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Designing a Mobile App and Online Directory to Increase the Visibility of Environmental Organizations in a Community

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Designing a Mobile App and Online Directory to Increase the Visibility of Environmental

Organizations in a Community

An Undergraduate Thesis Proposal

By

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Introduction

Concern for environmental degradation, natural resource depletion, and public health has long been a necessary part of a strongly developed and sophisticated society. Humans are primarily responsible for the depletion of the natural environment as it supplies the commodities required to ensure the long-term survival of civilizations. As cultures continue to evolve, so does the practice of land stewardship and protection of resources. With the necessary expansion of industry and housing needed to support a rising human population, the management of natural resources, pollution control, and the environment has become increasingly important to people worldwide. Bernstein and Szuster (2019) suggest these concerns led to the environmental movement and environmentalism that largely emerged in the United States in the late 1960s. Environmentalism found its way into the public eye on the first Earth Day held on April 22, 1970, and was a catalyst in bringing about environmental legislation in the United States, such as the Clean Water Act and the Endangered Species Act. The first Earth Summit, attended by 113 nations, was held in Stockholm, Sweden, in 1972 and put environmentalism on an international stage (Bernstein and Szuster 2019). Environmentalism also surfaced in global political conversations through organizations like the Intergovernmental Panel on Climate Change (IPCC) and projects like the United Nations Sustainable Development Goals (SDGs).

Environmentalism is a social movement driven by a network of collective action from individuals and groups on local and national levels (Millward & Takhar, 2019). According to Nardini et al. (2021), the collaboration between diverse people and organizations creates a platform necessary to produce critical social movements. As divergent groups connect to achieve a common goal, their collective actions can be powerful agents of social change as they influence societal norms (Nardini et al., 2021). Social movements can also influence policy and law as activists work in tandem with legal professionals (Guinier & Torres, 2013). Still, commonly, activists focus on creating change in society's social spheres rather than the political spheres of government through a bottom-up approach (Millward & Takhar, 2019). Depending on individual situations and access to resources, there are many ways that activists can align themselves with the environmental movement.

Environmentalism Through Volunteering

One way individuals and groups can participate in environmentalism is through volunteering, which is a pro-social and long-term behavior that benefits another person, group, or cause without compensation (Omoto & Snyder, 1995; Penner & Finkelstein, 1998). Volunteering is also a vital outlet used by the public to participate in civil society (Whiteley, 2004). According to a study on environmental volunteering by Measham and Barnett (2009), engaging in volunteering is a way people can give back to society and feel good about themselves. There are links to improved social networks and an enhanced sense of place. Environmental volunteering has the added benefits of better physical functioning, better self-rated health, improved

psychological well-being, and increased longevity. By engaging in environmental volunteering, individuals typically find themselves increasingly exposed to nature, which can improve cognitive functioning, physical health, and activity, especially in older adults (Pillemer et al., 2009). The positive impacts of environmental volunteering can be beneficial to individuals, but there are also community-wide benefits. Environmental volunteers offer a valuable contribution to the long-term management of their environments and their communities (Measham & Barnett, 2009). With multiple individuals and groups committed to volunteering, there is potential for enhanced community functioning.

Volunteering and Social Capital

The act of volunteering creates trust among people in a community. Trust is an essential type of social capital that contributes to long-term community development and the functioning of a democratic system (Andronic, 2016). As more individuals volunteer in a community, there is greater trust and more significant potential for increasing social capital. Putnam (2000) describes social capital as "social networks and the norms of reciprocity and trustworthiness that arise from them." According to a study by Dale and Newman (2008), social capital is crucial for sustainable community development. Addressing significant environmental issues such as climate change is often beyond any single entity or organization's capability. Social capital helps communities form critical networks that help them better address these large and complex issues. Networks also help communities overcome barriers to sustainable community development by giving them the means to access resources within and outside their boundaries (Dale & Newman, 2008). Like other forms of capital (physical, financial, and human), social capital also leads to greater productivity in a community (Brown & Ferris, 2007).

Volunteering and social capital are closely linked and play essential roles in society. So how does the United States rank in total volunteer hours? Recent 2017 data collected by the U.S. Bureau of Labor Statistics and the Census Bureau's Current Population Survey (CPS) suggests that the U.S. has had record highs in total volunteer hours and charitable donations in 2017 (U.S. Bureau of Labor Statistics, 2017). Despite these record highs for volunteer hours, trends indicate a lower percentage of Americans volunteering and giving to charity (Dietz & Grimm, 2018). In a ranking of all 50 states, Nebraska was 6th overall for the total number of volunteer hours, with 589,714 volunteers contributing 53.8 million service hours (Corporation of National and Community Service, 2017). When broken down by type of volunteer opportunity, "environmental or animal care" only made up a little over two percent of Nebraska's total volunteering (Figure 1). A lower percentage of Americans contributing volunteer hours has implications for improving social capital. In Nebraska specifically, the only two percent of volunteering hours contributing to "environmental or animal welfare" volunteer opportunities may threaten a continuing successful environmental movement in the state. So how do communities improve volunteering, specifically environmental volunteering, and contribute to growing social capital?

Figure 1: Types of Volunteer Activities in Nebraska
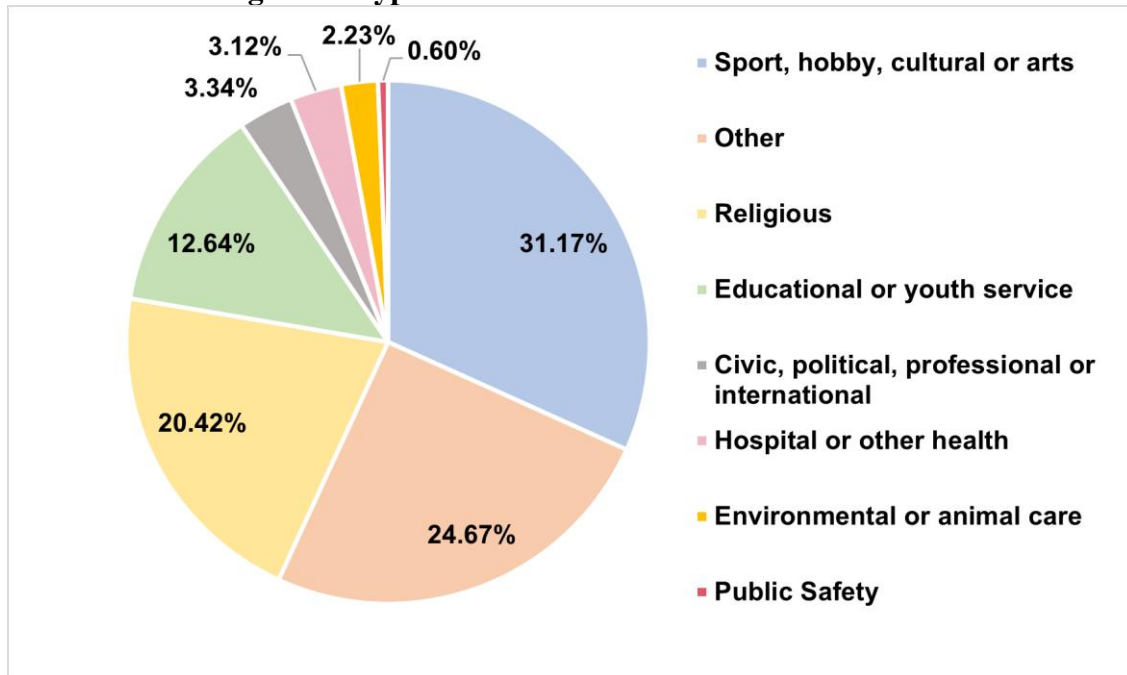
Source: Corporation of National and Community Service, 2017[1]

Social Media's Impact on Social Movements

One common way civic life in communities is influenced is through social media. Social media has amassed public support for social and political causes on large scales (Oh et al., 2015; Li et al., 2021). Social media also plays a role in building place-based content through localized media to build trust in a community. Although social media can create global connectivity, studies have found that it is a valuable tool for connecting residents with community institutions and local governance (Kwon et al., 2021). For example, Facebook pages have worked as channels that encourage engagement between residents and local government (Bonsón, Royo, & Ratkai, 2015). Twitter has been shown to provoke more social interactions with local events versus non-local events (Bingham-Hall & Law, 2015; Yardi & Boyd, 2010). Additionally, local governments' adoption of social networks and online tools provides new opportunities for increasing civic engagement among citizens (Leighninger, 2011; Mossberger et al., 2013).

Social Media and Civic Participation

Mossberger, Wu, and Crawford (2013) discuss the vital role social media plays in developing e-government which utilizes online tools like open data portals to improve the relationship between citizens and government. Additionally, online tools can improve interactions with citizens through dialogue and greater transparency (Mossberger et al., 2013). Government accountability, responsiveness, and openness become more significant with increasing public

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[1] Corporation for National and Community Service. "Nebraska." (2017). Retrieved March 20, 2021, from
https://www.nationalservice.gov/serve/via/states/nebraska

discussion and citizen participation, making technology a crucial tool for creating a more participatory democracy (Tolbert & Mossberger, 2006). Boulianne (2015) theorizes that citizen knowledge of political issues is heightened by social media, facilitating political and civic engagement. Studies based on national data investigated how social media use impacted civic engagement and found a positive association between informational use and political participation (Boulianne, 2015). Online platforms like Twitter and Facebook create interactive environments that promote citizen participation in civic life. Interactive communication environments also encourage citizens to participate in their local communities through information sharing and volunteer work (Choi et al., 2017).

A Platform for Information Sharing and Participatory Action

This project builds on the idea that online tools increase transparency, dialogue, and participatory action in local communities. The project also proposes implementing an online resource called "The Canopy," a mobile app that contains a directory of local environmental organizations and projects in Nebraska. The Canopy increases citizen awareness of local environmental and sustainability-related organizations by offering a consolidated directory that can be accessed by the public conveniently and free of charge. The app displays local organizations and their information via a profile listed in the directory. Citizens can use the app to search for organizations by title or topic and instantly become connected with entities in their local area. By increasing the potential for local engagement, The Canopy may be a powerful tool for growing participatory actions like environmental volunteering and improving social capital and community trust, all of which contribute to the environmental movement's success. This project seeks to increase citizen awareness of local environmental and sustainability-related organizations and promote participatory actions such as environmental volunteering and improving social trust and capital.

Materials and Methods

This project outlines the steps in planning and building of The Canopy mobile app. Initial planning involved exploration to determine if any similar databases exist in Nebraska and to assess the viability of an online environmental directory. As of Spring 2021, no mobile applications that contained a list of organizations involved in sustainability or environmental-related projects were found. However, an online google search using the terms "Nebraska" and "Environmental Organizations," revealed websites that list environmental and sustainability-related organizations in Nebraska. Those websites are listed in Table 1.

Table 1: Websites Containing a List of Environmental and Sustainability Organizations in Nebraska

Website	Webpage Search Ranking	Organization Name	Number of Nebraska Organizations in List	Sort Level (State/Region/County/City)	Unique Website Functions
eco-usa.net	Page 1	Eco-USA	12	State	Organization names are directly linked to organization websites
environmental groups.us	Page 1	Environmental Groups	20	State/Region	Option to add an organization to the directory
causeiq.com	Page 2	Cause IQ	14	State	Features job trends, organization size, and revenues
unomaha.edu/sustainability/resources.php	Page 2	University of Nebraska-Omaha Sustainability	52	State/City	Organization names are directly linked to organization websites

The websites are not comprehensive and list only a subset of the total organizations related to sustainability and the environment which exists in Nebraska. The first website (eco-usa.net) offers short lists of organizations at the state level. The second website (enviornmentalgroups.us) further sorts down to a regional level, but only one of the websites (unomaha.edu) contains a local directory at the city level. The University of Nebraska-Omaha sustainability resources page offers a list of local organizations, primarily located in the Omaha, NE area. At present, no comprehensive online directory exists for the city of Lincoln, NE.
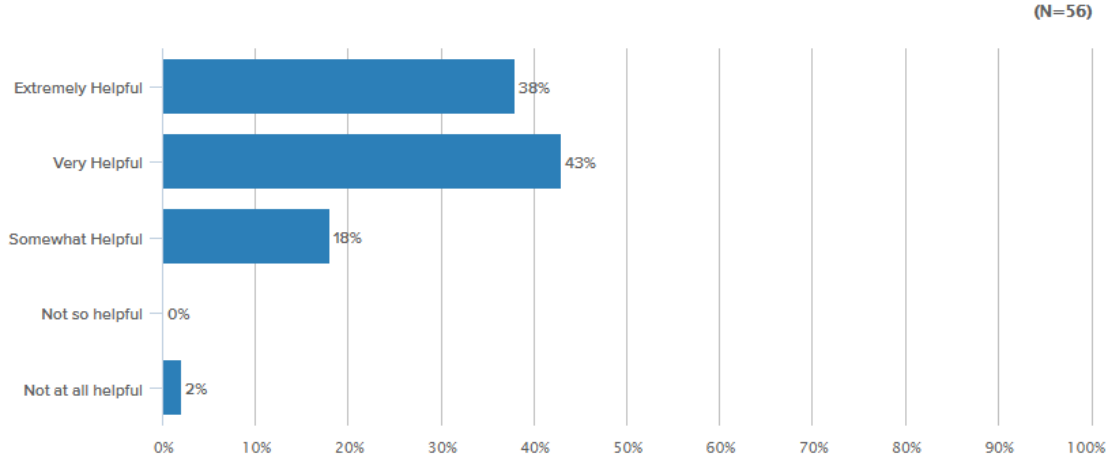
Mobile App Development

To further explore an online local environmental database's viability, several website and app building software products were explored. Of the many software products that exist, one offered the ability to create a mobile application without needing software coding knowledge and offered a relatively low cost. Appypie.com was selected as the best option for creating The Canopy, because it makes building a mobile application without coding experience accessible. Appypie's mobile app builder, "Appy Pie AppMakr," was designed to offer mobile app development to businesses of different niches, scales, and sizes in an affordable and accessible way (appypie.com). The AppMakr allows a user to create Android and iPhone apps with relative ease. Offering pre-programmed features that an individual can choose from to build their app idea, Appypie provides a unique opportunity to create The Canopy. The AppMakr offers multiple features available for utilization in building the mobile app. To narrow down which features would be best for the app, a list was put together to start gaining public input on which functions to prioritize.

A survey was conducted using sogosurvey.com to determine which features and functions users would find most useful in the app and investigate initial interest in The Canopy. The survey helped inform the mobile app's development by providing an opportunity for individuals to indicate how useful they felt The Canopy would be and which features and functions they would find most valuable. The survey participants were recruited using email communications sent to environmental studies classes and some professors. An announcement for the survey was also posted on Facebook and posted on the Neighborhood app which is a social networking app used by local individuals in Lincoln. The survey was completed by 56 participants. Question one determined initial interest for The Canopy by asking survey participants to rate how useful they found the resource based on a preliminary description (Figure 2). According to responses, 43% of participants found The Canopy "very helpful," and 38% found it "extremely helpful". Question two (Figure 3) provided participants with an opportunity to rank a list of potential features and functions of the app from most useful (1) to least useful (9). According to responses, "a calendar of upcoming events related to environmental and sustainability info" was ranked the most useful. The second most useful function was a "volunteer request form that connects users with environmental and sustainability volunteer opportunities." Participants ranked "quizzes and polls on environmental and sustainability topics" as the least useful function. These two questions allowed for certain features to be prioritized during the creation process and ensured features users desired most were included in the app. Additional questions on the survey are discussed in the results and discussion section below.
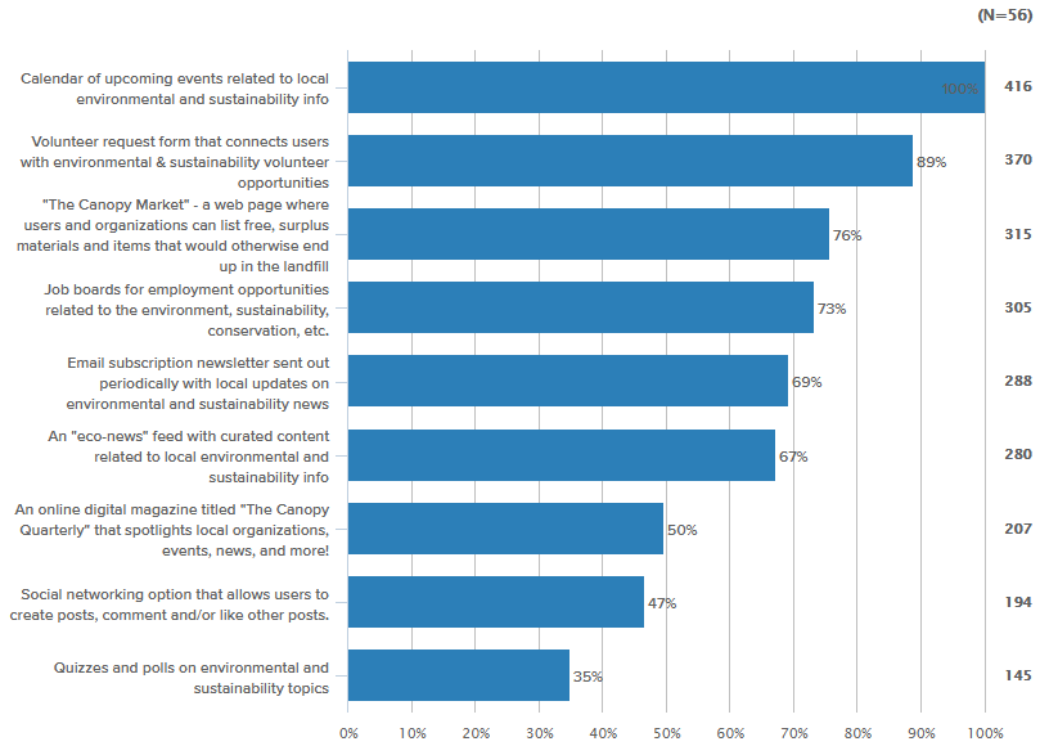
Figure 2: Question One from Survey

1. The main goal of **The Canopy** is to connect citizens with an online database of local organizations and businesses involved in environmentalism, conservation, sustainability, etc. Please rate how helpful this would be to you.

(N=56)

Extremely Helpful	38%
Very Helpful	43%
Somewhat Helpful	18%
Not so helpful	0%
Not at all helpful	2%

Figure 3: Question Two from Survey

2. Please rank the following features & functions for **The Canopy** from most useful (**1**) to least useful (**9**).

(N=56)

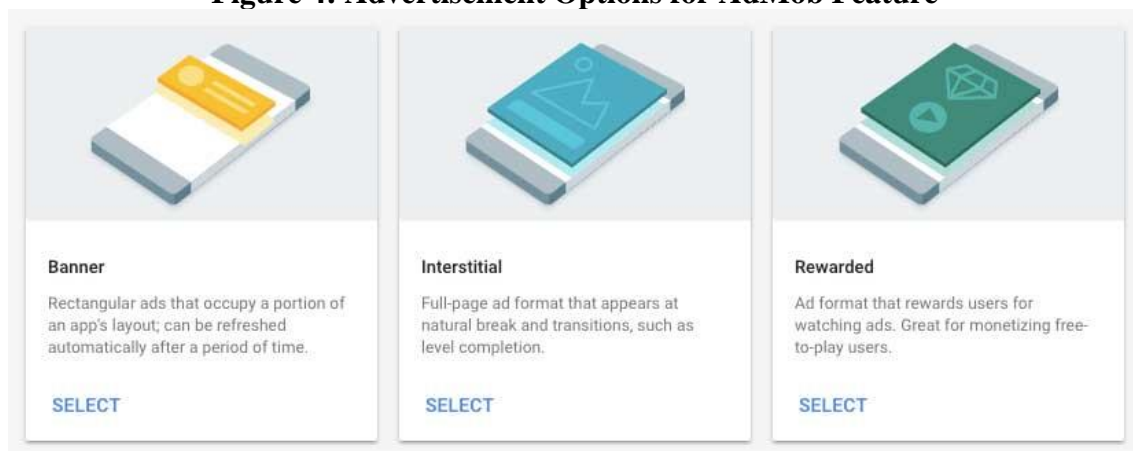| Feature	%	Score
Calendar of upcoming events related to local environmental and sustainability info	100%	416
Volunteer request form that connects users with environmental & sustainability volunteer opportunities	89%	370
"The Canopy Market" - a web page where users and organizations can list free, surplus materials and items that would otherwise end up in the landfill	76%	315
Job boards for employment opportunities related to the environment, sustainability, conservation, etc.	73%	305
Email subscription newsletter sent out periodically with local updates on environmental and sustainability news	69%	288
An "eco-news" feed with curated content related to local environmental and sustainability info	67%	280
An online digital magazine titled "The Canopy Quarterly" that spotlights local organizations, events, news, and more!	50%	207
Social networking option that allows users to create posts, comment and/or like other posts.	47%	194
Quizzes and polls on environmental and sustainability topics	35%	145

Monetization

One significant component of building a mobile application and website is determining the best way to monetize it. Various monetization strategies were considered to select the best option to fund The Canopy while still offering it for free to the public shown in Table 2. After careful consideration of multiple monetization strategies, two approaches stand out that could potentially fund the mobile app. The "paid app" strategy did not align with the project goal of keeping the app free to the public and therefore was excluded from consideration. The most straightforward monetization strategy to implement is in-app advertising. Appypie offers In-app advertising through a feature called "AdMob," which allows three options for advertising which are described in Figure 4. A "banner" ad makes the most sense for a directory app like The Canopy of the three options. The "interstitial" and "rewarded" options make more sense for a gaming-style mobile app.

Table 2: Monetization Strategies

Monetization Strategy	Description
In-app Advertising	Appypie offers an option to earn from advertisements by enabling "AdMob."
In-app purchases	Users can unlock additional features when purchasing an upgrade that offers premium content or access.
Paid app	Users would have to pay to download the app in the app store.
Affiliate Program	By joining a mobile affiliate network, you would be advertising relevant apps, products, or services being offered by your affiliates and earn money from it.
Subscriptions & Advertisements	Offer a premium membership to environmental organizations that include: advertisement space, event listings, volunteer matching, and other features that would allow the organization to be seen.

**Figure 4: Advertisement Options for AdMob Feature**

Banner
Rectangular ads that occupy a portion of an app's layout; can be refreshed automatically after a period of time.

SELECT

Interstitial
Full-page ad format that appears at natural break and transitions, such as level completion.

SELECT

Rewarded
Ad format that rewards users for watching ads. Great for monetizing free-to-play users.

SELECT

Source: appypie.com

The second monetization strategy to be used is subscriptions and advertisements. Using in-app transactions, organizations listed in the directory would have the option to purchase a premium membership for a set price and time period. The membership would include advertisement space in the app, automatic event listings, matching the organization with volunteers, push notifications specific to the organization, and other features that would increase the organization's visibility in the app. The other monetization strategies did not work well with the app's style and were eliminated from further consideration. The Canopy is a unique mobile app that requires a unique monetization strategy. The combination of in-app advertisements and subscriptions and memberships may be the most useful for long-term funding.

Logo and Branding Kit

Utilizing software from looka.com, a logo and social media branding kit were designed for The Canopy (Figure 5). A simple logo was chosen to create a clean and straightforward design. The social media branding kit includes downloadable templates for business cards, letters, social media posts, email signatures, and much more. The branding kit will assist in future marketing for The Canopy through emails, social media, advertisements, and presentations.

Figure 5: Logo Design for The Canopy
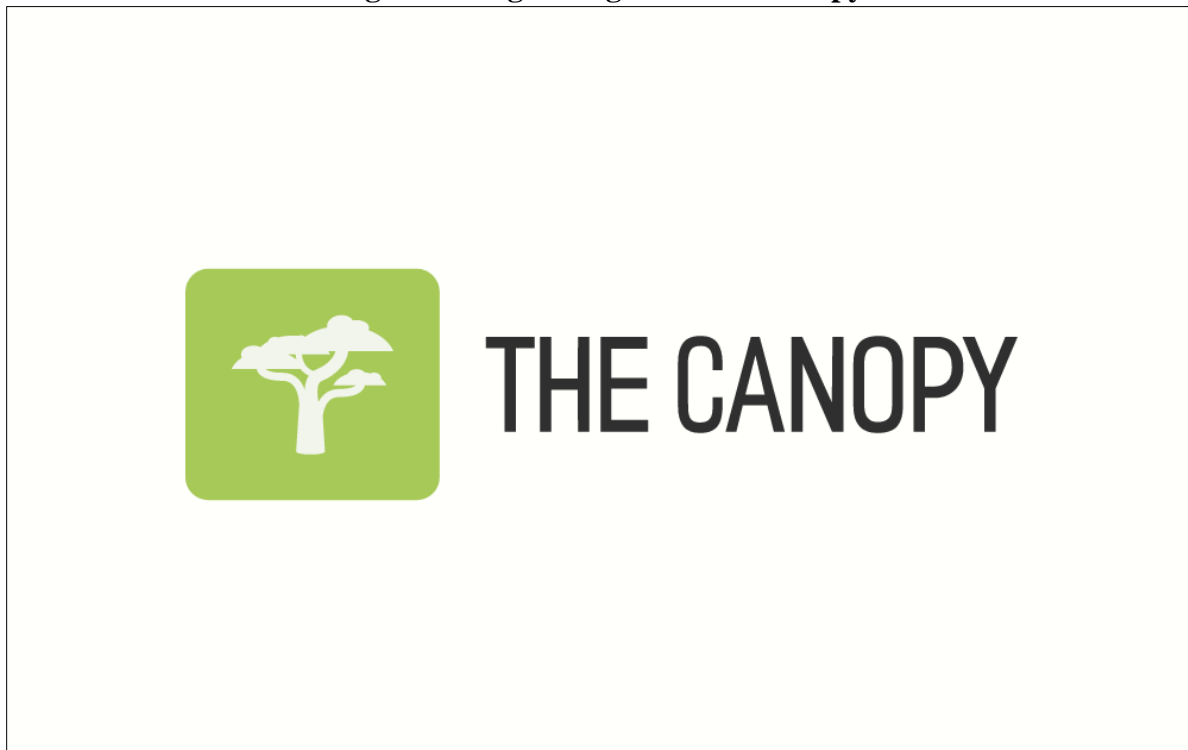
App Features and Functions

A list of environmental and sustainability-related organizations in Lincoln and Omaha, Nebraska were put together in a spreadsheet to create the directory. Multiple organizations operating at the state level were also added to a "statewide" spreadsheet page. The spreadsheet contained columns for contact information such as phone numbers, email addresses, location, and social media accounts. Columns were also included for the organization's website address and "about" and "mission" information which was populated from organization web pages. Spreadsheet information was transferred to the mobile app's directory. The directory was created using Appypie's "directory" feature, which allowed for including a Lincoln, Omaha, and Statewide directory shown in the first screenshot in Figure 5. The second screenshot is of the Lincoln directory, which displays snapshot profiles of each organization listed. The third screenshot shows the profile of an organization selected from the list.
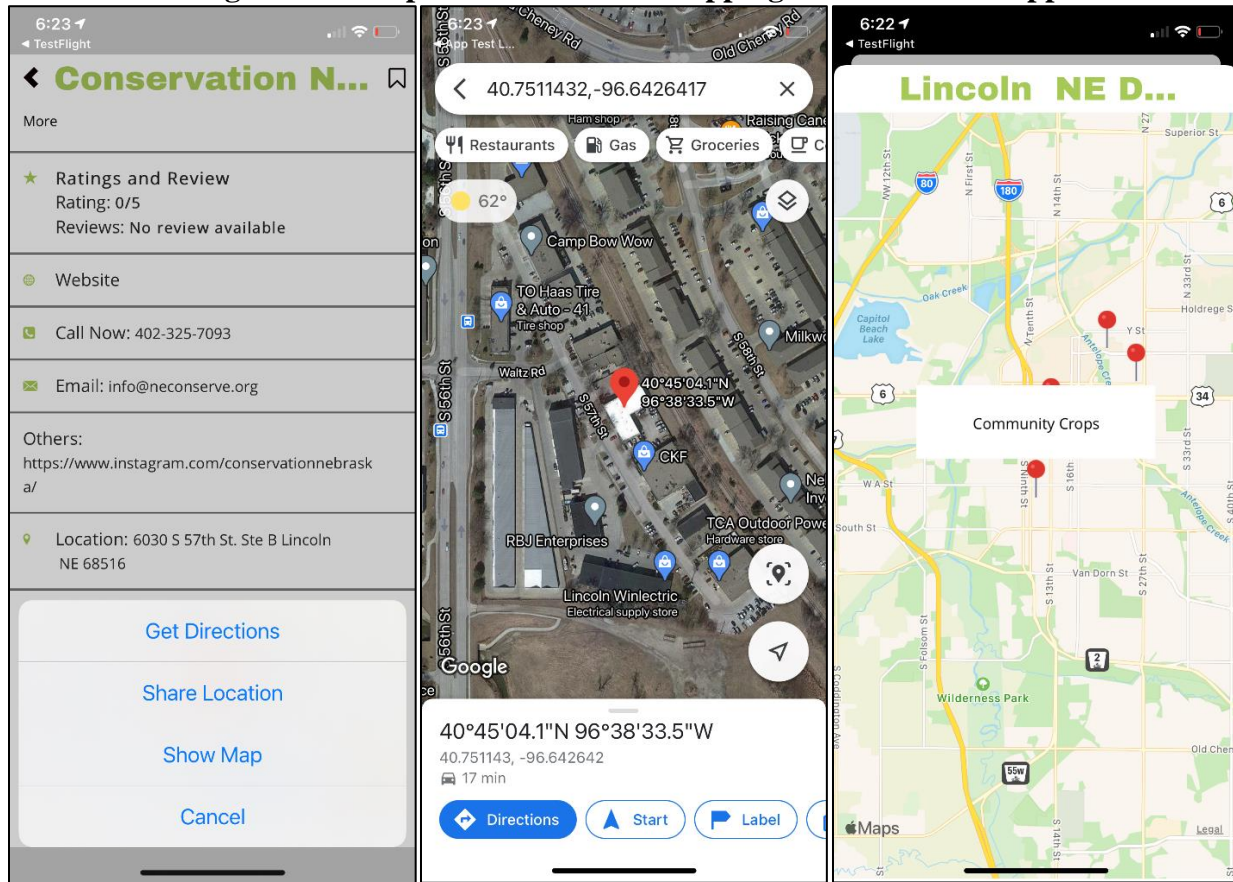
Figure 6: Multiple Screenshots of the Directory Feature in the App
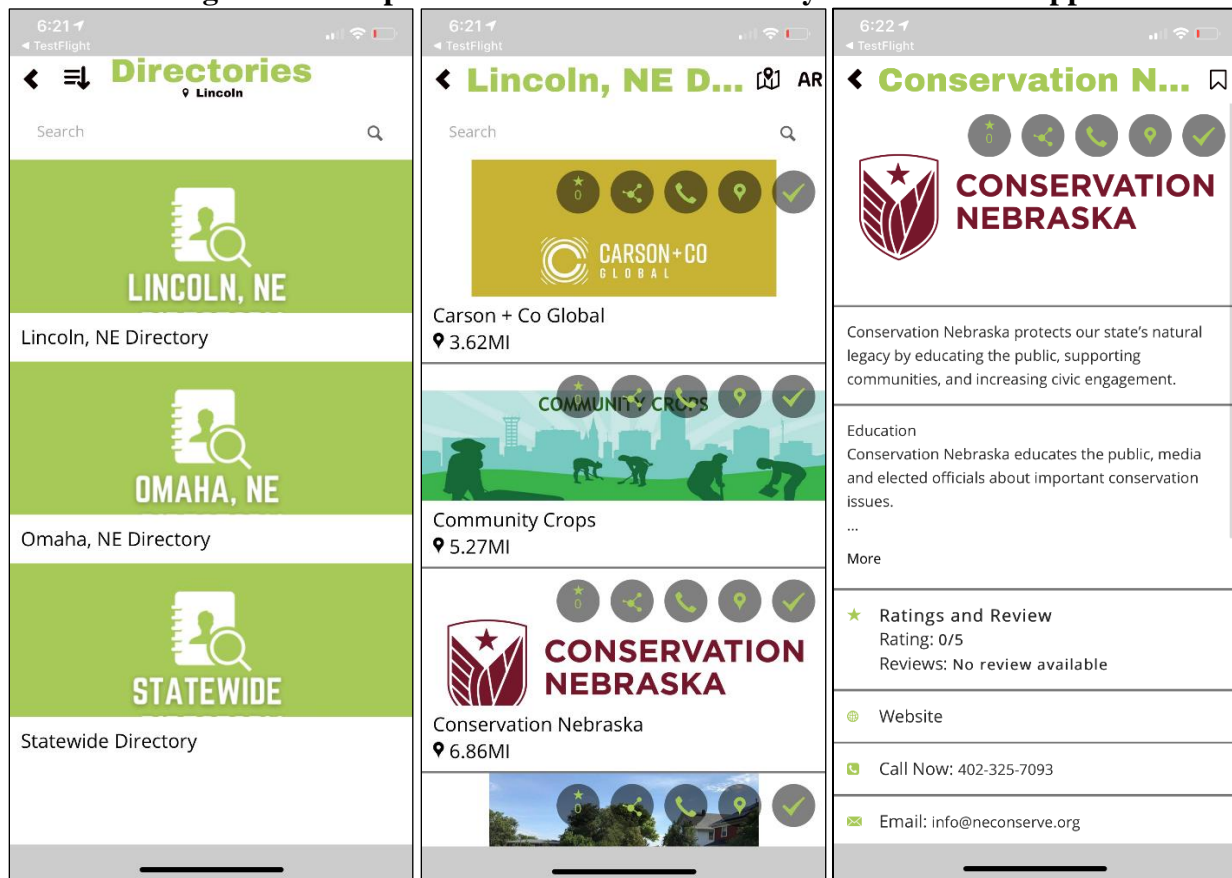
The directory also offers the option to get directions to the organization by opening a mobile phone's preferred mapping application, which is shown in screenshots one and two in Figure 6. The third screenshot shows the option for the directory to be displayed as pins on a map.

When a pin is selected, the organization's name pops up, which can be chosen to take a user to the organization profile.

Figure 7: Multiple Screenshots of Mapping Features in the App

After the directory, an "Events Page" was ranked as the most useful function by participants in the survey. An events page was the second function that got created in the app. Figure 7 shows screenshots of the events page, which lists events by category. Categories include "Conferences and Seminars," "Fundraisers," "Online Webinars," and "Volunteer Events," which are shown in the first screenshot. The second screenshot displays an example of an event listed in the "Volunteer Events" category. The third screenshot shows an example of two events listed in the "Conferences and Seminars" category. Once the mobile app is published and available for download, users will be able to submit their own events that will be reviewed and approved for the events page. Users will also be able to submit information for organizations to be added to the directories. Information on the app will be consistently updated by allowing users to submit information to be added to the directories and events page. This feature also contributes to the long-term use of the app.
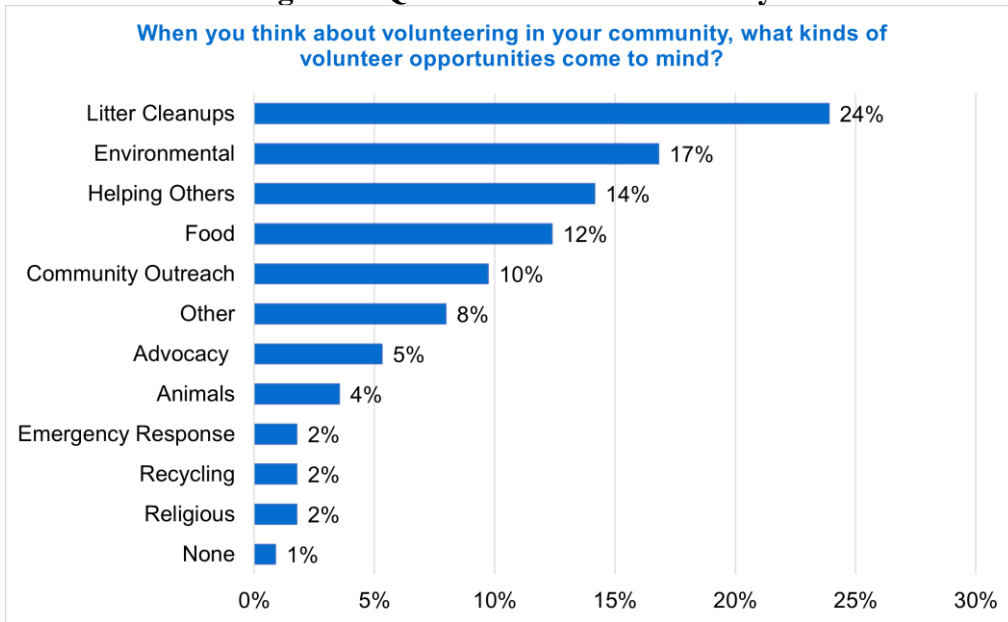
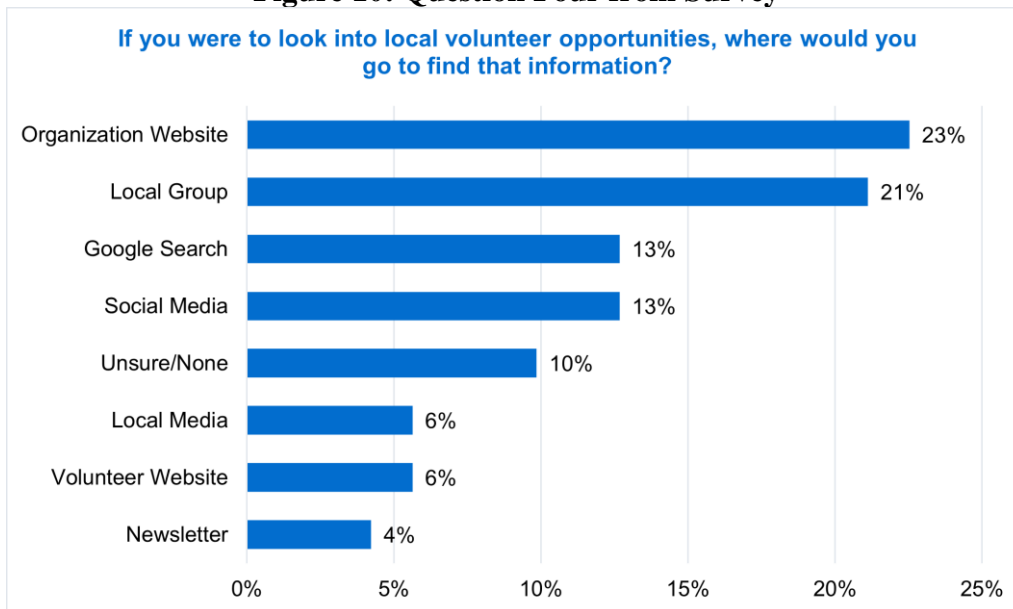**Figure 8: Multiple Screenshots of the Events Page Feature in the App**
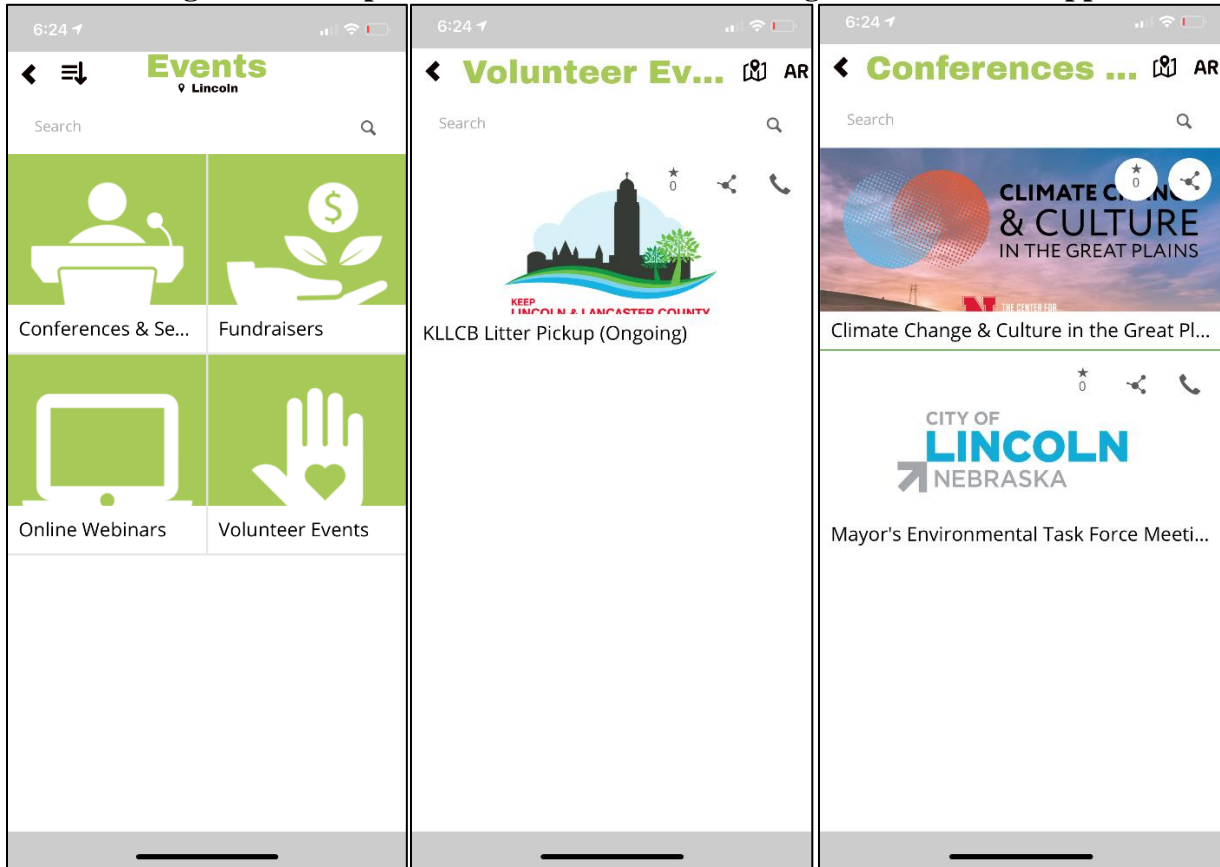
Results and Discussion

In the initial survey employed to determine user preferences and interest in the app, questions were also asked to determine what kind of volunteer opportunities individuals think of most in Nebraska. It also determined where they seek information for those volunteer opportunities and whether they are satisfied with obtaining information on volunteer opportunities. The following figures graphically represent the responses to these questions 3. For questions three and four, participants were able to input multiple answers. Based on responses for question three (Figure 9), the most common volunteer opportunity participants listed was "litter pickups," followed by "environmental," and "helping others." Responses for question four (Figure 10), the most common place to look for volunteer opportunities is directly on an organization's website. The second most common place is through a local group. In question five, participants were asked if they were satisfied with where they currently found volunteer information, and 51% indicated "no." Additionally, 30% of participants indicated "somewhat," 9% indicated "yes," and 9% indicated "unsure." Participants were able to explain the reason for their answers in question five. Some of the most notable descriptions are displayed in Table 3 below. Common themes among participants who indicated "no" were that individuals did not know where to look for information, and it wasn't easily accessible or centralized. Among participants who indicated "yes," it appeared that they already received some information through a pre-established channel. Participants who indicated "somewhat" echoed the same thoughts as those who said "no," which was that information could be more centralized, accessible, and less challenging to find. Among participants who indicated "unsure," they either had no strong feeling or were new to the community. Based on results from question five, it appears that those who had already established some channel for information on volunteer events were primarily satisfied with where they got their information. Others who were not happy with where they got information made no mention of whether they had access to an established channel but noted that it was difficult to find information when searching on their own. Question six (Figure 12) asked participants, "If The Canopy were available today, how likely would you be to recommend it to others?". Based on survey responses, 54% said "very likely," 28% said "extremely likely," 15% said "moderately likely," 2% said "slightly likely," and 2% said, "not at all likely." Although the question was asked without a physical version of The Canopy existing, preliminary responses indicate that participants would find value in the resource and would recommend it to others.
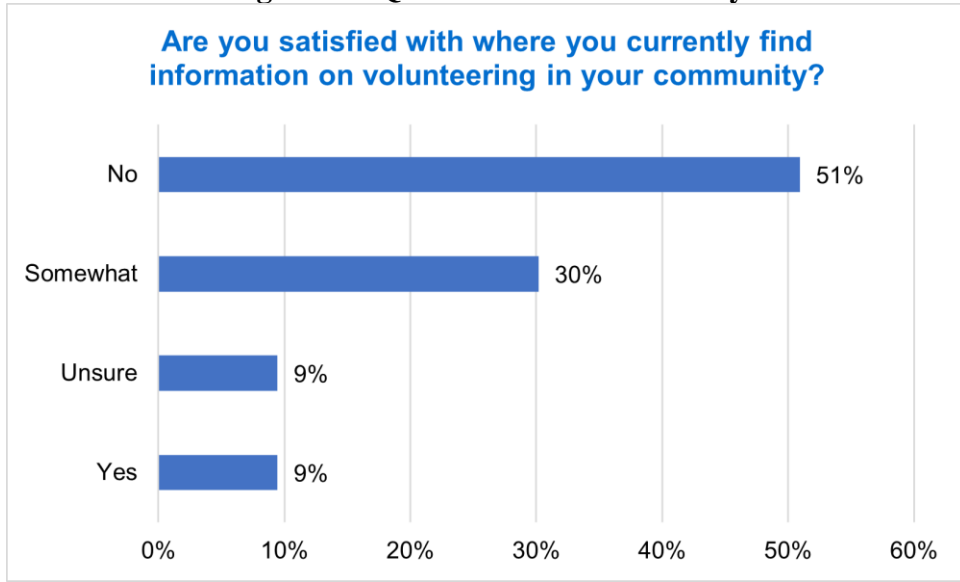
Figure 9: Question Three from Survey

When you think about volunteering in your community, what kinds of volunteer opportunities come to mind?

Category	Percentage
Litter Cleanups	24%
Environmental	17%
Helping Others	14%
Food	12%
Community Outreach	10%
Other	8%
Advocacy	5%
Animals	4%
Emergency Response	2%
Recycling	2%
Religious	2%
None	1%

Figure 10: Question Four from Survey

If you were to look into local volunteer opportunities, where would you go to find that information?

Category	Percentage
Organization Website	23%
Local Group	21%
Google Search	13%
Social Media	13%
Unsure/None	10%
Local Media	6%
Volunteer Website	6%
Newsletter	4%

Figure 11: Question Five from Survey

Are you satisfied with where you currently find information on volunteering in your community?

| Answer	percentage
No	51%
Somewhat	30%
Unsure	9%
Yes	9%

Table 3: Question Five Survey Answers

Are you satisfied with where you currently find information on volunteering in your community?	
Answer	**Brief Description**
Yes	- "I receive weekly emails with information on volunteer opportunities currently available" - "Lincoln is small so getting connected is easy" - "Statewide use of 211 is super convenient"
No	- "Needs to be more easily accessible by the public" - "I don't even know where to look" - "It's not easily found or regularly updated" - "Not centralized" - "Rarely notice opportunities" - "Hard to just google where to volunteer" - "It's not centralized enough" - "There isn't much information out there"
Somewhat	- "It seems like a bit of work to find the right opportunity" - "Could always be better" - "For convenience it would be nice to have it all in one place" - "It would be nice to have information in a centralized location" - "Can be difficult to find options if you don't know exactly what you are looking for"
Unsure	- "No strong feeling" - "New to the community so unsure"

Figure 12: Question Six from Survey

6. If The Canopy was available today how likely would you be to recommend it to others?

(N=54)
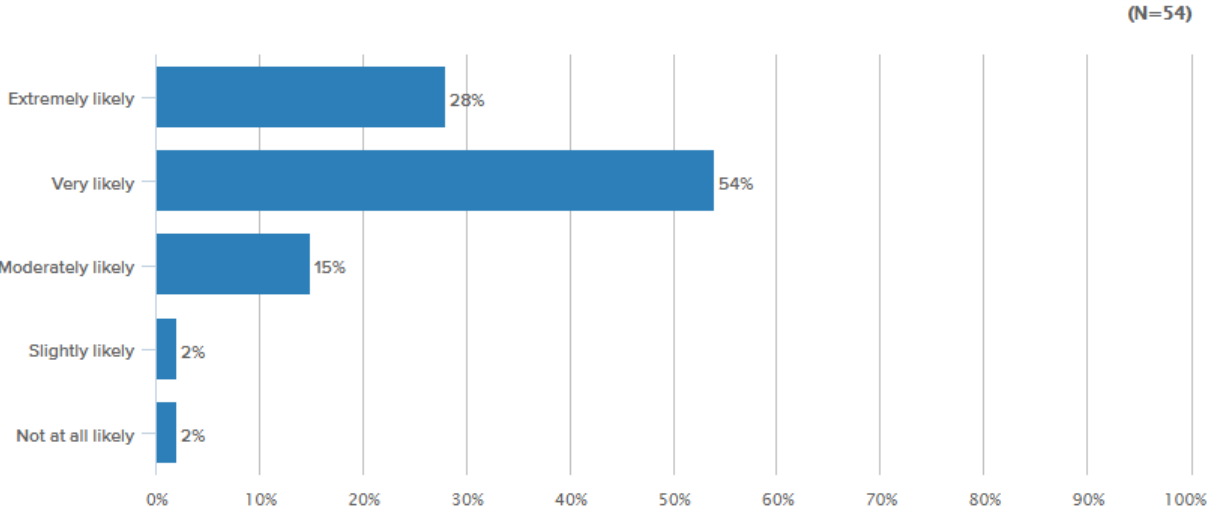
Discussion

After conducting a survey and developing the app for The Canopy, a Google Developer account was created to submit The Canopy to the Google Play Store for review. The Google Play Store allows The Canopy to be downloaded on Android devices. An Apple Developer account was also created to submit The Canopy to the Apple App Store to make it available for download on IOS devices. Once the mobile app is approved and available for download, an email notification announcing The Canopy's launch will be sent to participants for the survey who opted to be notified. A media push will also be implemented to promote the app on as many channels as possible. Accounts for The Canopy will be created on social media channels such as Facebook, Twitter, and Instagram, where the launch will also be announced. Once The Canopy starts receiving downloads from app stores, analytics and in-app traffic will be analyzed on appypie.com. Analytics and user traffic help determine app usage and inform how the app is being utilized. After a goal of 50 downloads is met, a survey will be sent to users through an in-app push notification to determine user satisfaction within the app. Both the analytics and survey will serve to determine if adjustments or modifications are necessary for the app.

Next Steps

After the app has been established for six months, if downloads continue to increase, a business strategy will be implemented to start reaching out to local organizations listed in the directory to offer an opportunity to purchase a membership. App analytics and download numbers will be shown to organizations to prove the effectiveness of the app as a local directory and promote purchasing a membership. The membership will include automatic event listings, volunteer matching, push notifications, and advertisement space on behalf of the organization. The membership will be charged as an annual fee of $30 per organization and will provide them with the benefit of more timely and accurate information being displayed in the app. Clear and timely information is vital as survey participants voiced frustration with finding centralized and updated information. Ensuring accurate, current, and easily accessible information in The Canopy will also contribute to the app's long-term use as users will likely check back often to find updated information on events and opportunities. Push notifications with organization events will also be utilized to bring users consistently back into the app. During this time, The Canopy will also seek to expand its directories and form relationships with organizations in other cities in Nebraska. A significant milestone for The Canopy is to have a directory for every major city in Nebraska. Social media channels will also be utilized to continue promoting the app for download and advertising events and information for organizations.

Long-term funding will be needed to cover the annual costs associated with running the app. The following table breaks down the yearly cost to run the app, which is approximately $699. The goal for the first year of running the app is to make enough money through monetization strategies such as advertising and memberships to cover the annual cost of the app. After the first

year, if not enough funding is reached, the business strategy will be revisited to devise new methods to obtain funding. If enough funding is reached after one year, The Canopy will continue with the established business strategy and make adjustments when necessary.

Table 4: Annual Costs to Maintain Mobile App

Type	Cost
Appypie Mobile App Annual Subscription	$600.00
Apple Developer Account Annual Fee	$99.00
Total	**$699.00**

Conclusion

Environmentalism is a long-standing social movement that relies on collective action from individuals and groups at local and national levels (Millward & Takhar, 2019). Individuals and groups can participate in environmentalism through volunteering, allowing citizens to actively participate in civil society (Whiteley, 2004). Volunteering is a way for people to feel good about themselves and give back to their communities. Environmental volunteering, in particular, also has the added benefit of contributing to the natural environment and overall health of a community through activities like litter pickups, stream cleanups, and natural resource management (Pillemer et al., 2009). Volunteering is an important aspect of community functioning as it creates trust and builds social capital (Putnam, 2000), which is why a notable decline in the percentage of Americans volunteering and giving to charity is important to recognize (Dietz & Grimm, 2018). The decline also has implications on the longevity of the environmental movement and the overall health of communities.

The Canopy enhances the visibility of environmental and sustainability-related organizations in communities by housing a centralized local directory. Through increased visibility, there is potential for citizens to become more engaged with local organizations and projects. Additionally, The Canopy will offer an events page that features city-wide volunteer opportunities that users will access in one convenient place. Through increased visibility and accessibility, The Canopy may serve as a powerful tool for social change in communities as residents use it to become more civically engaged. According to the Corporation for National and Community Service (2017), at present, just over two percent of Nebraska's total volunteering opportunities are in "environmental or animal care" (Figure 1). Long-term implementation of a resource like The Canopy in Nebraska could potentially change the state's percentage of environmental volunteering.

References

Andronic, R. L. (2016). Altruism, Trust and Volunteering. *Scientific Research and Education in the Air Force-AFASES 2016*.

Bernstein, J., & Szuster, B. W. (2019). The new environmental paradigm scale: Reassessing the operationalization of contemporary environmentalism. The Journal of Environmental Education, 50(2), 73-83.

Bingham-Hall, J., & Law, S. (2015). Connected or informed?: Local Twitter networking in a London neighbourhood. *Big Data & Society*, *2*(2), 2053951715597457.

Bonsón, E., Royo, S., & Ratkai, M. (2015). Citizens' engagement on local governments' Facebook sites. An empirical analysis: The impact of different media and content types in Western Europe. Government information quarterly, 32(1), 52-62.

Boulianne, S. (2015). Social media use and participation: A meta-analysis of current research. Information, communication & society, 18(5), 524-538.

Brown, E., & Ferris, J. M. (2007). Social capital and philanthropy: An analysis of the impact of social capital on individual giving and volunteering. *Nonprofit and voluntary sector quarterly*, *36*(1), 85-99.

Choi, D. H., & Shin, D. H. (2017). A dialectic perspective on the interactive relationship between social media and civic participation: the moderating role of social capital. Information, Communication & Society, 20(2), 151-166.

Corporation for National and Community Service. "Nebraska." (2017). Retrieved March 20, 2021, from https://www.nationalservice.gov/serve/via/states/nebraska

Dale, A., & Newman, L. (2010). Social capital: a necessary and sufficient condition for sustainable community development?. *Community development journal*, *45*(1), 5-21.

Dietz, N., & Grimm Jr, R. T. (2018). Where Are America's Volunteers?.

Guinier, L., & Torres, G. (2013). Changing the wind: Notes toward a demosprudence of law and social movements. Yale LJ, 123, 2740.

Hampton, K. N., Lee, C. J., & Her, E. J. (2011). How new media affords network diversity: Direct and mediated access to social capital through participation in local social settings. new media & society, 13(7), 1031-1049.

Kwon, K. H., Shao, C., & Nah, S. (2021). Localized social media and civic life: Motivations, trust, and civic participation in local community contexts. Journal of Information Technology & Politics, 18(1), 55-69.

Leighninger, M. (2011). Using online tools to engage--and be engaged by--the public. Washington, DC: IBM Center for the Business of Government.

Li, M., Turki, N., Izaguirre, C. R., DeMahy, C., Thibodeaux, B. L., & Gage, T. (2021). Twitter as a tool for social movement: An analysis of feminist activism on social media communities. Journal of Community Psychology, 49(3), 854–868. https://doi-org.libproxy.unl.edu/10.1002/jcop.22324

Measham, T. G., & Barnett, G. B. (2008). Environmental volunteering: Motivations, modes and outcomes. *Australian Geographer*, *39*(4), 537-552.

Millward, P., & Takhar, S. (2019). Social movements, collective action and activism. *Sociology*, *53*(3), NP1-NP12.

Mossberger, K., Wu, Y., & Crawford, J. (2013). Connecting citizens and local governments? Social media and interactivity in major US cities. Government Information Quarterly, 30(4), 351-358.

Nardini, G., Rank-Christman, T., Bublitz, M. G., Cross, S. N., & Peracchio, L. A. Together We Rise: How Social Movements Succeed. *Journal of Consumer Psychology*.

Omoto, A. M., & Snyder, M. (1995). Sustained helping without obligation: motivation, longevity of service, and perceived attitude change among AIDS volunteers. *Journal of personality and social psychology*, *68*(4), 671.

Onook Oh, Chanyoung Eom, & Rao, H. R. (2015). Role of Social Media in Social Change: An Analysis of Collective Sense Making During the 2011 Egypt Revolution. Information Systems Research, 26(1), 210–223. https://doi-org.libproxy.unl.edu/10.1287/isre.2015.0565

Penner, L. A., & Finkelstein, M. A. (1998). Dispositional and structural determinants of volunteerism. *Journal of personality and social psychology*, *74*(2), 525.

Pillemer, K., Wagenet, L. P., Goldman, D., Bushway, L., & Meador, R. H. (2009). Environmental Volunteering in Later Life: Benefits and Barriers. Generations, 33(4), 58–63.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon and schuster.

Tolbert, C. J., & Mossberger, K. (2006). The effects of e-government on trust and confidence in government. *Public administration review*, *66*(3), 354-369.

United States. Bureau of the Census, United States Department of Labor. Bureau of Labor Statistics, and Corporation for National and Community Service. Current Population Survey, September 2017: Volunteering and Civic Life Supplement. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2019-05-20. https://doi.org/10.3886/ICPSR37303.v2

Whiteley, P. (2004). A Health Check for British Democracy: What do we know about participation and its effects in Britain. *Swindon, Economic and Social Research Council*.

Yardi, S., & Boyd, D. (2010, May). Tweeting from the town square: Measuring geographic local networks. In *Proceedings of the International AAAI Conference on Web and Social Media* (Vol. 4, No. 1).