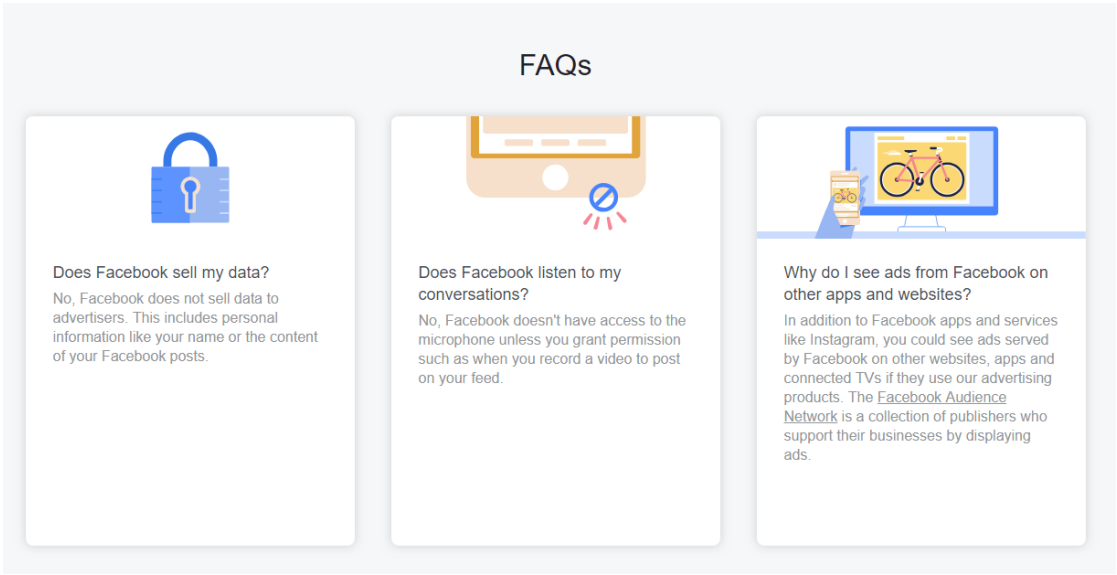


Figure B.5: FAQ from GNR (selling data, listening to conversations, seeing ads from other websites.

Appendix C

Pre-interview Questionnaire

Welcome and thank you for your support!

My study is about understanding user's perception and attitude towards online advertising especially the one in the Facebook. I'm looking for people with different background, who have some creepy/ scary/ confusing/ uncomfortable ads experiences in Facebook.

For the follow-up and transcript analysis, I'll audio-record the conversation. Addition to that, it involves a small task, in which you will browse some Facebook settings and do some screenshots for me of the ads on your Facebook news feed. I will document the screenshots and I'd like to see how you browse some of your Facebook settings if you allow me to, but it is totally optional (meaning if you don't feel comfortable doing that, I'm still interested in your opinions.) All the collected materials above will only be used for academic research purpose in this study. No personal identifiable information will be published. And they will be deleted after the study is done.

If you are comfortable doing that, please choose yes in the question below and fill in this background survey.

Thank you!

Regards,

Michael Zhang

1. Your Email address: .....
2. Would you give your consent for the researcher in this study to audio-record the interview and process your data for the purpose of this study?
   a) Yes
   b) No
3. What's your full name? .....
4. What's your gender? a) Female b) Male
5. Which year were you born? (e.g. 1988) .....
6. Where are you from (by citizenship. If you have multiple citizenship, please put "Germany+Croatia", for example)? .....
7. What is your Industry and profession? (e.g. FMCG/Accountant, University (Professor)/Computer Science, University (Student)/Human Resources)? .....
8. Roughly speaking, how often do you use Facebook?
   a) Multiple times everyday
   b) Once everyday or every other day
   c) Once a week or less
   d) Only check it when needed (irregular and not frequent)
9. Have you had any creepy online advertisement experience?
   a) Yes
   b) No
   c) I'm not sure
10. If you choose a) in previous question, where did you see these creepy ads? (Check all boxes that apply to you)
    a) Facebook
    b) Instagram
    c) Linkedin
    d) Other
    e) I don't remember

Thank you for your participation!

Appendix D

Discussion Guide

Sec 1. Warm-up

- Could you briefly introduce yourself?

Sec 2. Facebook usage

- How often do you use Facebook?
- When did you start using it?
- (*If applicable*) when did you quit Facebook? What made you quit?
- What do you usually use Facebook for?
- What do you like about it? What you don't like about it?
- Do you know any alternatives to Facebook (could be only for certain functions)? Have you tried them? What do you think about them?

Sec 3. Attitude towards (Facebook) online ads

- Did you notice there are ads on the Facebook?
- How do you feel about these ads? Would you like to see the ads? Why?

- What kind of ads are they, for example, from what company and products/services?
- Do you find them relevant? If so, how often do you find them relevant?
- Have you ever clicked on them? If so, how often do you do that?
- What makes you click? What type of product/services did you click more? Why?
- Do you know how Facebook chooses to show certain ads to you?

Sec 4. Creepy ads incidence(s)

- Have you ever felt creepy about certain ads? If so, what are they?
- Why do you think they were creepy? (*Prompt*) What exactly makes you feel creepy?
- How does Facebook recommend this particular (creepy) ad to you?
- Do you feel a difference after experiencing this ad? Does it change your way to use Facebook or the internet in general?

Sec 5. Facebook Usability Evaluation

(*Instruction*)

Now, I'd like to invite you to browse some explanations and settings offered on Facebook by following a step-by-step instruction.

You will have the full control over how you configure your Facebook account: I WILL NOT ask you to alter any settings, but you can surely do if you want to.

I'm interested in your feedback and thoughts to these explanations and settings. So it would be great if you feel comfortable to let me sit next to you to see what you see too (in the case of Skype: share your screen.) If not, it is totally fine. You can now take a look at the instruction and let me know.

(*Share a hard copy of Appendix E or instruct the respondent to open the pre-loaded soft copy and ask for consent*)

- Before we start, were you already aware that Facebook offers these explanations and settings?

  (*If so*)

  - How did you know it?
  - Did you take a look at it before?
  - How do you think about it as you recall now? Do you feel satisfied? Why?

  (*Perform the task*)

- What is the most surprising part? Is this what you expected? What can be improved?
- How do you generally feel about *the explanation for a specific ad*?
- How do you feel about *the content* of "About Facebook Ads"?
- How do you feel about *the presentation/form* of "Learn about Facebook Ads"?
- What about the ad preference settings?
- Does it change how you feel about Facebook and its ads? Would you change how you use Facebook after viewing these explanations and settings?

Sec 6. Attitude towards privacy

- Do you consider yourself somebody who concerns about privacy issues, especially related to the Internet and mobile devices?
- (*If so*) what do you concern about? Why? Where did you read/hear/know about these? Did you do anything to protect your privacy? (*If not*) Why not?
- Are you aware of any privacy-related discussion or issues around Facebook and other tech companies, especially around online advertising?
- (*If so*) what do you know about? Did it change your attitude toward online advertising and tech companies in general? Did that change your Facebook usage?

(*Collect the screen-shots from the usability evaluation. Thank respondent and close the session.*)

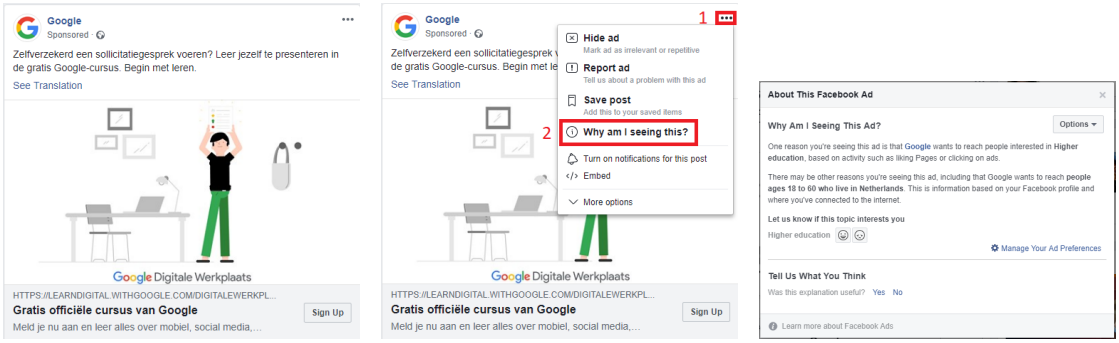
Appendix E

Usability Test Task Instruction

Task instruction:

1. Type in **Facebook.com**.
2. (If not logged in) Log in the Facebook account.
3. If your Facebook language is not English, please change it to **English**.
4. Scroll down your news feeds. When you see a **SPONSORED** post (ads) in your **news feed** (Figure E.1a), take a screenshot **ONLY** to the ad, save it. Then click the **three dots on the top right of the post**, select "*why am I seeing this*" (Figure E.1b and Figure E.1c). Then take another screenshot to that, save it.
5. Repeat step 4 for **TWO** more times.
6. Click on the rightmost icon at the top menu, which is a **little triangle pointing down**. Select "*Settings*" in the drop down menu (Figure E.2a).
7. Find the "*Ads*" item down to the list to the left of the screen (Figure E.2b).
8. Click on "*Learn about Facebook Ads*" under the title at the top of the page (Figure E.2c).
9. Read through the displayed page.
10. Return to the previous Ads settings page. Now, feel free to go to each section and browse around. You can change the settings if you'd like to (Figure E.2d).
11. When you finish, please let the instructor know.

(This is the end of the task instruction. Thank you!)

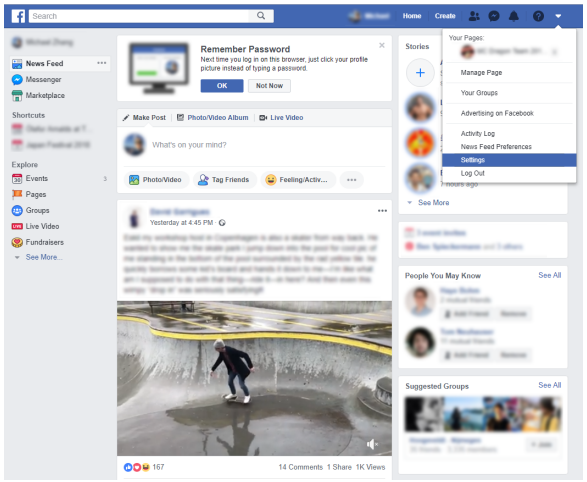


(a) Example of news feed sponsored ad.

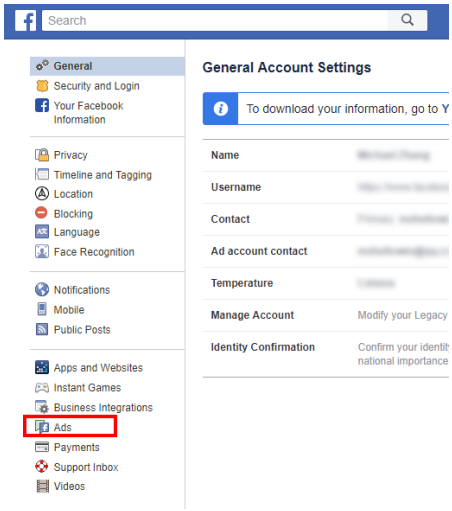
(b) Access "why am I seeing this ad".

(c) Example of "why am I seeing this ad".

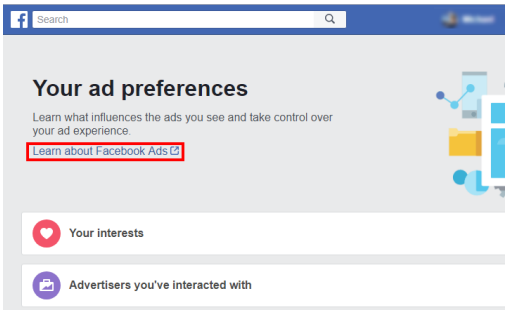
Figure E.1: Step 4.



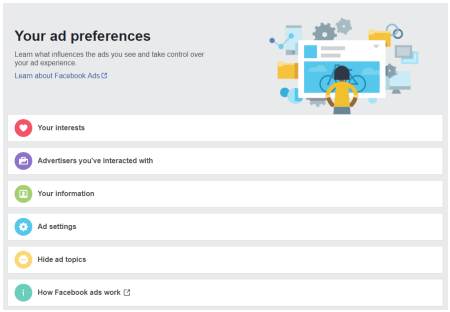
(a) Step 6: Access "Settings".



(b) Step 7: Access "Ads".



(c) Step 8: Access "Learn about Facebook Ads".



(d) Step 9 – 10: Browse Ad settings.

Figure E.2: Step 6 – 10.

Appendix F

Ads Incidences (Quotes)

Note:

M = interviewer ( ) actions at the time [ ] implied/masked text (...) omitted quotes

Typography of all ads:

- Type C1: Showing ads in inappropriate context
- Type C2: Involving sensitive data
- Type C3: Using unacceptable/unexpected data collection practices
- Type CX: Offering incomplete explanations
- Type P: Specifying the beneficial and harmless purpose of data usage
- Type N: Being ignored or triggering non-creepy negative emotions

R12, #1, Business School (N)

I think everything that is about education, as in this case, business related (pointing to the business school ads in the Facebook news feed) [is ok].

R06, #2, Vegan (N)

They are putting me in bucket which I don't really feel I'm part of. I searched for Vegan things but it doesn't mean that I'm vegan.

R12, #3, Tire (C3)

My father told me he needed new tires on his car. He kindly asked me to look for something. We were talking in the kitchen. Most likely my phone was lying around. And then I went on my phone. The next day, without googling anything, because I wasn't ready yet to do his task, I already had ads about tires on my phone. And it might be, something I can't tell, if eventually I logged in our commonly used laptop, and he was already checking it online. That's something I can't confirm. But that's just something we talked about and I had it.

R12, #4, Contact lenses (C3)

I remember a situation where I'm 100% sure that I didn't google it and while discussing I had my phone in my pocket. I was basically discussing with my friend, that I might consider to buy contact lenses. And the same I had ads on Snapchat showing contact lenses. You might now say I'm wearing glasses and they know this from the picture I take or so on. I think it's just too much of the coincidence that you can't exclude that they are tracking your voice at least. So that's really creepy.

R12, #5, Health issue (C2)

R12: Once it starts to become personal and eventually about some health concerns... when it shows up, I think it's like entering the privacy too much (...) I [have a certain health issue], I think I look into solutions about [the health issue], and then I have the ads on Facebook, that's already something I don't feel comfortable about it. It's already too much (...) I searched for the solution by my own but I don't want a sponsored ad.

M: What exactly makes you uncomfortable?

R12: In fact, I wouldn't like to see any weaknesses. [The health issue] is not something which you have to feel ashamed of. But in general, I don't want to share this information because I'm afraid that they would share with other companies and potential future employers. That's something I concerned about.

R11, #6, Music festival (C3/CX)

(Browsing the Facebook news feed and see the music festival's sponsored ad)

I was talking to my friend that I wanna go to [a music festival] yesterday, and it[the ad] is telling me to get this ticket. (Reading "why am I seeing this?" explanation.) But I'm getting [the ad] only because I'm aged 18 to 27 and living in the Netherlands? That's it? (doubting face) I think it's more than that. It's incomplete. Maybe they can identify that I don't only like

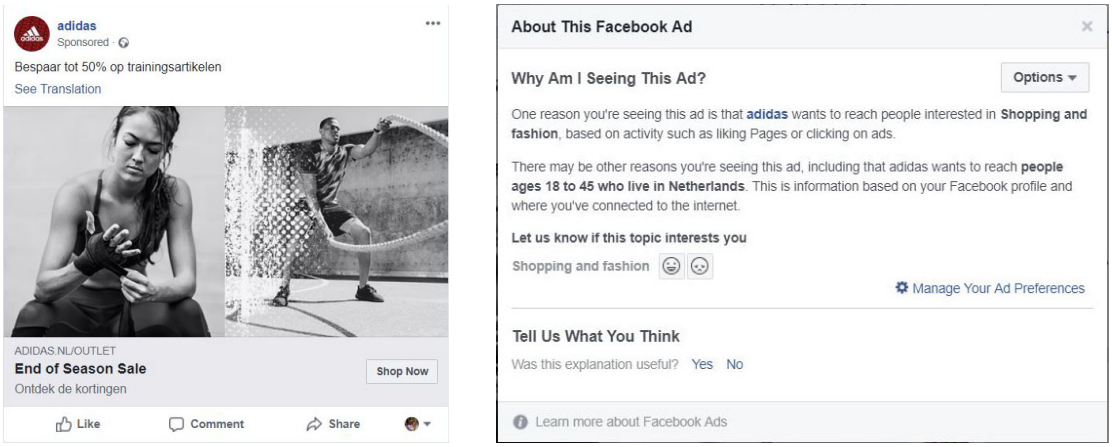
Facebook pages which are country music and EDM music. Obviously [the music festival] is the best festival for EDM music.

R11, #7, Food festival (C3/CX)

(Browsing the Facebook news feed and see the food festival's sponsored ad)

I was also talking to my friend going to Berlin. (Reading "why am I seeing this?" explanation.) I don't think it's just aged 18 to 54. Can we watch the ads? Thai food in the park. Why Berlin, when I talked with a friend going to a festival. I was looking it[going to Berlin] up. I actually googled it[going to Berlin]. I really hope you can explain this to me.

R10, #8, Clothing (N/CX) (Figure F.1)



(a) The screenshot of the ad.

(b) The screenshot of the SP.

Figure F.1: Screenshots of R10, #8, Clothing (N/CX).

(Browsing the Facebook news feed and see the clothing brand's sponsored sale promotion ad)

R10: So first [the clothing brand], I checked it this morning because I saw the 50% discount. So I checked on chrome this morning (...) I think they saw I checked this morning, so they want to convince me to go back to the website to check the sale.

(M showed R10 "why am I seeing this?" explanation.)

M: How do you think?

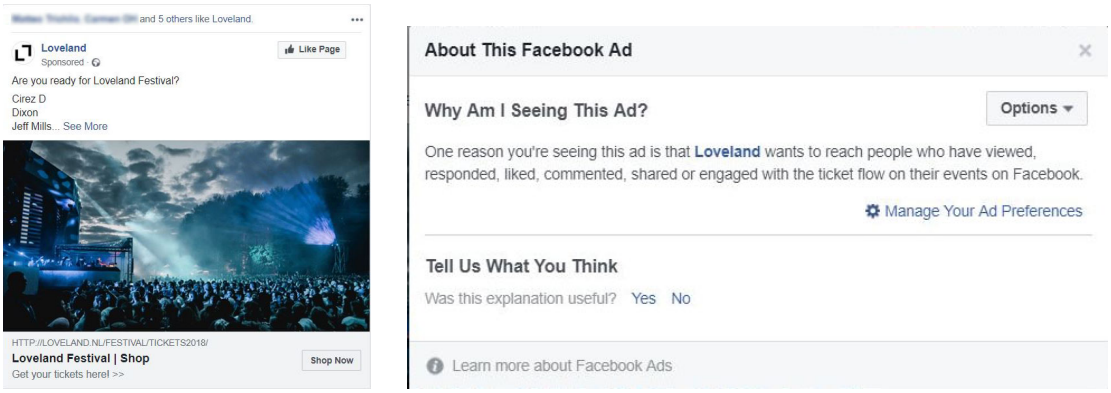
R10: (Reading "why am I seeing this?" explanation.) It is very vague, it doesn't really tell why

you should be [shown this ad]. It's a bit creepy because they say they want to target you because you are into shopping fashion, you are age 18 to 35, and you are living in the Netherlands, but then I link it to what I did this morning in my browsing history, and I realized that this morning I was looking into the website. I think it's linked, because how it's possible.

R10, #9, Cookie (snack) (C3)

I had one [creepy advertisement experience] last year. I was talking with [a] friend in Whatsapp about something, about a brand of cookie in Italy. And then after one day I got the ad on Facebook. So I think they listened to us, at least our conversation, and tracked whatever we wrote and texted. From my understanding, Whatsapp is encrypted so you can't read or analyze the data, but now I'm doubting. I'm not 100% [sure] it's the truth. Because it's not the first time that I talked to someone about something and I got right away the ad in Instagram or Facebook.

R10, #10, Music Festival (C3) (Figure F.2)



(a) The screenshot of the ad. (b) The screenshot of the SP.

Figure F.2: Screenshots of R10, #10, Music Festival (C3).

(Browsing the Facebook news feed and see the music festival's sponsored ad)

So festival. So [the music festival]. I checked this festival for few weeks ago, because I'm interested and wanna know when it is. (...) I didn't even like their page. So that's a bit weird. I didn't share it as well.

R09, #11, Jacket (C3)

R09: For example, the jacket, I'm sure they [are] watching or find a sort of way how I found it. (...) The jacket [example] is very funny (...) I get the ads after I have a chat with [a] customer about jacket. Maybe it is interesting to look into why it happens. Because I was chatting with a customer in my private account, and I talked to the customer and asked him what is in it. I always make jokes with customers about that: it's not a bomb right? [He said] No it's a jacket. Maybe that's why I got the jacket ad.

M: What do you think how Facebook recommended this ad to you? What do you mean they watch you?

R09: When I write, what kind of coat, blue, they send me a coat [ad, based on the same keyword]. I don't know. That's much more creepy. They are watching over my shoulder. That's 100% what I'm writing.

R08, #12/#13, Online shop | Holiday (C3)

R08: We had sometimes things that were a bit strange. For example, there was a time [I was] with my sister in a shop, and looked for a particular kind of earrings. And she asked the woman, she said we didn't have those, but maybe you can look at this and this shop. And then when she[my sister] went on Facebook, she saw there is an ad for that shop, which was probably just a coincidence of course, because there is no way they could have known. But that is really funny because we have never heard of that and then the ad popped up. And also one more thing, when I was talking with someone on the Whatsapp, about the holiday and about a certain country where it would be very nice to go on holiday. And she said "oh we should go there one time". And then we [both] saw also on Facebook that ad for a holiday in that country. Maybe it's also a coincidence or maybe they are looking at the conversations people have, but I don't know if that's true.

M: What exactly makes you uncomfortable?

R08: I am not really uncomfortable, it's just a bit funny. To me, I still think it's a coincidence. I don't think that, there is no way that if you talk with a person in the shop and you mention something, then they can know something like that. So that's just a coincidence. Maybe people think there is more behind it or something. Like the one with the holiday, it almost seems like they are looking at what you are talking about in Whatsapp and use them for ads. That's where it gets a little bit creepy. That would mean they actually know what you are talking about and that is spying on you.

R07, #14, Oral care product (Figure F.3) (C1)

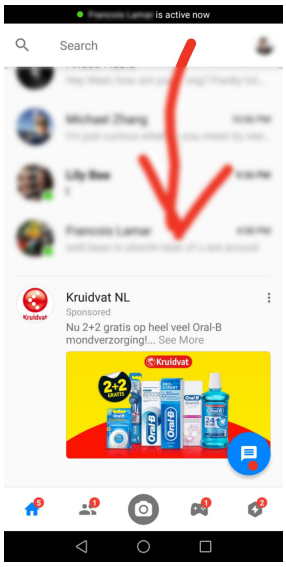


Figure F.3: Screenshot of R07, #14, Oral care product (an in-app ad in Facebook Messenger).

R07: (...) I can also see ads in the Facebook messenger app. I feel that is a bit too much. The ads in the messenger make me feel that Facebook is watching me while I'm talking.

M: Do you feel the ad is tailored to you?

R07: Yea I guess it is tailored to me. Because I look up that stuff in Kruidvat.

R05, #15, PHP (C3)

Maybe you talked to your colleague about some programming stuff like PHP, and then you get [ads] about that but you didn't look it up in your phone. It seems that the algorithms are quite good.

R05, #16, Holiday (C3)

I have [a creepy ad experience] one time. I was talking with friends and we were talking about holiday destinations and the exact destination came up. While we were talking I had to go to the bathroom. I checked my phone, and the first ads I saw is the destination. Then I thought well this is really a coincidence or they might use some audio data. I don't know. I'm not sure. But the experience was a little creepier than usual ads I think.

R04, #17, Flight (C3)

R04: (...) For example, it may be on Facebook, I was talking with someone about going to South America, specifically Argentina, I noticed, probably not the same day, that there is an advertisement for [Airline A] for flights to Buenos Aires. So that is when I really realize that Facebook can really be pretty creepy. How did this happen? I don't recall typing in any flights to Buenos Aires, but from the conversation somehow maybe this happened. This is still an unsolved mystery that I found pretty weird.

M: Do you you get flight ads before that [creepy experience]?

R04: Not particularly to Argentina. During the year I'm flying back home to San Diego. It is weird, because now that I think of that, I only saw ads from [Airline B], which is the airline that I always use. Nothing else really. (...) Buenos Aires [flights ad] was the creepiest experience yet. There are all these conspiracy theories about the power of these technologies. I hope we are not transitioning to a phase of digital technology where these programs and tools are able to recognize what you saying, like verbal, orally, and then tailor ads like that. Because that would be incredibly invasive to me that's just way too much.

R04, #18/#19, Beer | Fast Food (N/CX (Figure F.4)

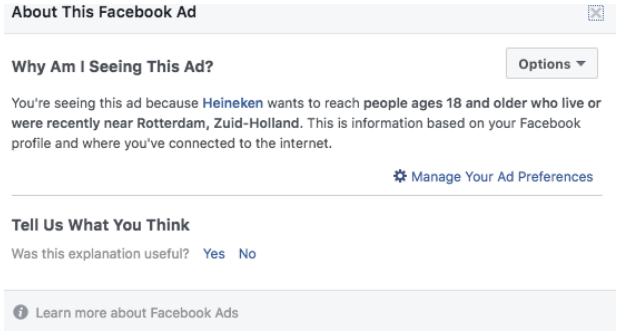
(Browsing the Facebook news feed and see a branded beer's sponsored ad)

I don't even drink beer. It's telling me that Facebook wants to recommend me this ad because a friend that I have not been in contact for a long time liked it. (...) The reason for the [brand of the beer] was that I saw this ad because [a friend on Facebook] so and so likes [the Facebook page of that brand]. This is someone from my past. Somebody I knew when I was 14, 15 years old, whom I no longer interact with. Someone that lives hundreds thousands of miles away. So it's like, it's really far-reaching to send me this ad based on someone else's activity, with this person I don't even interact with. And I don't drink beer.

(Browsing the Facebook news feed and see a fast food's sponsored ad. Then read the "why am I'm seeing this" ad explanation)

(...) My first reaction to that, because I haven't eaten [a fast food chain brand] for 6 years, was wow really. Then it says we want to reach audiences between 18 and 35 years old. That's pretty broad. If I let these ad agencies to present [me] ads, I'm fine. But I was a bit shocked because I'm not a [the fast food chain brand] consumer, I felt like it's unrelated to me, and I

(a) The screenshot of #18.



(b) The screenshot of the SP (#18).

(c) The screenshot of #19.

(d) The screenshot of the ad (#19).

Figure F.4: Screenshots of R04, #18/#19, Beer | Fast Food (N/CX).

think some of the ads nowadays on Facebook are unrelated. But I'm guessing they are [relevant to me], because they are telling me I've clicked on this and that, I'm interested in this or that.

I think it's very vague. When we went through the ads explanation, it is always the same stuff. Oh we wanna reach a broad audience like 18 to 45, female under 29, so it's very vague. I'm using that example I guess that's why Facebook does present these ads to millions of people it's a broad umbrella.

R02, #20/#21, Beer | Shop (C3)

The scariest situation I've ever had was at a party. I was drinking a Dutch beer I've never seen

it before. The name is [a beer brand]. I've never googled it or did something with it. And the next day, I woke up and check my Facebook news feed, I saw the ad from this brand. I start thinking like how is it possible to happen like this. But I think I may name the name a day before, or Siri is listening. It's pretty scary actually. It's possible for them to record what I said at night or something. Building ads upon this thing is pretty scary. (...) I was honestly surprised and scared. So I mean, because [I] usually thought ok, I googled something I can see it or [it is] related to me, not just saying or drinking it. The connection isn't that obvious to me.

(...) I think I had a similar situation in Cologne when I walked in the street and I saw a store. I thought it was pretty cool and I stood in front of the window and check it. And right after this moment, when I came back home, I saw an ad from this shop in the Facebook news feed. That's [what] I think so. But that's [a] long time ago. So I thought like maybe like GPS stuff. Maybe they can track where I was standing longer. Yeah, something like that. But it is also pretty scary. These are the main things like two scariest things happen to me

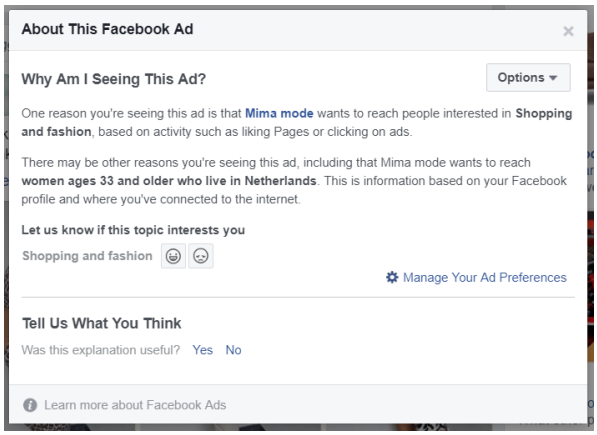
R01, #22, Beer (C3)

The first one I think of, I was just thinking a second ago was after I have just been to Greece. And somebody told me about Radler beer. And I tried it, I was like on a ship I wasn't doing a lot of Internet stuff. So I had it. And as soon as I got back from Greece, now I have Radler. So that pops up beer ads whatever, I'm not a big drinker. (...) I was telling my parents about it on Skype. And all of the sudden it showed up on my news feed on the next day. I thought that was weird because I hadn't had typed it anywhere. It was the only conversation and then it showed up. And that happened a couple of times and I can't remember other examples but that happened. But I'm sure I knew them before. That happened 3 or 4 times to me. (...) I mean just the timing. I would be talking about it and within a day it showed up. How quickly. I'm like oh my god I was just telling my parents about it last night. (...) I mean who talks about Radler beer? And then having it come up is very specific.

R01, #23, Dress (N) (Figure F.5)

sometimes I have... There is always that shows up in my Facebook feed. They are really pretty dresses. I never wear a dress. So that to me is never relevant. Like every season, Christmas, Halloween, Thanksgiving... there are always these holiday dresses show up. I've never bought a dress. I don't wear them. So those are always in my news feed and so those are not relevant. (...) I'm looking at them and like, wow I can never pull that off. They are pretty. I don't know

(a) The screenshot of the ad.



(b) The screenshot of the SP.

Figure F.5: Screenshots of R01, #23, Dress (N).

where they came from. I just saw some today. I don't know. Every season like once a month they have like April dresses, May dresses. I've never bought a dress.(...) I've never like rationally traced where those come from. (...) It doesn't bother me that it can be so many worse things showing up in the news feed. Dresses with Halloween bats on-it doesn't bother me.

R06, #24, Politics (N)

The information they have is not correct. I believed that if I click on certain like or smile, they infer that I am left-wing or right-wing politically. I'm fine to get political ads but it should be a correct one. I don't wanna see right wing ones!

R11, #25, Holiday(HK) (N)

There are some websites I entered by accident, or I just wanna check flight to somewhere, but they keep on reminding me about flights to Hong Kong. I'm not planning to go to Hong Kong. I just wanna to check how much it is.

R11, #26, Dress (P)

Sometimes I think it's quite useful. Like I'm looking for graduation dress on [a web shop]. and then I will often have commercials often with different dresses on [that web shop]. so I could actually find something because what they suggest is actually quite well engineered [to] what I was looking for. (...) when the whole thing of dresses going on, and I found this dress that I

like I click on it. (...) they identify I was looking for dress because I went on this website so many times and I always went on dresses, and I always filter the dresses to be occasion dresses. So they know they should not propose me at the given time about sneakers, but I'm more interested now for dress for occasion. So I think they track exactly what do you do on the website.

R11, #27, Holiday(discount) (N)

For example, when I was looking for [vacation] discounts, they saw that I would always go to the last minute or discount holidays, not on the premium or exclusive ones. So I think they not only do they do cookies, I don't know how exactly it works and if cookies do that, but exactly to see you, how do I maneuver, and how do I go.

R04, #28, Prime (P/N)

I wanted to share another experience. It was an ad on Amazon. At that time I was really conflicted on paying for Amazon Prime. Because my student discount has expired. So I saw three ads over a period of time. One was only USD 12 per month for Amazon Prime subscription. Then another one is like USD 10.99 per month for Amazon subscription. Then they got me on the third one because the third one was like a flat payment of USD 49 [per year]. So I was just like wow, ok, USD 12 per month that would have been USD 144 a year. USD 120 for the other. What is actually crazy is that they got me on the much cheaper one. So those ads are really powerful. These algorithms are so great at tailoring your preferences like using these keywords and phrases to really get you to click on the ads, by clicking on the ads, you kind of get drown in. I really didn't have a huge intention to subscribe Amazon Prime, but that USD 49 flat rate, is just a price that I really couldn't pass it. (...) I feel really deceived. After seeing the first one USD 12 a month, USD 144 annually, the other almost got me. But something told me to wait, so I skipped the USD 10.99 one and then I went for USD 49 one. I felt deceived and I felt pissed. Because after Facebook deceived me, they still got me to click on these ads and subscribe to Amazon Prime. Like I said, these ads are unwanted, but in the end they also served me, because I got the best price for the Amazon Prime subscription. So yes I hate the ads. In some regards, I appreciate for them. (...) Amazon is huge in US, nowadays people are using same day delivery from Amazon. Before I got the Prime, I would play around to put things in my cart, click on things and search, and see that there was relatively significant discrepancy between the regular price and the Prime price. I probably want that because fast shipping and better deals. why not? I was really debating mentally and expressing it online in Amazon. And yeah, through Facebook ads, I finally got what I wanted.

R10, #29, Clothing (N)

R10: I find it very frustrating. Maybe you want to buy something, you look on the website, and then after few seconds you got the ads, or after a few days you got the ads in the homepage. So imagine you wanna buy a pair of shoes. I go to [the official website] and I look up my shoes. I'm doubting. Maybe I'm buying them, or maybe not. And I got to Facebook and I got the ads from [the clothing brand] on that particular shoes. If I didn't buy them I'm like, ok, what are they trying to do? Are they trying to convince me to buy them? If I bought them, I'm wondering why you are doing this? I just bought them. Why are you promoting the same pair of shoes I just bought? So it's kind of frustration. (...) they use your cookie they saw you bought something on [the official website], or you didn't buy but you went to [the official website]. Then, you got an ad.

M: what exactly annoyed you?

R10: I think it's annoying to see something you just bought or you are doubting to buy. Yeah, I don't know. I don't understand their strategy, if they are trying to convince you to buy it or if they don't know.

M: what would you think it's a better way for them to sell that to you?

R10: I think it would be nicer to have something about the brand, more than the specific shoes you wanna buy. So maybe different options of the shoes you could buy based on your preference, but not the particular shoes that you just looked at, especially you just bought them. It doesn't make sense they advertise something you just bought. So I think the strategy should be a bit different.

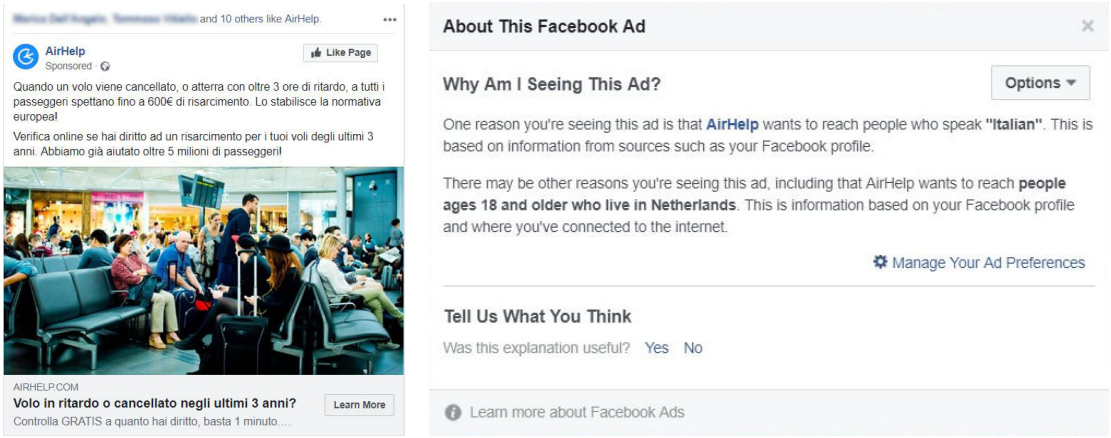
R10, #30, App (N) (Figure F.6)

(Saw the ad)

So this is telling if your flight delayed, you can claim it back, but it should be delayed by 3 hours at least. And it's related. Let's check why. I'm curious to see.

(Reading the SP)

It's not very clear. Two weeks ago my flight was delayed by 1.5h. I checked online about what I should do, if you have such problem. It may be related to that. It might also relate to the fact that I travel a lot. So I take a lot of flights.



(a) The screenshot of the ad. (b) The screenshot of the SP.

Figure F.6: Screenshots of R10, #30, App (N).

R09, #31, Ticket (C3)

When I'm talking about free tickets, I got the coupon ads too.

R03, #32, Hat (N)

R03: lately, I have been searching for a hat not even for myself. And now all kinds of ads of hats turn up. (...) It introduces a lot of randomnesses. The hat ads happened to me for weeks just because I searched for a particular type of hat to see what it is like. I didn't even buy it.

M: do you feel like these ads how relevant they are to you? Do you find them relevant?

R03: not always, they are too often based on my current interest that are not always long term. Like the hat example I gave. I once searched for hats and i continue seeing them for 2 weeks.

R06, #33, Infertility (N)

One of my relatives is of infertility. And Facebook shows her pregnancy ads all the time. It is very painful.

R05, #34, Toys (N)

Sometimes I got the Chinese websites like knife or accessories for your shotguns. That's quite funny. But most of the times I'm not interested in the products they try to sell.

R05, #35, Jobs (N)

Well sometimes there are also jobs and you can say they read my profile said like this.

R11, #36, Jobs (N)

(Saw the recruitment ad)

I'm looking for a job. It's more clear for me because I like marketing. It says based on just pages and clicked on ads, but I was definitely looking at companies, especially in marketing. It says marketeers. I want to do marketing and I wanna do online.

R01, #37, Apartment (N)

R01: Yeah no, never those. After I have those, like recently I have been looking for apartment in the UK. And more ads have been showing apartments for rent in UK. Of course, I keep my eyes on it when these ads pop up, but I never clicked on them.

M: what prevent you from clicking on it?

R01: I think I'm always worry that ads that are showing in my news feed are spam. I'm kind of always, I don't know if this is true, but instinctively my thought is if I clicked on them, I could be prompted to viruses, or ad-ware or spy-ware. So I again I don't know if that is true, I just Maybe I'm an old school internet user. Back in the day when you had those things, you sort of steer clear of them. So that's still my habit. I'm worrying if I clicked on it. I know it's flashing it's moving and it feels like it shouldn't be there. It might be harmful to my computer. I'm intentionally trying not to touch any of others boxes or links. So it's like that an amazed obstacle course to just not accidentally. I guess I'm afraid of them. (...) I searched in Google, or I searched it on Yahoo. I'm not searching in Facebook. But they still end up in Facebook. And then other things I'm posting about on Facebook and I'm getting relevant ads for that. It seems like it's everywhere. Like I could wherever I'm typing that is online I think it's successive to see ads about that later.

R01, #38, Underwear (N)

When underwear ads show up in my Facebook, I think that's really weird because that just makes me uncomfortable. And I don't know why they are there. (...) What's funny about that and where that comes from is like I have sort of this fear of underwear. And sometimes I have put embarrassing stories about underwear in my Facebook. I think that's why it pops up,

which now I regret having shared these funny stories because now I'm just confronted by these underwear ads now. So it's a double edge sword. I can either get a lot of likes and be really funny but I have to suffer with underwear or so I will connect those too.

R11, #39, Holiday(GR) (N)

Most of the time also I'm getting these ads after I've made the decision. So like I wanted to go with my friends and we look up Greece, and then we said it's too expensive so then we went to a different direction and they keep on suggesting about Greece. But we are not going to take.

R11, #40, Holiday (C3)

I have had it previously. I was speaking to a friend while my phone was here where I was just speaking about holidays, and I haven't googled them yet. And then I got all these ads of it already. Can they, or maybe I'm just unconscious that the fact that I googled it also. I feel like I didn't.

R04, #41, LGBT Tour (N)

Another weird thing about Facebook too. I've been looking for jobs back in [a city in the US]. There is one job, this company specialized in travel, cruise, and vacations for lesbian women. I've seen the ads for lesbian cruises on Facebook. One, it doesn't apply to me. I'm not a lesbian or anything. But two, this is clearly from this page I've visited. I went to this travel website to this company, but it's weird seeing it being shown on the Facebook. Like it is just for ads or marketing. I don't know it's just weird to be presented with this ads.

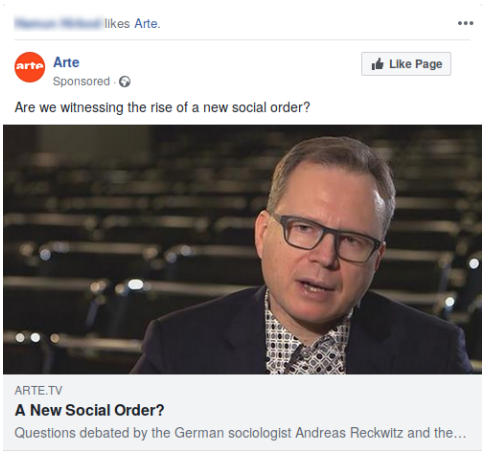
R02, #42, Shoes (P)

If I searched for a pair of shoes before [that] I thought is pretty cool, and I forgot about it. Then I got a reminder. And I'm like, ok, maybe let me take a look at it again. Maybe I'm interested in general. (...) I also think it can be beneficial to have customized ads.

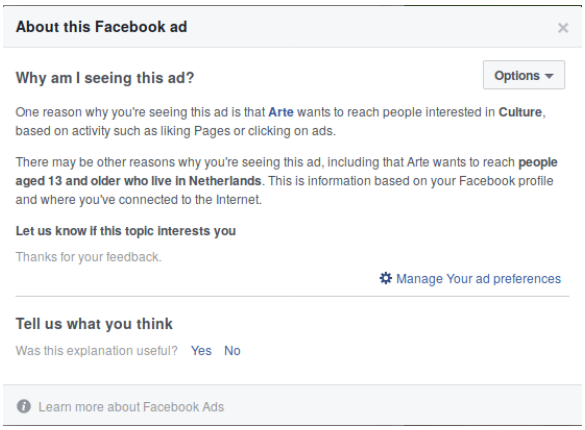
R03, #43, Broadcast (N) (Figure F.7)

Here is another one (viewing a broadcast ad and its SP). Those who interested in culture. Obviously that's in my profile. This is a very vague explanation. Who lived in the Netherlands. Although this XXX is only broadcast in Germany and France.

R02, #44, Sauce (N)



(a) The screenshot of the ad.



(b) The screenshot of the SP.

Figure F.7: Screenshots of R03, #43, Broadcast (N).

M: how do you feel about the explanation? Do you think it's a good explanation for you?

R02: I don't think so. I'm not sure if they are completely honest. Because they are just saying like. I'm just opening one right now. For example [a chili sauce brand] is like a sauce. There is an ads about this one. It says people age between 18 and 40 who lives in the Netherlands. That's the only explanations and I think they should be more to it that [why] they are targeting me as [the brand]. Because I use the sauce I like it. But definitely it's more than I'm just the target group. And same for all the other explanations as well. So they are not providing any specific information like 5 days ago you are browsing recipes using [the brand] than something just like target groups, age thing. I think that's too narrow I guess. (...) I think they are trying to provide information, about why I see this ads. It should be pretty extensive and honest. Because yeah the explanation is not clear. (...) I generally like honesty. At least I trust them if they are honest with me. So I think it would be a good thing. Maybe it's quite scary, but it is still my decision and then they provide me what info they have about me and with honesty about it.

M: you'd rather get scared but honesty answer than blurry ones?

R02: I think the people, at least in our age know more of less why the ads are shown to them. Basically, it's more than your age group. Just saying that it's about your age group is a bit too narrow. I think they don't take it seriously. I also think it wouldn't be shocking to me like if you googled a recipe and there is [the brand] included so you get the [the brand] ads it wouldn't be shocking because I already know it. I wouldn't change anything due to this. They

would be more trustworthy to me.