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Title: A human-centered design approach to creating tools to help journalists monitor digital political ads: Insights and challenges

Abstract: Political actors have increasingly incorporated digital advertising into their persuasive efforts. Greater transparency of how political actors are using digital ads is necessary given concerns that they may be using digital ads to suppress voter turnout and spread disinformation and xenophobia. We apply a human-centered design framework to identify the design requirements necessary to create tools that satisfy journalists' needs for covering digital political ads. Based on interviews with journalists, our findings indicate that they are interested in covering how political actors are using digital advertising as well as reporting on the platforms, such as their policies. Our findings also reveal serious obstacles that impede journalists' ability to effectively cover digital political advertising. From the currently available tools, journalists we interviewed found it difficult to quickly identify key takeaways that could result in or contribute to stories. Journalists also need information that the most popular technology platforms do not offer. Supporting journalists' efforts to provide greater transparency of digital political ads will require a collective effort on the part of designers and technology platforms to provide information that journalists need via tools that surface and synthesize this information in a way that satisfies journalists' professional demands.

Introduction

The 2020 U.S. presidential campaigns of Donald Trump and Joe Biden spent roughly $120 million on digital advertising (Wesleyan Media Project 2020). Digital ads on popular

platforms such as Facebook[1] offer several features that political actors find appealing, including: the opportunity to run a large volume of ads for relatively cheap prices; the ability to target micro-publics; and the option to collect data on how users interact with their ads that can then be used to evaluate the efficacy of an ad campaign and inform future strategies (Bogost and Madrigal 2020; Stromer-Galley 2019). Many of these features make it difficult for journalists, activists, and researchers to monitor how political actors are using digital advertising. This lack of transparency is especially problematic for U.S. democracy given concerns that foreign and domestic actors are using digital ads as part of their efforts to suppress voter turnout, sow division, and disseminate disinformation (Roemmele and Gibson 2020; Shane and Goel 2017).

Although major digital ad platforms now provide archives or libraries, digital political advertising has remained challenging for journalists to monitor (Edelson et al. 2019). We apply a human-centered design framework (Aitamurto et al. 2019; Chaplin 2016; Diakopoulos 2019, 2020) to identify the design requirements for tools to satisfy journalists' needs for covering digital political ads. Based on interviews with journalists, we examine the types of information they are interested in reporting about digital political ads and the obstacles they face in doing so. In the discussion section, we examine the broader implications of our findings for designing tools to support journalists and the additional work that must be undertaken by researchers, developers, journalists, and major technology platforms to increase the transparency of political actors' digital advertising.

The Significance of Digital Ads in Political Campaigns

Political candidates and parties have turned increasingly towards digital advertising as part of their campaign efforts (Fowler et al. 2016; Stromer-Galley 2019). Digital advertising

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[1] Facebook recently changed its name to Meta. For this manuscript, we use the name Facebook since the company was known as Facebook during our data collection and our interviewees referred to the company as Facebook.

commonly takes the form of an automated auction that happens each time someone accesses a website. Website publishers auction space on their website for ads and interested advertisers bid on appearing in this space based on what they know about the person accessing the website (Braun and Eklund 2019). In addition to providing campaigns with a relatively inexpensive way to reach millions of potential voters online, digital political advertising allows campaigns to use data analytics to segment mass publics into micro-publics and send each micro-public messages developed specifically to appeal to that segment (Stromer-Galley 2019).

Major technology platforms offer advertisers tools to strengthen and measure the effectiveness of the ads run on their platforms. Advertisers can use Facebook's "custom audience" feature, where an advertiser shares a list of targets based on information such as the targets' email addresses, and Facebook matches that list with Facebook user information. Matches are then sent the targeted ads. Advertisers can use the "look alike" feature, where the advertiser shares their target list, and Facebook then matches those targets and uses predictive algorithms to send ads to Facebook users similar to the advertiser's targets. Advertisers can embed their website with a Facebook pixel, a piece of code that tracks user behavior, such as who visited their website or made donations after clicking on the advertiser's Facebook ads (Bogost and Madrigal 2020). Behavioral data that Facebook gathers is used to further train models to better identify Facebook users likely to respond to the ad in the desired way (Bogost and Madrigal 2020).

Scholars have expressed concern with how political actors may use digital ads. Couldry and Turow (2014) argue that the level of personalized targeting offered by digital advertising (and digital content in general) impedes the level of social connection required for a functional democracy by reducing widely held facts and themes. Crilley and Gillespie describe social media

as a "toxic news media ecology" (2019, 173) that undermines democratic politics by allowing political actors to bypass legacy public service media and communicate directly with their audience to spread propaganda, misinformation, sexism, racism, and xenophobia. Braun and Eklund (2019) claim that the digital advertising market incentivizes the proliferation of misinformation that is damaging to a democracy. Kim et al. (2018, 515) explore how digital ad platforms function as a form of "stealth media," allowing unregistered and/or anonymous groups to conduct political campaigning, including micro-targeted campaigns on divisive issues.

Some of these concerns align with allegations that foreign actors have used digital ad platforms to promote disinformation and division, alongside concerns that domestic political parties may use these platforms to suppress voter turnout for the opposition (Roemmele and Gibson 2020; Shane and Goel 2017). Even if these campaigns' persuasive efforts are ineffective, such efforts may still be damaging. Karpf (2019) argues that disinformation campaigns violate the democratic norms that politicians should never lie to the public and should pursue goals that benefit the public good rather than their own self-interest. If these norms are not enforced, Karpf worries that political corruption will flourish. Given the focus political actors place on digital advertising and its potentially harmful effects, scholars have urged for greater transparency to better inform the public of how political actors are using these platforms (Couldry and Turow 2014).

Journalists' Critical Role in Political Ad Transparency

Many journalists and scholars hold up the practice and institution of journalism to play a critical role in healthy democracies, including making the actions of public officials transparent to help ensure that public trust is not violated and to hold public officials that violate this trust accountable (Balkin 1999; Esser and Neuberger 2019). Journalists especially play a watchdog

function during campaigns (Norris 2014) by fact-checking speeches and ads, and by working to increase transparency of candidates' actions.

Although there is a need for greater transparency of digital political advertising, it has proved challenging to monitor (Helberger 2020). In the 2016 U.S. presidential campaign, concerns were raised about the ways Donald Trump's campaign used social media to attempt to demobilize voters (Green and Issenberg 2016). Moreover, foreign governments attempted to manipulate voters through targeted advertising on Facebook, among other tactics (Jamieson 2020), and the news media was unable to effectively identify and report on such problematic election meddling. Part of the challenge is that many of the features that make digital advertising so appealing to political actors also make digital advertising difficult to monitor. Whereas television political advertisements are relatively easy to monitor since there are limited channels and campaigns tend to target television audiences in the thousands to millions, digital advertising campaigns may involve micro-targeting that segments the public into such small groups that it becomes difficult to monitor (Stromer-Galley 2019). Major technology companies, such as Google, Facebook, and Twitter, did not create publicly available archives of U.S. political advertisements on their platforms until 2018 (Edelson et al. 2019; Leerssen et al. 2019). Facebook released the Facebook Ad Library and corresponding API in 2018 for the U.S. The Ad Library promises all the registered political ads run on the platform from May 2018 onwards. The library includes data on how much was spent on the ad (reported as a range), the number of screens the ad appeared on (i.e., impressions, also reported as a range), as well as the demographic distribution of the ad, including, age gender, and location at the state level. In February of 2021, Facebook made more granular targeting data available only to academic researchers for political ads that ran in the U.S. from August 3 to November 3, 2020, such as

city-level location and interests (Facebook Research 2021). Still, even with the platform libraries now available, the sheer number of political ads being run by major advertisers makes it challenging to quickly and easily ascertain the strategies political actors are using. Prior research identified other major limitations of the ad libraries, including imprecise targeting information, the inability to reliably identify advertisers, and the exclusion of certain political ads due to insufficient definitions of what constitutes a political ad (Edelson et al. 2019; Leerssen et al. 2019).

A Human-Centered Sociotechnical Approach to Designing Tools for Journalists

We share scholars' concerns with how political actors may be using digital ads and thus the need for greater transparency. Guided by the principle that journalists play a vital role in rendering political actors' actions transparent, we set out to identify the design requirements for tools to help journalists cover digital political ads. Journalists may benefit from tools to help monitor digital political ads, but designers that create such tools without understanding journalists' needs risk developing something that journalists do not find useful. Prior work describes how designers often fail to understand journalists' goals, practices, and challenges, resulting in the development of tools that do not fit journalists' work and thus are not used (Aitamurto et al. 2019; Diakopoulos 2020). In recognition of this issue, scholars have called for designers and journalism scholars to adopt a human-centered design framework. A human-centered design framework focuses on understanding journalists' needs, including their goals, values, and the context of their work. These insights can then be used to generate guidelines necessary to create tools that satisfy journalists' needs (Aitamurto et al. 2019; Chaplin 2016; Diakopoulos 2019, 2020). Our goal in this work is to identify design requirements for tools to help journalists cover digital political ads.

Prior HCI research combined with the broader scholarship on journalism offer preliminary insight into some of the key requirements for creating tools to help journalists cover political ads, including journalists' needs for tools that allow them to:

a. access relevant and valid information (Diakopoulos 2020; Diakopoulos et al. 2012; Schifferes et al. 2014; Tolmie et al. 2017)

b. detect emerging trends (Diplaris et al. 2012; Schifferes et al. 2014)

c. identify unusual, surprising, and/or controversial events (Diakopoulos 2020; Fowler and Ridout, 2009; Harcup and O'Neill 2017; Shoemaker and Reese, 2013)

d. provide coverage that is unique or distinct from the offerings of other outlets (Diakopoulos 2020; Harcup and O'Neill 2017)

e. satisfy these requirements quickly, given the tight time deadlines that many journalists face (Diakopoulos et al., 2021; Diplaris et al. 2012; Tolmie et al. 2017), and support different interests and use cases (Brehmer et al., 2014; Diakopoulos et al., 2021; Park et al., 2016; Tolmie et al., 2017).

The prior work provides valuable guidance for designing tools for journalists but does not provide specific insight into the topics that journalists are interested in covering when it comes to digital political ads or the current challenges they face doing so. Given the vital need for greater political ad transparency, developers need a clear understanding of the design requirements necessary to create tools that journalists adopt in their work.

Recent work has encouraged journalism scholars to expand beyond journalists to include the other humans and technologies involved in the broader sociotechnical context in which news is produced and consumed (Diakopoulos 2020; Lewis and Westlund 2015). This broader sensitivity is essential to the study and design of tools to successfully help journalists render digital political

ads transparent. The technology platforms that run these ads in the U.S. can currently share or withhold information on how political advertisers are using their platforms as they see fit. Researchers and developers that try to collect this data through other means risk legal ramifications (Lapowksy 2021). Research aiming to generate design requirements must be sensitive to not just what journalists need from new tools, but also the information the technology platforms must make available for political transparency to be possible. Keeping this in mind, we do not limit our analysis to only uncovering the design requirements that developers can currently satisfy but also identifying what other actors (e.g., technology platforms) must provide.

To identify the design requirements necessary to help report on digital political ads, our team interviewed journalists. Our work was guided by the following research questions:

RQ1: What are journalists interested in covering about digital political ads?

RQ2: What do journalists need to cover digital political ads that the current tools they use fail to provide?

The answers to these questions will provide the design requirements necessary for the creation of effective tools and the information technology platforms must make available to help journalists render transparent how political actors are using digital political ads.

Data and Methods

From November 2019 to December 2020, we interviewed 15 journalists whose work included covering politics, public officials, and/or major technology platforms (see Table 1). Prior to data collection, we received an exemption from our institutional review board. We used a multi-pronged approach for recruitment, including emailing journalists that had published relevant work, asking associates to share our solicitation with journalists they knew whose work

was relevant, and inviting journalists we met at an industry conference to participate. The interviews followed a semi-structured protocol and were conducted remotely. Informed consent was obtained orally. The median interview lasted 46 minutes (minimum = 20 minutes, maximum = 70 minutes). We asked questions aimed at learning more about what aspects of digital political ads they are interested in covering, the tools they use to do so, how satisfied they are with the tools, and what helpful features the tools they use are missing. We also asked some of the journalists additional questions unrelated to the current study, such as their interest in online political activities in general, how their work has changed, and their concerns with misinformation. All but one agreed to be recorded for the interview. The recordings were transcribed for further analysis. For the unrecorded interview, the researcher took notes during the interview and composed a detailed summary immediately afterwards.

Table 1 About Here

For the final six interviews we asked journalists for feedback on a tool our team developed to help monitor political ads the major 2020 U.S. presidential candidates ran on Facebook and Instagram (see Figure 1). Our tool provided data and visualizations based on information from the Facebook Ad Library, including spending estimates and demographic targeting information. It also provided categorizations of the advertisers' messaging, including type (e.g., call to action, attack, issue, etc.), tone (i.e., civil versus uncivil), and topic (e.g., safety, foreign policy, COVID, etc.) using computational techniques. Our message type classifications were available for all six journalists. Tone and topic were available for the last five and four journalists, respectively. For this study, we treat the tool as an instrument to help solicit insight into what journalists are interested in covering about digital political ads and the challenges they face doing so. We asked participants questions about how helpful they found the information

provided by our tool, how our tool compares to other tools they use, what important information do other tools provide that our tool does not provide and vice versa, and what additional information and features would make our tool more helpful.

Figure 1 About Here

Two researchers conducted an iterative thematic analysis of the interview transcripts and summary (Braun and Clarke, 2006). Each researcher separately identified and coded statements from the first eight interviews that answered either research question and generated a list of themes from these codes. The researchers then synthesized their work. Next, each researcher compared the synthesized list to their original work, identified themes that were overlooked or did not fit the list, and revised accordingly. They used this revised list to develop a coding manual and used it to separately reexamine a subset of the 8 initial interviews and identify instances of each theme. The researchers then reconciled any disagreements and repeated this process until all 8 initial interviews were coded. After conducting the final 7 interviews, the same two researchers discussed potential new themes and revised the coding manual. Finally, they separately applied the updated coding manual to the remaining transcripts and met to reconcile.

Throughout this iterative process, the researchers identified additional themes that emerged through further analysis and/or became clearer in the final 7 interviews. In such instances, they updated the coding manual for the remaining transcripts. At least one researcher reviewed the previously analyzed transcripts to identify instances of the new themes and met with the other researcher to determine if the identified statements fit the new themes. Due to space limitations, we cannot provide in-depth explorations for all the themes, however, we include descriptions for each theme in the accompanying tables. We have paraphrased and slightly edited some of the direct quotes to help with readability and protect anonymity.

What Journalists Want to Report

Journalists expressed two distinct dimensions regarding what they want to report about digital political ads. The first dimension encompasses the types of information, such as who advertisers are targeting and their messaging. The second dimension focuses on the characteristics of these information types that they consider particularly newsworthy, such as trends or sudden changes. Although interviews that included our tool did not generate unique themes about what journalists want to cover, the tool did produce deeper insight about what journalists want to know. We highlight this below.

Types of Information

Journalists expressed interest in obtaining information about the ads themselves and the digital ad platforms (see Table 2). Beginning with the former, journals were interested in learning about how much advertisers were spending, how many people saw the ads, when the ads ran, and who the advertisers targeted (*theme: spending and targeting*). Journalists noted that they were particularly interested in targeting, such as if advertisers were focusing on different age groups, genders, or races and ethnicities. One journalist noted:

> *I'm sure there are stories that could be written about "if you are a white, potential*
> *Trump supporter you will see this versus a Latino potential Trump supporter"* [Interview
> #12].

Journalists also emphasized the importance of knowing the geographical location of targeting efforts, especially given the importance of the U.S. Electoral College. One journalist emphasized this importance by noting "*The age and gender stuff would be almost useless without the states*" [Interview #13].

Table 2 About Here

Journalists expressed interest in what advertisers were saying (*theme: messaging*). They used a variety of terms to describe this interest, including the topics, themes, issues, and language (i.e., rhetoric) present in the ads. One journalist noted:

> *[A]re there things they're focusing on, like particular types of legislation that they're targeting or particular groups they're going after. Sometimes if you just start to see a theme a bunch, it can point you in the direction of a story idea* [Interview #8].

Journalists shared a variety of such ad "themes" that they would have interest in covering, such as abortion, immigration, and impeachment.

The opportunity to explore our tool helped journalists provide more insight into other messaging aspects that they were interested in covering. One journalist suggested that the message type category "call to action" in our tool should be separated into different types of calls to action. This journalist explained:

> [O]*ne thing that I think turned out to be an interesting distinction is the one between fundraising and non-fundraising and within non-fundraising, sort of rally invitations and so I would include within fundraising both literally asking for money and collecting email addresses to later ask you for money. And for non-fundraising, persuasion and turnout and I guess sort of volunteer, come to the rally kinds of things* [Interview #14].

A different journalist also expressed an interest in distinguishing between different calls to action [Interview #15].

Journalists shared that the spending and targeting information and messaging served as a window into what campaigns thought was important for their victory. Other statements indicated that journalists were motivated by a deeper sense of civic responsibility, such as uncovering

when political actors targeted groups with different and sometimes contradictory messages. One journalist explained:

> [T]*he biggest thing is targeting information…. It drives a lot of our understanding of micro-targeting strategies from the campaigns. And ways that… lobbyists and industry groups appeal to different segments of the population. This is stuff that I think is in the public interest* [Interview #14].

Although Facebook has received a lot of public attention, journalists mentioned that they would like information about political ads on other platforms, such as Google, Twitter, and Snapchat (*theme: other platforms*). One journalist shared the following account:

> [W]*hen I'm out talking to people, I'm always shocked because people are constantly mentioning to me… they'll see and hear and get information from a pre-roll ad they'll see on YouTube…. I keep hearing about random spots I've never heard of that aren't on tv that are on YouTube* [Interview #12].

Journalists also explained that they are interested in covering the digital ad platforms themselves, including these platforms' political advertising policies and issues with these platforms' archives/libraries. Beginning with the former, journalists mentioned that they are interested not only in platforms' advertising policies, but also if and when these policies are enforced (*theme: platform policies)*. One journalist noted:

> *I really like the human stories in tech, like how tech giants' policies affect everyday people and the stories that don't get covered quite as much, like how Facebook users or Facebook advertisers are affected by policy changes* [Interview #3].

Journalists expressed interest in covering when platforms allowed political advertisers to lie. Journalists also explained that they are interested in why platforms remove certain ads or fail to do so. One journalist noted:

> [T]here was a Trump campaign ad that they [Facebook] took down, and they said that it violated policies, and it was identical to a bunch of still active ads, and it didn't really make sense to me why one would violate policies and the others that were identical wouldn't…. That's some information that I would want to know, is why ads get removed – why and when [Interview #3].

Journalists noted that they are interested in covering ads that they consider to be political but are not included in or disappear from the platforms' libraries, in addition to errors or gaps in the libraries relative to what platforms promised (*theme: archive issues*). One journalist noted that they are interested in covering the libraries' "mistakes", including how Google's ad archive sometimes misclassifies ads [Interview #5].

Journalists' interest in platforms themselves also suggests that they want to cover advertising platforms as major political actors themselves. One journalist explicitly described their interest in covering the political power these platforms hold, explaining:

> [L]arge portions of our political process and daily lives in society now happen on platforms and we're kind of subject to the rules these platforms set…. [A] lot of times Google or Facebook or Twitter will make a rule and then they kind of have more power than any government does…. So I'm interested in that tension [Interview #4].

Information Characteristics

The interviews indicated that journalists find certain information features to be particularly important or newsworthy, such as trends and sudden changes (see Table 3).

Beginning with the former, journalists explained that they are looking for patterns in political actors' online advertising (*theme: trends)*. They were specifically interested in political actors' ad strategies that remain consistent over time. One journalist appreciated that Google's Ad Report allowed them to track an advertiser's spending over time, explaining that it allows them to "*see where their trends are: they increased spending during this period: ok, I see that - oh that's interesting, or why did they decrease here?*" [Interview #4]. A different journalist described their ideal ad monitoring tool in the following way:

> [The tool can] *spot things that are cropping up organically and notice themes and pitch stories that are less pegged to, 'Well, here's what the candidate's going to do tomorrow that you may not know,' and more pegged to, 'Here's a topic that's getting a lot of attention' or, 'Here's a word this candidate keeps using…. [I]f the technology can help you spot them before your limited human brain does, I could see that being really useful* [Interview #8].

As these examples illustrate, journalists are looking for consistent behaviors, such as continued spending growth/reduction or a repeated focus in messaging.

Table 3 About Here

Although journalists expressed interest in trends, journalists also noted that they are looking for instances where advertisers drastically change their strategy or undertake a unique approach relative to what other political advertisers are doing (*theme: new/different*). One journalist described what they are looking for in the following way:

> *Some new thing that's emerging: that's what I'm always looking for as a journalist. What's the next thing that is going to be obvious to us in a year or two or five, but right now it's just starting growing up out of the ground?* [Interview #8].

Journalists also noted that they are looking for information that would distinguish their coverage from stories that others are publishing (*theme: unique)*. One journalist noted:

> *That's really what drives a lot of my reporting: we want to get it first, and we want to get*
>
> *stuff that is exclusive* [Interview #5].

For these journalists, it is not just a matter of discovering trends or outliers; they need to find trends or outliers that are unique from what other journalists are covering.

Current Challenges Covering Digital Political Advertising

The journalists we interviewed use a variety of tools to monitor digital political ads, including the Facebook Ad Library, the political advertising platform reports that Facebook and Google each publish, and newsletters, among others. These journalists identified several issues and limitations that they have with the currently available tools and information (see Table 4). We identified one new theme for challenges that appeared exclusively in the interviews that included our tool: the need for shareable links for the information journalists gather in the tools.

Table 4 About Here

One of the issues journalists identified was that the tools they use do not provide quick and clear takeaways on the ads that political actors are running (*theme: unclear takeaways*). Journalists found it laborious to use the Facebook Ad Library for story ideas or information. A critique journalists shared was that an advertiser's page in the Facebook Ad Library provided minimal information beyond images and links to dozens--if not hundreds--of what appeared to be copies of the same few ads. One journalist explained:

> *It's not great, obviously. It is cool to be able to see sometimes what people are doing, but*
>
> *it's not super intuitive. If you have somebody like the Trump campaign whose model*
>
> *seems to be to deploy the same ad over and over in tiny segments and try like a blue*

button or a yellow button, it's hard to track it and find things…. The way it is set up

makes it difficult to get a broad sense of what they are doing. So, in that sense it is not

super helpful [Interview #1].

Journalists noted that this problem is not unique to the Facebook Ad Library. They explained that

other tools they have tried also do not satisfactorily provide the key takeaways they need for

stories or require too much time and effort to extract this information. Journalists described the

libraries or tools as annoying, overwhelming, and hard to use. One interviewee noted:

And when I look at the existing tools, I'm just never seeing breakout stories from there,

and we don't have tons of time, so the fact that you have to go in and investigate when

you don't really know if a story's going to come of it or not, or if a story's going to be

boring…. You have to sort of take a second step of analysis with it, and that's the point

where it's like, 'Oh, I have a quota to fill. I have to go file a story.' [Interview #2]

Journalists also wished that the tools and libraries provided more ways to sort the data so

that it was easier to locate the ads they are interested in exploring (*theme: better search*). These

journalists explained that they might be interested in ads by certain advertisers, states, or

messages, but the current libraries and tools did not offer ways to quickly identify those ads or

offered sorting features that were too confusing or time-consuming. One journalist explained:

What I don't like about Facebook is that when you go to a page it shows the same ad

over and over again because people run variations of ads tons of times…. [Y]*ou can*

scroll for awhile and only see two actual ads and then you have the ability to filter that

stuff but it's hard to know what you're looking for. I think a better one would immediately

get you to some sort of information that you're sorting… and then tailor it by actor

[Interview #4].

Journalists explicitly mentioned that they had issues or concerns with the Facebook Ad Library's keyword search feature. They felt that the search results were not thorough or that it was hard to identify differences in advertisers' messaging based on the results. One journalist explained that they relied on help from researchers to reliably track keywords in the ads over time because they thought the Facebook Ad Library and other libraries were unreliable [Interview #7].

Journalists wanted a tool that provides automatic notifications of information relevant to them, such as a daily breakdown of an advertiser's activities, what is happening in certain states of interest, and/or other noteworthy events, such as major changes in spending rankings or strategies (*theme: want notifications*). One journalist explained:

> [I]*f I had, let's say, the top 100 political advertisers on Facebook, and every time there was a new or outsized player, a ping for that, I would die. I would be so happy. Just big moves like that that could mine a helpful database like that and give alerts when there's something that I want to pay attention to…. But that general idea that, 'Here's what I care about. I'm going to feed it into this product, and I want you to alert me when the algorithmic equivalent of a source tells me when something is important and whether I should pay attention* [Interview #2].

This journalist felt that a notification feature would not only provide them with useful information, but that it would also save time by eliminating the need to check the tool themselves.

Journalists expressed frustration with the information and the lack of it that the platform libraries and tools provided. They wished that the platform libraries and tools provided more precise information (*theme: more precise data*), including but not limited to: the actual amount advertisers spent on ads rather than ranges; more specific demographic data that included race

and ethnicity; and geographic data that was more precise than the state level. One interviewee explained:

> *Facebook's data and most other platforms are very general - here are how many men and women that saw this ad and here are what areas people saw it from. It would also be nice if they gave specific values, like $150 on an ad rather than between $100 and $500 or between 500,000 and 1 million people saw this ad. I'm sure they have their own financial reasons for not wanting to be too transparent, but the ranges are pretty huge*
>
> [Interview #3].

Journalists also wanted more precise information on how advertisers were targeting people, including the keywords political advertisers used. One journalist complained that the Facebook Ad Library "*doesn't show what the targeting keyword was, like interested in swimming…. [O]bviously that would be what you want*" [Interview #9]. Journalists felt that the currently available information provided an inadequate sense of who exactly advertisers were targeting. One journalist believed the information Facebook currently provides is insufficient for their reporting needs, noting that "only a fraction" of the questions they are interested in are answerable from the Facebook Ad Library [Interview #14].

Journalists expressed concern that the libraries and tools occasionally failed to include or misclassified ads. They expressed frustration that the platforms were not fully transparent about their reasons for these decisions or errors (*theme: tool errors*). One interviewee described an experience where they were researching a particular advertiser and discovered that some of their ads were no longer available in the Google Transparency Report (i.e., Google's political ad library). This journalist explained:

A lot of their ads have been disappearing from the archive randomly. This PR person I've been talking with at Google has kind of been not very good, not very responsive, and not very clear and super vague…. It's kind of the whole thing again – this air of transparency without the follow-up for accountability. They think it's enough to put all this information out there so that journalists or researchers can look at it, but it's not really working, not working to provide more transparency about it [Interview #4].

Journalists also expressed frustration about Facebook not classifying certain ads as political that the journalists considered political. One journalist felt that Facebook was failing to identify many political ads, noting "[t]*here are a lot of ads out there that are political but Facebook has not labeled as such*" [Interview #3].

Although interviewees criticized Facebook's transparency efforts, journalists found the transparency offerings from other major platforms to be even worse (*theme: worse than Facebook*). One journalist explained that in their coverage of a recent election they "*had the best visibility of Facebook ads and the worst of Google. Google was our biggest blackhole*" [Interview #9]. Another journalist criticized Google for providing even broader impressions estimates than Facebook, noting:

[T]he ranges that Google publishes… are so much broader than Facebook's…. Google's like 1,000 to 50,000. That's not useful. They're just telling me to go fuck myself. [Interview #14].

Journalists also shared frustrations or desires that did not fit the other themes and could not be easily combined (*theme: other pain points*). Perhaps most notably, one journalist described how Facebook's Ad Library for Australia and many other countries provides even less

information than the U.S. Facebook Ad Library. In recounting their challenges covering the 2019

Australia federal election, the journalist explained:

> *I think by that time Facebook had, for example, although it had launched its Ad Library*
>
> *in Australia it was far more limited than the one that you would see in the Americas and*
>
> *it still is… [Y]ou could go to a candidate's page, you can see what ads they were running*
>
> *at that time and you can click on the ad, but it would only show you when it was running.*
>
> *I know in America you guys can see I think the demographic targeted, some details*
>
> *around spend and all that, it's just far more granular and we had none of that. And we*
>
> *still don't* [Interview #9].

Discussion

The results of our work indicate that journalists aim for reporting about how political

actors are using digital advertising, including who these political advertisers are targeting and

what they are saying in their messaging. Journalists are also interested in covering the platforms

themselves, including what these platforms allow and instances where the platforms are not as

transparent as they promise to be. Journalists are interested in covering digital political ads in

ways that align with scholars' pleas for greater transparency given these digital ad platforms'

potentially harmful effects (Couldry and Turow 2014; Karpf 2019). At the same time, the

journalists we interviewed identified serious obstacles that impede their ability to effectively

cover digital political advertising. We explore the design implications of our findings below.

Journalists Want Precise Targeting and Rich Messaging Information

Our findings suggest that the ideal transparency tool would provide journalists with

precise information on who advertisers are targeting and rich information on the messaging in

the ads. One journalist clearly expressed this desire for as much information as possible when

describing their challenges covering digital political ads during a recent political campaign. This journalist noted, "*we were interested in everything, like the spend, the targeting, the messaging, it all*" [Interview #9]. Journalists want precise estimates for spending, impressions, demographics (gender, age, race/ethnicity, geographic location), and targeting information (e.g., "interests"). Given journalists' strong interest in the messaging, transparency tools should also provide users with rich insight into the content of the ads, such as the topics discussed (e.g., impeachment, immigration) and the message type (e.g., fundraising, voter turnout). Providing all this information and doing so in a way journalists find helpful presents challenges that we explore in the design implications further in this section.

Journalists Want to Monitor Platform Policy Enforcement

In addition to complete information about digital political advertisers, journalists also want to cover the platforms' policies, including what the platforms allow and prohibit as well as inconsistencies in their enforcement and transparency efforts. Our findings identify promising features for designers to further explore to help journalists monitor platforms' policy enforcement efforts. Transparency tools should make "removed" ads an information category, allowing users to quickly review removed ads and explore the corresponding targeting and messaging information. Given journalists' interests in inconsistencies in policy enforcement, future work should explore techniques to identify and notify journalists about non-removed ads with similar content (e.g., images, text, video) to removed ads. These features will provide journalists with an indication of the platform's enforcement efforts and potentially identify inconsistencies that may warrant further investigation, such as a platform removing ads from one advertiser but not another advertiser that share nearly identical content.

Platforms Provide Insufficient Transparency

Our findings reveal obstacles that go beyond what journalists and developers can easily address. Our first design implication highlighted how journalists want all the targeting information that advertisers receive, however, our findings also indicate that the platforms currently do not provide this information. Journalists noted that the targeting information platforms currently provide is too broad to provide a clear sense of advertisers' persuasive efforts and/or missing key aspects (e.g., race/ethnicity, interests). Journalists also want more detailed explanations about why platforms remove ads for violating platform policies. Moreover, some were concerned with instances where political ads were not included in the platform's transparency tools. To be fair, the journalists found the political ad information Facebook provides to be helpful to a certain extent; however, the current offerings did not provide all the information they felt necessary for true transparency, such as precise targeting information and detailed accounts of the platform's policy enforcement. Journalists also noted that other platforms' transparency efforts were even more limited than Facebook's offerings. To develop tools that allow journalists to truly monitor digital political ads will require a broader sociotechnical approach that expands the focus beyond journalists and developers to the other major entities that shape how news is produced and consumed, such as technology platforms and governments (Diakopoulos 2020; Lewis and Westlund 2015). Until these platforms provide greater transparency due to their own volition or government interventions, journalists and developers designing tools to help journalists monitor digital political ads will face serious obstacles.

Ad Transparency Tools Need to be Flexible

Consistent with prior research on developing tools for journalists, our findings indicate that journalists have different interests for covering digital political ads (Brehmer et al., 2014;

Diakopoulos et al., 2021; Park et al., 2016; Tolmie et al., 2017). Journalists shared a variety of ad topics they were interested in covering (e.g., abortion, immigration, impeachment). Journalists that used our tool found certain message classifications to be valuable, but wanted additional classifications (e.g., types of call to action). Journalists' diverse interests highlight what Diakopoulos et al. (2021) describe as the need for tools to offer "contextual variance" – a balance between supporting specific uses versus general use. Achieving an appropriate balance can be difficult, especially in the case of political ad transparency tools given the massive and ever-expanding number of ads. Journalists appreciated aspects of our tool's automated message classifications, but also requested additional classifications and shared specific interests that may be difficult to plan for in advance (e.g., impeachment).

Given the extensive work required to validate automated classifications, it is impractical to expect developers to create a single tool that can provide robust and valid automated message classifications that satisfy all of journalists' potential interests. We recommend developers create tools that apply validated automated classifications for common interests (e.g., message type, type of call to action, message issue), but also offer users options to explore the corpus on their own. To compensate for journalists potentially not finding the specific models useful, we recommend developers make the entire corpus searchable by keywords, thus allowing journalists to identify information of interest to them if the classifications do not suffice. Given journalists' complaints with Facebook's search feature, the keyword search feature should allow users to filter the search results based on relevant metadata, including advertiser, date range, and targeting information (e.g., age cohort, gender, race/ethnicity, location, interests, message classifications). We also recommend allowing users to download all the information the tools provide so that journalists can conduct their own additional analyses if desired.

Ad Transparency Tools Need to Identify Newsworthy Items Quicky

Journalists found it difficult to quickly identify key takeaways that could contribute to news stories from the available platform libraries and tools. They also expressed frustration with the need to juggle so many tools and a desire for tools that notify them of newsworthy items. This finding demonstrates a critical design requirement that past scholarship has emphasized – journalists face tight deadlines and need to acquire information quickly (Diakopoulos et al. 2012; Diplaris et al. 2012; Tolmie et al. 2017). Due to the time constraints journalists face, it is often not enough to provide them access to information on phenomena of interest. These tools must quickly surface that information in a way that makes the key takeaways for possible stories clear, such as emerging trends, sudden changes, or unique information other news outlets are not reporting. This insight is consistent with past work emphasizing the need for tools that help journalists find information quickly (Diplaris et al. 2012; Tolmie et al. 2017), but also highlights an additional dimension.

Whereas prior work has advocated for designing flexible tools that quickly surface pertinent information while allowing for deeper explorations when time permits (Tolmie et al. 2017), our work suggests that this flexible approach may not fully satisfy journalists' needs due to their time constraints. Based on journalists' request for automatic notifications, a more effective approach may be to develop a tool that alerts journalists about important updates and story ideas rather than waiting until journalists check the tool. Rather than create a tool that *pulls* journalists to explore the tool's data in the hopes of finding story ideas, journalists want a tool that also *pushes* story ideas to them. Consistent with Diakopoulos et al.'s (2021: 6) goal to develop tools that are sensitive to journalists' "available human effort and attention," we recommend digital ad transparency tools provide users with customizable notification systems.

Ideally, journalists should be able to specify the particular types of information and events they want to receive alerts about, such as particular advertisers, demographics, message topics, or keywords of interest to them. Journalists should be able to set their own "newsworthiness" criteria for when they want to receive notifications, such as specific percentage increases (e.g., an advertiser of interest has increased spending by at least 20% in the last week), numeric thresholds (e.g., an advertiser of interest mentioned immigration for the first time in the last month), and/or summaries of activities of interest over specified time periods (e.g., weekly breakdowns for advertisers of interest).

Conclusion

Political actors have increasingly turned to digital political ads in their attempts to persuade. The scale and complexities of popular platforms for digital ads make it difficult for journalists, activists, and researchers to monitor what political actors are doing on these platforms. Our work indicates that journalists are clearly interested in covering digital political ads but experience several obstacles that impede their ability to do so effectively. Our work highlights critical design insights that developers working on tools for journalists should take into consideration, including journalists' desire for precise targeting and rich messaging information, the need for tools to be flexible to accommodate different interests, and the need for tools to identify newsworthy items quickly. Our research also indicates that some of the difficulties journalists currently encounter stem from the major technology libraries providing insufficient information, including imprecise targeting and a lack of transparency pertaining to platform policy enforcement. To provide greater transparency of persuasive efforts, it will thus require a collective effort on the part of researchers, developers, and technology platforms to

provide the information journalists need as well as tools that surface this information in a way that satisfies journalists' professional demands.

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Table 1: Journalists' Organizations, Focus, and Primary Roles

Interview	Media Organization	General Focus	Primary Roles
#1	U.S.-based digital native outlet	National (U.S.)	Reporter
#2	U.S.-based legacy media outlet	National (U.S.)	Reporter
#3	U.S.-based digital native outlet	National (U.S.)	Reporter
#4	U.S.-based digital native outlet	National (U.S.)	Editor
#5	U.S.-based legacy media outlet	National (U.S.)	Reporter
#6	U.S.-based legacy media outlet	National (U.S.)	Columnist, Interviewer, and TV analyst
#7	U.K.-based legacy media outlet	National (U.S.) and International	Reporter
#8	U.S.-based legacy media outlet	Regional and National (U.S.)	Reporter
#9	Australian-based legacy media outlet	National (Australia)	Reporter
#10	U.S.-based freelance journalist	State (U.S.)	Reporter
#11	U.S.-based legacy media outlet	National (U.S.)	Reporter
#12	U.S.-based legacy media outlet	Regional and National (U.S.)	Reporter
#13	U.S.-based legacy media outlet	National (U.S.)	Reporter
#14	U.S.-based freelance journalist	National (U.S.)	Reporter
#15	U.S.-based digital native outlet	National (U.S.)	Reporter

Table 2: What Journalists Want to Know About Online Political Ads

Theme	Description
Archive issues	Information about the ads that are not included in the archives/libraries or disappear and inconsistencies or gaps in the archives relative to what platforms claim would be included.
Funding source	The entity funding the ads.
Messaging	The issues, topics, or themes present in the ads and the tone or rhetoric.
Other platforms	Information about what advertisers are doing on platforms besides Facebook, such as Google, Twitter, etc.
Other political actors	Information about political ads by actors other than political candidates, such as companies, advocacy groups, and super PACs.
Other political campaigns	Information about ads by non-presidential political candidates/officeholders.
Platform policies	Information about ad platform policies, any changes these platforms make to their policies, how they are enforced, when/why they are enforced, as well as advertisers that violate them and get away with it.
Spending & targeting	How much advertisers are spending, how many people saw the ads, when the ads ran, and/or who the advertisers are targeting, including but not limited to age, gender, race/ethnicity, language, and geography.
Testing	How political actors test their ads by changing the images, art, or messaging to determine what performs best.
View ads	The ability to view the ads as opposed to only descriptive information about the ads.
Other information	Information interests that do not fit the other themes and cannot easily be combined.

Table 3: Information Characteristics

Theme	Description
New/Different	Instances where an advertiser departed from what they were doing before, what they are doing elsewhere, and/or what others are doing.
Trends	Patterns or trends in how advertisers are operating.
Unique angle	The journalist needs to publish a story that is different from what other journalists/outlets are publishing.

Table 4: Challenges Covering Digital Political Advertising

Theme	Description
Better search	They wish it was easier to reliably filter the libraries or tools to quickly find the ads or information of interest to them.
Juggling tools	Statements where the journalist notes that they do not enjoy having to use multiple tools to gather the information they need.
More precise data	They wish the libraries/tools provided more precise data, such as but not limited to spending, impressions, demographics, etc.
Need links	They need shareable links for the information they have gathered in the tools/platforms.
Tool errors	The platforms/tools are missing ads, misclassifying them, failing to provide all the promised information, and/or frustration that the platforms/tools are not fully transparent about the reasons behind these issues.
Unclear accuracy	Statements indicating that the journalist is concerned about how current/accurate the information is from the tools they are using, such as concerns/frustrations about being unsure when the information was last updated.
Unclear takeaways	The existing tools either do not provide the journalist with the key takeaways they need or require too much time and effort to do so.
Want download	They want to be able to download the data, visualizations, or the work they did in the tool but the platforms and/or tools they use do not allow them to do so fully.
Want notifications	They want a tool that provides automatic notifications of information relevant to them, such as a daily breakdown of a candidate's activities and/or noteworthy events as well as major changes in spending rankings or strategies.
Worse than Facebook	They note that other platforms provide even less information than Facebook.
Other pains	Issues that do not fit the other themes and cannot easily be combined.

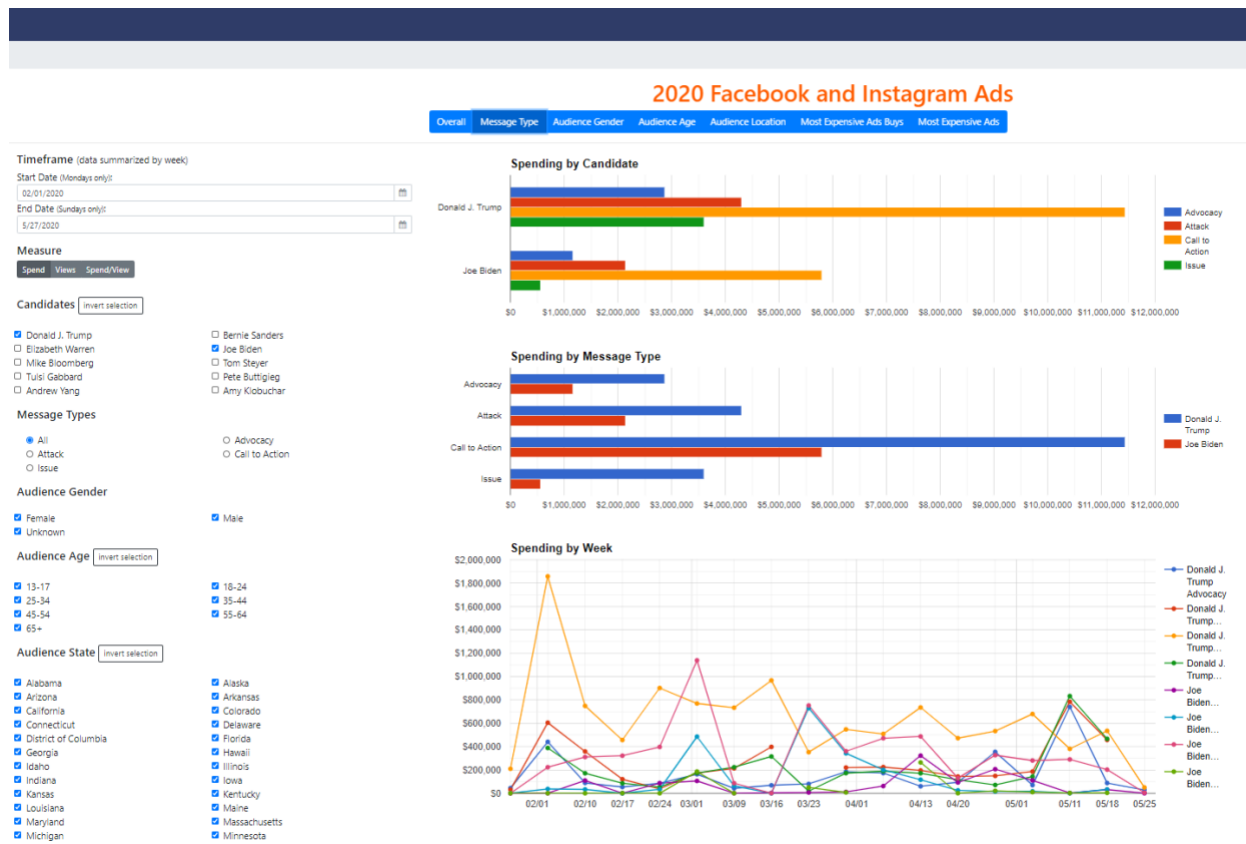**Figure for Tools to Help Journalists Digital Monitor Political Ads**

Figure 1: Early version of our tool. The "Message Type" tab is open to show total and weekly

Facebook ad spending estimates by message type for Donald Trump's and Joe Biden's

campaigns within the selected timeframe.