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Service Tracker: Designing a Volunteer Matching App for Students

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Abstract

For both student volunteers and non-profit organizations (NGOs), community service is a critical factor in enhancing communities worldwide; however, effectively connecting these two demographics remains challenging due to fragmented outreach, poorly designed and confusing non-profit websites, and a lack of platforms tailored to student schedules and hour-tracking requirements. This study introduces Service Tracker, a web-based matchmaking application designed using human-computer interaction (HCI) heuristics to streamline volunteer discovery and hours verification. A 168-participant feedback survey (ages 14-18) was conducted among high-school students at Orange County School of the Arts. The potential utility of Service Tracker's design requirements was explored through student feedback. Reasons for volunteering were distributed unequally to a statistically significant degree ($p=0.038$), with convenience being the most frequently selected priority (41%). The results also found that 62% of participants who volunteer infrequently had experienced difficulty finding volunteer opportunities online, with most (59%) saying they found connections through family or friends. After trying Service Tracker in a one-week trial period by logging in daily to find opportunities, 55% answered yes when asked whether they thought Service Tracker would make them volunteer more, suggesting a potential improvement in volunteering rates among youth.

Keywords: NGOs, Community Service, Youth Volunteering, Outreach

1. Introduction

Voluntary community service ("volunteering") builds social networks and supports non-profit organizations that lack resources. For non-profit organizations, volunteers help further their mission by supporting the community or the organization. For volunteers, consistent volunteering builds valuable skills and integrates them within the community. Specifically for students, volunteering can be a pathway to build professional experience and develop useful skills for their future careers (Smith, 2010).

Currently, one-third of the US population volunteers for a non-profit organization, also known as an NGO (Saura, 2020), and a significant portion of the volunteers are students (Grimm, 2018). This is mainly because students are a primary demographic of volunteer organization recruitment due to their adaptability (Ghasemi-Nejad, 2014). Despite limited research on student volunteerism (Francis, 2011), this demographic is important to NGOs because students often exhibit tech-savviness, time flexibility, and a strong desire to develop professional networks (Sundeen, 2007). With students comprising a large chunk of the volunteer population, understanding and aligning with their specific motivations may help NGOs optimize their recruitment efforts.

To attract student volunteers, many NGOs highlight how volunteering helps students explore identity and build career skills. For example, a paper acknowledges how volunteering opportunities allow students to explore their identities and develop valuable skills before their first careers (Holmes, 2009), and these experiences can help students to build their resumes and expand their professional networks.

Connecting students with NGOs is beneficial for both parties and for the community; however, it has been difficult

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due to poor recruitment processes and ineffective marketing approaches (Akchin, 2001). Many existing recruiting platforms fail to provide an appealing experience for students wanting to get involved in volunteering spaces.

2. Problems

With the world becoming increasingly digitized, many organizations have adopted modern digital marketing strategies; however, many NGOs lag behind current best practices. Recent studies revealed that although online NGO recruitment has shown significant benefits in terms of outreach, poor design decisions have harmed its effectiveness (Mori, 2019). For example, it was found that 47% of participants abandoned a non-profit donation due to a poor user experience on websites (Slattery, 2019). This is especially a problem when NGOs solely rely on volunteers, and when these online enrollment sites fail to attract volunteers, organizations will continuously lack staffing. Therefore, volunteer attraction has been more reliant on quality marketing design rather than the volunteers' alignment with the mission and team.

Beyond digital hardships, acceptance of volunteer work in the community is another barrier, as many people do not understand its societal role (Urrea, 2022). This suggests that technical improvements in NGO platforms are not enough; there is also a need to reshape the perception of volunteering in society. However, currently, an app that encourages social connection and builds volunteering awareness is nonexistent within the student volunteering space. Therefore, a platform with these attributes could play a key role in promoting volunteerism.

2.1 Student volunteer requirements

The extent of opportunity discovery on social media has not been fully researched. Currently, NGOs use social media sites like Facebook, Instagram, and X (formerly Twitter) to post announcements. Many also have websites that present their mission statement, team, and onboarding procedures. The use of websites in building volunteer trust has been researched (Saura, 2020), but the impact and outreach of volunteer organizations on image blog platforms like Instagram have not yet been studied.

Students frequently require volunteering schedules that integrate well with their schooling and are relatively low-commitment. Students are often busy with schoolwork as well as extracurricular activities of their interest, leading to variable schedules every day. Due to this, “episodic” volunteering has become increasingly common (Handy, 2009). In other words, students are likely to volunteer when they happen to have free time, rather than planning their schedules around it. Therefore, volunteer work that requires weekly participation may not be as attractive to many students.

The desire for self-promotion (also known as virtue signaling) could be used to effectively advertise volunteering opportunities to others (Novell, 2024). Features that let users highlight their achievements related to volunteering can normalize participation in society. In addition, the “fear of missing out” can be used to increase the involvement among students. An app that supports virtue signaling of volunteering accomplishments to peers can provide an extra incentive to students.

Another factor is outreach. A study revealed that people are four times as likely to volunteer when asked rather than when not (Bussell, 2003). This highlights the importance of the presentation of volunteering opportunities. Therefore, the ease of access to finding these opportunities is a critical factor in whether people will pursue them or not.

While the motivation to volunteer may be driven by a sense of moral and social responsibility, many students also consider its practical benefits. Several states in the U.S. require approved community service hours to graduate from high school (Cloyd, 2017). In addition, many college admissions offices prefer some sort of volunteer work by high school students. Therefore, many students track volunteer hours to work toward graduation requirements or award opportunities. Combined with the requirement that students prefer opportunities that are presented to them, the high school graduation requirement means there is space for an app that integrates many different opportunities in an easy-to-navigate interface.

Trust also plays a major role in a student’s decision to engage with volunteer work, and this trust is positively associated with a strong visual identity of NGO websites (Saura, 2020). This suggests that a clear and easy-to-use user

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interface (UI) is a crucial component to consider when building an online interface for an NGO. In addition, although students' decisions to volunteer are highly complicated, a few correlations can be made. For example, student motivations are often tied to either long-term goals or personal values. This can also be seen in a study where opportunities that benefit career building or expressing one's moral principles are more desirable for students (Stukas, 2008).

Given these factors, the key considerations when designing a volunteer aggregation platform for students are to support episodic volunteering through flexible scheduling, to present volunteering opportunities in a clear and personalized way, to build trust through a strong visual identity, and to include tools for tracking volunteer hours.

2.2 Non-profit requirements

A successful volunteering app must satisfy both parties: student volunteers and NGOs. As communication technologies advance, so do expectations for efficiency, usability, and branding. With the development of internet communication technologies, organizational promotion strategies have changed. The advent of social media has enabled quick, global communication at relatively low costs. Public relations studies have indicated that social media helps organizations to cultivate relationships with the public (Lovejoy, 2012).

However, maintaining an independent website and social media account is time-consuming, especially with limited time and personnel. The constant need to update digital platforms and respond to inquiries can often be significantly overwhelming. In many cases, too much focus on digital media can pull the organization away from its mission. To address this issue, NGOs need platforms designed to reduce digital workload while simultaneously increasing volunteer engagement. These platforms should integrate well with current scheduling software, give volunteers clear opportunity details, and promote their brand using a strong visual identity to build trust and credibility.

Therefore, the key considerations when designing a volunteer aggregation platform for nonprofits are to have data management that integrates with other platforms, to reach out to relevant volunteers, and to have simple interfaces.

2.3 Volunteering Platforms

Previously, various efforts have focused on connecting volunteers to non-profits. For example, VolunteerMatch aims to integrate many opportunities into an intelligent recommendation system, but this has not been the subject of scientific study and is not designed to target students specifically. While these services attempt to centralize volunteering opportunities, they often ignore the specific motivations and constraints student volunteers face, specifically, things like hour tracking and alignment with school or award goals.

Typically, these opportunities are not designed specifically for students, so the requirements of aspiring student volunteers are not well matched (Li, 2020). As a result, currently existing platforms are not suitable for student volunteers, especially when they fail to offer personalized or timely volunteer options.

Additionally, the process of discovering volunteer opportunities is thought to be completely logical; however, it is actually highly social. Because of this, there is still room to improve volunteer recommendation algorithms by incorporating social networking. Especially with the rise of social media, it has shown how behaviors like sharing, liking, and posting influence the decisions of users. This same psychological idea can be applied to driving motivations for volunteers.

To address these limitations, Service Tracker differentiates itself from traditional aggregators like VolunteerMatch in several key ways. First, instead of static listings, Service Tracker uses a recommendation algorithm based on the parameters set up during onboarding to align specific student skill levels and commit schedules with local needs. Second, Service Tracker supports episodic volunteering through localized notifications and flexible calendars. Third, the platform integrates core peer socialization through custom profiles, and finally, it introduces built-in progress tracking paired with an automated verification feature that generates volunteer hours confirmation requests with designated organizational administrators.

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3. Methods

Service Tracker is a web app connecting aspiring volunteers to organizations needing assistance. The main page features a feed of recommended volunteer organizations and posts from followed users, which can be interacted with through likes and comments.

To resolve the passive and fragmented search experience of traditional platforms, Service Tracker uses a multi-parameter recommendation algorithm that shows student volunteers highly relevant non-profit opportunities. During the initial onboarding phase, users define their specific profile parameters, including their self-reported skill levels, location, preferred areas of community work, and general availability. Within 20 miles of the school, 317 service organizations were identified, and mission statements and upcoming opportunities were recorded.

The matching engine processes organization metadata against active listings prepared for the 1-week trial period. To accommodate the variable schedules of student life, the algorithm heavily weights time and place, prioritizing low-commitment opportunities. Opportunities with stated time conflicts are not shown to the user, and opportunities receive a location penalty depending on the minimum of the distances between the organization and the student's home and the school. Additionally, the home feed integrates social-graph mechanics by populating the user's feed with both tailored recommendations and real-time posts, updates, and interactions from followed peers and organizations.

Service Tracker was built with the React framework and the hosting platform Vite, allowing quick incremental changes. The database was hosted with Amazon DynamoDB, which included organization information, user information, and content posting. User authentication was managed with the provider Clerk, which allowed users to log in with connected accounts like Google.

User profile pages display a summary of the user's volunteering statistics and a list of recent posts and volunteering records. The data can be shared or kept private based on user preference.

On non-profit organization pages, each has a short description of its mission, a list of upcoming opportunities, and a list of interaction statistics for users to gauge whether to pursue this opportunity. Users can elect to "follow" organizations, in which case they will be featured on the user's home page and will also receive push notifications for recommended episodic opportunities.

After development and initial test cases, Service Tracker was revised to better fit the self-declared needs of certain students. The ability to track progress towards the Congressional Award was added for users in high school who aim to earn the award. After users track hours and designate a certain verifier, Service Tracker will generate an automated email for each organization confirming their ability to validate hours for the Congressional Award. This allows users to bypass manually recording the hours and writing request emails.

After completing Service Tracker, its effectiveness was evaluated using a volunteering attitudes survey administered to students at Orange County School of the Arts. To evaluate the tool on its target audience of non-regular volunteers, recruitment specifically targeted students who did not volunteer on a weekly basis. From an initial pool of students invited via a convenience sample, a total of 225 responded. Following a screening query, 42 who volunteered on a weekly basis were excluded. This resulted in a study cohort of 183 participants between the ages of 14 and 18. All participation was fully voluntary, and personal information was not shared with other participants.

Before the participants were able to try Service Tracker, they were asked, "How often do you volunteer?" "How do you find volunteering opportunities?" "Have you had difficulty finding volunteer opportunities online?" and "Would you spend more time volunteering if given convenient opportunities?" Additionally, students were asked to rank their priorities when choosing a volunteering opportunity out of "Convenience," "Aligns with my values," and "Matches career goals."

Over a one-week trial, participants were asked to open Service Tracker once per day and find an opportunity that meets their needs. One week later, they were asked several questions about their attitudes toward volunteering as a whole. Following the evaluation period, participants completed a digital questionnaire. The retention rate was 100%, and no participants dropped out of the study.

Then, after they had the chance to use Service Tracker, they were asked one more question: "Do you think Service Tracker would make you volunteer more?" All responses to questions were logged in a spreadsheet for data analysis.

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Usage of the platform was confirmed by tracking daily login information. 15 participants failed to login daily and were removed from the study, meaning a final study cohort of 168 participants could be analyzed.

4. Results

To facilitate clear analysis, the complete results of survey questions from the 168 participants are consolidated in Table 1.

Table 1. Summary of Student Volunteerism and Service Tracker Survey Responses (N = 168)

Question	Response Category	Count	Percentage
How often do you volunteer?	Monthly	58	34%
	Several times per year	84	50%
	Never	26	16%
Have you had difficulty searching for volunteering opportunities online?	Yes	104	62%
	Maybe	20	12%
	No	44	26%
Where do you typically hear about volunteer opportunities?	Family	66	39%
	Friends	34	20%
	Religious organizations	28	17%
	Online resources	14	8%
	No access to opportunities	26	15%
Would you spend more time volunteering if you were given convenient opportunities?	Yes	98	58%
	Probably	54	32%
	No	16	10%
What is most important when looking for a volunteer opportunity?	Convenience	69	41%
	Matches Career Goals	57	34%
	Aligns with My Values	42	25%
Do you think Service Tracker would make you volunteer more?	Yes	92	55%
	Probably	52	31%
	No	24	14%

For the question "How often do you volunteer?" About 34% of the 168 participants volunteered monthly, 50% of the participants volunteered several times per year, and the remaining 16% had never volunteered.

A primary finding of this study is the high level of friction students experience when seeking volunteer opportunities online. As illustrated in Figure 1, 62% of participants reported explicit difficulty searching for opportunities online, while only 26% reported a straightforward experience.

This widespread difficulty is directly reflected in how students currently discover opportunities. Rather than using online aggregators, the majority of respondents relied on closed social networks. Family at 39%, peer groups at 20%, religious organizations at 17%, while online resources only yielded 8% of successful connections.

Convenience is a major limiting factor for students pursuing volunteering opportunities. When asked whether participants would volunteer more if the process of volunteering itself were more convenient, 58% claimed that they would, 32% were uncertain, and about 10% said no.

Compared to other reasons, convenience remains the largest factor in deciding whether to pursue a volunteer opportunity. As shown in Figure 2, 41% of the 168 participants said that convenience is the most important, 34% said career goal matching mattered most, and 25% were concerned with value alignment. A chi-square goodness-of-fit test was applied to investigate the distribution of student priorities. The variations in participant priorities were shown to be unequal to a statistically significant degree ($\chi(2)=6.54$; $p=0.038$), with convenience emerging as the most frequently cited factor (41%). This suggests that logistical convenience is a prominent factor in student volunteer recruitment.

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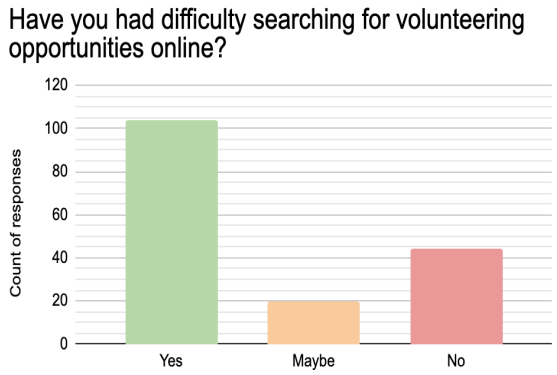


Figure 1. Responses to: "Have you had difficulty searching for volunteering opportunities online?"

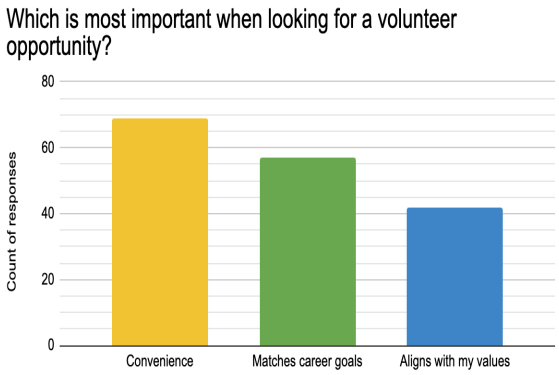


Figure 2. Responses to "Which is most important when looking for a volunteer opportunity?"

When participants were asked whether Service Tracker would have an impact on increasing their personal volunteerism, 55% of participants said that they would volunteer more with Service Tracker, 31% said that they would probably volunteer more with the app, and only 14% said that they did not think Service Tracker would make them volunteer more. This statistic is shown in Figure 3. The desire to participate is correlated with having an experience of online volunteer search friction. Of the 104 students who reported online volunteering search difficulties, 74% (77 participants) rated yes, compared to the 23% yes-rate of people who did not report difficulty.

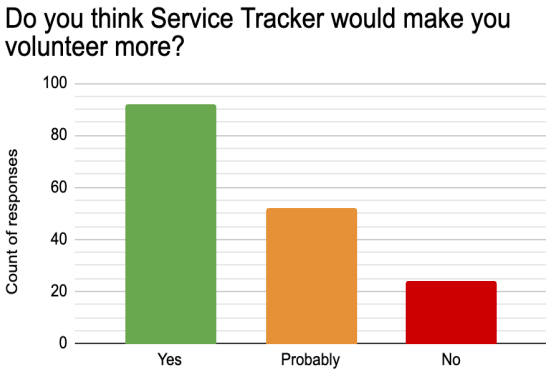


Figure 3. Responses to: "Do you think Service Tracker would make you volunteer more?"

5. Discussion

The empirical findings of this study suggest that the design requirements of Service Tracker align well with student preferences, demonstrating a clear demand for localized, convenience-driven volunteer matchmaking. Rather than merely demonstrating a passive interest in community service, the data reveal that student volunteerism is highly constrained by structural and logistical inefficiencies.

For students, the transition to "episodic" volunteering is driven by the demands of academic workloads and extracurricular commitments. The high premium placed on convenience indicates that traditional, long-term volunteer commitments are increasingly incompatible with student lifestyles. By transforming volunteer discovery from an active, friction-heavy search into a passive, algorithmically curated recommendation feed, Service Tracker has the potential to lower the barrier to entry.

For resource-constrained NGOs, these findings suggest a critical need to pivot away from traditional, fragmented outreach strategies. The fact that only 8% of students find opportunities through existing online channels indicates that independent NGO websites and standard social media broadcasts may struggle to effectively reach youth demographics in the context of episodic volunteering.

Service Tracker addresses this mismatch by providing NGOs with direct, low-overhead access to a highly motivated, localized student cohort. By integrating automated schedule management and verification features, the platform is designed to relieve the administrative burden of manually tracking and verifying student hours from NGOs. This allows organizations to reallocate limited administrative staff toward core mission execution.

The survey also indicates that 58% of people would be willing to volunteer more if the ease of finding opportunities were streamlined. Thus, it is reasonable to suggest that current opportunity discovery logistics may discourage many from volunteering regularly. While these results reflect a strong perceived demand for Service Tracker, the post-evaluation survey captured self-reported intentions rather than verified changes in behavior.

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Nonetheless, the positive feedback on potential usage is encouraging, with over 55% of people saying they felt they would volunteer more if using Service Tracker regularly.

While these preliminary findings are promising, several limitations must be noted. First, the study cohort was drawn exclusively from a single specialized high school (Orange County School of the Arts), which may limit the generalizability of these findings to broader, socio-economically diverse student populations.

Second, the one-week trial period captured immediate behavioral intent rather than verified, long-term behavioral changes. Self-reported survey data are subject to social desirability bias, meaning participants may overstate their future willingness to volunteer. Because the study did not include a control group and did not measure completed volunteer activities or service hours, the findings cannot establish that Service Tracker caused an increase in volunteering behavior.

Future longitudinal research should implement a controlled trial comparing a group using Service Tracker against a control group using standard web-search methods. Tracking actual hours completed over a six-to-twelve-month period would provide objective data on whether the platform's convenience features translate into sustained, long-term civic engagement.

6. Conclusion

Service Tracker was designed to address the gap between aspiring student volunteers and non-profit organizations. By building the website to be a unified and clear interface that holds information from many different organizations, it aims to improve the experience of volunteer opportunity search in a world with disparate and non-standardized organizational websites. Its additional integration with goal tracking will make Service Tracker a supportive path for fostering active civic participation among youth.

This study suggests that student volunteers are looking for convenient, sporadic opportunities and that career goals are a top reason for choosing a volunteering opportunity. This means Service Tracker has the potential to address critical needs in the student volunteering space.

Finally, this study found supportive preliminary results suggesting the future usefulness of Service Tracker, with 55% of infrequent volunteers saying they anticipated Service Tracker would make them volunteer more. Combined with how student volunteering can be a stepping stone for a future career, Service Tracker can support students in making intentional choices for where to spend their time and effort.

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