

FBPrivacyHelper: A Browser Extension That Simplifies Facebook Ad Privacy Settings

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Abstract

Social media platforms like Facebook generate billions of dollars in ad revenue, largely from their collection and usage of users’ personal and behavioral data. Despite the immense volume of data and the number of users impacted, Facebook’s interface for privacy settings is complex and fails to provide users with a comprehensive sense of control over how their information is processed. This lack of transparency not only leaves users vulnerable to potential privacy risks but also enables the misuse of personal and behavioral data. To address this problem, we developed FBPrivacyHelper, a browser extension that simplifies interaction with Facebook’s ad privacy settings and provides users with greater control over their ad preferences. This work discusses FBPrivacyHelper’s interface and the methods used to help users make better informed decisions on how their personal and behavioral data is used in Facebook advertising practices.

1 Introduction

In 2019, The Pew Research Center conducted a nationally representative study that examined public attitudes about privacy, data usage, and the accuracy of algorithm-driven classifications on Facebook [4]. This study revealed that many Facebook users were unaware of the platform’s data usage practices in advertising, with 74% discovering their “ad preferences” only during the study. Furthermore, 51% expressed discomfort with Facebook’s data collection and usage. Other research indicated that users perceived the advertisement practices of platform companies (e.g., using lists of specific users’

information uploaded by advertisers, lookalike audiences, and retargeting campaigns) as privacy-invasive [8].

While tech companies argue that they give adequate control to users regarding their data, research has shown that this is not the case. For example, prior studies have demonstrated that many users are not aware of existing ad settings on Facebook [3, 5, 7]. These findings underscore a significant demand for increased transparency, control, and options concerning personal data on Facebook, especially considering the platform generates a majority of its revenue through targeted ads of users’ data [2]. Accordingly, prior work has aimed to improve the usability of Facebook’s existing ad control interfaces with the goal of increasing user awareness of these options [6]. Other research focused on building systems that let users review the information that data trackers may have collected about users over time [1, 9].

In this work, we developed FBPrivacyHelper, a tool designed to offer comprehensive recommendations personalized to each user’s privacy preferences, simplify the management of Facebook ad preferences, and enhance the transparency of ad practices. Findings from our initial pilot tests indicate that users typically prefer more data-conservative settings, than what their actual ad privacy settings reflected. Consequently, participants found FBPrivacyHelper effective in modifying their settings, as well as a valuable informational resource about Facebook’s ad practices.

2 System Infrastructure

FBPrivacyHelper helps people learn about and adjust their Facebook settings through a process consisting of four steps: *preference elicitation*, *settings retrieval*, *generated recommendations*, and *settings modification*. To better understand the user’s ad preferences, FBPrivacyHelper requires each user to answer a brief survey with intuitive and relevant examples of Facebook ad practices (see Fig. 1a). Each question corresponds to one of Facebook’s ad settings: *Audience-based Advertising*, *Ad Topics*, *Ad Topics You See Less Of*, *Ad Categories*, and *Removed Ad Categories*. Depending on the user’s

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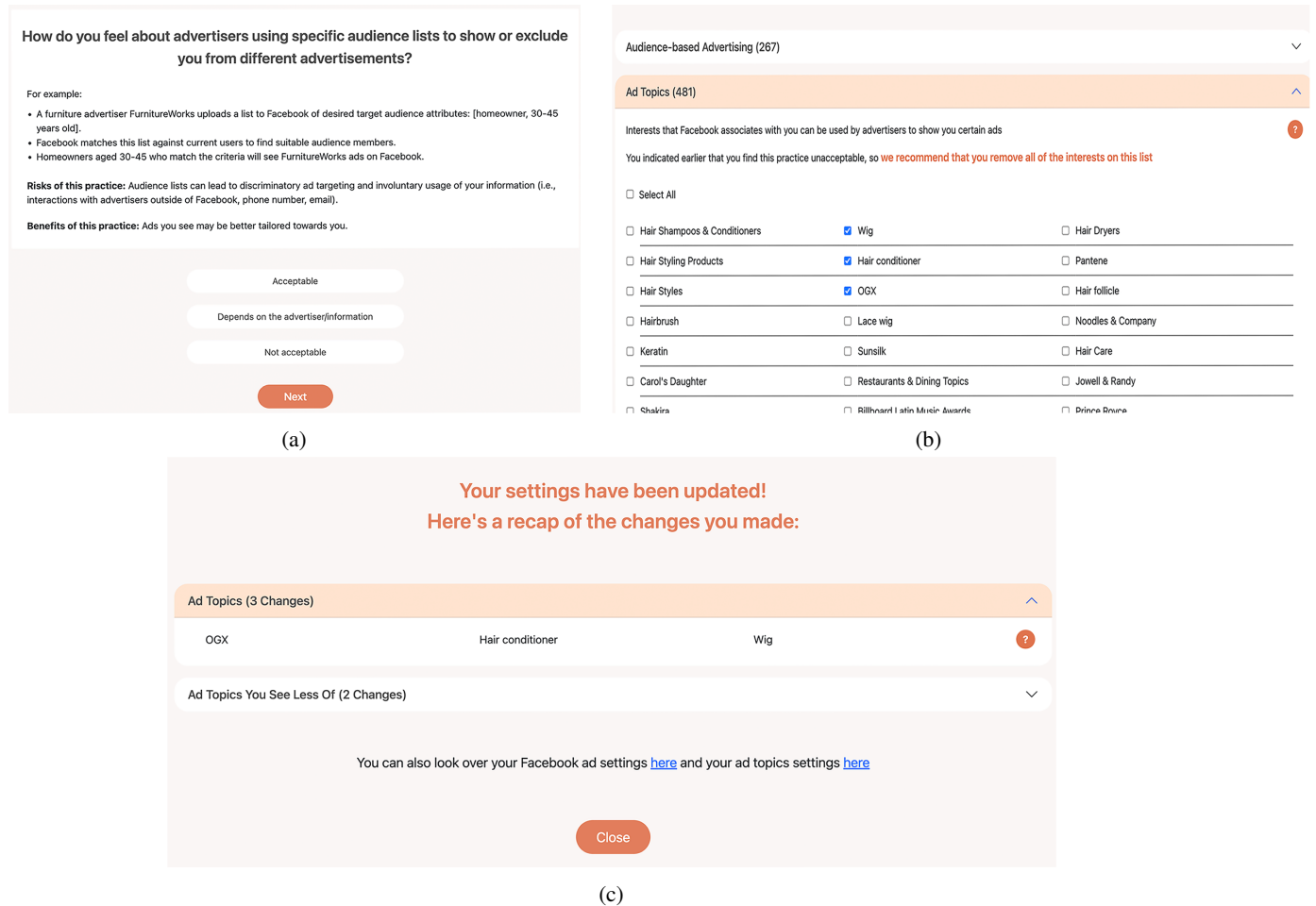


Figure 1: FBPrivacyHelper browser extension: survey about user’s privacy preferences (*left*), retrieved ad settings and opportunities to make changes (*middle*), and confirmation screen after settings have been updated on Facebook (*right*).

answer choices, they may be shown three to five questions.

Upon completion of the survey, FBPrivacyHelper gathers the user’s current Facebook ad settings by using Javascript to parse and click elements in the Document Object Model (DOM) of the Facebook ad settings web pages. This process involves analyzing the HTML elements of the web page, clicking the appropriate buttons to access the privacy settings values, and extracting setting values from the respective HTML elements. To provide the user with clarity on the progress of data retrieval, a popup showing the progress is displayed.

Upon completion of the settings retrieval, the user is presented with an interface that allows them to view and modify their ad settings. Each setting is accompanied by a description and implications of any changes to ensure transparency and inform users’ decision-making (see Fig 1b). FBPrivacyHelper also offers personalized recommendations for each setting based on the user’s survey responses. For strict answer choices like ‘Not Acceptable’, FBPrivacyHelper encourages the user to change all of the values in the respective setting.

For neutral answer choices like ‘Depends’, FBPrivacyHelper encourages the user to review and change the setting at their own discretion. Lastly, for permissive answer choices like ‘Acceptable’, FBPrivacyHelper encourages the user to keep the setting unchanged.

If the user chooses to modify their ad settings, FBPrivacyHelper employs the same Javascript clicking and DOM-parsing process used for settings retrieval. To comply with Facebook’s bot detection restraints, FBPrivacyHelper performs its clicking at the rate of an average user incorporating delays of one to three seconds. A popup displaying a progress bar is shown during this process. Once the changes are complete, the user is presented with a completion page that provides a recap of the changes, as well as links so the user can view their updated Facebook settings (see Figure 1c).

A challenge in developing FBPrivacyHelper has been keeping up with changes to Facebook’s settings interfaces, which requires periodically updating the extension to account for changed, new, or removed settings options.

3 Pilot Test Results

In a preliminary assessment of FBPrivacyHelper, we conducted pilot tests with a convenience sample of six university students representing different years of study and Facebook usage frequencies. The objective was to gauge their response to the tool and its various features. The feedback was generally positive, with the preference elicitation questionnaire being appreciated for its intuitiveness offering clear and easy-to-understand examples of ad practices. Moreover, participants found value in FBPrivacyHelper’s explanations of settings and personalized recommendations stating that these features aided them in understanding the choices available to them. One participant specifically noted that the transparency offered by the tool increased their confidence in making decisions about their ad settings. A key outcome of our test was that all participants successfully made the desired modifications to their Facebook ad settings.

4 Discussion & Conclusion

We developed FBPrivacyHelper, a Chrome browser extension tool that is designed to simplify the management of Facebook’s ad privacy settings and empower users with more agency over their personal information. By offering a user-friendly interface, FBPrivacyHelper encourages users to actively participate in making informed decisions about their ad settings on Facebook. We intend to make FBPrivacyHelper available to the public through the Chrome Web Store. Looking forward, our plans include not only maintaining the compatibility of FBPrivacyHelper with the latest version of Facebook but also expanding our pilot tests to include a more diverse group of participants. This will enable us to refine the extension’s usability and ensure it effectively serves the needs of all users.

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