UVA Polls

(Technical Topic)

Anonymity in Apps

(STS Topic)

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By

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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.

Signed, Michael Yates

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Introduction

There are many potential benefits of allowing for complete anonymity in the facilitation of conversations or debates. Without fear of consequences, people are more likely to express their honest opinions to the fullest. It also allows users to engage in self-discovery by asking the questions they wouldn't be comfortable saying out loud. As an independent research project to fulfill my CS requirement, I will be developing a mobile app called UVA Polls. This will be an anonymous question app for UVA students to ask their fellow peers questions, and to vote on those questions. By analyzing the connections between anonymity and “learning about the self,” I hope to effectively promote curiosity while not enabling ill behavior on the platform. I plan to employ similar anti-bullying measures as my case study. Also, to ensure that UVA Polls truly reflects UVA’s opinions, I will have some form of authentication to confirm the student is truly a student at UVA.

Using Sociotechnical System’s Politics of Design, we can analyze the design decision of anonymity, and its influence on people's behavior. One way of utilizing the politics of design is to study examples of similar productions, and understand the tradeoffs made by their design decisions (Gordon Baxter et al., 2010 p.7). There are many case studies of anonymity and the promotion of free speech, and how it can inadvertently enable cyberbullying. For example, the commonly used anonymous message app YikYak was developed in 2013 and allowed for the posting of anonymous messages, where those in a similar location to you could see. Despite its impressive growth initially, it received tremendous backlash due to the large amount of cyberbullying occurring on the app. They countered this with stricter rules and community guidelines. Analysis of YikYaks from large sample sizes offers us interesting information regarding anonymity and human behavior. The data clearly demonstrates users' increased willingness to speak about personal topics when under the sense of anonymity. (John Bargh et al., 2002 p.46) Yet another study analyzed anonymity on interactions and how it assists with key developmental tasks during adolescence (Nicole B. Ellison et al., 2016 p.18).

Technical Topic

Abstract

There is currently no good way for a student at UVA to gauge the opinion of the UVA population on a topic, and furthermore, there is no way to do so anonymously. One potential option is UVA’s subreddit page, but this only gains a few answers per a question, and doesn’t poll the student body. Also, if I am curious to learn more about the student body, it would be useful to exclusively scroll through polls that other people have asked, and see the results of each. This would inspire curiosity (Why do they think

that? I disagree!) leading to me asking new polls, and causing self exploration as I search to understand other's views. Also, if a student has a deep question, then being able to ask anonymously would encourage them to ask away. A mobile application could help provide the means to ask the questions that we would not like to be associated with, while still garnering answers to our curiosity. Flutter, an IDE that hosts the Dart language, allows a developer to create an app that can be hosted both on android and ios devices while using a single code base. This will allow production of UVA Polls to be quicker and more maintainable. I have begun developing an expertise in dart/flutter as an independent study project to enable my app production. I have set out a plan of relevant tutorials and documentation to go through, and will have the app launched by the end of February.

UVA Polls serves the uva community by encouraging the seeking of answers to our curiosity. This equally serves me, as it gives me exposure to app development, an area that I have strong interest in. Gaining this experience will undoubtedly have a positive impact on my future career options.

I will be logging all of my work that I accomplish to GitHub, located at https://github.com/Mike-Yates. This will show the different projects I complete as I'm learning dart/futter, as well as track my journey through the coding of UVA Polls. I will be pushing my code up frequently, with helpful comments. I expect to become very proficient in Dart, to become very familiar with the widget design of Flutter, and to be able to comfortably develop apps as a potential career following this year. I plan to conduct customer evaluations of the design plan of UVA Polls to increase the functionality of the app.

UVA Polls will give students an easy means of expressing themselves, and a place to see the opinions of their fellow student body in a centralized location. This app will encourage a cycle of curiosity: as people see questions along with people's answers on the app, they will be curious to learn more about differing opinions, causing them to ask more questions and thus creating a cycle. The current polling options fail to centralize polls in an area where UVA students are likely to post and answer questions. UVA's subreddit allows for asking polls, however in order to find them I need to scroll through pages of comments and open ended questions. By centralizing the polls into one app, users can read and answer poll after poll to gain an understanding of the opinions of the student body, as well as to inspire new poll questions to ask. While Facebook has a large reach, it lacks the anonymity that UVA Polls would provide. Ask.fm is similar to UVA Polls, however the questions are open ended, and it fails to limit it to a small population, such as the UVA student body. Thus, results would not reflect the students' opinions accurately. ModoLabs is superior in its ability to limit the population to just one campus by creating a different version for each school, however,

it has not been created for UVA. The popularity of YikYak on UVA grounds demonstrates the interest in anonymous apps, and by gauging interest by asking my peers, I can see there is a need for a polling app.

Having a strong foundation in multiple languages, such as Python, Java, and C++, I have learned the general concepts of coding beyond the specific syntax of any one language. This has greatly simplified the process of learning Dart as it covers the same overarching coding principles and logic that the other coding languages are built upon. The principles of inheritance of classes are especially relevant within Dart, and I am glad I have a strong understanding of its use from CS2150 “Program and Data Representation” especially. Last summer, I also took CS4640 “Programming Languages for Web Applications” which gave me my first hands-on experience with mobile development, which is directly applicable to the concepts used in Flutter. CS4740 Cloud Computing has given me a good background in AWS databases, which I will use to handle memory storage and distribution on the tail end of my app development.

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When looking at the relationship between humans and anonymity, the concept of anonymity in online environments is best understood as a spectrum, divided into the categories of anonymity, pseudonymity, and “real name” (Nicole B. Ellison et al., 2016 p.1). Anonymity causes people to address a wider range of topics than in face-to-face settings, encompassing subjects that people feel would be awkward, embarrassing, or inappropriate to express through other channels (Nicole B. Ellison et al., 2016 p.7). This allows adolescents and teens to undergo important identity experimentation and social development (Teo Keipe et al., 2014 p.2). Unfortunately, this comes at the expense of possibly enabling aggressive behaviors such as harassment and bullying within the anonymous online platforms (Kimberly Christopherson, 2006 p.4).

In order to discourage the potential negatives associated with anonymity, software designers should utilize the Sociotechnical Systems Framework. Socio-technical systems design methods are an approach to design that consider human, social and organizational factors, as well as technical factors in the design of organizational systems (Gordon Baxter et al., 2010 p.1). Gordon emphasizes the importance of a “human-centered design,” to best actualize a technology’s intended purpose. This calls for user participation in the development process to garner an explicit understanding of users, their tasks, and the environments in which they work (Gordon Baxter et al., 2010 p.4). Research into similar productions can provide a deeper understanding of problems, and the basis for potential solutions (Gordon Baxter et al., 2010 p.7).

There are many case studies of how past anonymous mobile applications have handled their disciplinary philosophies, and the effect this has had on the user base. One very popular case is the app YikYak. As Gordon Baxter suggested, to understand the politics of design we must first analyze the user base. YikYak was designed to allow college students to connect and freely interact with their campus community of young adults, thus it was designed for young adults. (Vaterlaus, Mitchell J, 2017 p.2). YikYak experienced its initial growth in college towns (Erik W. Black et al., 2015 p.18). The task provided by YikYak is a fully anonymous message board that allows users to comment on, upvote, and downvote messages. This allows for informal research to be conducted by the user base as they see what gains the most likes, and what gets disliked. Caitlin Byrne concludes that anonymous social medias offer a new and unstudied source of data on critical issues like sex, class, and race (Caitlin Byrne, 2017 p.805). These topics have been extensively studied in public settings, but anonymous settings tend to allow people to respond more candidly (Caitlin Byrne, 2017 p.805).

Lastly, and most importantly, the app was deployed in a fully anonymous environment. Despite its initial popularity, the app received backlash due to the large amount of cyberbullying occurring on the app. Erik W. Black and his colleagues speak to the rule changes that YikYak underwent in 2014 to increase accountability of accounts. YikYak employs a self governing policy, allowing users to report posts, and removing posts and users who receive a reasonable amount of reports. By doing a metaanalysis of 4,001 yik yak posts, they found that Yik Yak in general is not a venue for widespread anti-social behavior. In terms of targeting specific people, they found that postings mentioning an individual's first or last name represented only 0.3% of the analyzed postings (Erik W. Black et al., 2015 p.20). While this could be for a variety of reasons, YikYak's banning policy was overall a functional and efficient method for community enforcement (Erik W. Black et al., 2015 p.21). By looking at the research that has already been completed in the world of anonymous social media, it is clear that the handling of disciplinary demerits in a quick and permanent manner would greatly discourage the improper use of the app, while still maintaining the benefits of anonymity.

Next Steps

I would like to find more information on the direct impact of the policy changes of YikYak. An analysis of the behavior of the user base before stricter rules were enforced compared to after would offer valuable information on the effectiveness of such policies, and how I can best incorporate them into my own app. A developer of an online social media application has a lot of power over the types of interactions that the users will have, and it is the responsibility of the developer to encourage healthy relationships.

There was also convincing evidence that the lack of eye contact is the biggest contributor towards the likelihood of poor behavior in users. I would like to find more studies about eye contact, and find a way to incorporate it into UVA Polls to influence how my users interact with the app.

October 2021: Finished

November 2021: Finish The Net Ninja tutorial series about Flutter https://www.youtube.com/watch?v=TSIhiZ5jRB0&list=PL4cUxeGkcC9jLYyp2Aoh6hcWuxFDX6PBJ&index=6

December 2021: Start and finish “voting” tutorial https://www.youtube.com/watch?v=Iu9DpbzR83s

December 2021: Start and finish tutorial on app structure https://hu.pinterest.com/pin/541065342735687543/

December 2021: begin development of UVA Polls. Over winter break I will be consistently working on the app.

December 2021: begin coding UVA Polls

January 2022: Continue coding UVA Polls

February 2022: finish coding UVA Polls

February 2022: Setup AWS database for app. This greatly overlaps what I have learned in CS4740 (Cloud computing)

February 2022: Deploy to the App Store. https://flutter.dev/docs/deployment/ios

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