SUPPORTING & EMPOWERING UNEMPLOYED YOUNG ADULTS

An Online Platform to Connect Youth Alliance Members in Australia

By: Emma Bailey, Cole Noreika, & Ashley Schuliger
Advisors: Lorraine Higgins & Uma Kumar, WPI
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Figure 1: A YA member in front of BSL.

ABSTRACT

The country of Australia has an extremely high unemployment rate for those aged 15-24. Because sustained unemployment is linked to a higher likelihood of developing mental health problems, economic instability, and job insecurity, The Brotherhood of St. Laurence (BSL) provides unemployed youth with the training and resources they need for entering the job market through their Transition to Work (TtW) program. Additionally, BSL has appointed young people from this program to the Youth Alliance (YA). These representatives are young people from various parts of Australia who inform the organization on what support youth need. COVID-19 has halted any of BSL's in-person efforts, including YA meetings, however, and many youth in the program are feeling isolated from their support systems and excluded from successful career opportunities. Thus, the goal of our project was to work closely with the Youth Alliance to develop an online platform that will provide youth with the opportunity to connect with peers, resources, and mentors, both to further their career development and to cultivate friendships. To accomplish this goal, we developed a strong relationship with several YA members and collaborated with them on this project. Together, we determined the needs of the general user population through a survey and focus group that helped us get input from other young people in BSL's community. We developed and tested two prototypes for an online platform to ensure that we were satisfying the needs and desires of the youth. The culmination of this project was a website named ConnectYA, which we developed with the Youth Alliance. This site allows young people to customize their profiles, receive encouraging messages, communicate with users, and create posts visible to others. The site is intended for social and professional use, allowing users to connect with peers, get advice, and share successes while receiving career development support from mentors.

Figure 2: Team members at WPI.

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INTRODUCTION

Unemployment is prevalent in Australia, and is especially problematic for people in the transition from school to work (i.e., 15-24 year olds). A large number of Australia's youth are unemployed or underemployed. If left unaddressed, prolonged unemployment can lead to mental health issues, societal exclusion, and a life trapped in poverty (Orr, et al., 2013). Young people who come from disadvantaged backgrounds are more prone to having difficulty finding work because they do not have the necessary support to pursue future opportunities. Young people from these families can feel lost without mentorship and advice for their futures, and many may not know how to reach their goals (Bowman, et al., 2019). Clearly, disadvantaged youth can benefit from mentorship, social support, and career development tools.

The Brotherhood of St. Laurence (BSL) is a nonprofit organization that recognizes this issue. They offer a Transition to Work (TtW) program to provide young people with tools and training to develop career-related skills (*Figure 3*). This in turn provides participants with the opportunity to escape poverty, and helps prevent depression, societal exclusion, isolation, lack of motivation, and lifelong unemployment. Although BSL recognizes that some youth may be disadvantaged, they also see these young people as fully capable of escaping unemployment or underemployment if provided with the right support and career resources. BSL focuses on helping them gain confidence and strengthening their skills.

The TtW program created a national leadership group called the Youth Alliance (YA) for participants across Australia. Its goal is to give young people the power to control their own lives by teaching them leadership skills. Similarly, it allows them to develop their voice because they serve as advocates for other young TtW members. These young people receive guidance, support, and advice from a TtW youth leader, and also receive the opportunity to learn from others at national leadership conferences. This is a powerful program; however, COVID-19 has halted any in-person efforts, such as their weekly meetings or the national conferences. Now, youth participants in TtW who found some reprieve in the camaraderie of Youth Alliance meetings cannot enjoy the benefits because of the need to distance. This has made the participants feel isolated from the career resources that they need now more than ever. COVID-19 has put people aged 15-24 at an even higher risk of unemployment and underemployment by destroying the job market worldwide.

Figure 3: *BSL staff and TtW participants at the Melbourne facility in Australia.*

The Youth Alliance in particular struggled with switching to fully remote—YA members cannot communicate with other TtW patrons as commonly or effectively, and BSL does not currently have online tools fully developed for this group. This makes it harder for the YA to vocalize common issues and provide feedback to BSL, which reduces the impact of this program.

BSL wanted an online tool better suited for connecting their Youth Alliance members both to other Community of Practice (CoP) members and to career resources. To address the Youth Alliance's need for connection and support in a time of social distancing and beyond, our project moved their communication and mentorship to an online platform. Our goal was to work closely with the YA to develop an online platform that provides youth with the opportunity to connect with peers, resources, and mentors, both to further their career development and to cultivate friendships.

In order to execute our goal, we set the following objectives:

Interpret Mission

- To understand the Brotherhood of St. Laurence's mission and the roles that TtW and the Youth Alliance play in providing opportunities that give the youth a voice

Establish Collaboration

- To develop a collaborative relationship and design process with youth representatives

Discover Needs

- To learn the needs of the targeted audience and determine their preferences for a virtual platform to satisfy these needs

Build Prototype

- To prototype and test an online platform

In what follows, we provide background information about Australia's youth—our target population—explain methods that we used to reach our goal, and provide results. Inherent to this project was building a collaborative relationship with the young people, which is evident throughout our project process. Finally, we provide a detailed overview of our final online platform.

G'day mate, meet the team! From left to right: Cole Noreika (2022, Computer Science), Ashley Schuliger (2022, Computer Science), & Emma Bailey (2022, Biomedical Engineering)

BACKGROUND

Youth Poverty and Unemployment in Australia
The Need for Career Development Resources
 The Importance of Giving Youth a Voice
The Brotherhood of St. Laurence
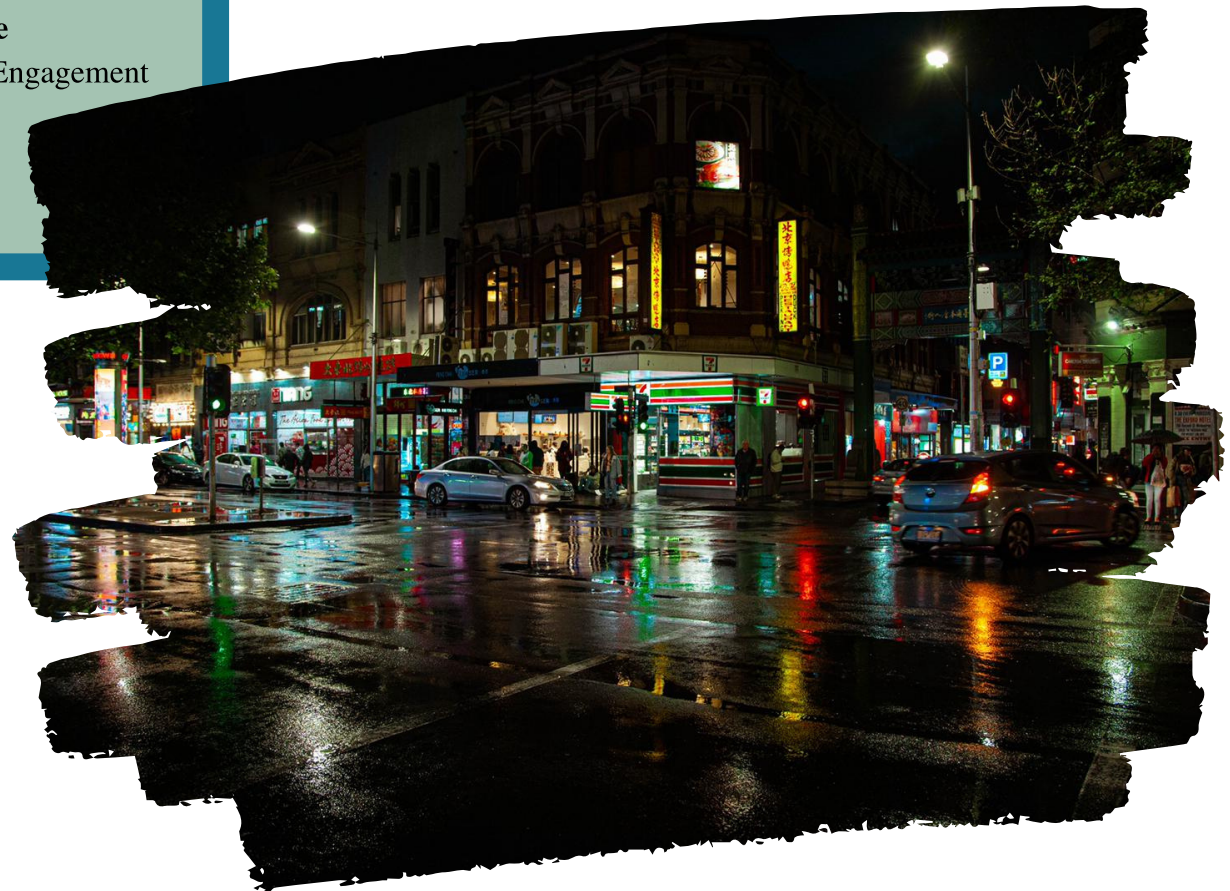**Participatory Action Research**
 Effects on Community and Project Impact
Young Australians' Online Technology Use
 Studies on Young People's Technology Engagement
Web Accessibility
Rapid Throwaway Prototyping Model
 Cultural Usability User Testing

In this chapter, we further establish the need for an online platform for BSL's Youth Alliance and CoP members. We discuss the current youth unemployment climate in Australia, as well as BSL and TtW's efforts for combating this issue. We then examine the social media and online presence of youth in Australia. After outlining the problem, we discuss approaches to collaborative research, as we designed the platform with, and not for, these young people. Finally, we explain the logistics of developing an online platform in Australia.

Youth Poverty and Unemployment in Australia

In Australia, as in many other countries, youth unemployment and underemployment (defined as working fewer hours than a person desires) is a problem. According to the Organization of Economic Cooperation and Development (OECD), Australia's total unemployment rate was 5.8%, and the underemployment rate was 10.9%, as of 2020; however, in the same year, youth unemployment and underemployment were more than double that number at 16.3% and 15.2% respectively. The problems experienced by adults (aged 25-74) are explicitly worse for youth (aged 15-24). Why is this? What causes youth unemployment, especially for youth from disadvantaged communities?

The term "disadvantaged" does not just mean those in poverty. Researchers Emily Callander et al. (2011) argued that there are three factors that contribute to disadvantage:

1) Poor health and physical disability, which hinder work performance;

2) The government's requirement for youth to attend school only until age 15 (Council of Australian Governments, 2009 as cited in Callander et al., 2011), which causes many young people to abandon their education before graduating, resulting in a low-pay job due to lack of a degree; and

3) Insufficient family support or other forms of guidance in seeking work and/or training for a job.

Dina Bowman et al. (2019), researchers at BSL, claimed that it is difficult for youth to find work, but perhaps even more so for youth who fall in the "disadvantaged" category. It is hard for disadvantaged young people to enter the labor force, and those who do, usually have insecure, low-skilled, and low-paid work (Brown et al., 2017). Bowman et al. (2019) and Transition to Work, a program run by BSL, made the assertion that Australia's labor market has shifted, whereby part-time work is increasing and full-time work is decreasing. Additionally, there is a decline in the manufacturing industry and an increase in the service and knowledge-based industries (Brown et al., 2017). This may not seem like a significant problem, but part-time work is a huge market for people aged 15-24. If full-time adult employees are laid off, they will turn to part-time work. This increases unemployment rates for youth, since adults are taking their positions. Furthermore, Bowman et al. (2019) stated that in response to a limited job market, employers have increased their expectations of young people, requiring that they have a higher education and developed skill set. As previously mentioned, government policy only requires youth to complete up through sophomore year (year 10) of high school, which does not satisfy companies requiring post-secondary degrees from their candidates (Callander et al., 2011). Clearly, there is a societal disconnect, and disadvantaged youth are feeling it the most.

Australia's youth unemployment was already a problem in 2019, so the global COVID-19 pandemic beginning in March 2020 exacerbated the situation. In fact, Dr. Mariana Atkins et al. (2020) of the Centre for Social Impact at the University of Western Australia, found that people aged 15-24 are feeling the worst effects of the pandemic in that 35% of those who lost their jobs in this crisis are people in this age bracket. As previously stated, youth are the largest contributors to part-time positions, such as retail, hospitality, events, fitness, and entertainment-related lines of work—areas of work most affected during quarantines; therefore, youth were the most susceptible to losing their jobs and having their hours cut (Atkins et al., 2020). Australia's many stay-at-home orders have made it even harder for the youth to find work. Atkins et al. (2020) explained that many of these youth are not formally considered "unemployed" because they cannot fulfill the requirements of the definition: "to be actively seeking work and available to start work" (p. 3). Therefore, unemployment values are likely much higher than reported data. Borland (2020) also reported that since March 2020, unemployment has increased by 11% for youth classified as "disadvantaged." Such high statistics continue to reinforce the need for youth support.

> **People aged 15-24** are feeling the worst effects of the pandemic in that **35% of those who lost their jobs** in this crisis are people in this age bracket.
> —Atkins, et al.

The Need for Career Development Resources

An obvious solution for combating youth unemployment is providing accessible career development resources to both advantaged and disadvantaged youth. Bowman et al. (2019) emphasized that youth are voicing their need for career development resources, such as networking, experience, planning, guidance, support, and social connections. This need is increasing as the job market continues to change and become even more confined. Moreover, Bowman et al. (2019) concluded that "young people from [disadvantaged] backgrounds...need access to up-to-date information and guidance about education, training and work, so they can make informed decisions about their futures" (p. 2). This confirms what Callander et al. (2011) had already asserted: disadvantaged youth may not have the support, guidance, or mentorship at home to help them make life decisions. Therefore, BSL has developed tools to help young people obtain a career or higher education, depending on their individual needs and aspirations.

The Importance of Giving Youth a Voice

Figure 4: BSL's TtW participants using their voices.

As outlined by BSL, it is important for young people to not only find work, but to have a voice and be able to use it when it comes to their needs and desires. Transition to Work program leaders argue that "[young people] want to be listened to and given advice based on their [own] goals" (Brown et al., 2017, p. 10). The Australian Government's Youth Task Force, which is a group that brainstorms ideas with senators about improving young people's lives, reported that one of the most frequently raised problems reported by youth was not having their voice heard and also not being taken seriously (Australian Government Department of Health, 2020).

Mission Australia (as cited in Australian Government Department of Health, 2020) is a charity organization that aims to help young people in need. They conducted a survey about youth concerns, aspirations, and perspectives on important matters. The results showed that fewer than 1 in 10 young people feel that they have a voice in any context of their lives (i.e., government, career, etc.). It is important for those who directly feel the struggle to be able to advocate for themselves since they may have the best ideas for how to solve the problem. Furthermore, a report by the Australian Government Department of Health (2020) suggested ideas on how to better provide the youth with a voice: "utilising an online platform, such as social media supported by an online engagement strategy – this would help to engage the young people where they are using the feedback tools that they engage with, and support a diversity of voices being heard" (p. 17). This idea emphasizes the importance of our project. An online platform should help the unemployed youth that BSL works with to combat the isolation they are feeling as a result of COVID-19, to explain their struggles and get support, and to share what they need in terms of their unemployment. Breaking out of this isolation will help the youth to find, and use, their voice in order to advocate for their own needs and make their own decisions.

> **Fewer than 1 in 10** young people feel that they have a voice in any context of their lives.
> —Australian Government Dept. of Health

The Brotherhood of St. Laurence

The Brotherhood of St. Laurence is a critical party in giving youth a voice, in addition to providing opportunities for disadvantaged young people. Inspired by the need for reform during the Great Depression, activist Father Tucker created BSL in the 1930s with the core belief that change cannot be made by individuals, but rather, requires a unified group (Brotherhood of St. Laurence, 2020). Local communities are closely partnered with BSL's programs and services. Insights, critiques, and criticisms provided from individuals who participate in BSL's programs are heavily incorporated into BSL's research (Brotherhood of St. Laurence, 2020). All of this helps BSL promote an inclusive environment and shows that the decisions they make truly take into account the opinions of those who are affected by them. According to the organization itself (Brotherhood of St. Laurence, 2020), BSL's mission is to bring about "lasting change, … [and to] create a more compassionate and just society where everyone can thrive." They aim to bring disadvantaged individuals together, giving them a stronger voice in regards to the issues they face. BSL works in accordance with this mission by educating youth and improving their ability to find careers, which enables them to pass this knowledge onto others later in their life.

Transition to Work is BSL's initiative to combat youth poverty in Australia. Launched in 2014, TtW adopted a capability-centered approach, which "focuses on what people can be, rather than on their limitations or problems" (Brown et al., 2017, p. 16). TtW aims to guide young people along various parts of the employment process, from developing the skills they need to enter the workforce to finding an internship, apprenticeship, or job. BSL maintain relationships with local employers in order to place their participants in the workforce. Overall, TtW prepares youth to be productive employees.

In 2015, BSL proposed a plan to establish a collaborative network called the National Transition to Work Community of Practice that would connect these nationwide programs. The goal of this network is to assist fellow regions in combating youth unemployment in their local region by "sharing complementary expertise and experience, and participating in an action research evaluation...to ensure that learnings inform ongoing adaptation

Figure 5: Young people participating in BSL's programs.

and improvement" (Brown et al., 2017, p. 6). The Community of Practice currently consists of eleven different service providers across thirteen regions of Australia. The chairs of the CoP meet yearly to discuss systemic challenges or solutions, as well as to identify necessary policy changes. Each of these providers implements a version of the Transition to Work program that addresses the specific needs of their local community.

The Youth Alliance is a fairly new program run by Transition to Work and the CoP. BSL's former Youth Engagement Lead, Julia Baron, explained to us that each TtW provider has a Youth Alliance group made up of 5-6 young people from their local program (*Figure 6*). She mentioned that BSL's Youth Alliance members meet weekly, along with a BSL staff member, either at the Broadmeadows center or, during the pandemic, through a conference call program, such as Zoom or Skype. During these meetings, the members discuss any issues they have had with their path to employment, useful information or strategies they have gathered, and other related topics. This group also attends national meetings with the other YA groups within the CoP, and participates in group projects to promote advocacy. Our project was a partnership with BSL's YA members; therefore, we needed to investigate methods for developing a collaborative relationship.

Figure 6: *Locations of the TtW Programs in the CoP across Australia, each of which has a Youth Alliance group (Brown et al., 2017).*

Participatory Action Research

As defined in a study about the importance of youth voices, participatory action research is "an empirical methodological approach in which people directly affected by a problem engage as co-researchers in the research process" (Rodríguez et al., 2009, p. 23). This study explained that the foundation of this approach comes from the idea that "local co-researchers possess expert knowledge derived from their direct engagement with the issues and contexts under study" (p. 23). This process allows the affected population of a study to develop a sense of ownership over their situation, and thus, develop a voice in the research study through collaboration and participation. It is through this ownership that projects using participatory action research result in positive change. Wallerstein (2006), a professor and director of the School of Medicine at the University of New Mexico, defined this as a crucial process in projects and research that collaborate with "socially excluded populations," such as our target population of unemployed youth. Similarly, the Australian Institute of Family Studies (2015) stated that participatory action research is best suited to "[strengthen] sectors, where longer term change has been needed to deliver more sustainable outcomes for vulnerable client groups and communities." Based on these sentiments, we decided to adopt participatory action research as a strategy to reach our project goal. *Figure 7* shows how participatory action research works to improve project outcomes.

Figure 7: The components of participatory action research, and how they work together (Australian Institute of Family Studies, 2015).

An extension of participatory action research is Shared Action Learning (SAL). While participatory action research brings stakeholder knowledge to project developers, SAL establishes a collaborative relationship between the members of a stakeholder community and other developers, all of whom are considered researchers learning from one another (Jiusto et al., 2013). Projects that utilize participatory action

research are motivated to advance their community under study through social change, but SAL goes further by simultaneously bringing about the growth and education of all people involved (Jiusto et al., 2013). This is important for our project because we did not just teach the YA; we also learned from them, BSL, and our collaborative experience. Sharing is an important way in which SAL fosters collective work between the students and sponsoring organization (Jiusto et al., 2013). Our group discussed topics, shared experiences and knowledge, and brainstormed with the YA members to develop a platform together. They shared their personal experiences, insights, and preferences with us, so that we could better understand them as our peers; however, they also shared their ideas and feedback with us for the online platform to fulfill their role of co-designer.

Effects on Community and Project Impact

Projects in different contexts have found success by using participatory action research. An Aboriginal men's group in Queensland used this process to foster a sense of empowerment within their own disadvantaged community of Yarrabah, as well as to provide them with the support they needed to find employment and better their lives (McCalman et. al, 2009). This study consisted of quarterly meetings where the university researcher would ask a series of questions to the young people revolving around difficulties they were facing, how they could overcome these challenges, and what they learned in the process.

From here, the participants were asked to identify local problems, develop a plan for solving this problem, execute their plan, and evaluate and draw conclusions from their results. By implementing participatory action research, they succeeded in achieving employment and education for five local people in their community, and acquiring five grants. The program was so successful that it was further developed in Yarrabah, as well as implemented in another disadvantaged community (McCalman et. al, 2009).

Figure 8: Young people working together.

Participatory action research can also be helpful in bringing awareness to issues that the researchers do not know exist. In the education domain, an Australian University in Brisbane, Australia launched the Student Action Research for University Access project to discover potential barriers for minority groups in graduating and pursuing higher education (Bland et al., 2007). In this project, students were treated as researchers and given the task of locating potential obstacles preventing minority groups from achieving their educational aspirations, and of producing a plan of action to research how the obstacles affect these populations. They were asked to implement their research plan, evaluate the results, and discuss their conclusions with the university. Implementing participatory action research in this way resulted in raising awareness of non-apparent issues, such as low self-esteem, no sense of belonging, and lack of respect from the staff among indigenous students. These findings made way for necessary changes to improve the overall well-being of these students (Bland et al., 2007). These two studies show how participatory action research can bring about project success.

Other studies have also found that this methodology is successful in improving the lives of target populations. Participatory action research increases empowerment in individuals and communities by allowing them to "gain mastery over their lives in the context of changing their social and political environment to improve equity and quality of life" (Wallerstein, 2006, p. 17). A study by BSL implemented this approach in a Youth Advisory group for a program called the Youth Transitions Support Pilot (YTSP). They found that allowing participants to drive program development helped them to gain skills in "leadership, communication, time management, [and] self-confidence" (Youth Voice – Learnings from working with a Youth Advisory Group, personal communication, October 28, 2019, p. 2).

In accordance with the goal of participatory action research, BSL's Advantaged Thinking "recognises that all young people have a vital contribution to make to...our communities and society...and should [therefore] have access to the opportunities and networks that facilitate this...participation" (Brown et al., 2017, p. 23). This methodology moves the focus from the participant's barriers to their talents (Brown et al., 2017). Executing this approach has made BSL highly successful in providing young people with the experience and support they need to jump-start their careers. In terms of our project, we used participatory action research and SAL approaches to discover the strengths and skills of our Youth Alliance partners in order to build an appropriate online platform for their community.

> "**all** young people have a **vital contribution** to make to...our communities and society...and should [therefore] have **access to the opportunities and networks** that facilitate this...participation"
> —Brown, et al.

Young Australians' Online Technology Use

We determined that an online platform was a feasible way to reconnect young CoP members to one another and to resources. Technology usage has recently skyrocketed worldwide. The Australian Bureau of Statistics concluded that about 86% of Australian households had internet access, and in 2014, they estimated that about 99% of 15-17 year olds used the internet (2018; 2016). Technology usage has continued to increase since this report was released, indicating that the number of users is likely even higher. Of this 99%, approximately 91% of 15-17 year olds use some form of social networking platform (as shown in *Figure 9*), with the most popular platforms being YouTube, Facebook, and Instagram respectively (Australian Bureau of Statistics, 2016; Statista, 2020).

Multiple studies about the effects that technology and social media use have on young people have been published in response to recent advancements in technology. One such study delved into social media usage among Indigenous young people and discovered that "social media provides opportunities for Indigenous young people to feel a sense of power and control over their own identities and communities" (Rice et al., 2016, p. 10). This study also found that social media was helpful in improving communication skills and building confidence in those who have social difficulties. Both of these conclusions were important in justifying our decision of an online platform, since our target audience could have included both Indigenous members and those with social disabilities. As mentioned in the report by Edmonds et al. (2012 as cited in Rice et al., 2016) on mobile phone and social media use among young people, social media "allows for those with lesser skills to tap into potentially supportive networks and develop transferable skills for offline engagement." In a similar way, our project with unemployed youth might provide an online environment in which youth can develop career skills in a safe space, which they can use to progress their career path offline. Along with this, social media has been attributed to forming communities that can help connect people from similar backgrounds (Rice et al., 2016).
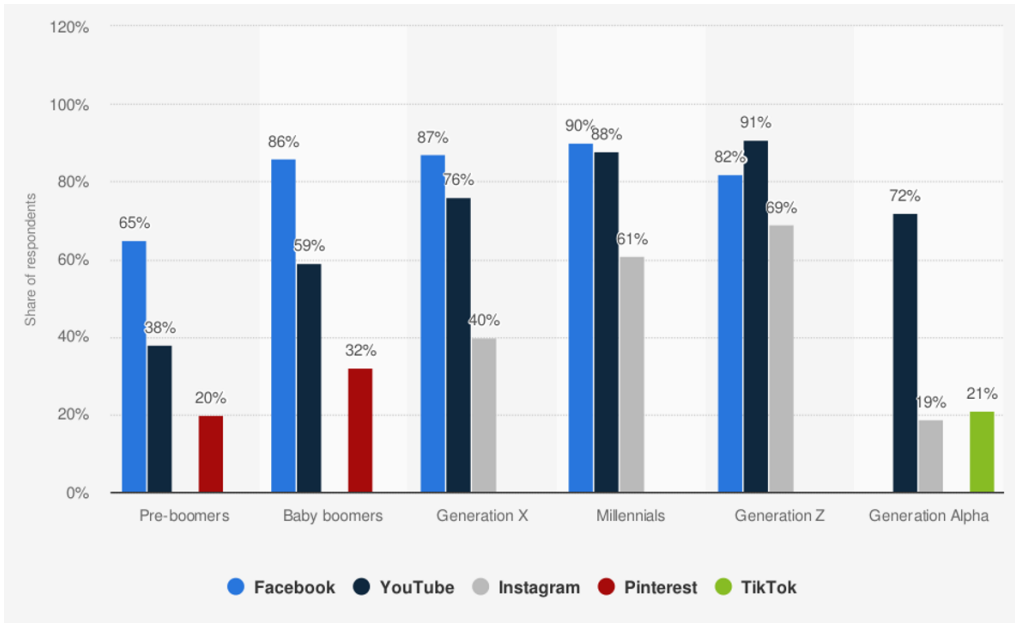

Figure 9: Social media platform usage amongst each generation in Australia, collected from a study with 25,379 respondents (Statista, 2020).

Studies on Young People's Technology Engagement

We were able to learn from previous attempts that connected unemployed youth online. In 2013, Jayne Orr et al. completed a study on the effects of texting young people who were unemployed and seeking jobs. The goal of the experiment was to send text messages in order to combat the depression and isolation that youth feel as a result of continual rejection during their job search. Participants in the study liked the idea of receiving these types of self-esteem boosting messages, and they suggested that the messages use more positive and encouraging language in the future (see *Table 1*). Therefore, incorporating positive language into our site was an important goal.

Table 1: Texts received by youth during their job search (adapted from Orr et al., 2013).

Researcher-Provided Message	Youth-Suggested Message
"Somewhere inside of you is something that will get you a job"	"You've got what it takes to get a job"
"Remember that you are not alone--about 12% of Australians your age are unemployed and looking for work"	"Remember that you are not alone--lots of Australians your age are unemployed and looking for work"
"Remember you can learn something from each unsuccessful job interview/application"	"Remember that you can learn something from each job interview or application"
"Who would appreciate a call from you?"	"Who can you call for a chat?"
"Who is missing you right now?"	"Call a mate"

Another study performed with university students in the UK demonstrated the pros and cons of using social media in our targeted age group. Researchers Becky Hartnup et al. (2018) discovered that college-aged people enjoy using social media for maintaining relationships, establishing new ones, and seeking help and support. Their conclusions support our former sponsor liaison Julia Baron's desire to connect Youth Alliance members across Australia so they can build strong connections, learn from one another, and help their peers. The study by Hartnup and her colleagues (2018) also demonstrated negative effects of youth social media use, such as hesitancy to post online due to a need to project an "ideal self," the uncertainty of societal norms and others' opinions, and increased competition in areas like academics. We avoided including features that invite competition and comparison because they result in negative outcomes that are not helpful to young people. In order to design a safe and positive space for them, we explored this issue with our collaborators to determine how to let the users be who they truly are without fear of judgement.

Lastly, Petter Brandtzaeg et al. (2016) performed a study in Norway looking at youth engagement on mobile social media platforms. Brandtzaeg et al. (2016) explained that young people want to engage online, but there are certain barriers that prevent them from doing so—one of which is privacy issues. Even though the youth are extremely present on social media, they are selective in what they want to share (Brandtzaeg et al., 2016). In order to determine how far the YA members' information is distributed, we discussed the issue of a closed forum that would only be accessible to members of the National Community of Practice. All of these studies and feature reviews provided our team with important points to consider when developing our prototype (lessons summarized in *Table 2*).

Table 2: Lessons learned from youth social media studies.

Type	Features that Young People Like Online
Platform Environment	- Control over privacy - Non-competitive atmosphere - Positive, encouraging language
Social	- Ability to build and maintain relationships - Ability to share/upload media (i.e. photos, videos) - Real-time communication and responses
Aesthetic	- Highly visual - Concise text content accompanied by visuals
Accessibility	- Access to resources - Accessible to mobile phones 24/7 availability of support and resources

Web Accessibility

Before delving into building our online platform, it was important to consider web accessibility. As defined by the Australian Human Rights Commission (2014), web accessibility is the "practice of designing web content so that it can be navigated and read by everyone, regardless of location, experience, or the type of computer technology used." This definition applied to our project in regards to non-English speaking populations, people with limited access to hardware, and those with disabilities. There was potential for this portion of our target group to need extra support, so it was important to learn about ways that we could provide the best online experience for these users.

Accessible web design can help clear the language barrier in multilingual countries. According to the Australian Government (n.d.), "Australia is one of the most culturally diverse countries in the world," with approximately 19% of the population speaking a non-english language at home. Due to this, it was crucial to explore potential problems involving language barriers when developing our online platform. The Australian Government (n.d.) suggested that developers determine the specific language needs of their target population in order to ensure that all commonly used languages are addressed. They also suggested that online material be written in "plain English," which is defined by the

Plain Language Action and Information Network (n.d.) as "communication your audience can understand the first time they read or hear it." Plain English allows users to easily read and translate the content where applicable. In regards to translation, it is also important to use an NAATI-Accredited translator for translations, and to provide accessibility for all translated content. Once learning about the language needs of our target population, these guidelines were important to consider implementing into our online platform.

The use of online platforms and social media positively affect young people all over Australia; however, accessibility barriers such as socioeconomic status, education level, and employment standing prevent the use of these platforms. According to the Brotherhood of St. Laurence's former employee Julia Baron, participants of the Transition to Work program have struggled to access computers in order to participate in online events. She noted that most participants were more inclined to meet with their youth coach over the phone than over video calls, such as Zoom and Skype, which are primarily used on a computer. In a similar vein, these young people were more apt to use their phone to access content on the program's website than a computer, which implied that we needed to investigate mobile accessibility when developing our project deliverable.

Additionally, web accessibility is crucial for those with a disability. Currently, the Australian Government suggests that websites follow the World Wide Web Consortium's (W3C) set of web accessibility recommendations called the Web Content Accessibility Guidelines (WCAG) 2.0. These guidelines are important in protecting those with disabilities who are commonly impacted by the internet. For those who are hard of hearing, W3C (2020) suggests that websites provide captions and transcripts on any audio component. They also recommend providing the ability to change text size, font, and style for those who are visually impaired. Implementing these practices in our online platform would provide accessibility to users with these disabilities and would allow them to have the same online experience as everyone else.
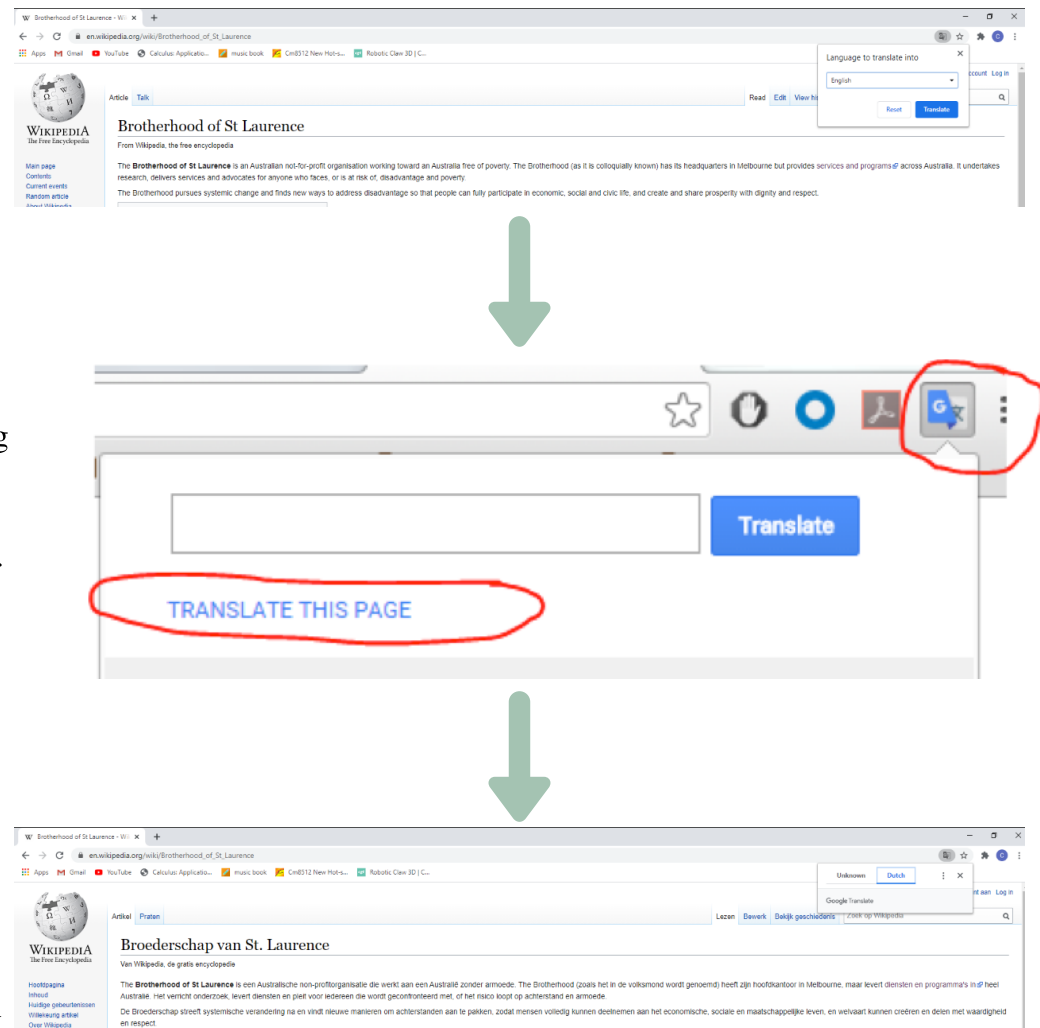

Figure 10: Web translator to accommodate those who speak a language other than English.

Rapid Throwaway Prototyping Model

In addition to the factors of accessibility that we took into consideration, we also needed a way to develop our platform alongside YA members and BSL employees. The Rapid Throwaway Prototyping Model (RTPM) is a method where a team of developers and a team of users come together as one cohesive unit to co-develop a product (Chang, 2015). With RTPM, the co-developers meet and decide on desired features or changes. This was used by our group to form a prototype, which we brought to our co-developers for feedback. After receiving feedback, the prototype was deleted or thrown away. Our group then worked on implementing the feature alongside our co-developers to produce a new prototype.

The main difference between the RTPM and the traditional model (also called "evolutionary prototyping"), is that throwaway prototypes are made with the intention of displaying an idea or functionality to users, while evolutionary prototypes are made to be expanded upon and edited (Chang, 2015). The type of prototyping that should be used depends on the type of project being created. For example, the evolutionary prototyping model may be the correct choice for a single client who has been given a very specific program to make; however, the RTPM may be better for creating a big, semi-open ended project for a group of people. Ali Sadabadi et al. (2017) described the RTPM as being "especially good for designing good human-computer interfaces" (p. 7). We used the RTPM because the human-computer interactivity was necessary for building our platform and for fostering collaboration with the YA.
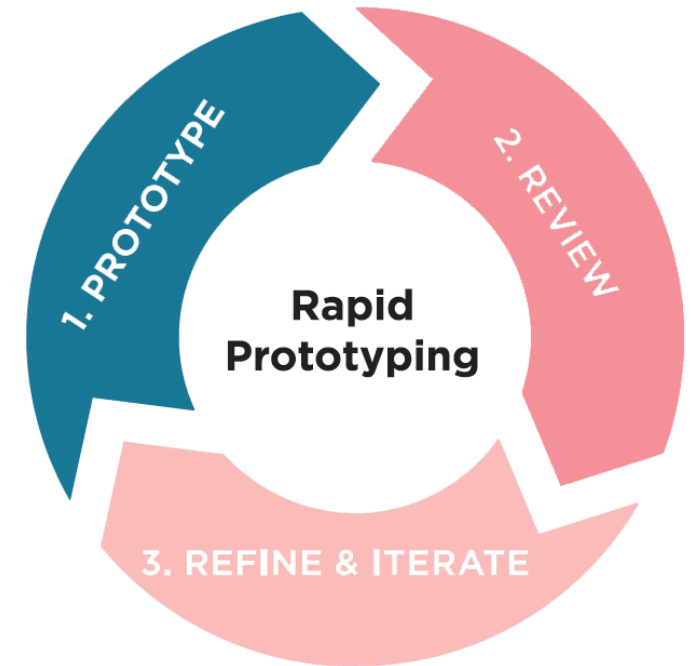

Figure 11: RTPM used to develop and test our online platform.

Cultural Usability User Testing

In RTPM, feedback for prototypes is typically obtained through user testing. The most common way user testing is incorporated is through collaborative discussion groups called Joint Application Development (JAD) (Murugesan, 2010). This refers to the idea that there is no distinction between "developer" and "tester," but rather, both parties act as co-developers filling both roles. The prototypes are like rough drafts

and can be created and tested within the group at a fast rate. This means the two development teams are constantly meeting to see the results of their feedback (Murugesan, 2010). We followed JAD as suggested, but also established the understanding that the YA are our co-designers rather than testers of our project. In this manner, the lines between developer and tester were blurred.

An important phenomenon of our blurred-roles testing was cultural usability. University professor Huatong Sun (2002) defined this concept of cultural usability as a way to develop technology. She claimed that engineers think that if the user was able to get the product or function to work as it was intended to work, then it was successful. In this manner, users were only treated as test-subjects. This way of thinking does not hold true if users have a different notion for what the product's goal should be, or how a feature or product should function (Sun, 2002). Given the fact that one of our project deliverables was to collaborate with the Youth Alliance, we had to be prepared for discovering that the intentions and purposes for the platform that the young people saw may have actually been quite different than we had originally intended.

As with JAD, Sun (2002) also emphasized the need to take a more user-centered view of usability, in which "users are not only regarded as practitioners who use tools, but also as producers who are involved in the design process, and as citizens who can serve as active participants in the larger technological order" (p. 458). Our group was determined to have the YA as our co-designers, so understanding their culture and needs was crucial. We established mutuality with the YA and built a relationship with them through a series of informal sharing activities and games described in the next chapter. We also mentored the youth by sharing what we know about designing websites, while they mentored us on their culture, needs, and practices.

Crikey! The team presented their final proposal and then began project work.

METHODS & RESULTS

Objective 1: The Brotherhood of St. Laurence's Mission in Giving Youth a Voice
The Implementation of Participatory Action Research Throughout the Project
Objective 2: A Collaborative Relationship with Youth Representatives
    Photo-Journaling
Objective 3: The Needs and Preferences of our Targeted Audience
    Card Sort Activity with Youth Alliance Members
    Survey of Community of Practice Young People
    Focus Group with Community of Practice Members
Objective 4: Prototype and Test the Online Platform
    Rapid Throwaway Prototyping Model
    Pair Programming
    User Testing the Two Prototypes

The Brotherhood of St. Laurence requested that our group determine the needs of CoP participants in order to build an online platform for them. We did this by developing a collaborative relationship with BSL's Youth Alliance group. The goal of this project was to provide these young adults with a virtual space in order to give them a voice and connect them to resources, allowing them to take control of their own career path. Our group developed the objectives and associated methods in *Figure 12* to meet this goal.
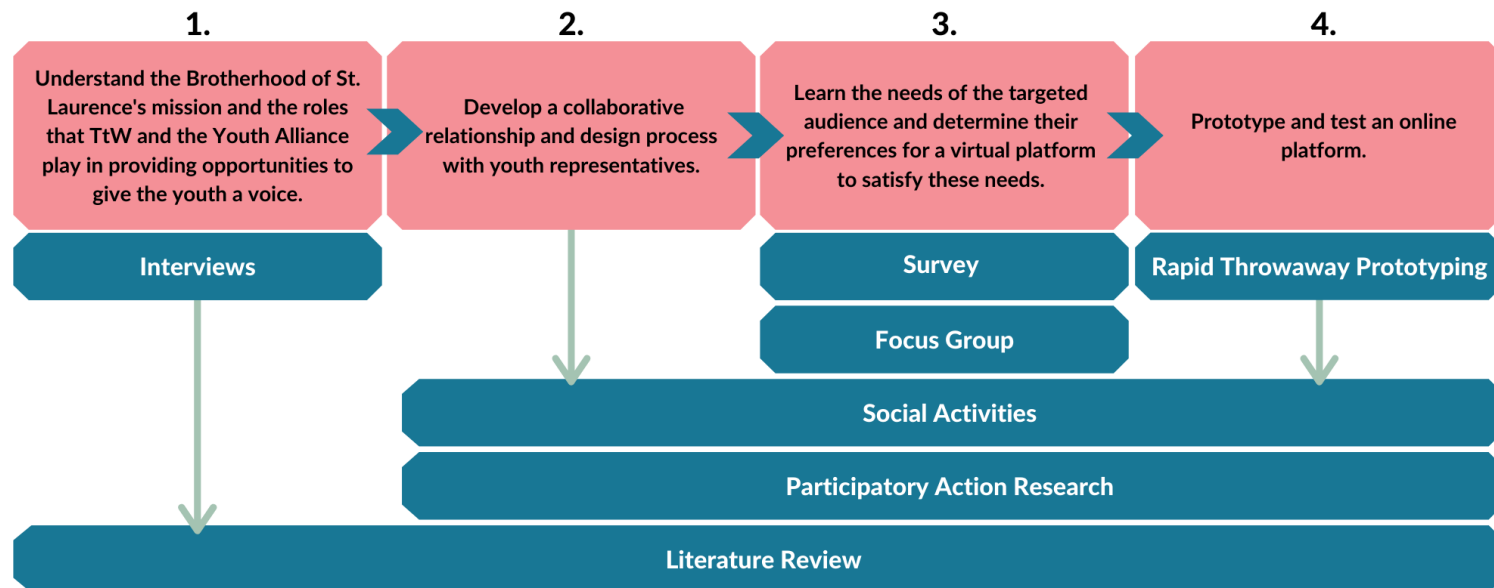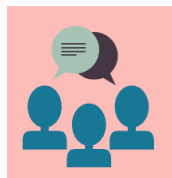

Figure 12: The team's project objectives and methods.

Our project required many methodologies to answer our main research questions:

- What are the needs of our target audience?
- What ideas do they have for communicating online?
- What is their current technological climate?
- How can we best combine their ideas with their needs, and then incorporate that into an online platform designed from scratch?

Objective 1: The Brotherhood of St. Laurence's Mission in Giving Youth a Voice

Without a firm understanding of BSL's core ideals and the strategies they employ to fight for those ideals, it would have been difficult to craft a web platform that accurately represented them. The easiest way for us to gain this understanding was to review information available online, such as BSL's website and the Australian Government's information on BSL programs and services. We also communicated directly with BSL staff, which was key to establishing a relationship and working as a collaborative unit. Write-ups on past WPI projects that were completed with BSL also proved to be useful. We summarized this information in the previous chapter.

The Implementation of Participatory Action Research Throughout the Project

BSL's organization focuses on the importance of foregrounding youth voices and participation. In order to properly develop an online platform for the Youth Alliance, we needed to collaborate with them effectively. We carried this out by meeting frequently with them (at least twice a week), and by implementing participatory action research practices (see *Background* chapter). We also utilized social activities that fully engaged the Youth Alliance members in this project (see *Supplemental Materials*[1] (*SM)-A* for the preamble).

Participatory action research was prevalent throughout Objectives 2-4, both in building our relationship with the YA, as well as in collecting data and designing the website. Participatory action research helped us to connect with the four Youth Alliance members who participated in this project, and to build rapport with them. To initiate our relationship, we held a social Zoom meeting, during which we played games and used icebreakers as outlined in *SM-B*. In the remainder of this chapter, we explain, in detail, the specific activities for Objectives 2-4 of our project (see *Figure 12*), and report the subsequent results.

Figure 13: Overview of activities for Objectives 2-4.

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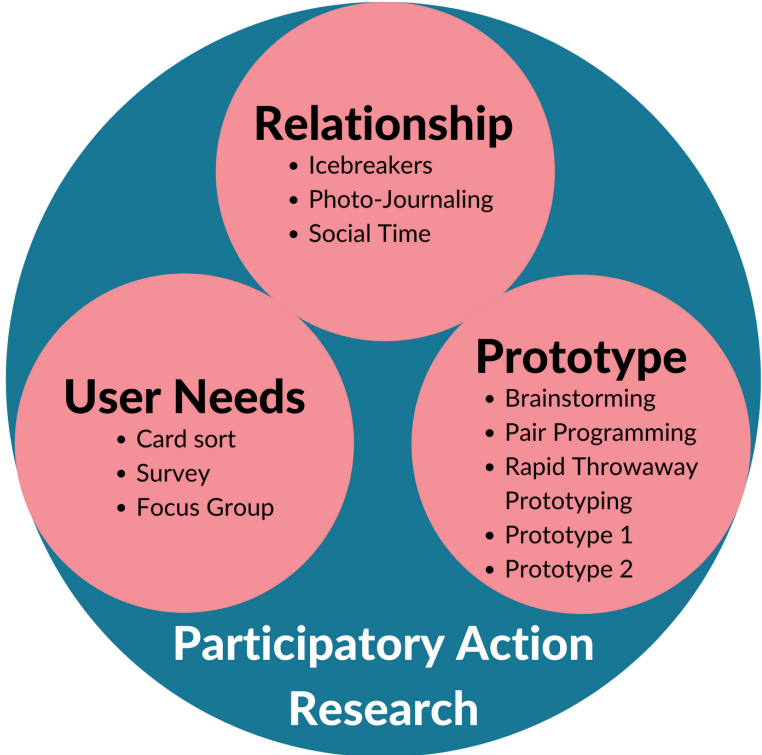
[1] Supplemental Materials (SM) for this project may be found at wp.wpi.edu/melbourne/projects/, using the searchbar to locate project materials.

Objective 2: A Collaborative Relationship with Youth Representatives

As noted above, it was important for us to build a relationship with the YA, so we began communicating over Zoom and socializing with the YA even before the start of the project. During the week preceding our project, we participated in a WhatsApp chat with the Youth Alliance members, in which we exchanged personal information about ourselves. We sent pictures of moments happening in our lives and encouraged the Youth Alliance to do the same. We also filmed a virtual tour of WPI for them. This allowed the YA to see a university in the United States. Mutually sharing information like this allowed everyone to learn more about each other's lives.

In addition to our normal project meetings, we scheduled time that was strictly devoted to socializing and bonding with our Youth Alliance partners. This was crucial because we worked with these young adults as

Figure 14: *Screenshots of our WhatsApp chat with the YA.*

co-designers, and we wanted to ensure a friendly and informal relationship. Some of our social activities included playing games requested by the Youth Alliance, such as Kahoot. These social events were not required of them, but all the participants came as their schedule allowed. In response to these bonding activities, we further developed our relationship with our collaborators and started to discover their needs for an online platform through a Photo-Journaling activity.
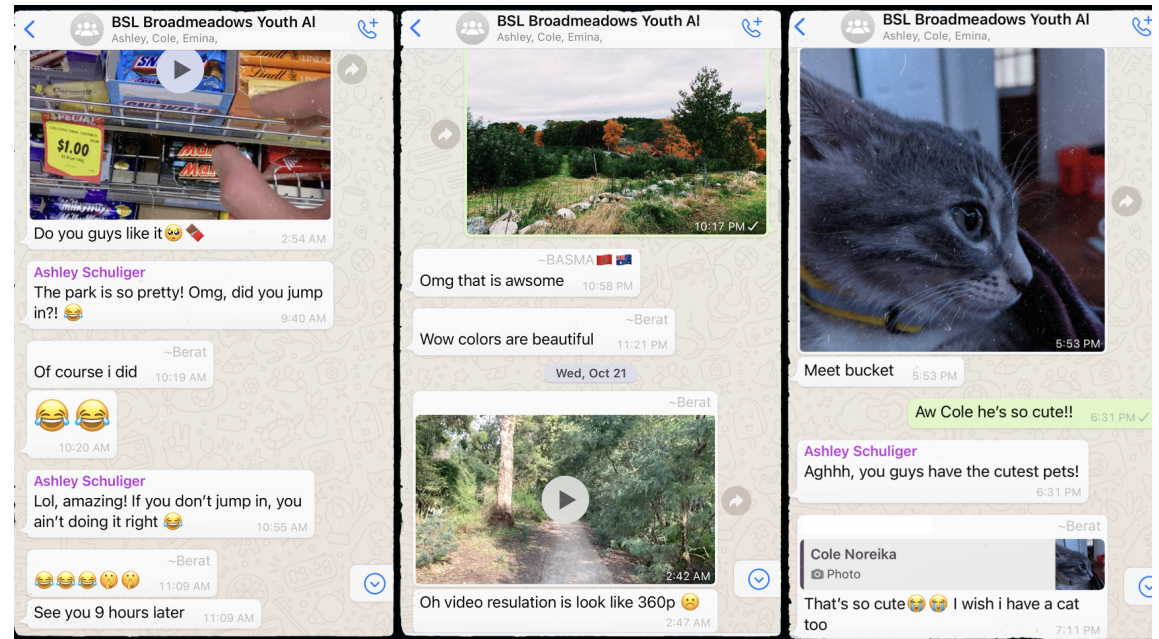
Photo-Journaling

Early in the project, we asked our collaborators to engage in a Photo-Journaling activity (see *SM-C*). This method involved our four usual YA collaborators taking, or finding, photos that represented their goals and aspirations for the future in order to develop an understanding about their values and who they are as individuals. We assigned this activity one week in advance of our discussion about their photos. During our

discussion, we asked what each photo represented for them, and how those goals aligned with their personal values and beliefs. This activity allowed us to develop a stronger bond with the members of the Youth Alliance and continue to gain their trust. This was crucial for us because a stronger connection resulted in better collaboration.

Photo-Journaling taught us more about our four Youth Alliance peers, and we drew some insightful conclusions regarding them as people. One participant shared a picture of a business person, suggesting that they viewed a job as a way to achieve happiness. This young person explained that a job would provide safety and security, but would also provide something that they would enjoy doing long-term. Ideally, they would prefer a job in office or retail. This participant explained, "I do not just want a job for the money. I enjoy working and getting out of the house." Therefore, we concluded that the participant valued keeping themself busy and interacting with others.

Another participant wanted a full, self-sufficient life. They chose a picture of Anglesea, where they hope to live one day, and a picture of a lemon tree. This participant said, "I want to plant as many trees as will grow in that climate, so I can live off my own land as much as possible." They seemed environmentally and financially conscious, and their desire to live in Anglesea indicated that they enjoy nature and the outdoors. Their goals suggested a caring nature, both for themself and their environment. This participant mentioned that taking care of a lemon tree would improve their mental health and provide a fulfilling life. Thus, it was evident that they were aware of, and concerned with, maintaining mental well-being. Additionally, this person seemed to have a good sense of their needs and wants, and what steps would get them there.

The third participant was a very gracious individual. The picture was from an awards ceremony, where they were recognized for their efforts in their community. This showed that they also wanted a fulfilling life, centered around community. Their comments indicated they have a caring nature and are a determined and motivated person. This participant said that, "When I came to Australia, I was lost and community members helped me find myself." Service to others and giving back to the community that helped them is something that would bring this individual joy. In order to accomplish this goal, this participant is currently studying community service in school. They seemed very passionate about their future endeavors and are excited to make a difference.

Figure 15: Participant 1's photo.

Figures 16 & 17: Participant 2's photos.

Figure 18: Participant 3's photo.

Finally, the last participant also seemed like a motivated individual. They were not comfortable sharing an image, so they verbally discussed their life goal instead. They described their goal to create a store or online business that sells personalized jumpers. In addition, they connected their goals and values, saying they wish to donate 10-20% of their profits to help countries in need, and "want to help people have better lives." We concluded that this participant wants to give back to the community, but also wants to have a job that they enjoy. Like the others, this participant seemed excited to succeed.

We were able to develop general takeaways about the group. Most importantly, the Youth Alliance members want to be happy and to participate in activities that provide them happiness. They all seemed to have clear goals, and wanted to be connected to their community by contributing and staying engaged. They also desired fulfilling lives, making choices based on what they want or are passionate about, not on how much money they will make or what they are expected to do.

Figure 19: Participant 4's photo (created by WPI members).

> They all seemed to have clear **goals** and wanted to be connected to their **community** by contributing and staying engaged.

Objective 3: The Needs and Preferences of our Targeted Audience

After learning more about the YA, we had to determine how the general youth population in the Community of Practice intended to use the platform, and what features should be included. This involved learning what online technologies young people were already using, and what features they liked from these existing platforms. We also had to understand their needs in terms of employment, their life goals, and any accessibility challenges.

To gain an understanding of the youth climate, we reviewed literature on social media use and accessibility guidelines in Australia (see *Background* chapter), as well as past studies to learn how to increase youth engagement online. Also, as mentioned in the *Web Accessibility* section of the *Background* chapter, we looked specifically at three technologically-vulnerable populations: non-English speakers, those with limited access to hardware, and those with disabilities. The goal was to understand the barriers that these populations face while using technology, and how we could minimize these barriers for our users.

Card Sort Activity with Youth Alliance Members

We used a Card Sort activity (see *Figure 20*) in order to get a rough idea of how our co-researchers may have wanted to use the platform. Using an online tool called Optimal Workshop, we created 28 cards (see *SM-D*), each with a social media or web platform-related feature, ranging from voice calling friends to the ability to block users. We asked our YA collaborators to sort them into groups in whatever way made sense to them. Afterwards, we asked each person why they categorized their cards the way they did, as well as what features were most important to them, so that we could better interpret their groupings. We used the card categories, as well as discussion, to code the results and draw conclusions.
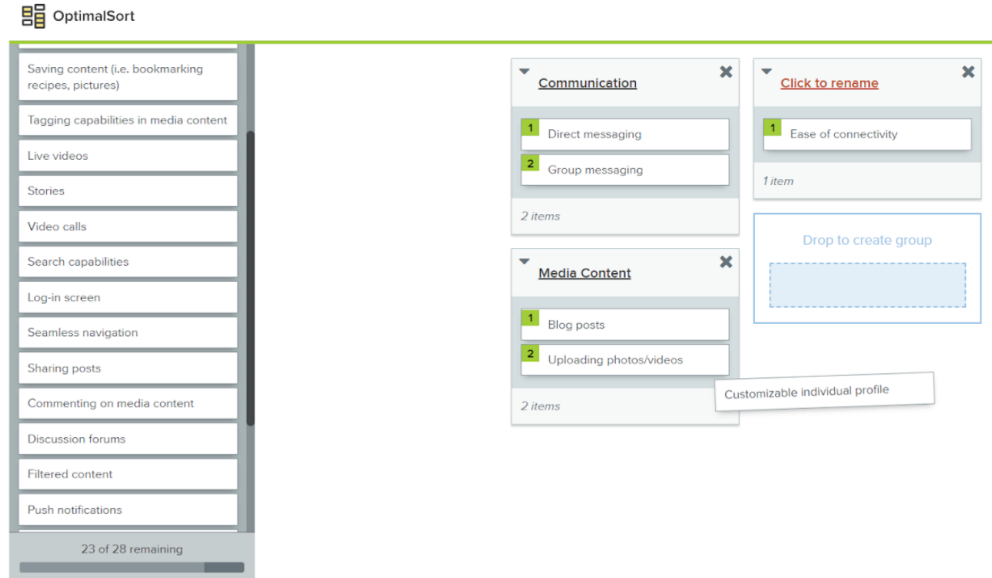

Participant 6:	Card	Category
6	Search capabilities (e.g. search bar)	YouTube
6	Live videos	YouTube
6	Push notifications	Notifications that come up on your phone
6	News feed	Notifications that come up on your phone
6	Customizable privacy settings	Notifications that come up on your phone
6	Direct messaging	WhatsApp
6	Audio calls	WhatsApp
6	Group messaging	WhatsApp
6	Video calls	WhatsApp
6	Mobile application	Facebook
6	Log-in screen	Facebook
6	Saving content (i.e. bookmarking recipes, pictures)	Facebook
6	Customizable individual profile	Facebook
6	Followers/friends/connections	Facebook
6	Likes/views	Facebook
6	Tagging capabilities in media content	Facebook
6	Blog posts	Facebook
6	Uploading photos/videos	Facebook
6	Blocking users	Facebook
6	Commenting on media content	Facebook
6	Sharing yours or others' posts with someone else	Facebook
6	The ability to easily connect with many people	Facebook
6	Discussion forums	Facebook
6	Stories	Snapchat
6	Customizable filters and fonts	Snapchat
6	Filtered content based on personal interests	Snapchat
NOTES:	doesn't use Facebook, uses WhatsApp the most, ranked based on why people use those platforms, RANKED CATEGORIES	

Figure 20: Sorting online features in Optimal Workshop.   *Figure 21: An example of a participant's sorted lists.*

Each participant organized their cards differently (see *Figure 21* for an example). The first person sorted by social media platform. For example, direct messaging and group messaging were placed into a category named "WhatsApp" since this platform is based around its messaging feature. The categories this participant created were "WhatsApp," "Facebook," "Snapchat," "YouTube,"and "Notifications that come up on your phone," where the last grouping represented any feature that dealt with general push notifications. They stated that their preferred social media platforms were "WhatsApp," "Snapchat," and "YouTube." Thus, the features within these categories were most important to them.

Our second participant organized their cards into categories named "sharing with someone," "sharing with everyone," "only belongs to me," "easy to connect," "settings," and "building or sharing ideas with each other." This organization was based on how the participant used features

in an application. They responded that their top categories were "sharing with someone," "sharing with everyone," and "only belongs to me," indicating that the features within these categories were most desirable. We also concluded that privacy and the ability to control one's audience were key for this user.

Our final participant sorted their cards into three categories: "social media," "laptop," and "mobile." They explained that the items in "social media" had to do with general social media features, while "mobile" and "laptop" contained features specific to that device type. We directly asked the third participant for their top three important features. They responded that they valued the abilities to have privacy on social media, to easily connect with many people, and to share content with others. This reinforced the previous participant's concerns for privacy and the ability to control content sharing with other users.

Card	Frequency
Group messaging	3
Direct messaging	3
Sharing yours or others' posts with someone else	2
Tagging capabilities in media content	2
Live videos	2
Stories	2
Filtered content based on personal interests	2
Audio calls	2
Video calls	2
Saving content (i.e. bookmarking recipes, pictures)	1
Likes/views	1
Uploading photos/videos	1
Commenting on media content	1
Push notifications	1
Customizable individual profile	1
Blog posts	1
Blocking users	1
Customizable privacy settings	1
Followers/friends/connections	1
The ability to easily connect with many people	1
Customizable filters and fonts	1
Search capabilites	1

	KEY
	#1 Most Important
	#2 Most Important
	#3 Most Important

NOTES:	
	wants to be creative online, likes to send posts to friends
	addicted to phone, uses mobile/laptop only for school, prefers app
	doesn't use Facebook, uses WhatsApp the most, ranked based on why people use those platforms, RANKED CATEGORIES

Figure 22: Frequency analysis amongst all participants.

Once we reviewed the card groupings, we wanted to analyze the features our participants explicitly told us were important to them. We labeled a feature green if all three participants mentioned it was important, yellow if two participants did, and blue if only one participant did (as shown in *Figure 22*).

Based on these results, we concluded that these young adults most valued messaging, sharing personal content, and controlling privacy on a social media platform, as shown in *Figure 22*. In terms of personal content, participants voiced that they enjoy having customizable features, such as a personal profile, filtered media content, and saving capabilities on the social media platforms they use. This emphasized that the platform we made needed to be user-oriented, and that this should be reflected through features and capabilities like the ones listed above. In terms of privacy, our participants discussed the importance of being able to block users and hide their content from the general public eye. We proposed only allowing members of the Community of Practice to log into the site and allowing users to report inappropriate actions to accommodate this. We also found that participants favored using their phone to access social media content. This showed us that we needed to make sure our deliverable was accessible on both a phone and a laptop. These results were from three participants, so it certainly was not enough to draw major conclusions about the general target population; however, we used these results as a foundation on which we further investigated these preferences within our larger user base.

They valued the abilities to have **privacy** on social media, to easily **connect** with many people, and to **share content** with others.

Survey of Community of Practice Young People

To gain a better understanding of internet usage among the larger user population, we created a survey (see *SM-E*). This survey asked about:

- how often young people use the internet
- what technology they access the internet with
- what apps/platforms they prefer
- what they use the internet to do
- any challenges they may have with using the internet
- features they might like on the platform we were designing

It also included questions related to participants with disabilities, those who speak a non-English language at home, and those who have limited access to hardware.

We drafted the survey and received feedback on the questions from our collaborators. We then tested the survey in Qualtrics to ensure its functionality. We shared the survey with BSL's youth coaches and gave them one and a half weeks to gather responses. Each youth coach completed the survey with the young people during their daily check-in.

We received 43 responses from respondents aged 16-24. The respondents were 60% male, 37% female, and 3% other. All respondents answered that they have access to the internet, suggesting an online platform would be a feasible way to connect them. Likewise, 94% of our respondents communicate online, and reported they do this mostly through messaging. This information was critical in reinforcing the YA's wish for messaging capabilities.

Figure 23: Technology young people use to access the internet.

More specifically, we asked questions about each individual's internet usage and preferences. As shown in *Figure 23*, these young people use personal devices to access the internet, with mobile phones, laptops, and tablets being the most popular devices respectively. In a follow-up question, we discerned that young people prefer to use their mobile device to access the internet because it is easier and more efficient. This showed us that hardware access was not a limitation. Additionally, the popularity of three different devices indicated that our site should be accessible on a variety of devices, but most importantly, on a mobile phone since that was the most preferred device.

In a similar vein, we learned that the top three reasons these youth use the internet were for social media, entertainment, and communication purposes (*Figure 24*). Social media was the most popular reason, and a follow-up question showed that the top three social media platforms were YouTube, Instagram, and Snapchat respectively (*Figure 25*). The respondents explained that these were the top sites because they foster
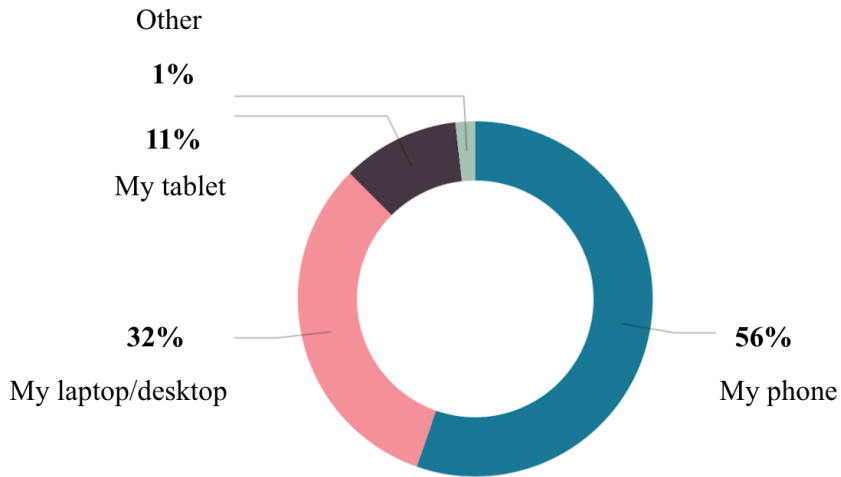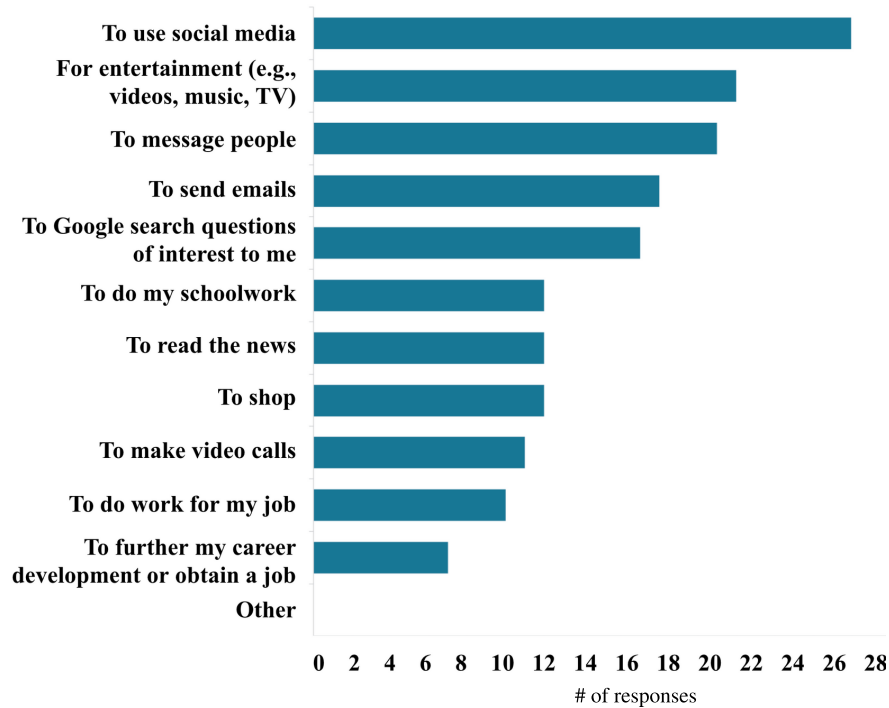
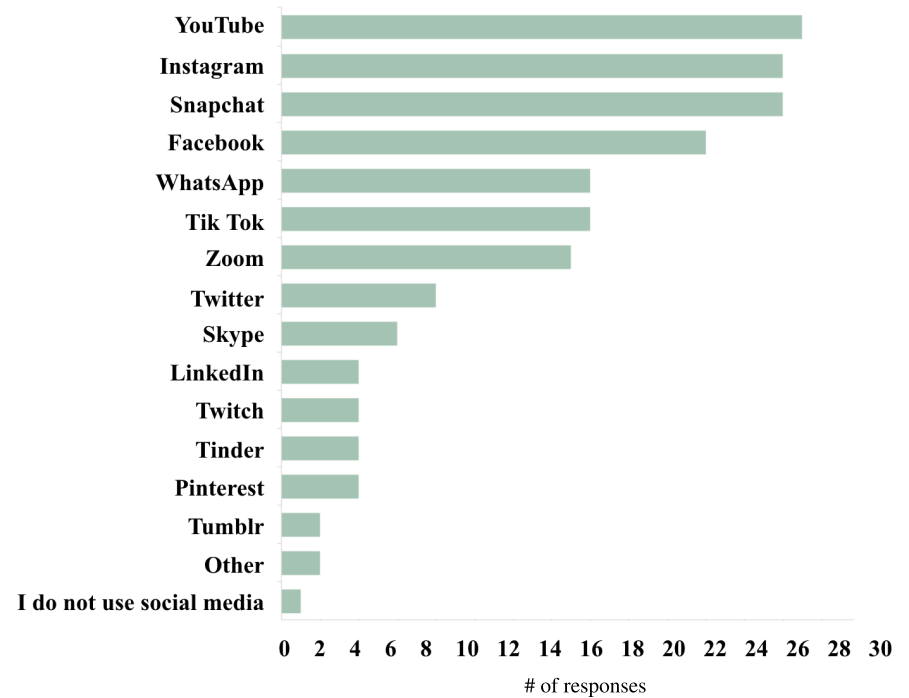**Figure 24:** *Reasons young Australians use the internet.*

Figure 25: *Most popular social media platforms amongst young Australians.*

communication and community, and are fun and interactive. Despite these sites being so popular amongst young people, there was still a need for our custom site. BSL has attempted using Facebook before, but it did not work because the young people did not like the environment or lack of privacy. Our site was designed to only be available to CoP members and no outsiders, giving young people the space to build the community they need without privacy concerns. Additionally, we were able to incorporate many features and functionalities that the popular platforms offer, making our site just as appealing and user-friendly.

Next, it was important to learn about any accessibility requirements in our target population. Well over half of our survey respondents spoke a language other than English—the most popular were Arabic and Turkish. This suggested that translation may have been an important option. In a follow-up question, over half of all respondents also indicated that they would like to see a translation option. Along with this, only 4% of our target population noted that they had a disability, but they also indicated that their disability does not cause any challenges in using the internet. Our group decided to focus more energy on other site functionalities that were more important to the target users.

Most importantly, the survey revealed crucial information pertaining to preferred features for our online platform. We wrote open-ended questions that asked directly about what purpose they would want to use the site for, what they would hope to get from using our site, and the features they would want to have. These young Australians hoped to receive encouragement, meet other young people across Australia,

communicate with their peers, and share content amongst themselves. More specifically, survey respondents indicated that the top three features they would most want to have on our site were messaging capabilities, group messaging, and the ability to post and share media content. Finally, we provided them with the option of a professional site, social site, or both. As shown in *Figure 26*, most young people want to use the site for both professional and social reasons. Going further, most respondents wanted to be able to separate professional content from social content on the site (*Figure 27*).
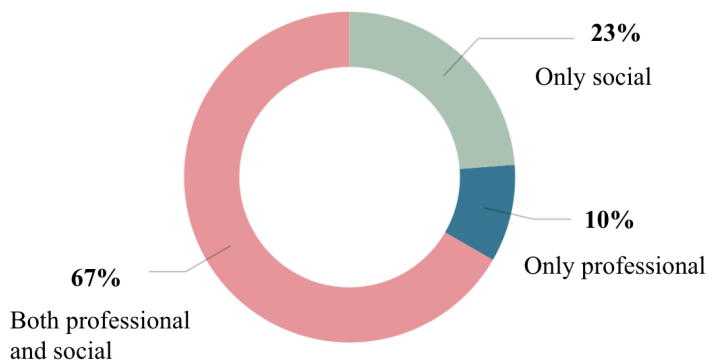

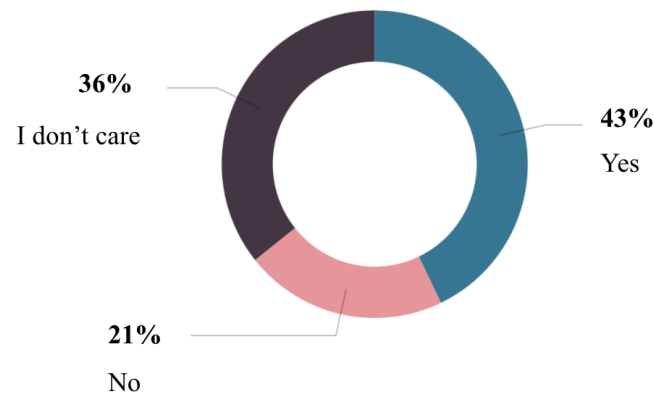**Figure 26:** *Desired use of the Site.*

Figure 27: *Desire to separate professional content from social.*

One conclusion from the survey was that the YA's stated preferences were closely aligned with those of their peers. Everything we discussed in our YA meetings and brainstormed in the smaller group was reflected and reinforced by the general youth population in these survey results. Furthermore, this activity really showcased BSL's intent to have YA members serve as leaders and advocates for the rest of the young people in their programs. The survey proved to be successful in helping us to learn the technical needs of our site, as well as desired social features, but we still had to explore the professional needs of our target population.

Young Australians hoped to receive **encouragement**, **meet other young people** across Australia, **communicate** with their peers, and **share content** amongst themselves...survey respondents indicated that the top three features they would most want to have on our site were **messaging capabilities**, **group messaging**, and the ability to **post** and **share media content**.

Focus Group with Community of Practice Members

We conducted a focus group with five Community of Practice participants. This included our normal YA collaborators and other young people who were from other CoP programs across Australia. In the focus group, we aimed to learn about their thoughts on their employment, job skills, and life goals, but also their challenges and certain career areas where they needed more support (e.g., resumes, interviews, networking, etc.). This way, we could use their experiences to ensure that our deliverable met their needs as best as possible.

During the focus group, we used a listing technique mixed with open discussion. The point of the listing activity was to allow the participants to gather their thoughts before participating in discussion. First, we asked the group to "list everything you think of about employment or having a job." We gave the young people about five minutes to type all of their thoughts into private Google documents. After the five minutes, we reconvened and had an open discussion. For this first prompt, we used guided questions, such as "is your perception more positive or negative and why" and "how could our website provide you with a more positive outlook on employment," to further the discussion.

Analyzing the responses to the first prompt, we found that the participants had differing outlooks on the employment process. Participants 1, 2, and 5 all had neutral or positive feelings towards having a job, as they listed "learning new skills," "social, personal and professional development," and "time management." Participants 3 and 4, on the other hand, seemed to view employment in a more negative light, listing "culture and work-life imbalance," and "waking up early." In the discussion, one of our participants was quite vocal about their negative perceptions of the workforce. They emphasized their stress about employment by saying, "you're judged by the kind of job you have, and your worth is determined by the kind of job you have." This response reinforced the need for a judgement-free online space—one that is supportive and not competitive. They also vocalized their frustration with the current work-life imbalance, stating that, "I worry that it will come crashing down on us negatively." From this quote, we got a sense of this young person's fear of not being able to live their life while working, given the rigor of the labor force. This feeling portrayed the need to balance professional development with social environments and activities on our platform.

> I find that you're **judged** by the kind of job you have and your **worth** is determined by the kind of job you have.
> —CoP Member

> [You're] constantly working and I don't believe that home life and work life are **balanced,** and I worry that it will come crashing down on us negatively.
> —CoP Member

Furthermore, when asked how our online platform could improve their negative outlook on employment, many participants expressed interest in featuring positive success stories on the site. It was insightful to see this stark difference in the participants' answers because it brought to light an issue we had not discovered by working solely with our YA collaborators.

For the next prompt, we instructed the participants to "write down any challenges you can think of when finding a job or achieving your life goals." Again, we gave participants five minutes to write their thoughts in their Google document. We also gave a couple minutes for each participant to write down what their life goal was and at least one skill they had to offer an employer. For this prompt, our open discussion was guided by questions such as "what new challenges have come about because of COVID-19," "what types of resources are, or should be, available to help you combat these challenges," and "how can our site help you to combat these challenges?"

The challenges listed by the participants included resume building, gaining experience in their field, and interviewing for a job. We noticed a common theme was that participants felt employers had unrealistic expectations of them. Participants 1, 2, 3, and 5 all expressed fears of inadequacy due to either mental illness struggles or the highly-competitive employment process. Participant 4 had difficulty pursuing their passion of professional soccer while still maintaining their grades in school. During the discussion, many participants stated that the Transition to Work program was a great resource for them. One participant mentioned that TtW helped them to "build confidence in myself and to never think that I can't reach something; I just have to be patient and work towards it." They valued the mentorship that they received throughout the program, which indicated that staff involvement on the site was important to the young people.

> I think having the **staff** would help a lot because maybe there's people who don't have **experience** and don't know how to do this and [that's where] the staff can **help** them.
> —YA Collaborator

The biggest takeaways from this focus group were that these young people would greatly benefit from a supportive, honest platform, and that we should offer them tools to customize their experience. One such tool was labels for posts on the timeline (e.g., whether a post is a question or seeks help, is personal, is professional, or is a report of success). This would allow the users to filter their feed based on what content they wanted to see. While we could not directly tell the young people how to use our site, we did our best to keep the site environment as positive as possible by incorporating supportive language. One example is using the site to share inspirational phrases with the user via the "Home" page. We also encouraged users to support each other by sharing areas where they would be willing to help others. In the profile, we added spaces to list skills and experiences, but instead, we worded these text fields as "I can help you with" and "Ask me about" respectively, to remove any daunting feelings brought on by existing professional social media platforms, like LinkedIn. This would promote the young people to reach out to each other for guidance, and to form a strong community between the site members and their mentors.

Objective 4: Prototype and Test the Online Platform

We wanted to ensure that the platform we delivered to BSL lived up to the expectations of the users. Through the above research, we were able to adhere to their preferences. We decided to use a programming language called Ruby on Rails to program the dynamic elements of the website (i.e., loading a user's biography and profile picture from the database). We also used the Bootstrap framework to allow for ease of web design. To develop our final deliverable, we used the Rapid Throwaway Prototyping Model (as described in the *Background* chapter) to create and test iterations of our platform.

Rapid Throwaway Prototyping Model

The Rapid Throwaway Prototyping Model allowed our group to closely incorporate our users into the development of the web platform. Under this development style, we produced and tested quick prototypes alongside our YA co-designers. Before we created a tangible website for the YA members to test, we made drawings similar to those in *Figure 28*. We showed our collaborators these mockups of different pages of the platform. This allowed us to alter the design of each page early in the development process based on their feedback.

We held many brainstorming sessions with the Youth Alliance to ensure that the site was stayed true to their ideas. A tool that we found useful was the whiteboard feature of Zoom. Here, we created a blank white screen, and everyone in the meeting typed and drew their ideas, enabling all participants to bounce off of each other's ideas. During these brainstorming sessions, any and all ideas were accepted. We used this method to decide on important website details (see *Figures 29-30*), such as the site name, logo, mascot name, color scheme, and formats of functionalities like messaging and the timeline. In addition to this being an effective method in making site-related decisions, brainstorming created an environment where all seven website developers could share their ideas. It also ensured that the YA made important contributions to the site.
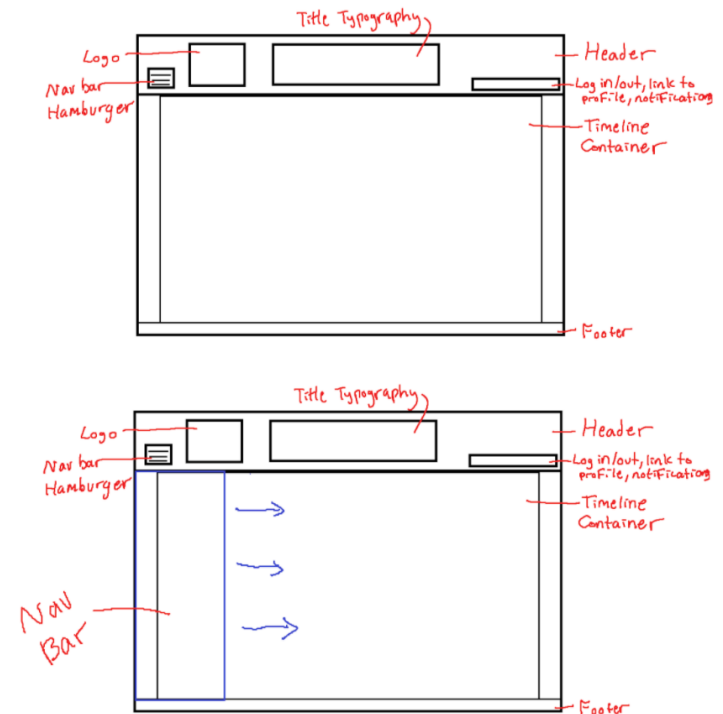

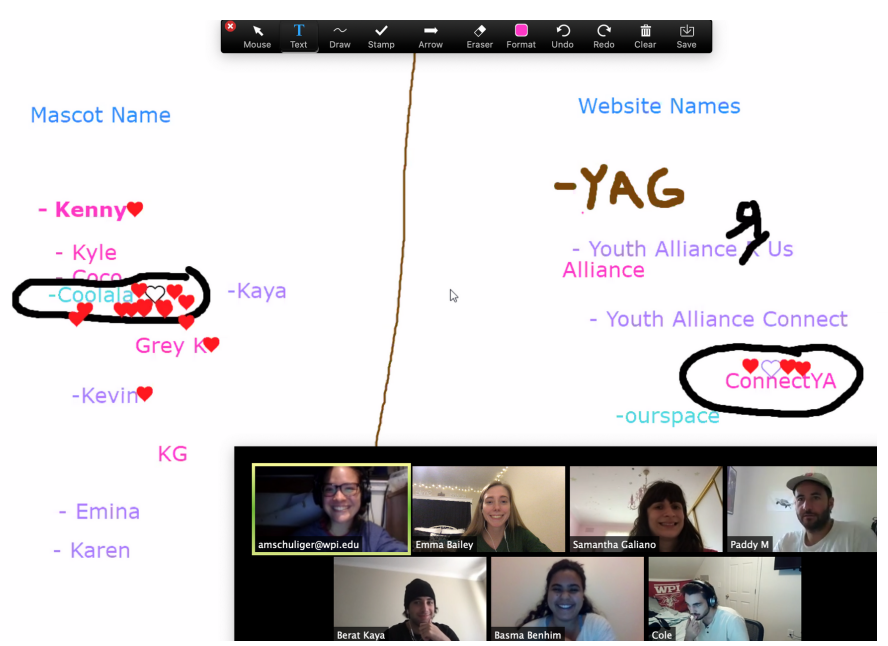**Figure 28:** *Drawing of the platform's homepage.*

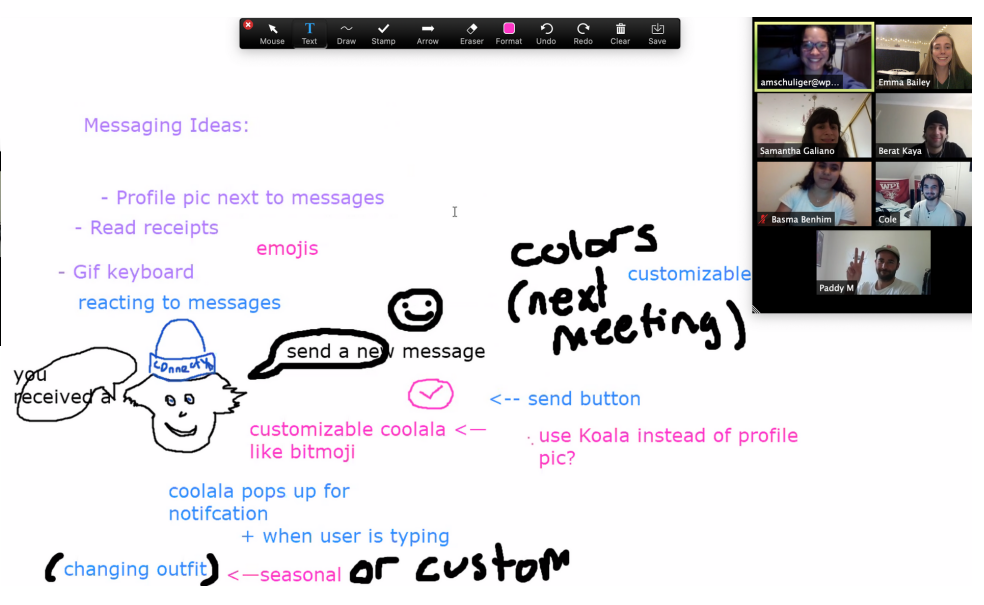**Figure 29:** *Brainstorming website features with the YA.*

Figure 30: *Brainstorming messaging features with the YA.*

Pair Programming

We also implemented the methodology of pair programming. This process included two people—one of our group members and a YA member—who programmed together in a single workspace. There were two roles: the Driver, who controlled the keyboard, and the Navigator, who knew the direction and technicalities of programming. In this manner, a YA member took control of a WPI member's keyboard via Zoom screen-share, and a WPI member taught them how to type the code that would produce the desired features. With the YA, we pair programmed the login screen and all of its details (i.e., username and password text boxes). Using this technique allowed us to introduce the YA to the nuances of software development, as well as enable them to actually build features of the site.

User Testing the Two Prototypes

Following the RTPM, we tested each prototype with the Youth Alliance before proceeding to add more features and functionalities. Members of the WPI team were paired on Zoom with one YA member. The pairs were put into their own breakout rooms, and the YA member shared their screen, so that the WPI member could quietly observe them using the website (see *Figure 31*). We then gave the Youth Alliance several tasks to complete for each of the two iterations. As the YA member completed each task, the WPI member took notes. This procedure was used for both Prototype 1 and Prototype 2.

Prototype 1 included a homepage, a login screen, and the ability to register and remember different users in profiles. Once we completed basic web design and social media functionalities, we incorporated individual and group messaging into the platform—the most desired feature as indicated by the survey and YA members. This maximized the potential for users to interact with one another, and to foster an online community. The tasks that we asked the YA to perform during testing of Prototype 1 were:

- make an account
- fill out a profile
- make a direct message
- make a group message
- find other users
- view other users' profiles
- logout
- log back in
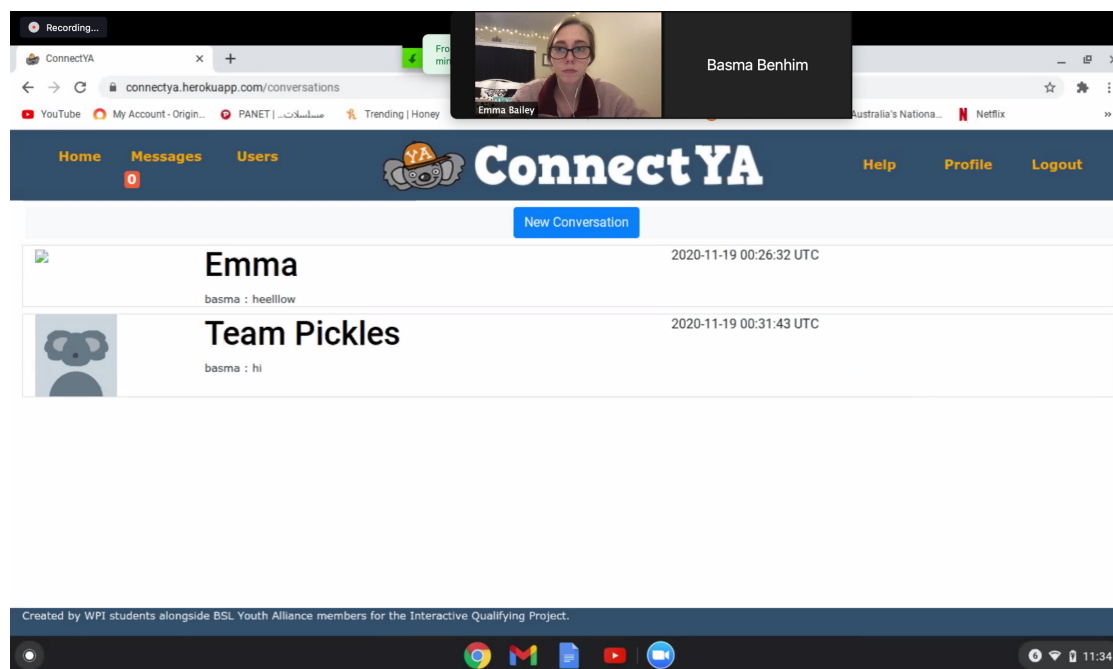- reply to a message
- make a change to your profile

Figure 31: YA member testing Prototype 1.

One participant tested the site on their iPad, and the other two participants used their laptop. All of the YA members were able to complete most tasks within the website. We encountered an error with editing the profile, which we later resolved. The YA seemed pleased with how their ideas were brought to life within the site. They said it was "very easy to use and simple to navigate," they "really liked the theme and style of it," and they felt that "our goals were getting much closer." They seemed excited to continue using the site and asked about the next features. The YA told us that certain sections of the profile contained confusing wording, so we brainstormed as a group how we could improve this. Another idea was to alphabetize the list of users to make finding people on the website easier. In general, our collaborators said that they had

fun exploring the site, and would be proud to stand behind it once it is released.

Prototype 2 added some additional features: the abilities to post both text and photos, to like posts, to comment on posts, to see posts in a timeline (i.e., news feed), and to view posts on users' profiles (see *Figure 32*). This posting feature furthered users' abilities to engage in an online community. The tasks we asked the YA to perform during testing were the same from Prototype 1, in addition to the following:

- make a post
- view the timeline
- filter the timeline
- like another user's post
- comment on another user's post
- view posts on another user's profile
- view posts on your own profile
- find staff members

All of our participants were able to complete the assigned tasks, except for one due to a few login bugs that we later fixed. During testing, the YA seemed even more excited about this version of the website than the first. In their test posts, they wrote "I love this website <3" and "This website is fun to use." From here, we made the appropriate tweaks in order to transform our prototype into the final deliverable: ConnectYA. In the next chapter, we display screenshots from the site featuring callouts that explain the different functions.
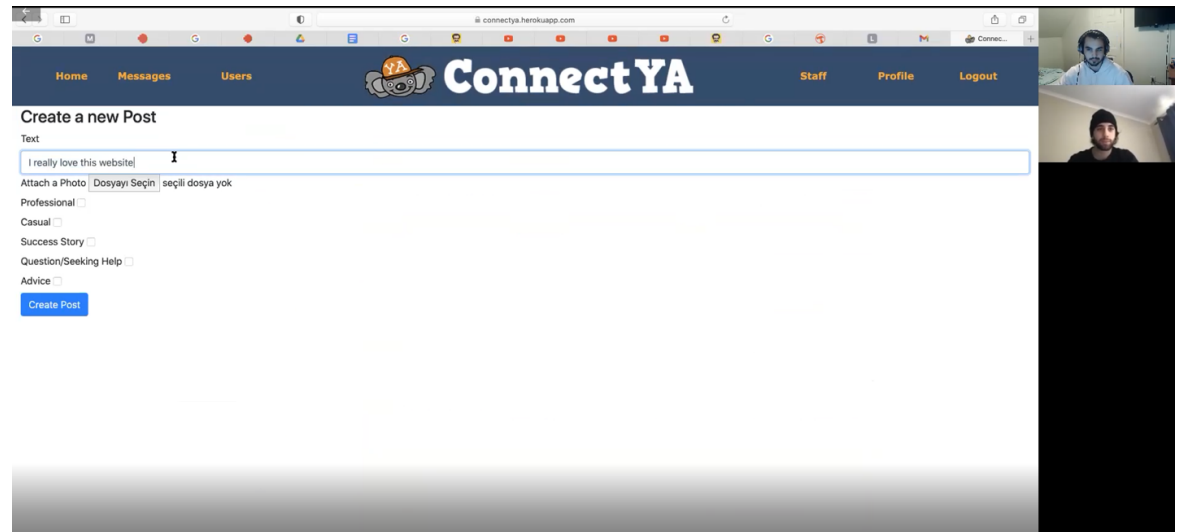

Figure 32: YA member testing Prototype 2.

Ace! The team is excited to have finished building the site and cannot wait for the young people to use it.

FINAL DELIVERABLE

The final deliverable of our project was a website called "ConnectYA." It is both a professional and a social site, developed for the young people and staff in the CoP. The intent of this site is to connect young people to each other and to mentors across Australia, and it is tailored to the young people's preferences and needs. We want the site environment to be generated organically, so we have not provided detailed instructions on how to use the site (see *Recommendations & Conclusions* for our general suggestions for use). Here, we discuss our website and all of its functionalities.

Once the website is live on BSL's server, users are immediately brought to the "Login" page shown in *Figure 33*.
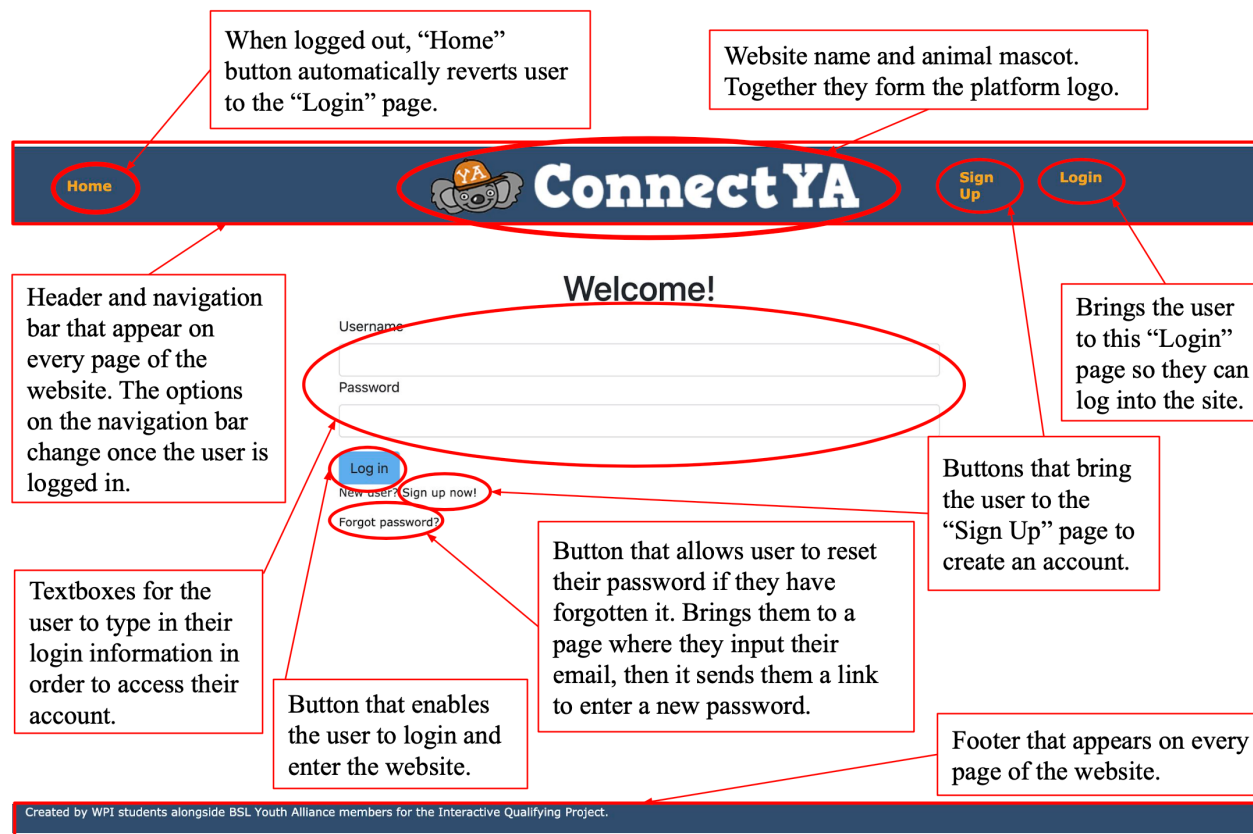

When logged out, "Home" button automatically reverts user to the "Login" page.

Website name and animal mascot. Together they form the platform logo.

Header and navigation bar that appear on every page of the website. The options on the navigation bar change once the user is logged in.

Brings the user to this "Login" page so they can log into the site.

Buttons that bring the user to the "Sign Up" page to create an account.

Textboxes for the user to type in their login information in order to access their account.

Button that enables the user to login and enter the website.

Button that allows user to reset their password if they have forgotten it. Brings them to a page where they input their email, then it sends them a link to enter a new password.

Footer that appears on every page of the website.

Figure 33: *Our website's "Login" page.*

If a user does not have an account yet, they are brought to the "Sign Up" page in *Figure 34*.

Header/Navigation bar is the same on "Sign Up" page as the "Login" page.

ConnectYA — Home — Sign Up — Login

Register for ConnectYA!

The "Name" field is optional for the user to fill out. If the user chooses not to include their name, their username will appear in its place on their profile.

Name

Username (required)

Email (required)

Password (required)

Password Confirmation (required)

Information the user needs to input in order to make an account; fields labeled "required" indicate what must not be left blank. Only the username is visible to other users on the site.

Terms of service user must agree to upon signing up; used to ensure all users understand desired site environment.

☐ I agree to not bully, harass, or otherwise mistreat others on this site. I agree to report any inappropriate content or users to the staff. I agree to participate in fostering a positive, helpful, and supportive environment so that I may build friendships and connections with others.

Create User

Button that submits the user's inputted information and creates their account. Once pushed, the user is led to their profile page.

Created by WPI students alongside BSL Youth Alliance members for the Interactive Qualifying Project.

Figure 34: Our website's "Sign Up" page.

I really like this site!
    —YA Collaborator

Once the user creates an account, they are immediately brought to their profile page (*Figure 35*). Also, any time a user logs into their account, they are automatically brought to this page.

Once users have an account, they can customize their profile by pushing the "Edit Profile" button. By doing this, they are brought to the "Edit Profile" page shown in *Figure 36*.

When logged in, "Home" button brings the user to their timeline/feed, showing all posts.

Brings the user to the "Messages" page, showing them all their conversations.

Brings the user to the "Users" page, showing all the current site users.

Header and navigation bar that appear on every page of the website; this version appears when the user is logged in.

Brings the user to the "Staff" page (a list of all Staff users).

Logs the user out of the site. If user closes the tab without pressing this button, they are automatically logged out.

Button that brings the user to their "Profile" page (this current view).

Default profile picture that all users are given upon signing up.

Button that allows user to edit and customize their profile.

Profile is automatically blank except for username (and name if user chose to input it). Fields can be filled out by clicking "Edit Profile" button.

All fields of the user's profile that can be changed and filled out. Fields labeled "Required" must not be left blank, but all others do not have to be filled out if user doesn't want to. All fields are visible on the profile except for the email.

Button allows user to upload their own profile picture. If user chooses not to use a custom photo, the default koala photo is used automatically.

User can use these fields to change their password.

Button that brings user back to their profile and doesn't save any changes they may have made.

Button that brings user to their updated profile and processes all the changes they made on this page.

Figure 35 (top right): *A user's profile page once their account is created.*

Figure 36 (right): *The "Edit Profile" page of our website.*

Once a user edits their profile, it looks similar to the one in *Figure 37*.

User's name; appears if they chose to include it, otherwise this field is blank.

User's biography; they can provide any information they would like.

User's skills and experiences; listed here so that other users can reach out for help/advice.

User's username; will always appear on the profile.

Shows the label user chose for their post.

Button that allows users to delete their own posts.

User customized profile picture; replaces the default photo, if user desires.

Button that shows "Likes" user has on their post.

Button that shows "Comments" user has on their post.

Posts made by the user appear below their profile information.

User-customized profile information. Level of information provided is based on the user's discretion. All profiles and their information are visible to all site users.

Figure 35: A user's profile page once their account is created.

This site is so easy to use!
—YA Collaborator

Along with the profile page, our website has other functionalities. If the user clicks the "Home" button in the Navigation bar, they are brought to the timeline (see *Figure 38*) where they can make posts of their own and view other users' posts. These posts are similar to those on other social media sites, like Facebook or Instagram, where a post can include a picture with text, or text alone. Another option on the timeline is the ability to filter their feed based on the user's desired content. Users have the ability to add labels to their posts when they are created, which allows them to be filtered on the timeline later. Labels that they can choose from for their posts include "professional," "casual," "success story," "advice," and "question/seeking help." Users can select multiple labels for a single post, and also filter by multiple labels at once.

Button that allows users to make a post; brings user to "New Post" page.

Button that allows user to filter their timeline; brings up the options below.

A banner that appears only on the timeline. It shows a new motivational quote every time the user comes to this page. There are 101 options the site randomly chooses to provide the user with some positivity.

Options that the user can choose to filter the content they view in their feed.

Button that confirms the filters user chose and applies them to the timeline content.

Shows the label that a user chose for their post.

User posts appear in order of most recent. Displays user profile photo, name, and username. Users can post photos and/or text. Posts are visible to all users on the site.

Button that allows users to like other users' posts.

Button that allows users to comment on other users' posts. Brings user to the "Comment" page.

Figure 38: *"Timeline" page of our website.*

If a user wants to create a post, they are brought to the "Create Post" page (see *Figure 39*) by pushing the corresponding button on the timeline. If a user wants to comment on another user's post, they are brought to a page that shows the individual post that they would like to comment on (*see Figure 40*).
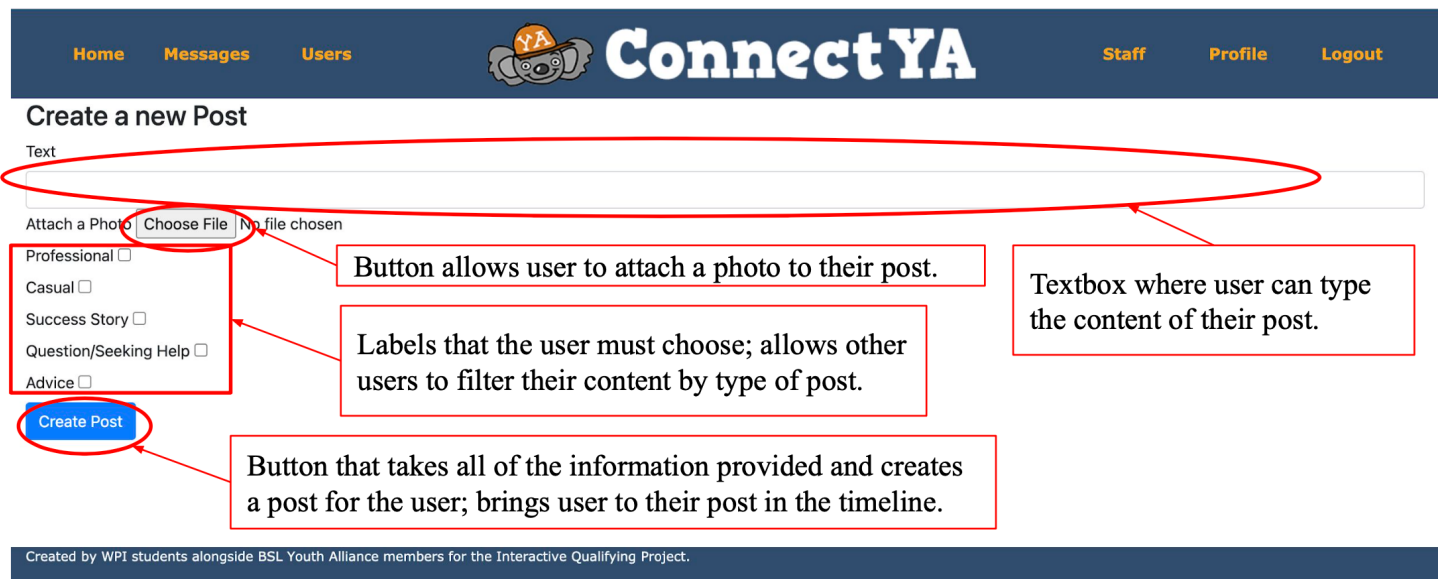

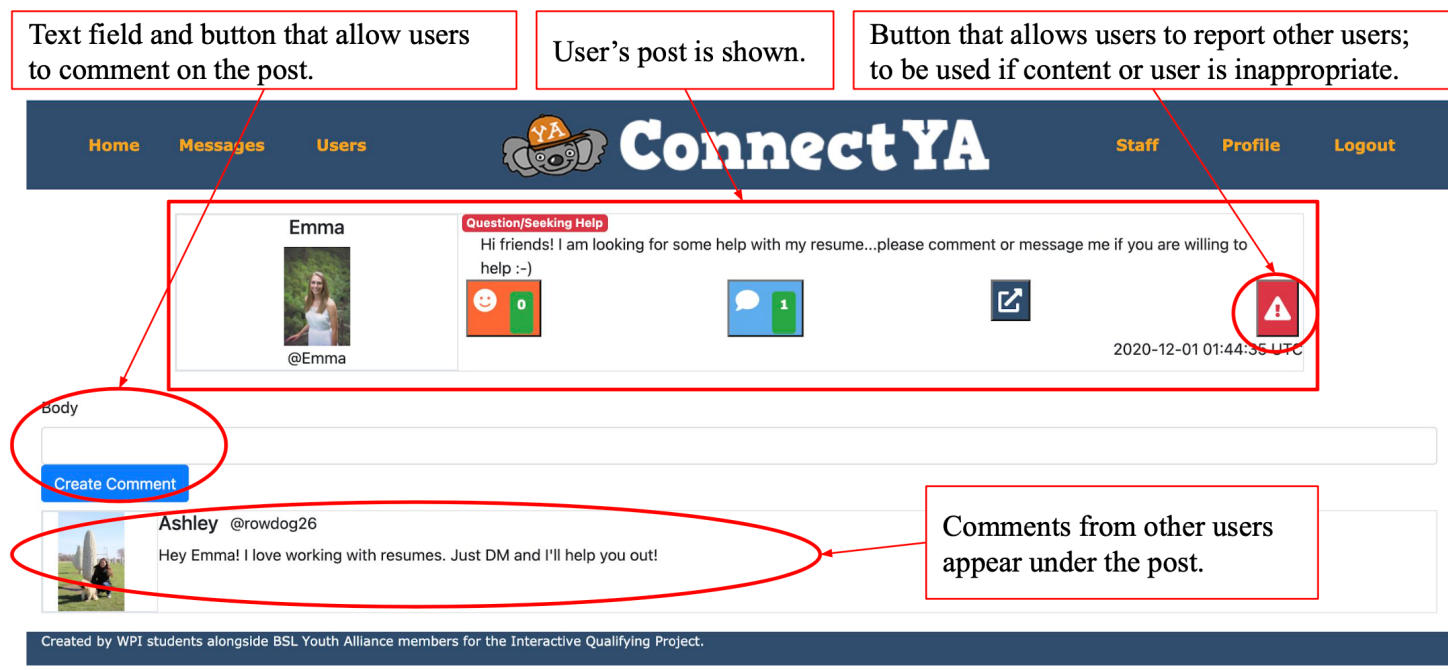*Figure 39: "Create Post" page of our website.*

Figure 40: Comment functionality of our website.

Another way users can interact on our site is through the messaging feature. By clicking the "Messages" button in the Navigation bar, the user is brought to their "Conversations" page (see *Figure 41*). Examples of direct messages (*Figure 42*) and group messages (*Figure 43*) are shown below. In a group message, all of the users in the conversation are listed.

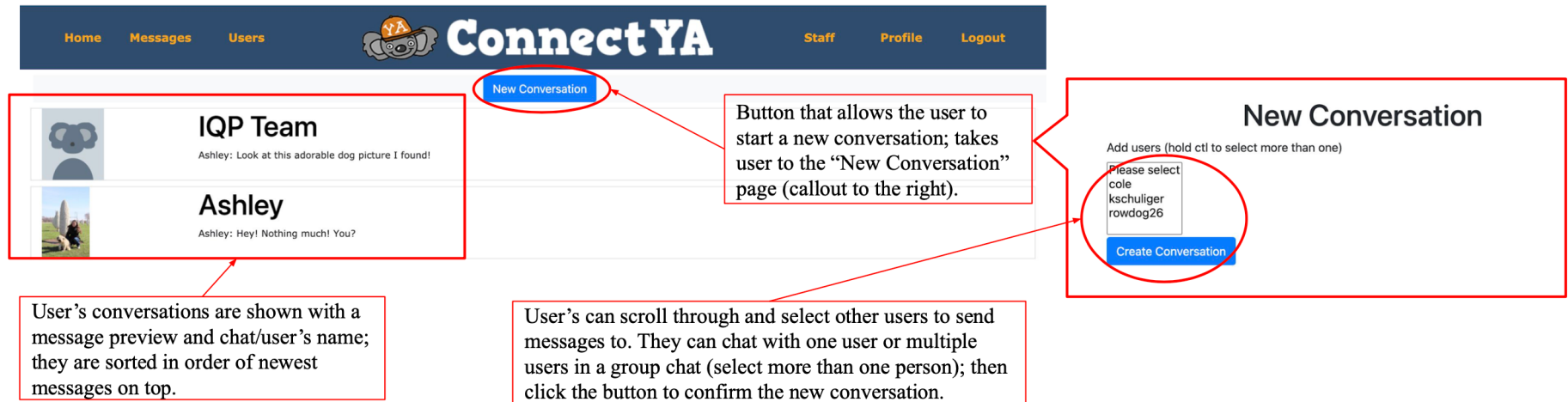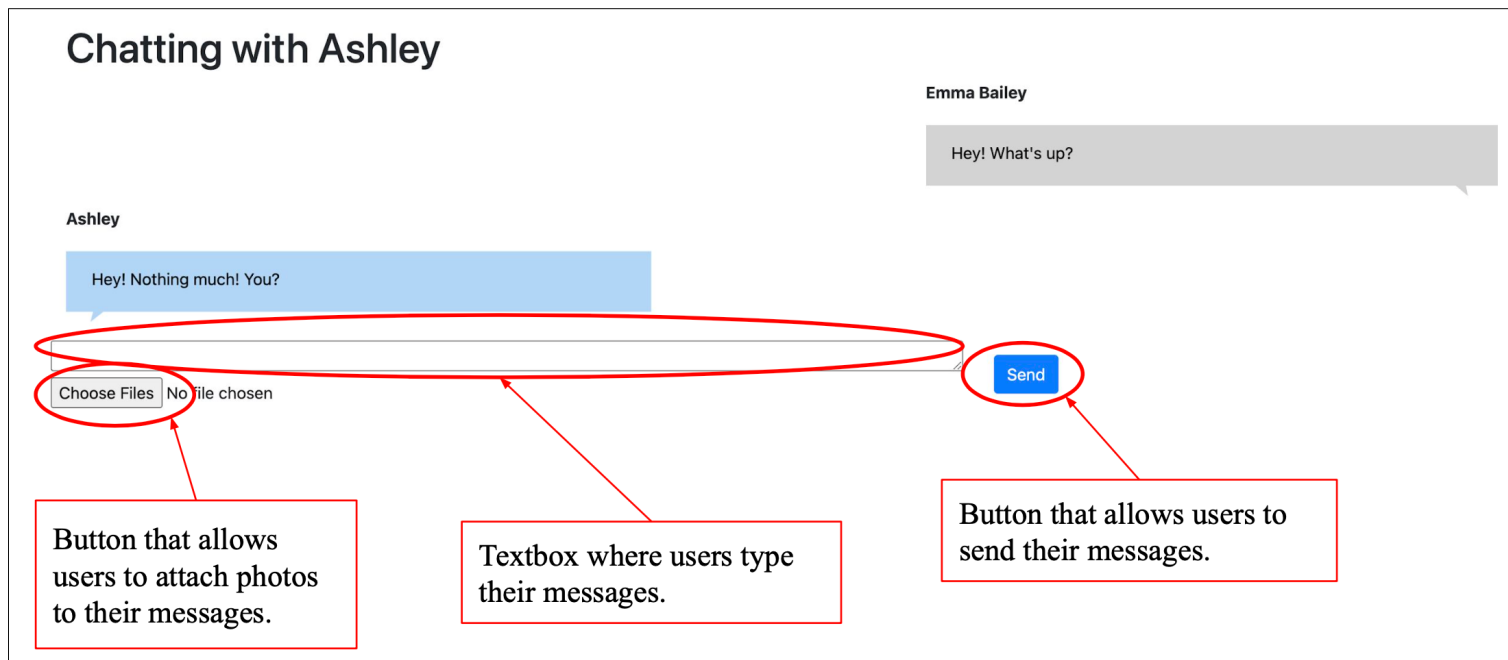**Figure 41:** *"Conversations" page on our website with "New Conversation" page callout.*

Figure 42: *Example of a direct message between users.*

Figure 43: *Example of a group message between users.*

I really like the theme!
—YA Collaborator

Additionally, users can look for other people by using the "Users" button on the Navigation bar. This brings the user to the "Users" page (see *Figure 44*), where all non-staff members of the site are listed.

From the "Users" page, young people can view other users' profiles, similar to the one shown in *Figure 45*.

Figure 44: *"Users" page of our website.*
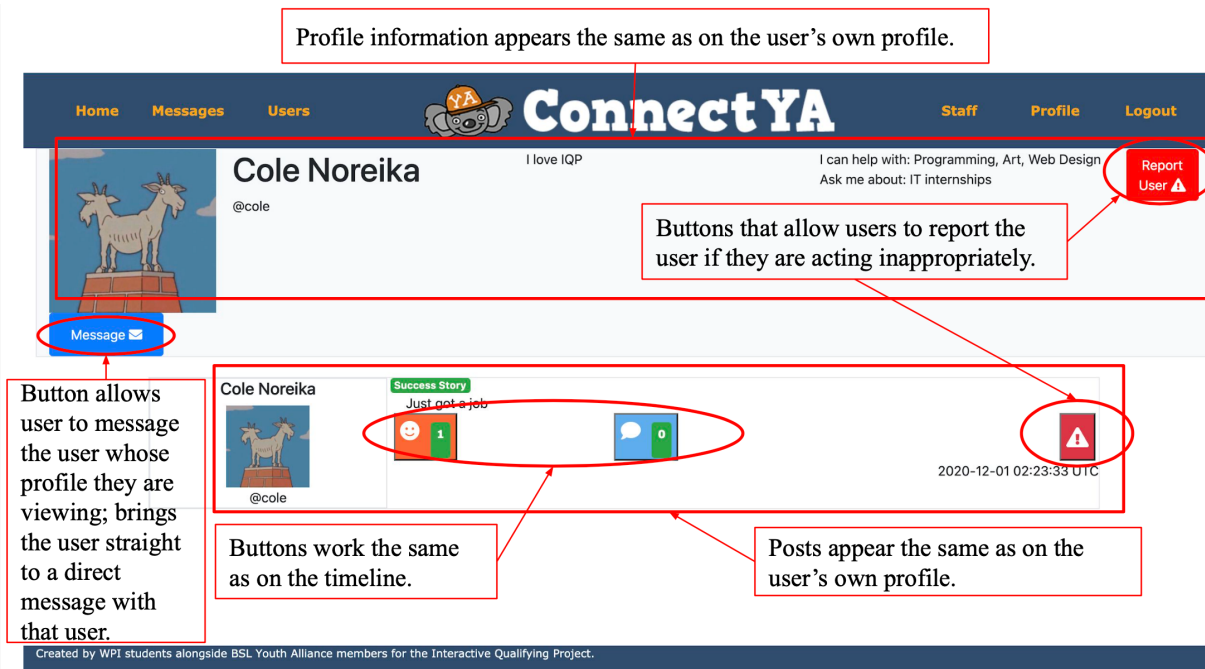
Figure 45: *Example of viewing another user's profile.*

In conjunction with the "Users" page, our site also features a "Staff" page (see *Figure 46*). This aligns with the YA's request to have staff present on the site to provide help, advice, and support. By separating staff from normal users, young people can easily find and contact staff members. In order to be deemed a "Staff" user on the site, CoP staff members should sign up with their BSL-provided email.
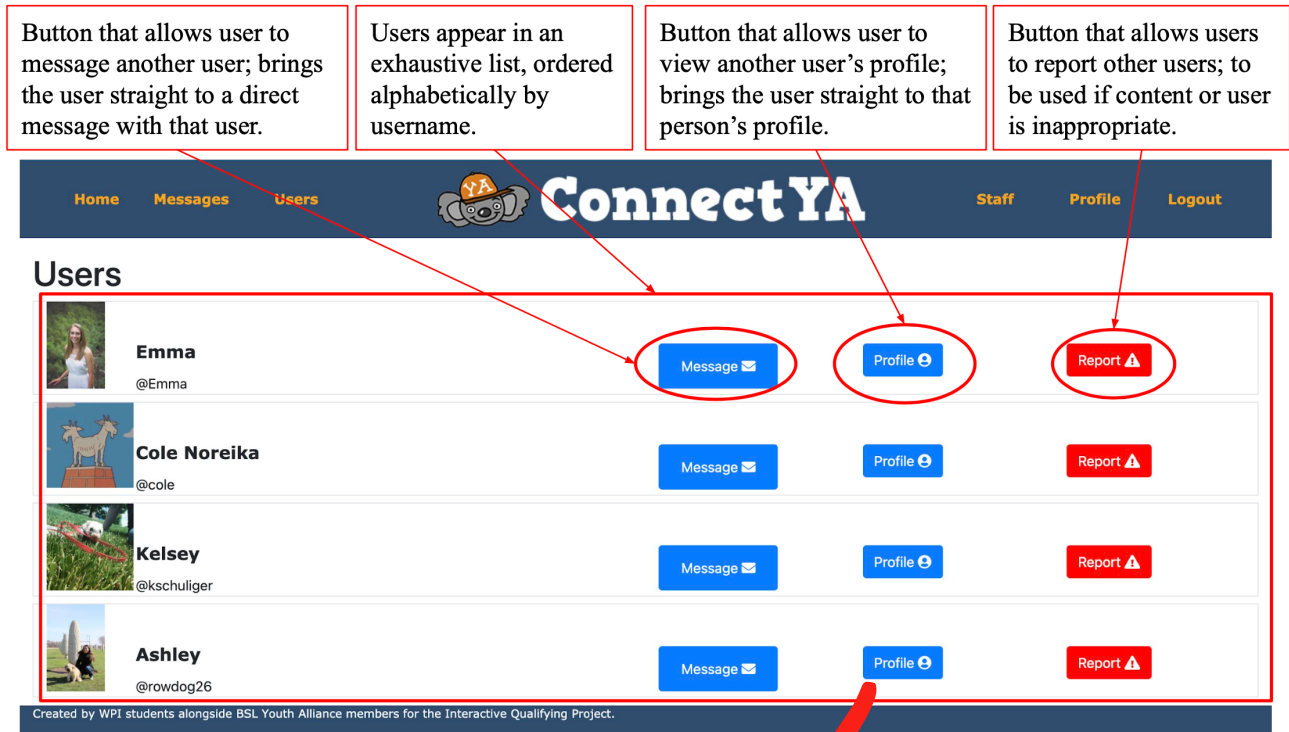

Figure 46: "Staff" page of our website.

Early in project development, we met with BSL's Youth Development team to share our ideas for the site. Many of the staff members had concerns about privacy, online safety, and inappropriate content and/or users. The privacy issue was addressed by having the site be a closed platform, only accessible to CoP participants and staff, and by having "login" capabilities. Our project liaison, Emina, decided that treating CoP young people as if they would act poorly on the site did not align with their Advantaged Thinking approach (see *Background* chapter). Therefore, we compromised by creating admin accounts on the site with administrator capabilities (see *Figure 47* and *SM-F* for instructions on how to create an admin account) and providing users with the ability to anonymously report other users and content (see *Figures 48 & 49*). This way, should inappropriate content be posted or users bully/harass other users, young people can anonymously report each other, and site admins can take necessary actions to remove these behaviors. Emina also requested that the number of admins be kept to a minimum so that the site is mostly run by the young users, with admins only stepping in when necessary.

Figure 47 (right): *"New Admin Account" page and callout for admin capabilities.*

By entering in the given secure key, a staff member is given an admin account and admin capabilities.

Enable Admin Account

If you are not an admin of ConnectYA, please leave this page.

Secure key

Submit

Created by WPI students alongside BSL Youth Alliance members for the Interactive Qualifying Project.

Buttons that appear for admin users. Appear next to all users' posts, comments, and profiles.

Destroy 🗑

Figure 48 (right): *"Report" page for users.*

Please Provide Some Additional Information:

Reason Profile Picture Extra

✓ Text Content
Media Content
Profile Picture
Name / Username
Other (Please Specify)

Submit Report

User can select the reason for their Report in the dropdown menu (see callout for a full list of reasons).

Textbox allows user to explain why they are reporting the user/content. Button confirms and submits the report to the admins.

Created by WPI students alongside BSL Youth Alliance members for the Interactive Qualifying Project.

Figure 49 (right): *"Admin panel" page for admins to review reports.*

ConnectYA Admin Panel
Active Reports:

Reported User:	Report Type	Reason for Report: Additional Info.:	Link:	Respond to Report
Ashley @rowdog26	timeline_post	Other (Please Specify) I just don't like her	View Content	Ignore Report 🗑 Destroy Reported User 🗑

Button that allows the admin to ignore the report; deletes the report from the admin panel.

Shows the reported user's name and username.

Shows the content being reported (i.e., a post, user, comment).

Shows the reason for the report.

Button that brings the admin to the reported content (i.e., the post, comment, or user) so that they can review it.

Button that allows the admin to delete the reported user's account and bans the user from having an account with their current email.

Created by WPI students alongside BSL Youth Alliance members for the Interactive Qualifying Project.

To view a live demo of ConnectYA, visit wp.wpi.edu/melbourne/projects/ and search by the title of this project.

REFLECTIONS

Working with BSL and the YA has been an experience that none of us will ever forget. While it was challenging to collaborate over Zoom, we succeeded in developing a strong relationship with the young people. Initially, the YA members were very quiet. It was clear that they were a close group and were interested in the project, but we had to find ways to connect. They initially seemed hesitant to give specific answers or ideas relating to the project, even when prompted, but we wanted to avoid a supervisor-subordinate relationship. We think that they probably did not feel confident about building this platform alongside us because it was a new experience, and they knew we were more knowledgeable in the area. The group engaged more after we got to know one another through informal conversation. We strove to stay enthusiastic and to promote a relaxed environment where all ideas were welcome. After a few meetings, the Youth Alliance members started speaking up more and laughing with us, and one of our collaborators even followed us on social media. Once our informal relationship was strong, we were excited to see how this relationship would translate over to collaboration.

During our meetings in the following weeks, we brainstormed features and uses for the online platform, and we were pleased with the results. The Youth Alliance members were open in voicing their opinions, and we found ourselves bouncing off of each other's ideas. We ended up with a wide range of concepts for the website through these collaborative sessions. As we continued to meet, we all became more talkative with each other, and the sessions became more fun, as we had hoped.

Working on this project with our collaborators at BSL was impactful for all of us. Even as we watched the website develop for the past seven weeks into a fully-functional platform, we more importantly developed a bond with peers from across the world. The friendships that we built are something that all three of us will treasure forever. It has been a truly eye-opening experience to work with young people in Australia. We did not know what to expect, as none of us had ever worked with people from another country before. Despite having to connect virtually, it was surprisingly easy to establish such a strong relationship—we even have inside jokes now!

We learned from our collaborators as well. By working with the YA, we learned how to collaborate with different people, especially those from different backgrounds (e.g., diagnosed disabilities, family problems, etc.). We also learned how to communicate past language barriers, as half of our collaborators spoke English as a second language and were not confident in it. In fact, it was comforting to discover that a lot of the struggles we have as students in the U.S.—like resumes, the interview process stress, and gaining job experience— are the same as those for young people in Australia. Also, we enjoyed discovering that we share many of the same interests and ideas, from food to music, TV shows, and celebrities. Linking many cultures together under one common goal was an amazing opportunity, and we are humbled to have been able to build a platform that will connect young people all over Australia to foster a new community. The team is so thankful, both for this project collaboration and for the relationships we have made with our Australian friends.

RECOMMENDATIONS & CONCLUSIONS

We worked diligently for seven weeks to build an interactive website from scratch for the CoP young people and staff. As this was a major endeavor, we have determined areas that could be further addressed in the future. Additionally, while meeting with young people and discussing ideas with staff members at BSL, we have developed some ideas for how users should interact with ConnectYA. Since this website was made for the young people and was tailored toward their preferences, the following are only suggestions; ideally, an engaging, positive environment will develop organically. Here, we share our suggested ways to use and improve the site based on feedback from the young people, and we end with our project conclusions.

As aforementioned, BSL wanted this website to be made in accordance with the YA's wishes. Truly capturing the essence of what the young people want goes beyond building a physical website; it also involves how they want to use it. Many young people mentioned missing interaction with their peers because of the pandemic. For this reason, all users are automatically connected to each other in order to make finding friends easy. Also, YA members want this to be a place where they can interact without worrying about being judged by others. To foster a judgement-free environment, we encourage CoP youth to interact with each other in a supportive manner. Positive language, encouragement, and honesty are crucial in creating a strong community. Users can list their skills and experiences, which encourages them to reach out for support and to help others. Another important idea for using the site is for young people to post their achievements and milestones. This will give them a sense of confidence, but will also allow them to provide necessary support and recognition to their peers.

A key request by young people is that the staff be present and active on the site. They do not want the staff to take over the site, but they greatly appreciate the mentorship, advice, and motivation that they provide via CoP programs. Thus, it is important to continue this support within the online community. Some ideas for the staff are to:

- post challenges for the young people
- answer questions
- provide success stories
- be present to address concerns

By following these suggestions, users will ensure that ConnectYA is a space where young people can interact and thrive within a community they did not have before, especially in a post-COVID world.

From testing our website with YA members, we noted certain areas that could be improved upon in the future. These recommendations include:

- Make the website into a mobile app
- Add a "Resources" page that links to BSL resources
- Add the Avatar feature (see *SM-G* for additional information)
- Provide a "Success Stories" page (staff might do this)
- Create a way to attach files to posts (i.e., resumes, cover letters)
- Integrate an accredited translation function for all languages

- Show who is online and able to provide help in real-time
- Send videos via messages
- Add users to a group message
- Delete conversations
- Add notifications for messages received (e.g., push notifications, badges)
- Provide a search bar for "Users" and "Staff" pages

The goal of our project was to work closely with the Youth Alliance to develop an online platform that provides youth with the opportunity to connect with peers, resources, and mentors to both further their career development and to cultivate friendships. The rationale for this project developed from challenges that emerged in a global pandemic, which further isolated Australian youth. Although BSL tried to establish online communities through existing social media platforms such as Facebook, participants lacked interest in using these general media and had privacy concerns using such public platforms. Additionally, professional platforms like LinkedIn are scary to young people, as they promote what they see as a judgmental environment in the context of having to market oneself. Our project addressed these concerns by providing these young people with a safe space customized for them, where they can connect with other members of the CoP without fear of judgement or outside

intruders. Our final deliverable was a website named ConnectYA, built with, and for, the Youth Alliance members, who tested the site, found it easy to use, and were excited to engage on it.

We received an immense amount of support in this project from BSL staff members who understand the potential of this site to support young people. Our hope is that this site will not only provide support and hope for CoP participants amidst this global pandemic, but also in a post-COVID world. Working on this project with the Youth Alliance was an invaluable experience that will continue to impact our lives. As engineers, we learn how to build technology, but we do not often have the opportunity to see how our technology impacts others. Our collaboration with the Youth Alliance allowed us to work alongside our target population to create something with a lasting impact. We plan to create accounts on the site so that we can continue to build the bond that we have formed with our friends in Australia, and our hope is that ConnectYA will continue to impact young peoples' lives in the same way that they have impacted ours.

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AUTHORS — USA

My name is Emma Bailey, and I am from Sterling, MA. I am a junior at WPI graduating in May of 2022 with a Bachelor of Science in Biomedical Engineering and a Master's in Management. My favorite part of IQP was making new friends in Australia and seeing how excited they got every time we all brainstormed new ideas, and then brought those ideas to life on the site!

I am Cole Noreika, a junior at WPI studying Computer Science from Mystic, Connecticut. My favorite part of this experience was definitely the relationship we formed with the Melbourne Youth Alliance members. Once they were comfortable with us and invested in building the site, it was so fun to see their ideas come to life on the platform.

My name is Ashley Schuliger, and I am a junior at WPI from Lewis Center, Ohio. I am currently pursuing both a Bachelor's and a Master's degree in Computer Science. My favorite part of working on this project was developing a bond with our Youth Alliance collaborators. We were so fortunate to have worked with these young people. I am looking forward to watching this website grow and being friends with the Youth Alliance for a long time!

Author contributions to this project are listed in SM-H.

CONTRIBUTORS — AUS

My name is Basma Benhim and I am from Melbourne, Australia. I am looking for a job and also studying education support to become a teacher's aid. Being part of this collaboration was the best experience for me, and I also enjoyed making friendships with Emma, Ashley, and Cole. All of our meetings were fun, but my most favourite was when we were trying out the website.

My name is Samantha Galiano and I am from Melbourne, Australia. Currently I am looking for a job in Administration or Retail. My favourite part of this experience was the project and working with WPI. I also enjoyed meeting new people from America, and working with them and the Youth Alliance members to create this new website, which was fun to do. I cannot wait until I can use this website to communicate with others!

My name is Berat and I am from Ankara, Turkey, but I live in Melbourne, Australia. I am currently doing my certificate of Community Service. After I graduate, I would like to be a youth justice worker. This project showed me what we can do, as a group of young people; if we work together, we can easily reach our goal. Being part of a motivated team and always supporting each other made me feel amazing. I would like to collaborate on other projects with the WPI team in the future!

My name is Paddy and I am from Melbourne, Australia. I am currently studying my Bachelor of Human Services and Master of Social Work. I graduated on the 9th of December this year. Ideally I would like to transition into a youth mental health support service as a new graduate. I thoroughly enjoyed my time working alongside the WPI students and BSL YA in this project. Everyone was friendly, supportive, and created a welcoming environment for open conversation and effective collaboration. I look forward to the launch of the site!