

Prospectus

**University of Virginia Chrome Browser Extension: A Tool for Public Community to Utilize
UVA Library's Resources**

(Technical Report)

**How Is Exposure to News on Social Media Impact Young Adults' Perception of Credible
News**

(STS Research Paper)

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Tho Nguyen

By

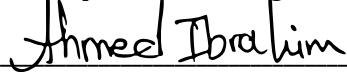
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Department of Computer Science

Signed:  _____

Approved: _____ Date _____

Sean Ferguson, Department of Engineering and Society

Approved:  _____ Date **11/26/2019** _____

Ahmed Ibrahim, Department of Computer Science

Introduction

With 12 libraries, 463,000 e-books, 16 millions manuscripts and archives, service space and innovative equipment such as 3-D printer and scanner (University of Virginia, 2019), University of Virginia (UVA) humbly placed in top 34 largest libraries of the U.S (American Library Association, 2012). More importantly, since the University is a public institute, most, if not all, of its resources are available for public use. However, the public, and even the majority of the UVA community is not utilize these free resources. According to Ms. Robin Ruggaber, Director of Strategic Technology Partnerships & Initiatives at the UVA Library, the main reason behind this dilemma is people are not aware that these resources are being offered by the library.

To tackle this problem, my technical project is focused on building a Chrome Browser Extension for the Library. The goal of this extension is to suggest similar items offered by the Library to users while they are searching online. With this goal in mind, my teammates and I hope our final product can make resources provided by the Library better utilized by not only the UVA but also Charlottesville community.

The scope of my STS project is coupled loosely with my technical project. My STS project is concentrated on fake news and disinformation, and how education can empower citizens of smart cities to filter and evaluate data, hence, prevent the negative impact of fake news and disinformation. From stock values to the 2016 US Presidential Election, fake news and disinformation have had their influences proven. These days, with the advancement of social media and the affordability of mobile devices, fake news can be distributed to a wider range of audience and at higher frequency.

With its impact and quantity, fake news is amongst issues need to be solved in our generation. To approach this problem, I need to first understand how people are impacted by the increase in open and possibly false data. Specifically, I am going to attempt to answer the question: how is exposure to news on social media affects young adults' perception of credible news? Subsequently, I want to learn how would I co-generate an information intervention and begin to understand how this sub-population thinks.

Technical Project

At the University of Virginia (UVA), a wide range of resources are available to both members of the library system and guests, yet knowledge of these resources is still limited for many. The UVA library system has access to a multitude of physical and online resources including books, movies, and other databases. However, as reported by the University of Virginia Library Statistics Report (2017), the total number of people using the library has reduced from 104,280 in 2010/11 to 72,938 in 2016/17. According to a survey of both graduate and undergraduate students conducted by UVA, around 35-40% only occasionally use physical library materials, and another 33-37% never take advantage of them (Public Report: Qualtrics Survey Software, n.d.). According to Ms. Robin Ruggaber (personal communication, September 18, 2019), Director of Strategic Technology Partnerships & Initiatives at the UVA Library, the main reason behind this problem is that people are not aware that these resources are being offered by the library. Many researchers and casual users alike often seek out some of these same resources through more convenient online methods of access through sites like Amazon, Google Scholar, or Netflix, which are available for free at the library. This means that content consumers often pay a fee for the convenience that is provided to them by accessing material that they unknowingly have access to for free. To solve this problem, our team is developing a Google Chrome browser extension which recommends items from the UVA library system whenever an item is searched that the UVA library may have access to in its system.

The aforementioned resource knowledge deficit is something that has been addressed in the past, and needs to be tackled again. Roughly a decade ago, a browser extension was created that made recommendations of library resources to its users, presenting them with materials that corresponded to what they were presently viewing online. By automatically querying the

plethora of library databases and catalogs for relevant results, the extension worked to better inform its users, saving them both time and, potentially, money in their everyday content searching. This existing extension is regrettably no longer functional or available, prompting the library to request the creation of an updated version, in the form of a Google Chrome browser extension. My teammates and I will be working to implement this updated version over the 2019-2020 academic year, with improved functionality and more features. Bringing back such a service will boost the visibility of lesser-known resources, and once again help individuals within the UVA community to potentially save both time and book-buying money.

The benefits that such a browser extension yields to its users are plentiful, not only including the reduction of resource ignorance, but also an easily-expandable platform for future improvements and expansions. The development of an extension for the most popular web browser on the internet that will automatically appear on search will make access to UVA library resources highly convenient (“Browser Market Share”, 2019, “Browser Market Share Worldwide”, 2019). This convenience will be compounded by the inclusion of login functionality, allowing for automatic authentication of users, yielding immediate digital resource access. By providing access to free resources through member accounts, and some free resources for the public, we would be saving many users the potential cost of paying for a product on a site like Amazon. In all of these manners, our extension would both save users time and the costs of accessing these resources through other methods. The extension is embedded within the Chrome browser which eliminates the extra steps users have to take, such as traversing through the library website, then searching through the Virgo database and then obtaining the result.

In addition to casual users, academic researchers will benefit greatly from the institution of such a proposed tool. Students and researchers at the University of Virginia sometimes visit

the library, only to discover that their desired material was either not available at the library or not in the library system at all. They then have to wait for it to become available or request an interlibrary loan (ILL). With the addition of our Google Chrome extension, a researcher will be able to see the availability of an item at the library through their web browser and potentially request ILL immediately. This will save researchers precious time, meaning they will not have to go to the library to check availability and request ILL.

Lack of knowledge about the university resources and ease of online shopping are two of the most significant factors in the decline of use of the UVA library. The extension we are developing for the library suggests UVA library's books and resources to users while they are searching for books on Amazon, Barnes and Nobles, and Google Scholar. The extension will look over the webpages and look for keywords like ISBN, UPC, and product name, then suggest the relevant resources that are available in the UVA library in an interactive popup bar at the top of the browser containing information of the resources such as title, author, availability and location. Further, we will extend the project to use Machine Learning (ML) and Artificial Intelligence (AI) to suggest the book and train ML/AI based on the user's interaction with the suggestions.

After several client meetings and revision, we have come up with a list of requirements for the extension. These requirements, however, are not final: as we build the product using agile methodology, there is room for additional requirements or improvements coming from clients and test users feedback.

Minimum requirements for this project include:

- Searching for a book on Amazon, Barnes and Nobles and Google Scholar results in the extension showing a banner with the book name, author, availability or method of accessing the material and location of the library if available.
- Clicking the extension icon will also show the results of a search from the listed three websites. Also, users can do additional searches in the extension with search results shown below the search bar (in the extension).

Desired requirements:

- Using asynchronous functions to responds fast to users' browsing result.
- Embedding logging in users.

Optional requirements:

- Extending the chrome extension to search in other universities library.
- Using Machine Learning to analyze search history and show customized recommended books.
- Security of the extension to be further solidified, so users do not misuse the extension and cause any harm to the library database.

STS Project

Does exposure to news on social media affect young adults' perception of credible news?

This project investigates this question by evaluating the current understanding of the phenomenon of fake, manipulative, or questionably credible news on those who are coming into life as active civil participants. News in this context refers to the data available on social media. Since social media companies, such as Facebook, define themselves as content platforms rather than publishers, they lack the editorial judgment and responsibility (Laurenson, 2015), or in simpler words, cannot, by law, dictate what contents appear on their website. As a result, they are not responsible for the credibility of the contents (Selyukh, 2018 and Section 230 of the Communications Decency Act). I will evaluate how the availability and free flow of news on social media influence young adults' perception of credible news. I will attempt to evaluate by (1) identify resources where young adults get their news, (2) understand their process of news evaluation and (3) identify resources where young adults fall back to when they are in doubt and understand why they choose such resources.

Literature Review:

For this project, the young adult age range is considered to be 15 to 25 years of age. Users in this age group account for 71-94% of all users on popular platforms such as Facebook, Instagram, and Youtube (Anderson and Smith, 2018). Besides, social media is recorded as the number one information source for young adults (Shearer, 2018). Despite the huge amount of young people using social media as their main news collecting resources, there is almost zero research focuses on how manipulative news on social media can influence this sub-population and how young adults evaluate news on social media as credible or not. Understanding the lack

of an official public knowledge on this topic, I will conduct my research to gain more understanding of young people and their perception of news on social media.

Indicated by a research conducted on 61 highschool students aged 14-19 (Marchi, 2012), teenagers nowadays regard broadcast news and print newspaper as boring, repetitive and irrelevant. Even though while most teens did not make a daily habit of reading newspapers, watching TV news, listening to news radio, or logging onto official news websites, nearly all expressed that keeping up with the news was important. There were three main alternative ways that the young people learned about news: (a) Via trusted adults; (b) Internet social networking sites and blogs; and (c) humorous and/or acerbic current events programs (p. 250). In a world of “information overload,” where youth report feeling overwhelmed by an onslaught of information (Marchi), trusted adults served as news “filters” and “translators” for the teens, pointing out important issues and explaining their relevance. In comparison, personal connections with friends and family on social media served as news “filters,” bringing different stories to the teens’ attention. Interestingly, young people prefer this way of collecting news in contrast to traditional news platforms because online posts have embedded links that they can click on to get more information if the titles piqued them. Posts on social media also have commentaries, which help young people understand their relevance and be introduced to different points of view that they did not thought of, therefore, help shape their stand of the matters.

As good as it might sound, the downside to approaching news via social platforms is the “filters” themselves. To improve users’ experience, social media firms have developed algorithms to customize users’ news feed based on their and their connections’ search history, online activities and interaction/reaction to certain posts. Bots, or software robots, are automated

accounts impersonating humans. They are often benign, or even useful, but some are created to harm, by tampering with, manipulating, and deceiving social media users. From the perspective of the users, by liking, sharing, and searching for information, social bots can magnify the spread of related posts by orders of magnitude (Ferrara, Varol, Davis, Menczer, Flammini, 2016). This ought-to-be-helpful mechanism can wrap users in a bubble of data that possibly biased and unauthentic. Then, how negative can this bubble impact young people's perception of credible news?

According to psychologist Daniel Schacter from Harvard University, "The development of Internet-based misinformation, such as recently well-publicized fake news sites, has the potential to distort individual and collective memories in disturbing ways." (Spinney, 2017) Communication shape memories. During a communication process, the speaker can emphasize a specific piece of information by repeating it, hence making it more memorable. Things that are mentioned are remembered. Yet unrelated, or false, information gets repeatedly mentioned is also better remembered than unmentioned related facts. This effect is known as retrieval-induced forgetting (Spinney). Also, an experiment conducted by psychologists Alin Coman at Princeton University in New Jersey and William Hirst of the New School for Social Research in New York City reported that a person experiences more induced forgetting when listening to someone in their social group than if they see that person as an outsider. As a result, data bubbles created by social media connections have an impact on young people's perception and memory depending on the characteristics of the bubble and the people inside it. Regardless of the credibility of the data, the more young people get exposed to a specific trend of information, the more convinced they are, since this information indirectly approved by the people in their social group by actions such as liking and sharing. By aligning their interests and beliefs with their social group, young

people find a sense of belonging and life-satisfaction, hence, increase even more their incentive to be alike.

In short, young adults get their news mostly from trusted adults, social media and blog posts, and humorous/acerbic events programs. However, with social media, there are social bots that inject manipulative news and algorithms that create data bubbles according to users' interaction with certain posts and connections. These data bubbles can be harmful in a way that they fool users into believing in certain trends of information by repeating it excessively with rich media.

Framework:

Data bubbles on social media can be dangerous to young adults as civil participants. However, there is hope. With the first goal completed (identify resources where young adults get their news), I will attempt the second one (understanding their process of news evaluation) using Actor-Network Theory. Actor-Network Theory is an appropriate framework in this context because it is important to know what factors are taken into consideration when evaluating credibility. These actors including but not limited to: news publishers, social media platforms, design layouts of news and the news consumers. Knowing that young adults also get their information from other resources such as trusted adults, I will research for my third goal (identify resources where young adults fall back to when they are in doubt and understand why they choose such resources) starting with learning how trusted adults can encourage or discourage young adults' evaluation of credible data.

Methodology:

To get data to answer my questions, I will conduct interviews with students at the University. To get the most reliable data, I will collect information from a diverse pool of interviewees in terms of gender, racial and education (different majors, levels of study) background. Below is a list of questions will be asked in the interviews. This list of questions, however, is not exhaustive, there will be room in the interview for impromptu questions come up according to the interviewee's response to help better understand the scope of the project.

Understanding young adults' process of news evaluation:

1. Do you read news from social media? If so, what kind of news do you read? What makes you like reading news on social media?
2. Which social media platforms do you get most news from?
3. Of the news you usually read, who is/are the publisher(s)?
4. Why those publishers?
5. Do you find news by those publishers reliable? Why, why not?
6. Do you read a news article from top to bottom? If not, which part of an article do you focus on?
7. Which one do you prefer: a Wall Street Journal article or a Vox video? Why?
8. What do you think about illustrations and media-rich content?
9. When you find something that you are unsure of whether it is fake or not, do you proceed to determine its credibility, do you accept it, or do you ignore it?
10. If you accept or ignore it, why?

Identify resources where young adults fall back to when they are in doubt and understand why they choose such resources:

1. What resource(s) do you use to evaluate if something is credible? If more than one resource, which one of them do you go to first? Why?
2. Do you think adults are a trusted resource? If so, what makes adults a trusted resource? Can you identify some of them?
3. What if your trusted adults contradict mainstream media?
4. What if your trusted adults contradict one another?
5. What roles should adults play in young people's news perception?

Timeline:

- January to February: First round of interviews. In this round of interviews, I will ask the questions listed above. First-round interviews will end in approximately mid-February. Afterward, I will consolidate data collected and come up with questions for potential second-round interviews.
- March: Second round interviews. The time allocated for this round is shorter because I will use the same interviewees from the first round - no time spent on finding interviews, and because there will be fewer questions asked during this round, mostly will be to inquire more information left unclear on the first-round interview.
- April - May: Consolidate data and come up with smart city design.

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