

Building an Electronic Commerce Website

(Technical Research Problem)

Current Changes to Facebook's Online Ad-Targeting Practices

(STS Research Problem)

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On my honor as a University Student, I have neither given nor received
unauthorized aid on this assignment as defined by the Honor Guidelines
for Thesis-Related Assignments

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General Research Problem: Electronic Commerce Technology

What role does modern electronic commerce technology play in society?

Today's average-American interacts with electronic commerce at least once a day: whether they directly purchase something online, view an online advertisement, or visit a social media site. Recent studies reveal that Americans spend twenty-four hours a week online (Condliffe, 2019) and over two hours a day on social media sites (Salim, 2019); yet, many users do not realize how often they interact with electronic commerce nor the significance of these technologies in our modern world. My technical and STS research problems together address the current state of E-Commerce and provide more context into the field overall by covering some of its most current challenges and criticisms. Within the general realm of E-Commerce, my research collectively investigates the field's two major components: online websites and online advertisements. To be more specific, my technical research addresses an actual implementation of E-Commerce by covering the development, from inception to deployment, of a fully-functioning website that fulfills a market need. Meanwhile, my STS research problem describes the current changes in online targeted-advertising and how these practices will look going forward. Thus, together, my technical and STS research highlight two major components of modern electronic commerce technologies and provide more insight into the mutual shaping of E-Commerce and American society.

Technical Research Problem: Building an Electronic Commerce Website

How does one develop a fully-functioning E-Commerce website that efficiently connects registered nurses to patients needing bedside assistance?

Many Americans, especially the elderly and those with terminal illnesses, need experienced nurses to care for them and administer medications in their homes. It can be very tiring for family members to spend all of their time helping and caring for sick relatives, so hiring these nurses can relieve a lot of stress. Additionally, bedside nurses help meet medical needs that the patient's family cannot, while keeping their sick loved one out of the hospital. Today, over 65% of Americans who need long term care choose to hire in-home assistance instead of other care alternatives (U.S. Department of Health & Human Services Administration on Aging, 2019). However, even with this large demand, there is unfortunately no existing system that makes hiring these nurses affordable and efficient. To find these medical professionals, patients and caregivers rely on either word of mouth or existing agencies. While word of mouth is unreliable and limited, the agencies charge an additional fee of 15%-30% on top of the nurse's rate (National Nurses in Business Association, 2019). The current agency system also requires a middleman to match patients and nurses, which further increases both fees and time. To make the situation even worse, these agencies do not allow patients to browse available nurses and instantly contact them to inquire about rates and availability, which would be problematic if a patient needs assistance unexpectedly due to a sudden illness or injury. Thus, overall, the high cost and long turnaround time associated with existing nurse agencies provides a gap in the market that my teammates and I hope to fill.

Under the guidance of Professor Weaver, I am working with two other students to create a fully functioning electronic commerce web application to connect registered nurses with a variety of qualifications to those needing an at-home nurse service. Our site will have similar functionalities to care.com, which connects babysitters and nannies to families, but our website will specifically connect registered nurses to patients. Our site will have sign up and login pages

for both patients and nurses, but the profiles pages for nurses and patients will have unique user information. The individual requesting nursing care will be able to view and search for nurses based on a specific time, the amount that they are willing to pay, and specialty that they need. They can also pay for services, update their patient profile, message a nurse directly, and rate nurses on performance. Nurses can fill in available work times, update their nurse profile with desired pay rate and specialties, and apply for positions. The payment system will work as follows: patients will pay up-front when they book a service, and the cost is calculated using the nurses' desired hourly rate, hours of needed services, and our 5% fee. Once the patient pays us, we will update the nurse's balance. The nurse can then transfer his/her balance to his/her own Paypal whenever he/she chooses. Thus, overall, with the creation this user-friendly E-Commerce website, we will solve our desired problem by connecting patients to nurses with ease. Our solution is useful because it improves the efficiency of hiring medical professionals, reduces the overall cost, and provides patients with a greater selection of medical professionals from which to hire.

Over the rest of this semester and into the Spring, we will work closely with Professor Weaver to develop our project. Professor Weaver will serve as our client, and we will follow many of the traditional E-Commerce business steps, such as: identifying a targeted audience and need base, determining a business plan, creating an implementation strategy, coding the website with high-end/ complex functionality, and testing the final product. Our final project deliverable will be a completed website along with a report consisting of an abstract, problem statement, solution explanation, success metrics, testing plan, implementation plan, implementation results, and summary. We have already created a preliminary, beginner E-Commerce website in Professor Weaver's course last year that we will use as a guideline when creating our new

website. Through our research we hope to gain a better understanding of key functionalities for E-Commerce businesses and more of an appreciation for how these businesses are developed and fill a customer need while shaping and interacting with society at large. While our project is strictly for academic purposes at the moment, our completed work will have the potential to become an actual business one day.

STS Research Problem: Current Changes to Facebook's Online Ad-Targeting Technology

How is Facebook changing its ad-targeting practices for the housing and employment industries in response to recent evidence exposing their discriminatory tendencies?

Background / Introduction

While many websites and social media platforms utilize targeted advertising practices, none have as far-reaching impacts as Facebook. Facebook currently represents the third most visited site in the world and actively engages with 68% of Americans daily, putting Facebook in a unique position to make the most serious impacts on society with its ad targeting practices (Cooper, 2019). Targeted advertising is also a very profitable venture for Facebook, accounting for nearly 72% of its total revenue last year by bringing in over \$40 billion dollars for the company (Wagner, 2018). With these advertisement practices dramatically boosting sales for both Facebook and its advertisers, ad-targeting shows no signs of slowing down its growth any time soon. Yet, this prosperity comes at a cost of increased discrimination and reduced privacy for users. In 2019, average social media users are finally becoming more aware of Facebook's discriminatory practices in its ad-targeting technology, especially within the real estate and job markets. More of Facebook's practices have been coming to light in recent years following a 2016 ProPublica report revealing that the company does in fact allow housing advertisers to

exclude certain “ethnic affinities” from seeing their ads (Angwin, 2016). Since then, Facebook has faced five legal cases wherein civil rights groups have accused Facebook of allowing advertisers to discriminate against historically disenfranchised groups, such as minorities, women, and the elderly. The most recent court settlement between the American Civil Liberties Union and Facebook has ultimately resulted in Facebook finally agreeing to alter its ad-targeting technology to limit these capabilities for advertisers in the housing, credit, and employment markets (Dreyfuss, 2019).

While these recent court cases expose the discrimination associated with Facebook’s ad-targeting practices, very few recent reports directly address what specific changes Facebook proposes to make in response to this criticism. For the most part, the current research on this topic simply states that Facebook will change its ad-targeting practices, but does not elaborate on what these changes are in detail, when they will be completed, nor how they will impact the future of advertising. Thus, my research will cover this gap in knowledge by addressing these unanswered questions specifically for the advertising practices within the housing and employment industries.

Data Collection

In order to collect information for my STS research question, I will primarily use news articles, public statements from Facebook, and scholarly literature. I will look for sources that describe Facebook’s current ad-targeting practices and provide direct quotes from Facebook explicitly stating what it will change about its practices moving forward. With my research, I hope to dig deeper into what exactly Facebook agreed to in its most recent settlement with the American Civil Liberties Union in September and how this will affect the future of its ad-targeting practices. Ideal information sources are news articles and scholarly reports that cover

this recent settlement and any public statements that Facebook has made in regards to this agreement. When analyzing each source, I will perform a literature review to help gain a complete understanding of what the source states and its key points. I will also run my own investigation by creating a Facebook advertising account and noting the different options for how advertisers can currently target ads today. Finally, to complete my research I will compile a list of any unanswered questions and attempt to ask Facebook them directly.

Methods

As I conduct my research and uncover more specifics about the changes that Facebook proposes to make, I will consider how both internal and external influences have led Facebook to its current position with its ad-targeting practices. Understanding these influences and how Facebook works as its own system will give more context into the significance of and reasoning behind these proposed advertising changes. Only after I understand this entire network will I truly be able to consider how these changes impact both the company and the future of targeted-advertising. The major actants in this system are company executives, advertisers, the federal government, federal courts, activist groups, the ad-targeting algorithm itself, and Facebook users. Each one of these actants have contributed to the current state of Facebook and the company's ad-targeting practices, and I will consider each of their goals, influence, and role within this actor network. By considering how all of these actors individually and collectively have shaped Facebook's ad-targeting practices into what they are today and what they will be moving forward, I will holistically consider the issue at hand within my research question. By the end of my research I hope to thoroughly demonstrate how these ad-targeting practices are changing in accordance with the modifications that Facebook proposes to make.

STS Research Conclusion

Overall, as our society becomes even more entrenched in technology and social media, it is of the utmost importance for users to understand this digital discrimination and how marketing on the internet will look going forward. My goal is that readers will reach the end of my STS research portion and have a better idea of how Facebook's ad-targeting practices will look in the future for the housing and employment industries.

Conclusion

Ultimately, my hope is that after reading my STS research paper in entirety, readers will have a more complete view of E-Commerce's role in modern society and a better understanding for how things such as online websites and targeted advertisements affect all of us. The next time readers interact with these websites or online advertisements, I hope they have a more complete view of what occurs behind the scenes. Regardless of whether my readers were previously active in the field of electronic commerce as business owners, advertisers, or simply just consumers; I hope that all readers will now have a more holistic understanding of current practices and issues within the field. E-Commerce is a very broad and rapidly growing technical area with many components, but hopefully my research will effectively cover key topics within two of its major aspects.

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