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Selective, Incidental, Targeted or Algorithmic News: An Analysis of What News Users Actually See

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Extended Abstract

Over the past decades, there has been a sea change in the way people consume information. Earlier, people had to search and actively select the news sources they were reading from, leading to *selective exposure* [1]. More recently, news has started to appear on people's social media feeds as a byproduct of their social relations and recommendation algorithms. A new term *incidental news exposure* has been coined to describe this unintentional exposure to news [2]. A vast literature has studied the scope of incidental exposure and its impact on public discussion quality (abundance of fast, junk, or fake news, political polarization, and formation of filter bubbles) [4]. Because of *lack of access to data* due to the closed nature of online platforms, previous works have attempted to reconstruct users' news exposure by analyzing (1) publicly available data (often on Twitter) or (2) the web browsing history of users. Both these approaches provide an *incomplete* picture of users' news exposure.

Our first contribution is a measurement methodology based on donations of personal data to science. We asked users to donate data about the non-public news-related content they see on Facebook by installing a monitoring tool we designed on their browsers. This tool captures, in the background, all posts related to news that appear in a user's Facebook feed. Our detection of news posts is based on a white list of more than 12K news outlets we monitor. This list contains 4149 *established news domains* listed by Media Bias Fact Check or NewsGuard, two independent data providers that survey news outlets. In addition, we gathered 8084 additional *obscure news domains* associated with Facebook pages that claim to be "News Media". To the best of our knowledge, this is the most comprehensive list of news domains in the U.S. This measurement methodology provides us with unique data: 143129 news-related posts from 472 U.S based users, giving a realistic and fine-grained representation of users' exposure. Using this data, we focus on analyzing several longstanding questions regarding social media news exposure that have been only partially answered until now due to the lack of access to data.

News exposure on Facebook: We find that, in median, 11% of posts users receive are news-related. In addition, if we consider users from whom we collected at least 10 posts, 94% of them were exposed to at least one news post. *This indicates that news exposure on Facebook is a general phenomenon*. Furthermore, contrary to current beliefs, we find that half of the users' news exposure on Facebook is not incidental. More precisely, in median, 24% of news posts appear in the user's feed as the result of following the Facebook pages of news sites, which we consider as *selective news exposure*. In addition, 6% of news posts are personalized suggestions made by Facebook; we consider this an *algorithmic news exposure*. Finally, we study a new form of news exposure, which we call *targeted news exposure*. These news posts result from the users being targeted through paid advertising by news sources or other third parties. This type represents a *significant fraction* of news posts, with a median of 12%.

Diversity of news posts: In this part, we investigate the political diversity of Facebook news diets. We use the method proposed by Sosnovik et al. [3] to detect news posts with political content. Then, we rely on the evaluation provided by Media Bias Fact Check and

Newsguard to get the political bias of news domains. By analyzing political posts, we find that the fraction of posts from left and right sources are 45% and 5% for a median democrat, 14% and 17% for a republican, and 40% and 8% for an independent user. Considering that a news diet is polarized if 75% of the news posts or more are from the same political bias, we find that independents are the users with the most polarized news diets (19%), followed by democrats (10%) and, finally, republicans (6%). Furthermore, democrats and independents tend to have more left rather than right-polarized news diets, while it's the opposite for republicans. We also study the political diversity of the different categories of news posts separately. We find that 23% of users have a polarized selective diet, compared to 18% for targeted diets, 10% for incidental diets, and 8% for algorithmic diets. *Hence, more users seem to select receiving news posts from domains with the same political bias, which leads to more political polarization for selective posts. However, the news diets get more politically diverse by receiving targeted, incidental, and algorithmic news posts.*.

Quality of news on Facebook: We investigate the quality of news-related posts received by users. We consider that all posts published by or containing a landing URL to a news source are the same quality as the news source. (i.e., all posts share by or with a landing URL to a "low" quality news source are of "low" quality). We use two parameters as proxies to evaluate the quality of a news source: (a) Whether it is covered by Media Bias Fact Check or NewsGuard, and (b) Whether it is considered as spreading misinformation by these two auditors. Our results show that a significant part (13%) of news exposure comes from sources not listed by Media Bias Fact Check and NewsGuard. Targeted exposure has the highest rate of posts from obscure sources (32% in median). Hence, targeted news exposure may threaten the quality of news diets by exposing users to more news from obscure media. Furthermore, Our results show that 5.9% of news posts are from sources considered by journalistic authorities to be sharing misinformation. Selective exposure has the highest rate (6.9%), Hence, users are mostly subscribing themselves to these sources. This may represent a threat considering that these are established sources, and users might not suspect receiving such content from them.

Our work aims to clarify several open questions in the literature, and *brings attention to a new possible threat* that is targeted news exposure since it allows third parties to target users with news posts.

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