

# WPI-YMCA Afterschool Volunteer Program

INTERACTIVE QUALIFYING PROJECT: PROJECT REPORT  
SUBMITTED TO WPI FACULTY



IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE  
DEGREE OF BACHELOR OF SCIENCE

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# 1. INTRODUCTION

There are numerous ways for Worcester Polytechnic Institute (WPI) students to get involved with volunteering at local Worcester community-based organizations (CBO's). These volunteering opportunities are often found in clubs and greek life organizations and often result in short, spurts of participation in volunteering activities. This is not dependable for CBO's as these local organizations cannot rely on these ephemeral spikes in volunteering activity for long term sustainability.

This Interactive Qualifying Project (IQP) will build on the foundation of the 2018-2019 IQP, "WPI-YMCA Afterschool Structure" [1]. The 2018-2019 IQP team gathered data on WPI student volunteer behavior. With the data gathered, the 2018-2019 IQP team had recommendations for the future implementation of a volunteering program that would send WPI students on a regular basis to CBO's to volunteer. This IQP will implement the findings of the 2018-2019 IQP team.

This goals of the IQP are to provide a volunteering program that gives patrons or students of the Young Men's Christian Association's (YMCA's) "School's Out" program assess the Worcester Polytechnic Institute (WPI) regular tutoring at the YMCA's Central Community Branch and to develop and test a tracking method of WPI volunteering activity at the YCMA's School's Out Program.

Three deliverables were identified. One deliverable is to create an informational handout for the WPI student volunteers to educate and prepare them for working with school-aged children and teens, and people of color. Another deliverable is a method that tracks volunteering of WPI students at the YMCA's "School's Out" program to allow for the monitoring of the program. Another deliverable is a survey to gather feedback on future iterations of a similar volunteering program.

## **2. LITERATURE REVIEW**

### **2.1 OPPORTUNITY GAP**

Schools in impoverished neighborhoods have less funding than schools in wealthy neighborhoods, which leads to a disparity in resources and consequently a disparity in educational outcomes. According to the Department of Education's 2018 data, a wealthy town such as Weston, spends \$25367.29 per pupil while an impoverished city such as Brockton spends \$14491.29 per pupil [2]. With expenditures so high, Weston has the ability to attract more teachers to its schools. This disparity is shown in Weston's high student to teacher ratio, 11.3:1, and Brockton's high student to teacher ratio, 15.6:1 [2]. These poorly funded schools lack the ability to provide their students with enough teachers leading to less individual attention for each student [2]. As a result graduation rates at well funded schools are higher than graduation rates at poorly funded schools. For example, for the 2019 cohort, Weston's graduation rate is 99.0%, while Brockton's graduation rate is 85.8% [2]. Meanwhile, Worcester's student to teacher ratio is 13.3:1 as of the 2019-2020 school year and its 2019 cohort graduation rate is 83.6%, which shows the disparity in educational opportunity between it and schools in wealthier towns such as Weston [2]. Although it's not the only issue, it is apparent that the lack of teachers in poorly funded schools in comparison to seemingly surplus of teachers in their well-funded counterparts leads to a disparity in educational outcomes.

### **2.2 PREVIOUS IQP'S FINDINGS**

The previous IQP, "Building a Sustainable Volunteer Infrastructure Connecting Worcester Polytechnic Institute and Local Community-Based Organizations", identified the primary barriers that deterred WPI students from volunteering through surveys, interviews, and focus groups with WPI students[1]. A major deterrent for volunteering was transportation. Without a form of transportation available to and from the CBO, WPI students were less likely to volunteer regularly. In addition, contrary to student responses on surveys, when piloted, WPI students displayed low responsiveness to the organizers' emails. An alternative that appeared to increase responsiveness was the using of a Slack channel, which the previous IQP attributed to

the increase in responsiveness to the ease of communication on Slack relative to email, based on Slack's "react" feature. Finally, the previous IQP group recommended the hosting of an A or B term recruiting event where WPI students would be allowed to communicate with a YMCA representative and fill out and immediately submit their paperwork. The earlier the date of the event, the more students seeking volunteer opportunities the program can target. With the opportunity to fill out the necessary volunteer paperwork right away, the process to start volunteering will be streamlined and the volunteers would have the opportunity to volunteer as soon as possible. These findings will be taken into consideration when running this school year's iteration of the YMCA volunteer program.

## **3. METHODS**

### 3.1 VOLUNTEER RECRUITMENT AND PROGRAM OVERVIEW

The volunteer program was advertised using flyers directing WPI students to an information session that would inform them of a volunteering program that would run weekly in C and/or D-term of the 2019-2020 school year during Thursday evenings. This volunteer program would take place at YMCA's Central Community branch for their "School's Out" program, in Worcester, MA. Attendees of the information session were informed that they would have transportation to and from the YMCA's Central Community branch, would be helping out Worcester Public School students with their homework, and could use this time volunteering to fulfill work study requirements. The students who were interested, provided their emails on a sign-up sheet. Right before C-term started, the students were contacted to confirm their interest in the program. Those who were still interested proceeded to be part of the final volunteer group. It should be noted that there were a couple of members of the final volunteer group that joined after being informed about the volunteer program by a friend.

Each Thursday, the volunteers met at the Bartlett Center at 3:15pm and waited for the YMCA shuttle. A volunteer program organizer present at the Bartlett Center as well to troubleshoot any issues with the shuttle and waited to ensure that those who confirmed their presence for that volunteering session via Slack, but were running late, would make it to the shuttle. Upon arrival of the shuttle, the volunteers were picked up to attend the volunteering session. Around 5:30pm, the volunteers took the YMCA shuttle back to WPI.

### 3.2 COMMUNICATION AND INFORMATION DISTRIBUTION

Based on the previous IQP, the platform for communication and information distribution would be Slack. The Slack channel was named "YMCA 'School's Out' Volunteering" was designed to be easy to use and adequately informative. In terms of ease of use, the channel was designed to ensure smooth navigation and so that users with a certain task or intention could quickly accomplish their task. While creating the slack channel, each sub channel was named an unambiguously term to describe the function of that particular subchannel. To avoid ambiguity,



an effort was made to breakdown channels so that each channel had its individual, unique purpose. The “#forms” subchannel contains the PDF’s of the forms that must be completed. The “#general” subchannel allows members of the slack to communicate with the entire member base. It can be used to voice concerns, questions, and comments. The “#attendance” subchannel keeps track of volunteer attendance through an emoticon reacting system. The “#contact-us” subchannel will provide volunteers with contact information of those running the WPI-YMCA volunteering program. The Slack channel, along with the presence of a program organizer during van pick-ups worked to ensure accountability of the volunteers. Any ambiguity was cleared in the “#rules” subchannel, which not only gave more information on participating in the volunteering program, but also outlined the specific function of each channel.

### 3.3 INFORMATIONAL HANDOUT

The informational handout, as shown in Figure 1, was intended to educate WPI students on topics of child development and interactions with those from diverse backgrounds. When organizing this program, it must be noted that the experiences of WPI students varies from student to student, which is why there has to be a set knowledge baseline when interacting with patrons of the YMCA’s “School’s Out” program, who may differ in culture, race, and overall experiences from a WPI student. The informational handout outlined the Piaget Developmental Stages. This is especially crucial and important to keep in mind when helping students out with their homework. Volunteers must be mindful when helping out students with homework problems that may require the advanced thinking of an older, more mature student. For students whose age lies between two Piaget Developmental Stages, he may either already understand concepts requiring the skillset characterized by the later stage, or he only have the skillset characterized by the earlier stage, thus requiring a more comprehensive explanation. In addition, the informational handout contains explanations of concepts relating to race, and gives hints on how volunteers should be aware of these concepts during their interactions with the students. The inability to adhere to these concepts may create a fractured relationship between the volunteer and the students. The informational handout serves as a compact, easy to read educational text to

fill the knowledge gap for those with little experience and serve veteran volunteers with a reminder on properly interacting with students.

### YMCA Volunteer Information Sheet for WPI students

YMCA's School's Out program for K-8 students in the Worcester Public Schools includes a study room with tutors. The YMCA is a trusted and safe environment for Worcester families and their children. They are a great community resource and welcome people from all different backgrounds. This handout provides some guidance to be an effective volunteer tutor and role model.

**Piaget's Stages of Development (psychology):**  
Keep in mind that young children are still developing mentally, and their abilities for certain tasks might be at different stages.

Stage	Description
Preoperational	-trouble viewing from other's perspective -think in concrete terms
Concrete Operational	-capable of logical thinking -use of inductive logic -understanding of concept of conservation
Formal Operational	-capable of abstract thinking -capable of deductive logic

**"Growth Mindset" vs. "Fixed Mindset"**  
Encourage a growth mindset where risks and "failures" are learning opportunities and set students towards a path of growth and success. (E.g., not understanding something means that one has not mastered a topic or skill yet...)

"Failure is an opportunity to grow"

**GROWTH MINDSET**

"I can learn to do anything I want"

"Challenges help me to grow"

"My effort and courage determine my success"

"Feedback is constructive"

"I like to try new things"

"Failure is the limit of my abilities"

**FIXED MINDSET**

"It's either good or the rest"

"My abilities are changeable"


"I don't like to be challenged"

"My potential is predetermined"

"When I'm frustrated, I give up"


"I stick to what I know"

**Visiting as a guest and not as a "savior"**  
It's important to not volunteer with the attitude of "saving" others as their "savior" or someone's "hero." You are there representing WPI and are a role model as a *real person in STEM*. You can learn about our local community and learn from the students if you have an open mind.



**Avoiding microaggressions**  
Be extra cautious of enacting any **microaggressions** (i.e., intentional or unintentional verbal exchange or behaviors that indicates prejudicial insults towards a particular group of people, often based on race or gender). **Microaggressions** often come from unexamined biases and stereotypes.

See this video comparing microaggressions to mosquito bites to learn more:



SCAN ME

**Fig 1.** The informational handout educating volunteers on topics of Piaget's stages of development, saviorism, growth and fixed mindsets, and microaggressions

### 3.4 POST-VOLUNTEERING SURVEY

A Qualtrics survey was conducted after the volunteering had finished for C-term. This survey was distributed to the student volunteers in order to assess the various components of the volunteer program such as transportation, frequency of volunteering, and thoughts on the presence of an organizer present at the pickup location. In addition, the survey gathered demographic information and gauged the general satisfaction of the student volunteers with the volunteer program. The results of the survey could be used to alter how future iterations of this volunteer program operate.

## **4. OBSERVATIONS AND DATA**

### 4.1 PARTICIPATION

Initially, there were seven students who showed interest in the volunteering program after attending the information session in the Fall or after hearing about the program from a friend or program organizer. Out of those seven students, three followed through with the program. After contacting the students, who chose not to participate, the main response was that their schedule (academics and extracurriculars) couldn't allow for their participation in the volunteering program. This was unsurprising as the previous IQP group came across this explanation for a common reason for not participating in that iteration of the volunteering program. An additional student decided to participate in the program even starting their participation halfway into the academic term after hearing about the program from a program organizer.

### 4.2 VOLUNTEER ACTIVITY LOG

Throughout the duration of the volunteering program, the weekly number of volunteers who confirmed their participation via Slack, number of students who attended the volunteer program, and the time of the van pickup were recorded as shown in Table 1. Prior to the start of the program, three volunteers were cleared to volunteer. All three student volunteers confirmed their participation in the first week's session via Slack. These three volunteers showed up on Thursday (1/16) at 3 pm and were picked up at 3:20pm. To provide a more accurate time of pickup, the volunteers were asked to meet at 3:15pm instead of 3pm, for the remainder of the volunteer program. In the second week of the volunteer program, all three student volunteers confirmed their participation in this week's session via Slack. These three volunteers showed up on Thursday (1/23) at 3:15 pm and were picked up at 3:20 pm. The following week, all three student volunteers confirmed their participation in this week's session via Slack. Only two volunteers showed up on Thursday (1/30) at 3:15 pm and were picked up at 3:20 pm. The absent volunteer notified me in the Slack prior to the van pick-up.

Prior to the fourth week, another student was cleared to volunteer. All four student volunteers confirmed their participation in this week's session via Slack. These four volunteers

showed up on Thursday (2/6) at 3:15 pm and were picked up at 3:20 pm. The next week, all four student volunteers confirmed their participation in this week's session via Slack. Only three volunteers showed up on Thursday (2/13) at 3:15 pm and were picked up at 3:20 pm. The absent volunteer notified me in the Slack prior to the van pick-up. For the next two weeks, there was no volunteer participation. In the sixth week, the YMCA's School's Out program doesn't operate during Worcester Public School vacations. Also, there was no volunteering during the seventh because every volunteer had prior commitments, the most notable being WPI's Spring Career Fair. In the eighth week, two student volunteers confirmed their participation in this week's session via Slack. These two volunteers showed up on Thursday (3/5) at 3:15 pm and were picked up at 3:20 pm.

**TABLE 1:** Volunteer Program Data (Weeks 1-8)

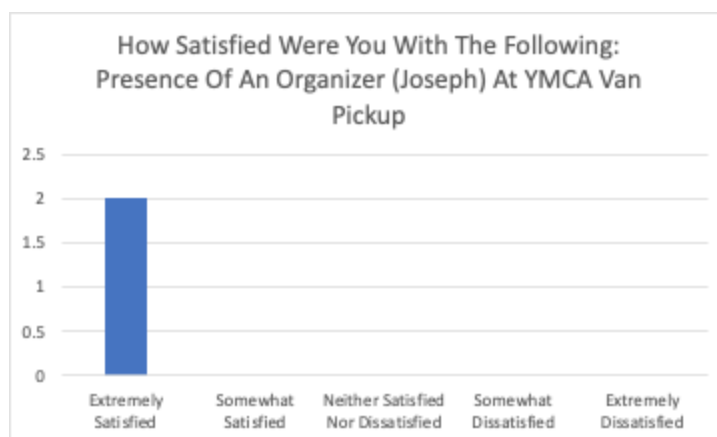
Week	Number Of Volunteers Who Confirmed On Slack	Number Of Volunteers Attended	Time of Van Pickup
1	3	3	3:20 pm
2	3	3	3:20 pm
3	3	2	3:20 pm
4	4	4	3:20 pm
5	4	3	3:20 pm
6	0	0	N/A
7	0	0	N/A
8	2	2	3:20 pm

#### 4.3 POST-VOLUNTEERING SURVEY RESULTS

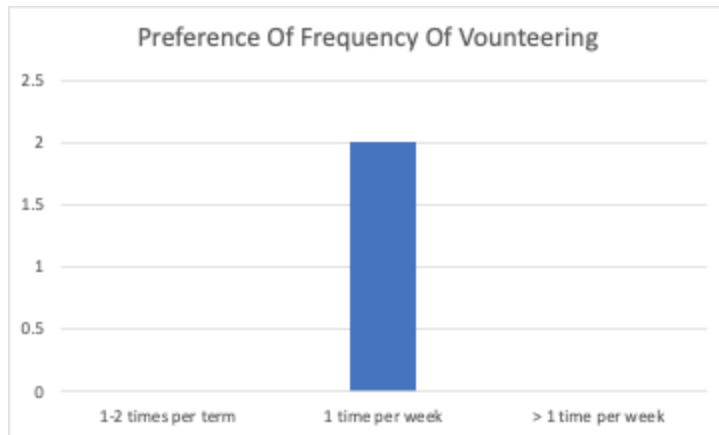
An 18 question Qualtrics survey was sent after one academic term of participation in the volunteering program to gather feedback for the second iteration of this volunteering program during D-term. Two out of the four volunteers filled out the survey. Based on the demographics

information in the survey, both responders were female WPI graduate students. As shown in Appendix A, the survey went over topics of transportation, volunteering, regularity, Slack.

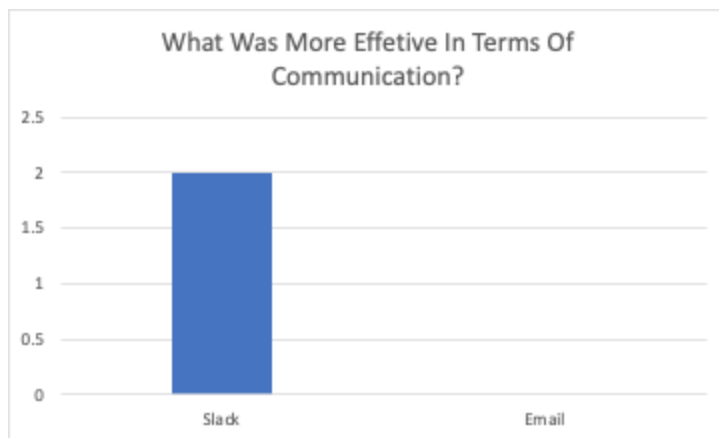
Based on the survey data, the volunteers were satisfied with the existing conditions of the volunteering program. The volunteers favored volunteering once per week as math tutors at the YMCA's "School's Out" program for approximately two hours per volunteering session. In addition, they preferred to use Slack over email as a form of communication and the use of a 24 hour notice to confirm their volunteering. Finally, the volunteers favored the presence of an organizer during van pick ups. Overall, when asked about the satisfaction of the volunteering program, responders either rated their experience in the volunteer program "extremely satisfied" or "somewhat satisfied".



**Fig 2.** Report for question 7 of the survey inquiring about what the volunteers' satisfaction of the presence of a program organizer present during van pick-ups.



**Fig 3.** Report for question 6 of the survey inquiring about what the volunteers' preferred frequency of volunteering.



**Fig 4.** Report for question 10 of the survey inquiring about what the volunteers' preferred form of communication.



**Fig 5.** Report for question 8 of the survey inquiring about the volunteers' satisfaction of the duration of each volunteering session.

The remainder of the survey was used to gather open ended criticisms of the volunteering program. When asked what she liked the least about the YMCA volunteer program, one volunteer said "The timing was a bit off- we usually got there too early and were waiting for half an hour for students to come". Also, one volunteer wished that the volunteers would be given the homework schedule in advance to prevent an incident such as one that occurred during the program where the students weren't assigned any homework. Finally, a volunteer proposed that program organizers should increase advertising efforts around the school to recruit more WPI volunteers.

It should be noted that this survey data is taken from a sample size of two, so the results may not provide the most accurate representation of the opinions or thoughts of the entire pool of volunteers.

## **5. DISCUSSION**

### 5.1 SURVEY ANALYSIS

Based off of the survey report, the two volunteers who filled out the survey were satisfied with their experience in the volunteering program. They were satisfied and even preferred volunteering once a week for ~2 hours a week (the duration of each volunteering session). The volunteers were “extremely satisfied” with the presence of the program organizer at each pick-up, and they were “extremely” satisfied” with the Slack channel. In fact, when comparing the communication done earlier through email and the communication later on in the program through Slack, the volunteers preferred using Slack for communication purposes. It was not surprising that the WPI student volunteers were satisfied with the program as many of the details were incorporated based on the previous IQP’s findings, which surveyed WPI students’ preferences. One important thing to note was that the volunteers would still participate in the program had the YMCA shuttle van ceased operations, which went against the findings of the previous IQP. It should be noted that this survey only was given to those who participated in the volunteering program, whereas the previous IQP surveyed the entire WPI student body. Overall, based off the survey results, all components of the program were well-received. This satisfaction was expected as the overall sentiment was in agreement with most of the data that the previous IQP team captured in their survey of the entire WPI student body’s volunteering behavior.

### 5.2 ORGANIZER FEEDBACK

As the organizer of the volunteer program, I noticed that being present at the pick up site, Bartlett Center, was instrumental in ensuring that the volunteer program ran smoothly. Often times, someone was running late but I was able to keep van stationary, so that the volunteer wouldn’t have to worry about the van driving away without her. In addition, since I was present at the pickup sight, I could react quickly by calling the YMCA if the van ran suspiciously late. This occurred in the first week and allowed me to keep the volunteers calm and immediately call and notify a YMCA staff member that the van was running late. With the different YMCA shuttle drivers each week, there is a degree of inconsistency of the transportation service in



locating the pick-up location and timing. Aside from the accountability aspect of having an organizer at the pick-up location, the various YMCA shuttle drivers makes it necessary to have a program organizer physically at the pick-up site to troubleshoot any problems that may arise.

Regarding the Slack channel, I didn't receive any questions regarding how to use the Slack channel, which spoke to its simplistic yet informative design. For a future organizer, I would highly emphasize removing (via the volunteer) the confirmation if he or she chooses to not volunteer that day. This would clear up any confusion for the organizer when figuring out the expected number of students during the van pick-up.

## 6. CONCLUSION

Based on the survey and feedback, the volunteering program ran successfully during C-term given the feedback from the post-volunteering survey. The program was able to build an infrastructure that kept volunteers accountable for their actions and helped easily monitor volunteer activity through the combination of having a program organizer present at the pick-up site and utilizing the Slack channel. In addition, the various components of the volunteer program such as method of communication and volunteering frequency and duration have been custom tailored to the preferences of WPI students based on the previous IQP team's survey data. Overall, with the abundance of volunteering opportunities with student based organizations, those either looking to build off this volunteer program or even start a new volunteer program may look at the C-term 2020 volunteer program between WPI and the Worcester Central community branch's "School's Out" program as a positive model.

## REFERENCES

- [1] G. Lira and S. E. O'Neil, "Building a Sustainable Volunteer Infrastructure Connecting Worcester Polytechnic Institute and Local Community-Based Organizations," *Digital WPI*, May-2019. [Online]. Available: <https://digitalcommons.wpi.edu/iqp-all/5463/>. [Accessed: 14-Aug-2020].
- [2] Department of Education, "Massachusetts School and District Profiles," *of*, 2019. [Online]. Available: <http://profiles.doe.mass.edu/profiles/finance.aspx?orgcode=03300000>. [Accessed: 14-Aug-2020].

# APPENDICES

## APPENDIX A: POST-VOLUNTEERING SURVEY

YMCA Volunteer Program Survey


iQ Score: Great

Published

Overall Satisfaction Block Options ▾

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Q1 How many times did you volunteer this term?

  1

2

3


4

5

6

---

Q2 Are you planning on volunteering during D-term 2020?

  Yes


No

---



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Q3 How likely are you to recommend the YMCA Volunteer Program to a friend or colleague?

 Not at all likely Extremely likely

0   1   2   3   4   5   6   7   8   9   10


 


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Q4 What did you like **most** about the YMCA Volunteer Program?







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Q5 What did you like **least** about the YMCA Volunteer Program?






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Q6 Preference of frequency of volunteering:




1-2 times/term


1 time/week

>1 time/week

Attribute Satisfaction Block Options ▾

Q7 How satisfied were you with the following:

 **Presence of an organizer (Joseph) at YMCA van pickup**




Extremely satisfied

Somewhat satisfied


Neither satisfied nor dissatisfied


Somewhat dissatisfied

Extremely dissatisfied

 Not applicable

Q8 How satisfied were you with the following:

 **Duration of Volunteering (~2 hours)**




Extremely satisfied

Somewhat satisfied

Neither satisfied nor dissatisfied

Somewhat dissatisfied

Extremely dissatisfied

 Not applicable

Q9 How satisfied were you with the following:



**Volunteering Experience**



- Extremely satisfied
- Somewhat satisfied
- Neither satisfied nor dissatisfied
- Somewhat dissatisfied
- Extremely dissatisfied
- Not applicable

Q10 Which was more effective in terms of communication?

Q10



- Slack
- Email



Q11 Would you volunteer if the YMCA shuttle ceased operations?

Q11



- Yes
- No

Q12 Rate the ease of use of the Slack channel.

Q12



- 1 (difficult)
- 2
- 3
- 4
- 5 (easy)

Q13 Preference of timing of the confirmation post in Slack channel, #attendance (ex. "March 5th, 2020)

Q13



- 24 hours in advance (current posting time)
- 48 hours in advance
- 72 hours in advance
- >72 hours in advance

▼ Valuable Experiences

Block Options ▾

Q14 What would be the most valuable experience we could facilitate at the YMCA Volunteer Program next time? Please list as many ideas as you'd like.

Q14







▼ Demand Gen Block Options ▾

Q15 How did you hear about the YMCA Volunteer Program? Select all that apply.

Friend or colleague  From an organizer

Informational Event  I don't recall

▼ Demographics Block Options ▾

Q17 Student Status

Undergraduate  Graduate

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Q18 How do you identify?

Male  Female

Non-binary  Other/Prefer not to share