

Medella: A Health and Wellness Platform for Businesses
(Technical Paper)

Targeted Information (and Misinformation) in Political Advertising
(STS Paper)

A Thesis Prospectus Submitted to the
Faculty of the School of Engineering and Applied Science
University of Virginia · Charlottesville, Virginia
In Partial Fulfillment of the Requirements of the Degree
Bachelor of Science, School of Engineering

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Fall 2019

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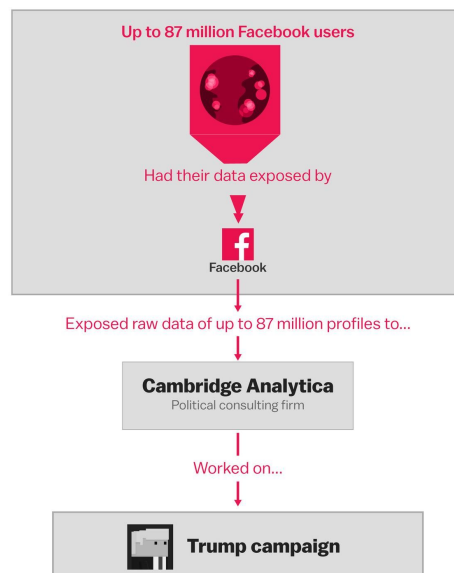
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The Uses of Information Targeting

Targeted advertising and other forms of targeted information online have become an integral piece of many online enterprises. Through many different techniques, primarily Online Behavioral Advertising (Boerman, Kruijkemeier, Zuiderveen Borgesius, 2017) companies have been able to more accurately target their users with information that is likely to be relevant to them, creating an entirely new form of advertising that is far more effective than showing all users the same ads. While this advancement has been great for revenue and connecting people to the products they are likely to want, this technology has also been exploited for the distribution



Cambridge Analytica's use of Facebook user data (Vox, 2018)

of potentially inaccurate political information and political propaganda. After the Cambridge Analytica and Facebook scandal surrounding the 2016 election and looking forward to future elections, the problem of this malicious use of these information targeting technologies has become far more pertinent and is something to be looked in to. Information targeting is designed to elicit strong responses from consumers (Martin, Murphy, 2016), which may become a

problem when applied to political advertising. Even though this example of malicious use of these technologies was facilitated using a loophole in Facebook's system, it demonstrates the vast potential that information targeted technologies can have in correctly identifying and possibly influencing the targeted users. While these technologies have been used in malicious ways in the past, they can also be used for good, connecting people with important and relevant information. This use of information targeting is the motivation behind Medella, a health and wellness platform for businesses designed to connect employees with relevant health information. Through data provided by the users, Medella will be able to connect them with relevant informational videos, blog posts, and quizzes about health and wellness topics in the hope of helping them lead a healthier lifestyle. While Online Behavioral Advertising and other techniques may be used for the benefit of consumers, as used in Medella, they can also be used for the spread of propaganda and other misinformation. This paper will explore the effects of this kind of advertising on political campaigns as well as the potential this technology has to connect people with relevant health information.

Medella: A Health and Wellness Platform for Businesses

We are helping Medella design a corporate wellness platform to help improve companies' employees' health. The goal is to provide educational content to employees and statistics to employers to indicate overall health in the company. A successful product will help employees control their health while giving businesses feedback on their overall health.

One existing workplace health product is a mobile-first platform called Limeade ONE. Limeade uses a gamified approach involving assessments and rewards (*Limeade*). While Limeade provides many services, these are complicated and result in a steep learning curve. It can take time to learn to navigate the various features (Desai & S, 2019). Furthermore, using Limeade requires knowledge of its file-sharing system, Sharepoint, which adds more complexity (Desai & S, 2019).

Our product will serve as a platform that employees, employers, and the Medella team interact with. Employee health will be tracked to provide personalized resources. The platform will include quizzes with questions like: “How many cups of water should you drink in a day?” Employers will see aggregated employee data to learn how Medella has impacted the company’s overall healthcare costs. Medella employees will be able to use the application to create content. There will be forms within the application to create quizzes, upload videos and write newsletters.

Gathering system requirements is vital to the development process because it ensures the client and developers have the same expectations for the finished product. Below is a list of our system requirements.

Minimum Requirements

- Businesses, employees, and the Medella team should be able to securely login.
- Businesses should be able to view aggregate health data points of company employees.
- The Medella team should be able to create quizzes and blog posts.

- Employees should be able to click on quiz links, view questions, submit answers, and receive a score after submission.
- The Medella team should be able to view aggregate and individual results for each quiz
- Businesses should be able to view aggregated results for each quiz.
- The Medella team should be able to input YouTube links into a form to display them in users' content feeds.
- Employees should be able to watch videos through the platform.
- The Medella team should be able to send emails to employees to inform them of relevant content.
- Employees should be able to opt out of receiving all information from Medella.
- Users should be able to view a page with a mission statement and contact information when going to the webpage without a log-in.

Sample of Desired and Stretch Requirements

- The Medella team should be able to use a newsletter builder form to add text, images, and links to health-related topics to newsletters, as well as publish the newsletters to employees.
- Employees should be able to view previous quiz submissions.
- The Medella team should be able to track clicks by users and businesses on the website in order to monitor user engagement.
- The Medella team and businesses should be able to see a graph depicting how Medella has impacted healthcare costs.

- Employees should be able to opt out of receiving only one type of content (quizzes, blogs, videos, etc.)a
- The Medella team should be able to limit content to specific users.
- Businesses should be able to view the dashboard data broken down by department.

Targeted Information (and Misinformation) in Political Advertising

As social media continues to grow, information targeting technologies have become increasingly good at identifying the correct groups of people to show information to. In a world where everybody is online, advertisement based companies have been able to compile an incredible amount of data on their customers, further improving their information targeting technologies. While this may not be a huge concern for most advertisements, such as advertisements for products and services, there is a growing concern around the use of these technologies for political advertising/campaigning. As many news outlets have reported in the time immediately following news of the Cambridge Analytica scandal, targeted political advertising and campaigning online may have played a huge role in the previous election, and as this information targeting technology continues to get better, it can continue to become a bigger threat.

During the 2016 election campaigning, Cambridge Analytica had “sorted some 220 million Americans into behavioral profiles” with their online data from sites such as Facebook, and delivered messages “tailored to the psychological traits of each individual recipient,” a practice known as “behavioral microtargeting” (Ward, 2018). While political propaganda has always had a profound effect on democracies, this effect may be amplified in the age of the

internet and behavioral information targeting technologies (Persily, 2017). As these technologies are only becoming better, it becomes increasingly important to study their effects on democracies around the world.

The main artifacts in this study are social networks/websites themselves. Since these websites are where the vast majority of online data is collected, it is important to look at how these sites are so effective at doing this. One way to analyze the behavior of these sites is through the STS theory of “Political Artifacts,” as it can be argued that these sites are inherently designed to take advantage of consumers, and possibly even specific demographics. Since these sites work on a business model of the users being a product for advertisers to purchase, there is growing concern that “as free Internet services become increasingly available, poorer consumers will sacrifice their privacy to receive free Internet access, whereas wealthier consumers will pay for Internet access and realize better privacy protection” (O’Neil, 2001). The stakeholders in this study are the users of social media sites, as they are at the highest risk of receiving targeted political advertisements. These users, even when knowledgeable of the privacy risks, tend to have lax attitudes on the issue, which is a potential side effect of the design of social networking sites. Research suggests that this attitude may be the result of “a combination of high gratification, usage patterns, and a psychological mechanism similar to third-person effect” (Debatin, Lovejoy, Horn, Hughes, 2009). In the paper “Do Artifacts Have Politics?”, Winner describes the most important examples of technologies as those “that have political consequences are those that transcend the simple categories of ‘intended’ and ‘unintended’ altogether” (Winner, 2017). Social media is a prime example of this kind of artifact.

Another STS theory that applies to this study is the theory of “Technological Determinism,” which is the belief that changes in technology have a greater influence on societies than any other factor. Social media sites and their advertising technologies have undoubtedly been influencing and continue to influence society in many ways, the most important being the speed at which information (and more importantly misinformation) can be spread across the world, both through viral spread and through behavioral targeted advertising. In response to the rise of data collection and targeted advertising, new regulations such as the EU General Data Protection Regulation are being passed in order to combat situations such as the Cambridge Analytica scandal and to provide legal recourse for similar cases in the future (Tieu, 2018). Other regulations, primarily to protect consumer welfare, are being suggested as well, such as mandating transparency about what data is being collected and how it is being used (Barasz, John, 2019).

While this theory of “Technological Determinism” can be widely applicable to many STS studies, there are some criticisms of the theory and its implications. One major criticism is that this theory reduces the relationship between society and technology to a simple cause and effect, while in practice it is rather “intertwining,” whereby technology does not determine but instead "operates, and are operated upon in a complex social field" (Murphie, Potts 2003).

What Are the Effects of Targeted Political Advertising?

When looking at the possible detriments of targeted advertising technologies, it begs the question: what are the effects of targeted political advertising on political outcomes? To analyze this question, one method I will be using is surveys, asking participants questions such as who is

their top candidate for the next election, how often do they see advertisements for that candidate online, and whose advertisements do they see the most. The main takeaway from this will be finding a correlation between the advertisements and favored political candidates. Surveying participants is a well aligned method for this research question, as behavioral targeted advertising is a highly personalized experience, and it is important to take as many experiences as possible into account.

Another research method I will be using is historical case studies, where I will take a look at past elections where targeted behavioral advertising was a focal point of a candidate's campaign, looking for correlations in the amount of advertising and the amount of votes, as well as voter turnout numbers and any other data that stands out based on the campaign tactics. Historical case studies are also a well aligned research method for this question, as voter numbers and campaign spending numbers can be found for many elections, and the correlations they may contain are potentially valuable pieces of information.

Conclusion

The rampant use of behavioral advertising and information targeting technologies continues to raise many concerns over user privacy, but more importantly over the societal impacts these technologies can cause. When applied correctly, these technologies are immensely powerful, and are changing the ways democracies and societies as a whole are functioning. As information targeting technology continues to improve, it is important to study their effects on voters and the outcomes of elections so action can be taken to impart new campaigning and advertising regulations to protect consumers. The expected outcome of this study is that there

will be a relationship between the targeted advertisements and the decisions voters make. While many immediately think of the malicious uses of information targeting technology, Medella strives to make use of information targeting in a benevolent manner, connecting people with personalized educational health information. By registering with Medella, businesses can save money on insurance costs, and can have happier, healthier, and more productive employees.

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