

# **Survey Analysis**

## **Likert Scale Questions**

Nada Liang, Kaitan Sun, Duncan Wingfield and Travis Li

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# Overview

This report is about our analysis towards the 5 Likert Scale Questions (20, 22, 23, 26, and 31) in a survey about the business school performance.

This report consists of six parts:

1. The “Question” section covers the questions we focused on, what options the respondents have, and what numeric labels we used.
2. “Instruction” part offers readers instructions to understand our graph and navigate our tableau workbook.
3. “Why Gantt Bar” section shows the reasons why we chose Gantt Bar to interpret Likert Scale Questions and what possibilities we encountered.
- a. “Key findings” part covers the overall results for the five questions, and compares and contrasts the results of different “ethnic groups”, “affiliations”, and “genders”. Especially in “ethnic groups”, we listed two important findings about clinical faculty.
- b. “Details by questions” shows the detailed analysis by gender, affiliation, and ethnic groups for each question.
- c. The “Limitations” section lists further considerations and limitations about our analysis.

# Questions

We worked on 5 Likert Scale Questions: 20, 22, 23, 26, and 31. Since those 5 questions with similar structure, we analyze them together. The five questions are as follows.

- Q20: “Relative to other places you have worked or gone to school, how does the Mason School stack up as a place where you can be yourself?”
- Q22: “Relative to other places you have worked or gone to school, how does the Mason School stack up as a place where you can be successful?”
- Q23: “Relative to other places you have worked or gone to school, how does the Mason School stack up as a place where you can develop professionally?”
- Q26: “Relative to other places you have lived/worked, how does the Mason School measure up as a place you feel comfortable giving and/or receiving honest feedback?”
- Q31: “Relative to other places you have worked or gone to school, how does the Mason School stack up as a place where your contributions are valued?”

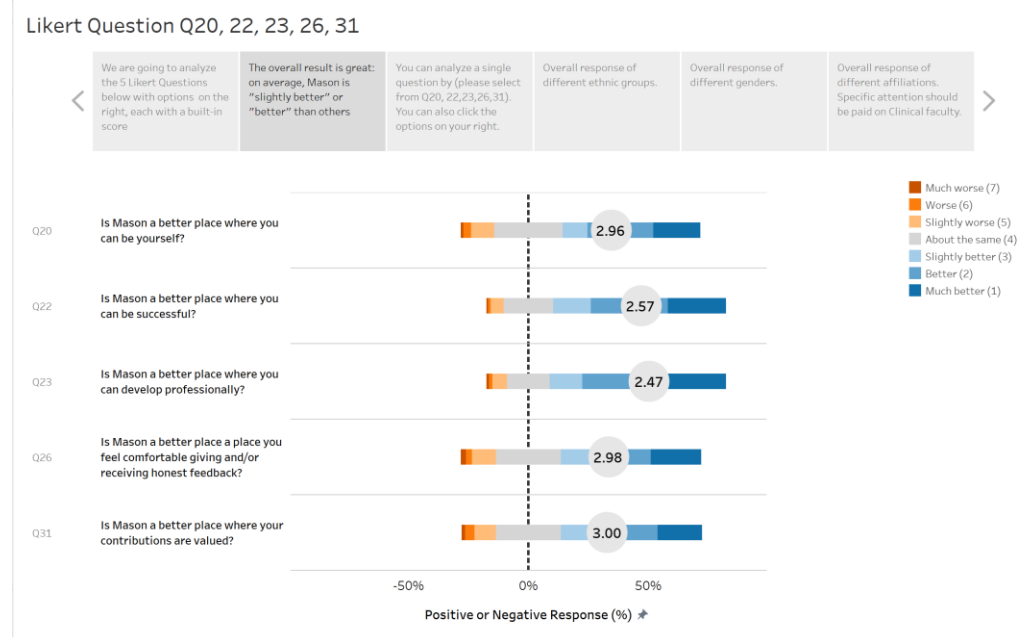
For each question above, respondents have 7 options, each with a “built-in” label from “7” to “1”. “7” means “much worse” and “1” means “much better”. This may be a little bit counter-intuitive because the bigger the number is, the worse the evaluation is. However, we stick to use these labels without changing them because this corresponding rule is listed in “Inclusiveness\_Survey Final.docx” report. We do not want to cause any confusion here.

- ☐ Much better (1)
- ☐ Better (2)
- ☐ Slightly better (3)
- ☐ About the same (4)
- ☐ Slightly worse (5)
- ☐ Worse (6)
- ☐ Much worse (7)

## Instructions

### Tableau Workbook

When you opened our tableau workbook, you will see a clean “story”. What you need to do is to follow the storyline, reading the grey text-box above and going through them from left to right one by one by clicking the back/forward buttons on the end.

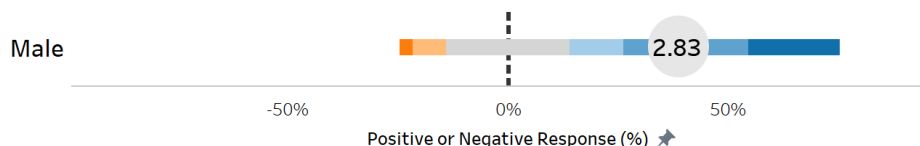


## Understand the chart

As mentioned before, we have seven options with numeric labels for each question. Now, we use “red” to represent a negative response and “blue” to represent a positive response. The correspondences are as follows. The darker the blue or the smaller the number, the better results.

- Much worse (7)
- Worse (6)
- Slightly worse (5)
- About the same (4)
- Slightly better (3)
- Better (2)
- Much better (1)

Now, let’s see an example below. The zero baseline corresponds to the people who select “about the same”. The x axis shows what percentage of the respondents select a negative option (Mason is worse than other place), and what percentage of respondents select a positive respondents. In the case below, we can see that more than 50% of respondents choose a positive option. In addition, the grey circle with a number on it shows the average score (label) for this questions. We can use the bar above to relate it to a certain choice. Since the number here is 2.83, which is between 2 (better) and 3 (slightly better), the male correspondents generally select “Mason is better or slightly better than others”.

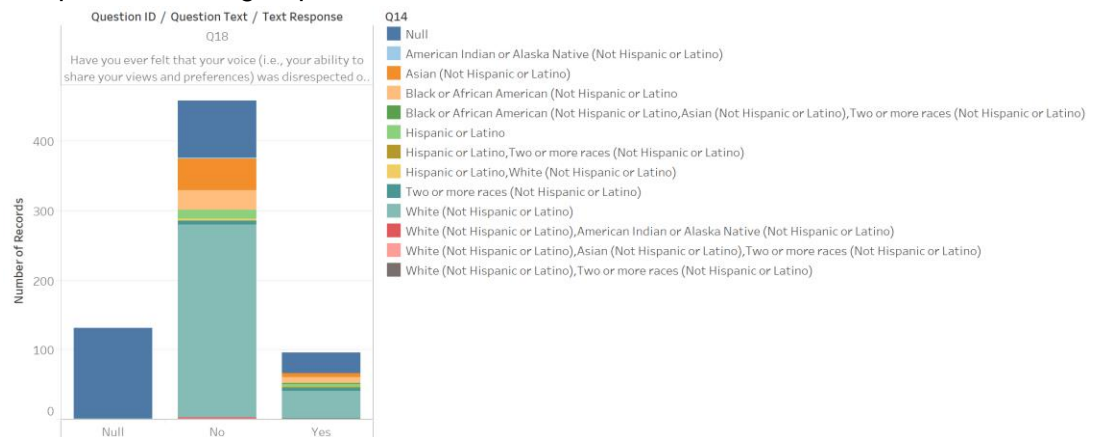


## Why “Gantt Bar”

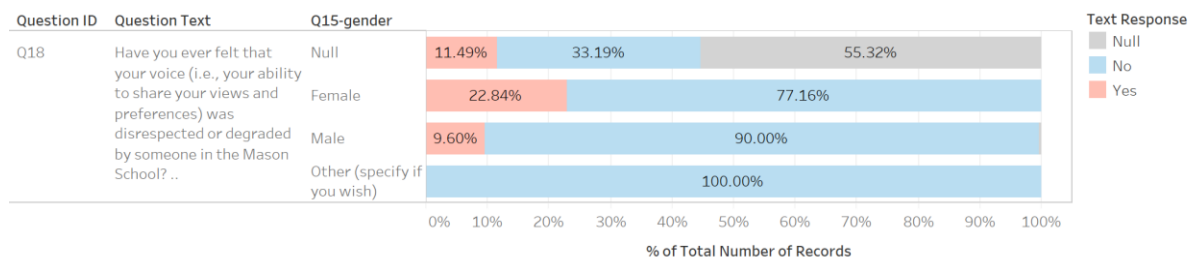
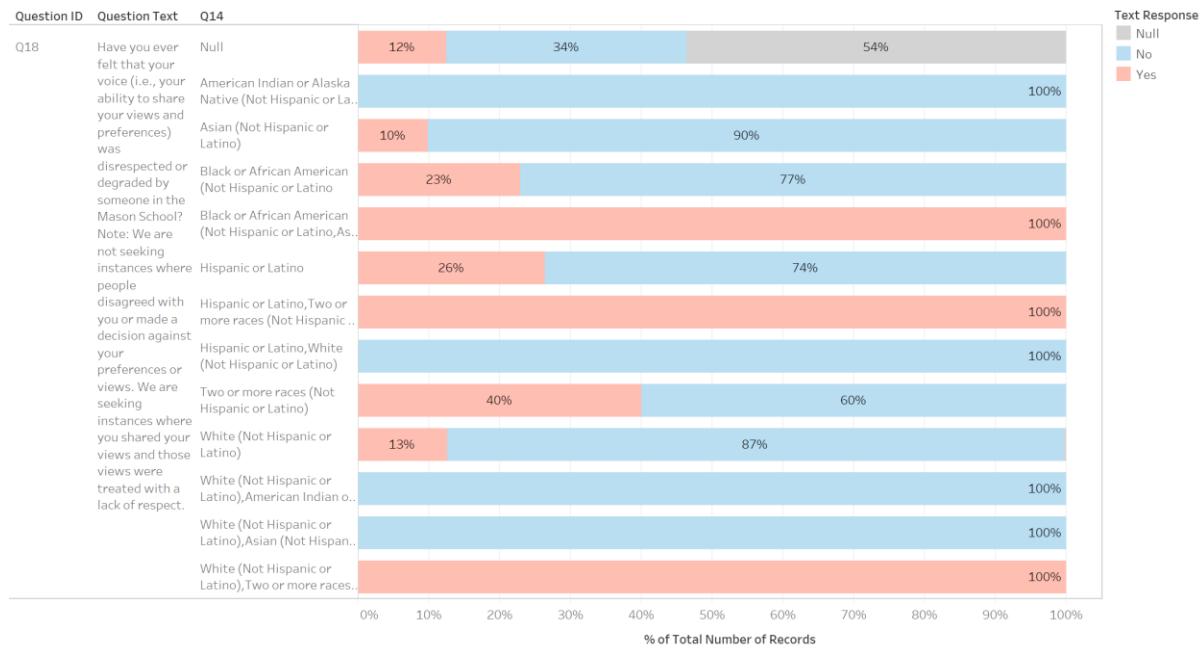
There are many reasons supporting why we chose “Gantt Bar” to do the visualization.

1. We studied all the materials about survey data, and searched online for visualizations designed for Likert Scale Questions, most of which used “Gantt Bar”. The references are as follows.
  - <https://www.datarevelations.com/likert-scales-the-final-word.html>
  - <https://www.youtube.com/watch?v=JodWmilxl2c&t=430s>
  - <https://www.datarevelations.com/category/visualizing-survey-data-and-likert-scales>

2. Our chart can depict almost every piece of information for the original data in a single chart.
  - Distribution of different choices (by color and length)
  - Average response (by numeric number)
  - Proportion of positive responses versus proportion of negative responses (by position)
  - Negative or positive (red or blue)
  - Group average (by reference line)
3. It is easier to contrast the result of different groups using our chart.
  - For example, we tried question 18. If we use the bar chart below, it is hard to compare different groups.



- The same thing happens here. When we try to use the percentage to represent the distribution of different groups, it is hard to identify which group have a overall better response and which group have a worse response in the first glimpse. On the contrary, using Gantt Bar can solve this problem because the bars are placed on different positions.



4. After we selected Gantt Bar, we adjusted the following draft to become more user-friendly.

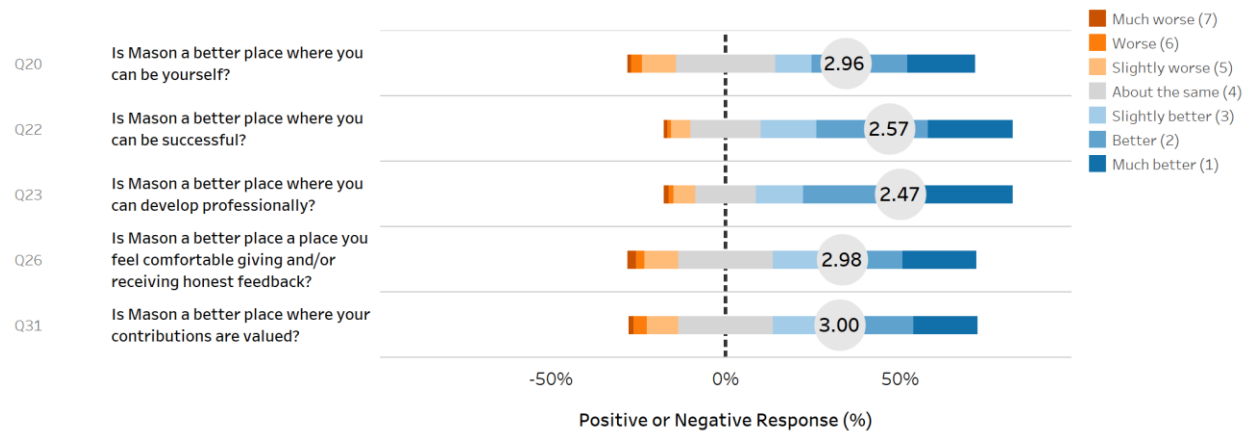


## Key Findings

### Overall Result

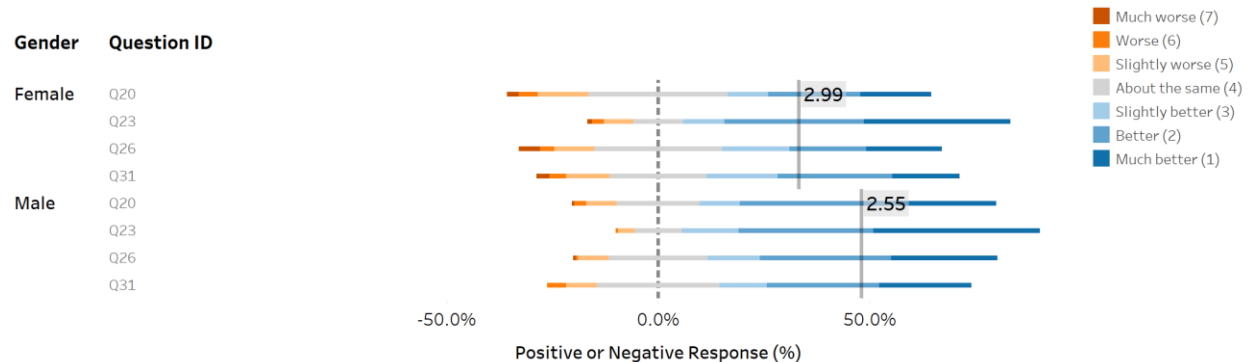
The overall survey results for our 5 questions came out to be generally positive. For every question, more than 50% of the respondents chose “Mason is no worse than others”, and the average response is that Mason is between “slightly better” and “better” than other places.

## Overall



## By Gender

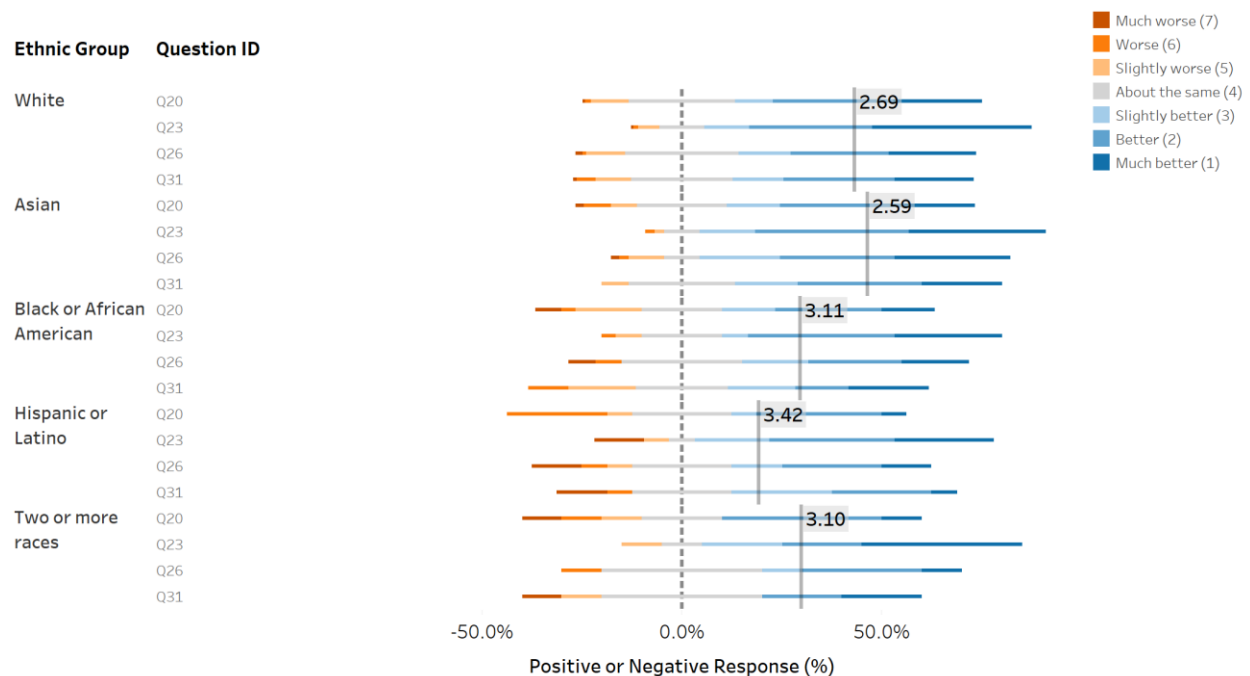
On average, both female and male respondents chose “Mason is no worse than others.” On average male respondents chose “Mason is better than others” while female respondents chose “Mason is just slightly better than others”.



## By Ethnic Group

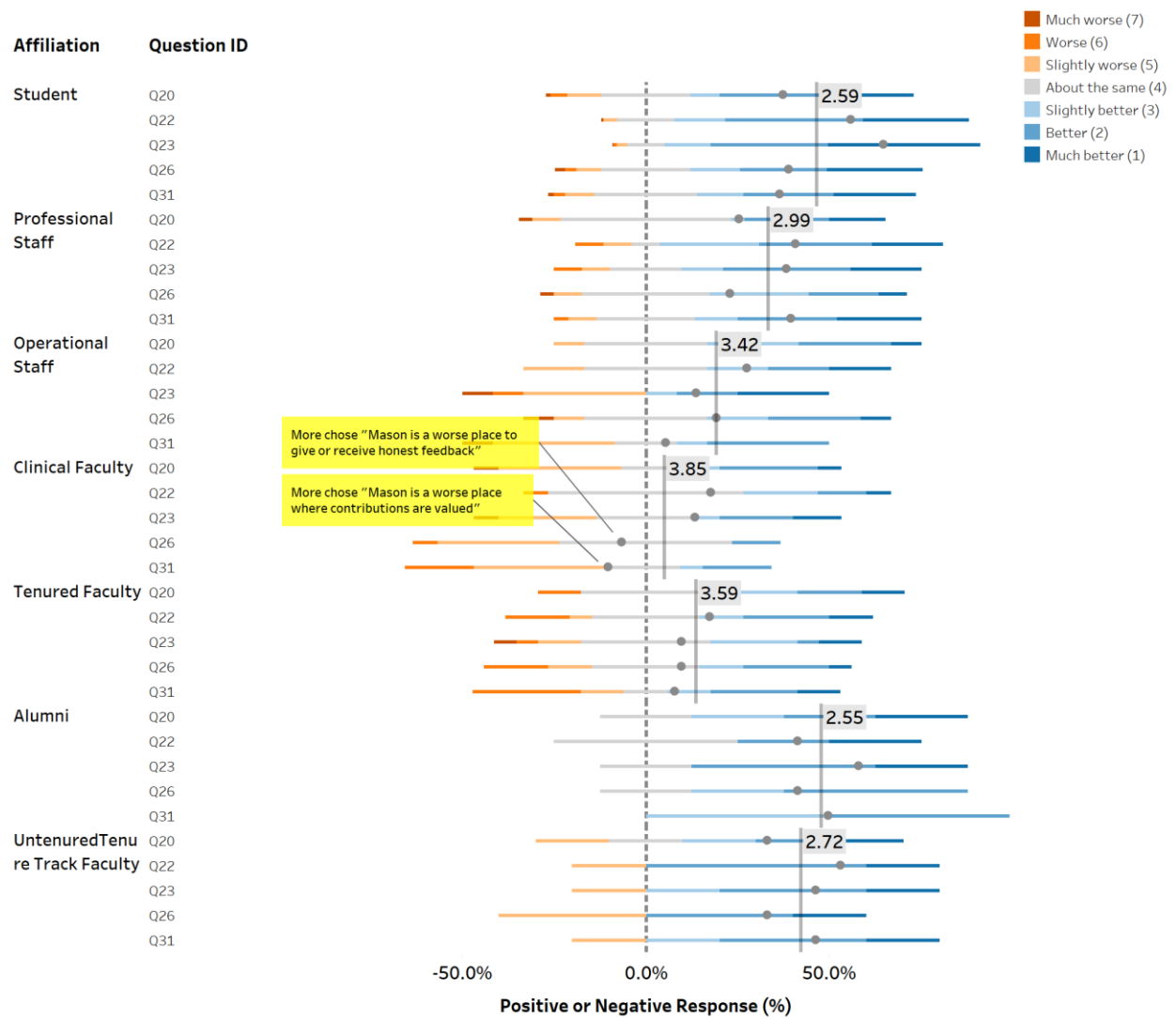
The majority of respondents thought “Mason is no worse than others”. However, on average, Asian and White respondents chose “Mason is better than others” while African American, Hispanic, and those who have two or more races chose “Mason is just slightly better than others”.





## By Affiliation

Again, on average, each affiliation generally chose “Mason is no worse than others.” However, here we can see a large difference among the groups. For example, on average, student, professional staff, and alumni chose “Mason is a better place”. On the other hand, operational staff, clinical faculty, and tenured faculty chose “Mason is just slightly better than others or is about the same as others”. The most surprising response was for Clinical Faculty. On average, this group chose “Mason is a slightly worse place to both give or receive honest feedback” and “Mason is a slightly worse place where contributions are valued”. This feedback is concerning and further research should be conducted.



## Details By Questions

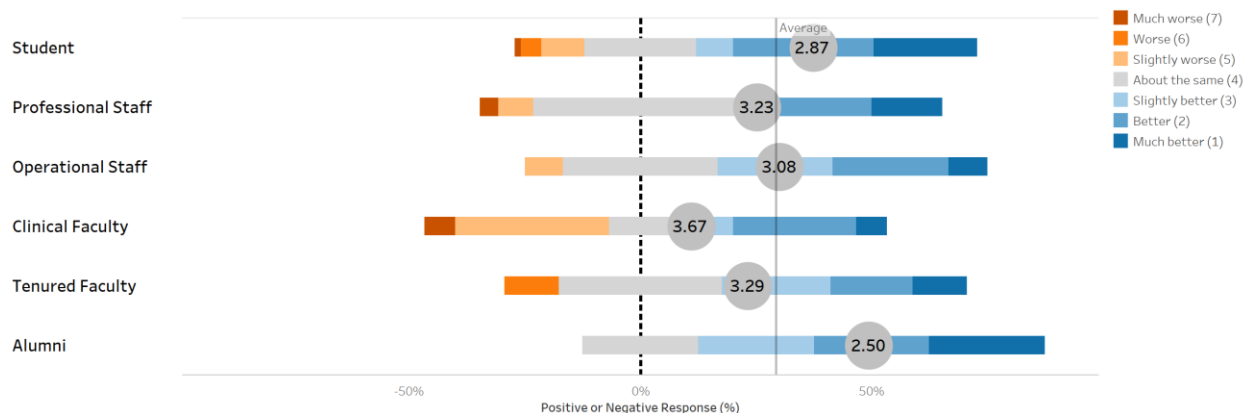
### Q20

"Relative to other places you have worked or gone to school, how does the Mason School stack up as a place where **you can be yourself?**"

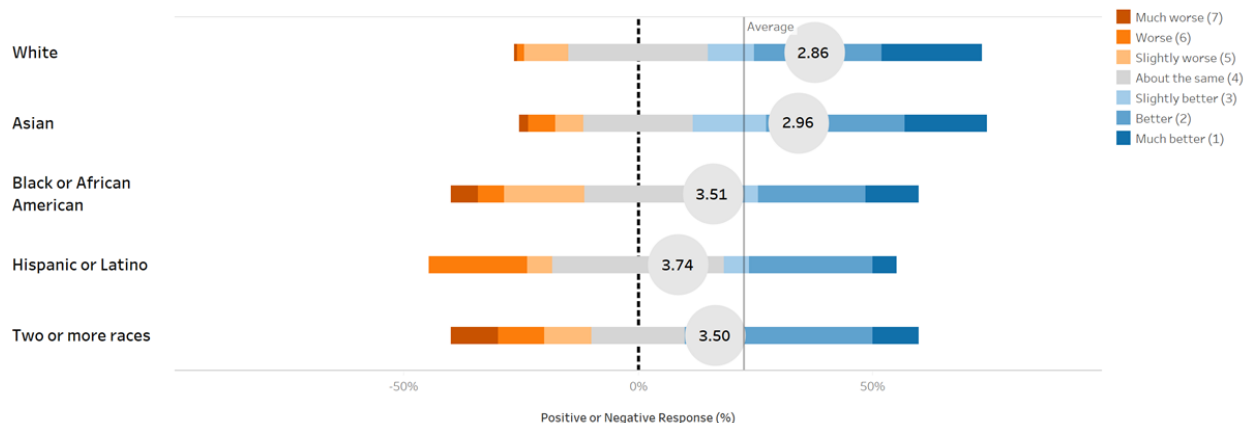
Responses to this question stay constant through different groups. Most respondents think they can be themselves in Mason than in their past schools.

On average, Alumni are most satisfied, believing they can better or much better be themselves while Clinical Faculty feel it's about the same or slightly better in Mason that they can be themselves. By ethnicity, White and Asian are more satisfied being themselves in the Mason School than other ethnic groups. By gender, female have more negative responses but generally, they are quite satisfied.

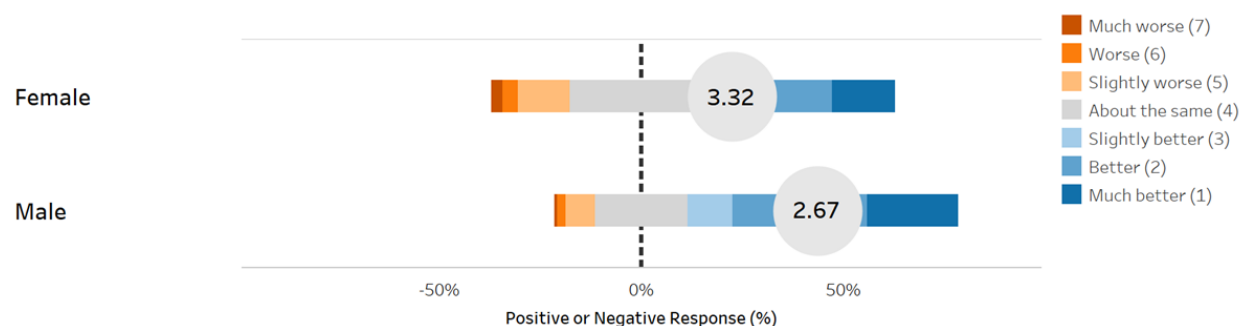
### Affiliation



### Ethnic Group



### Gender

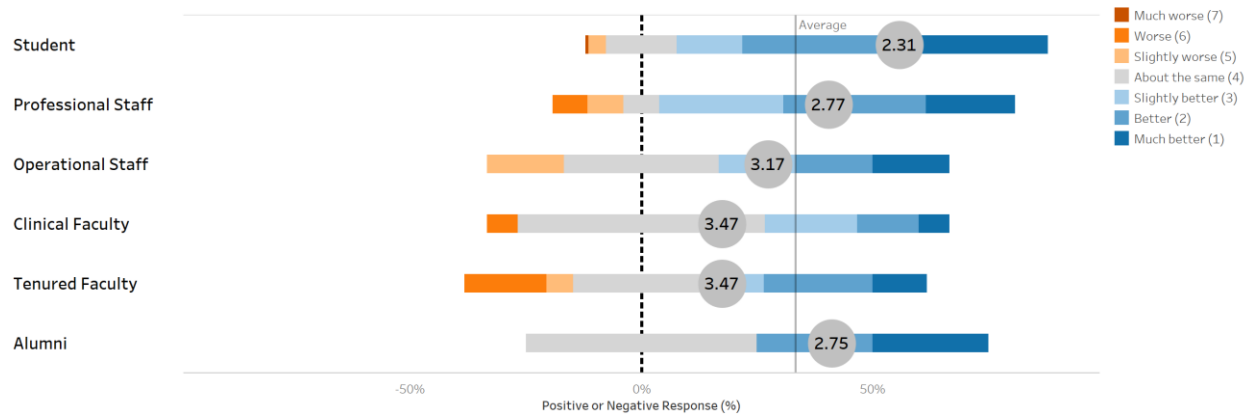


## Q22

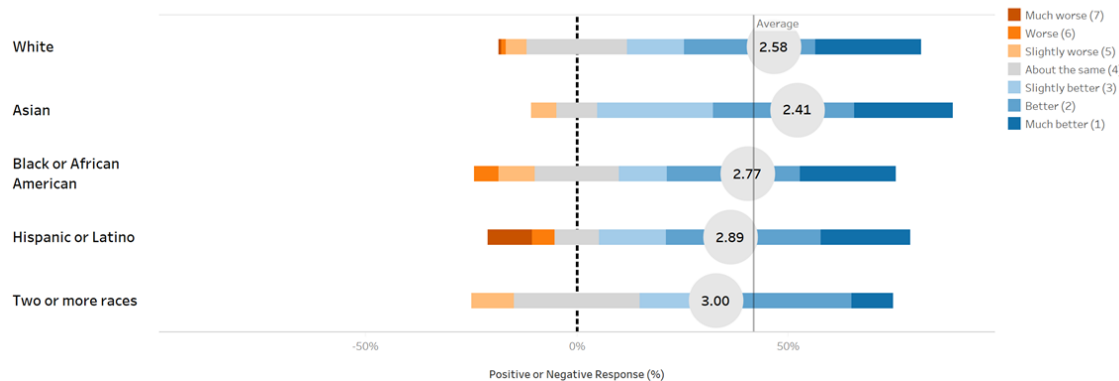
“Relative to other places you have worked or gone to school, how does the Mason School stack up as a place where **you can be successful?**”

In overall, the responses demonstrated a positive feeling that they can be successful in the Mason School rather than other places. Professors, staff, students (both current or previous) and untenured track faculty tend to treat Mason as a better place to be successful, while clinical faculty and tenured faculty felt their success in Mason is no difference within other places. Regarding ethnicity, Asian and White are above the average score, but actually all the groups are similar on their opinions towards the question. As for gender, Males sensed themselves to be more successful in Mason than Females.

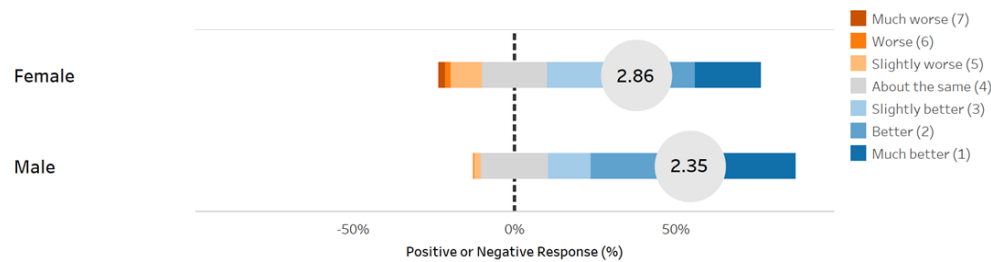
### Affiliation



### Ethnic Group



## Gender

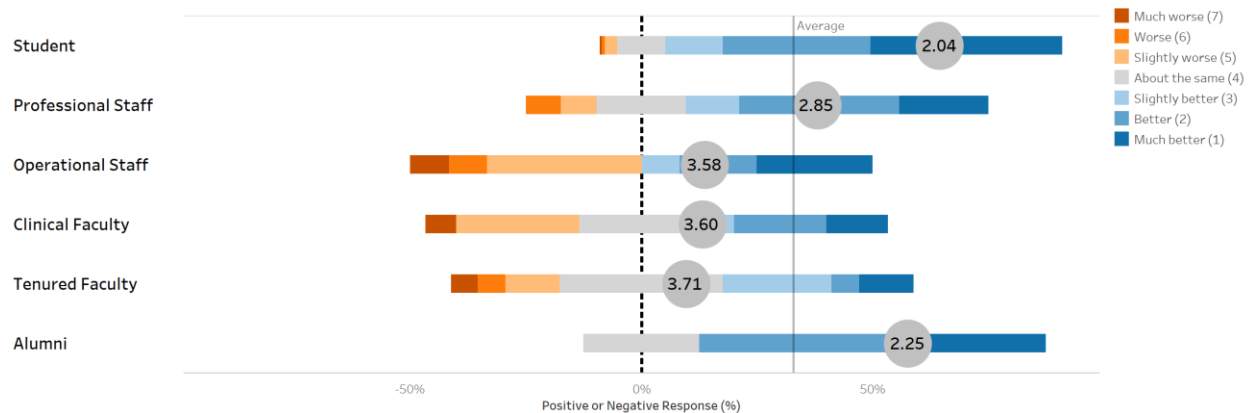


## Q23

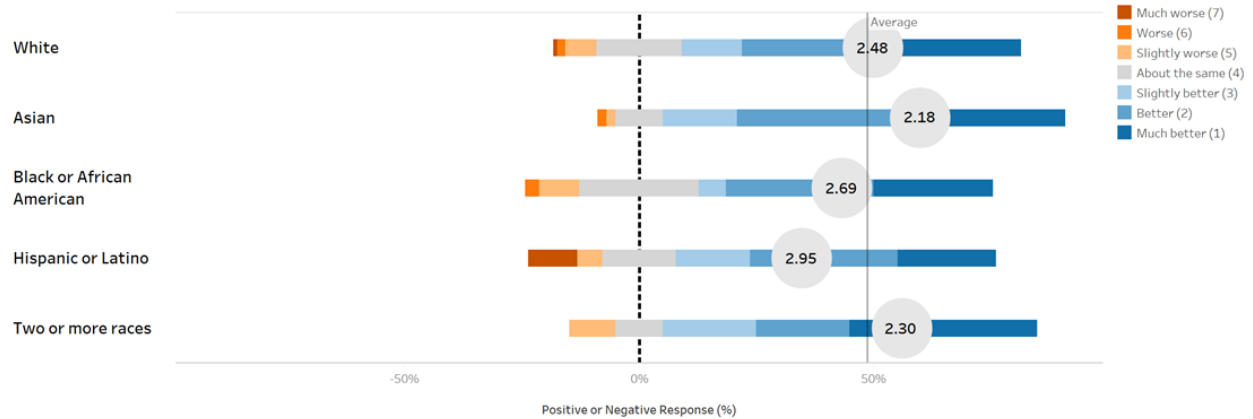
“Relative to other places you have worked or gone to school, how does the Mason School stack up as a place where **you can develop professionally?**”

This question has the overall best satisfaction rating than the other 4 questions. It represents that respondents believe on average that they can better develop professionally in Mason than in their previous schools. Looking at the data by subgroups, we can see that student, alumni, and untenured track faculty are more satisfied in this aspect. Operational staff, clinical faculty, and tenured faculty are less satisfied. By ethnic group and gender, responses are well around the mean value.

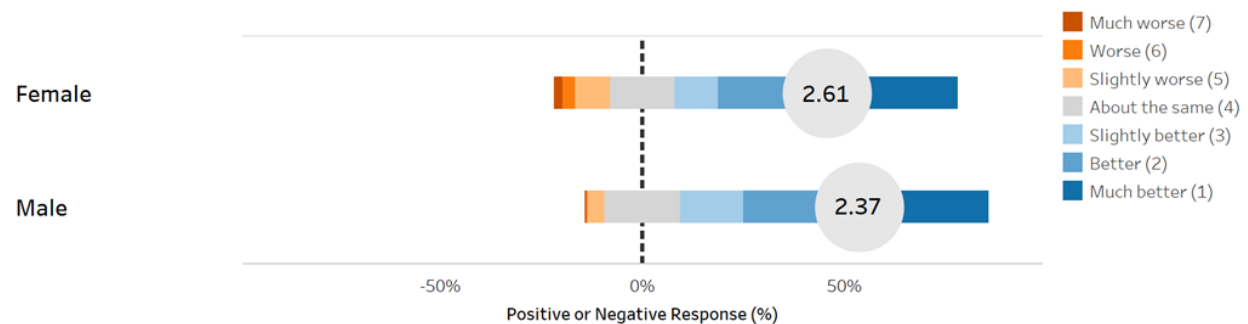
## Affiliation



## Ethnic Group



## Gender

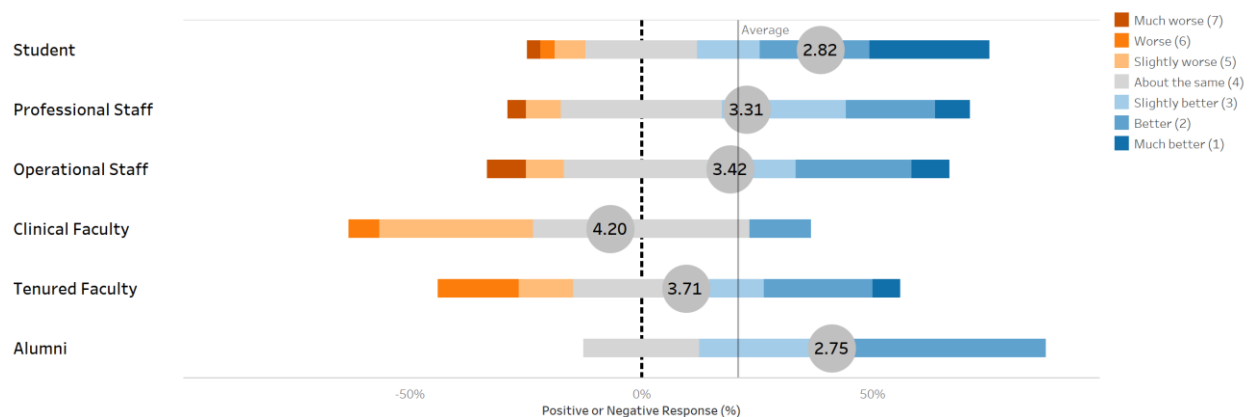


## Q26

“Relative to other places you have lived/worked, how does the Mason School measure up as a place you **feel comfortable giving and/or receiving honest feedback?**”

The general response distribution on this question is very similar to other questions, with more satisfied male responses vs female. One thing worth noticing is that here, clinical faculties have an average response value on the left of the baseline, which indicates on average, they feel less comfortable giving/receiving honest feedback at Mason school than their past schools and/or work experiences.

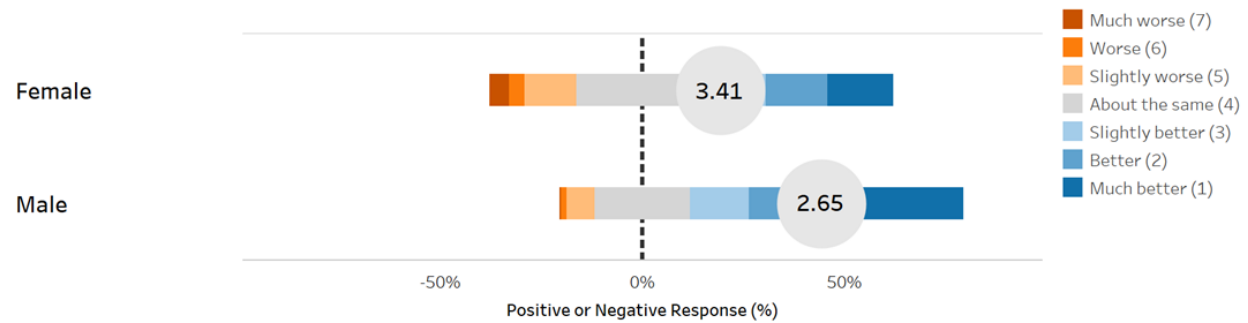
## Affiliation



## Ethnic Group



## Gender

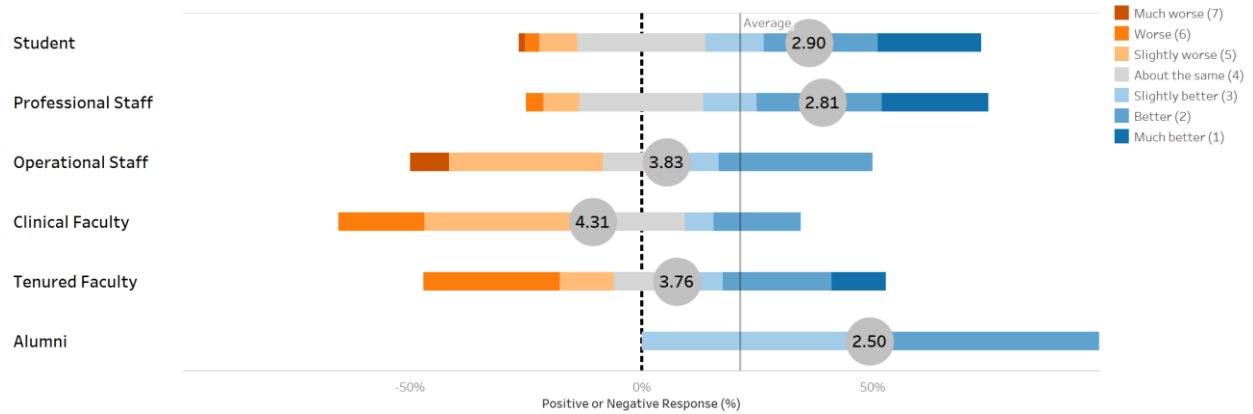


## Q31

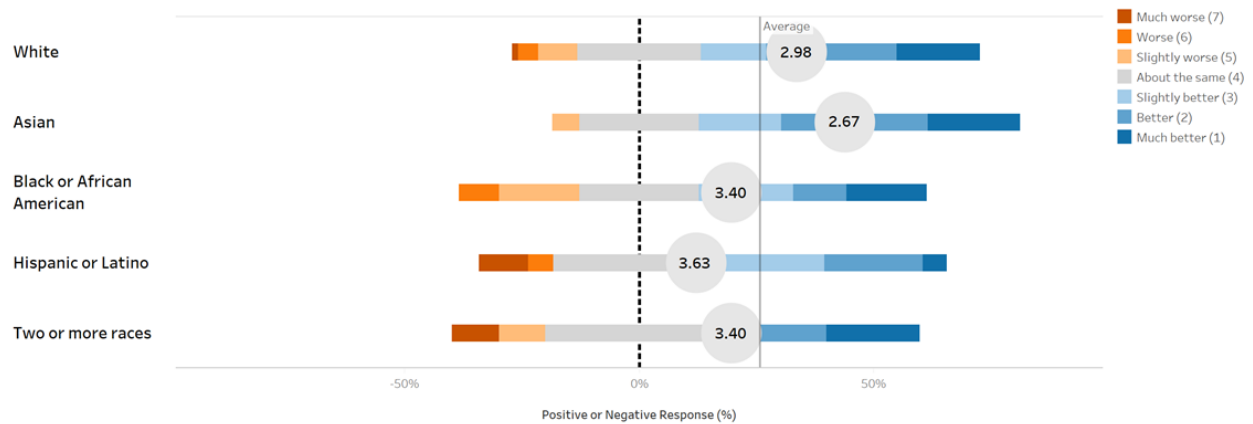
“Relative to other places you have worked or gone to school, how does the Mason School stack up as a place where **your contributions are valued?**”

Based on our findings, clinical faculty again seem to be the only group that has an overall negative response value on this question. This indicates on average, they think their contributions are valued less in Mason school than in other schools. Interestingly, operation staff, clinical faculty, and tenured faculty have a much worse response comparing to other groups. This is also the case for Q23. It gives us insights that these two questions may have relatively high correlation.

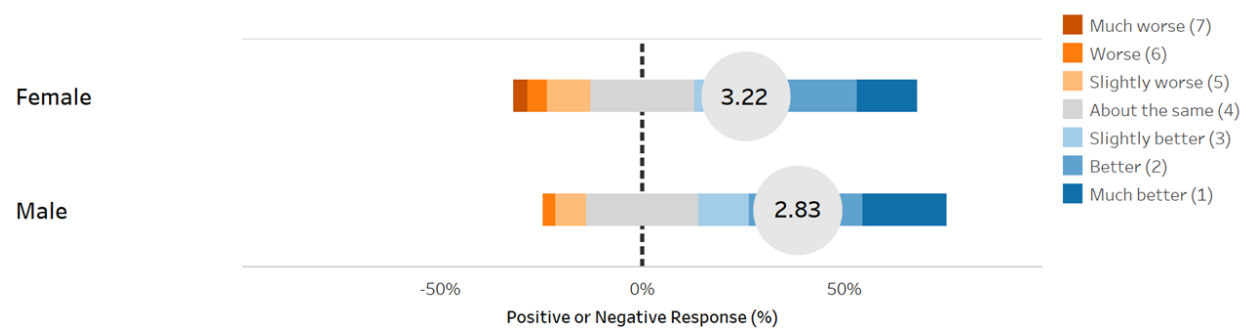
## Affiliation



## Ethnic Group



## Gender



## Limitations

1. Need more statistical arguments. Our graphs demonstrate the results in a consistent and clear way, but there is still some room to improve. For example, although it's important to



compare the average scores between different groups rated on a specific question, the higher or lower answers can be deceiving. Sometimes if you use t-test to compare two different mean values of two groups, the result might indicate that there is no significant difference between them, which is something we would improve in future.

2. For some groups, there are less than 5 responses. Their opinions may not be typical among their groups, but if we want to analyze them, we have to treat their answers as general responses in their group due to the lack of data. For some groups, what we did is just to delete those groups because we think this data is meaningless due to the high variance.
3. There are some people who chose “null” in every question. However, we don’t know whether they are randomly selected. If those who think Mason is worse than others are more likely to choose “null”, the overall survey results are not as positive as what we concluded.
4. We could find more insights if we analyze some correlations between different questions. This time, we only focused on analyzing the questions separately, but found out that some questions can be interpreted together, which would probably lead to some more interesting findings.

## Executive Summary

Our results show that generally, people feel better about their experiences here at the Mason School of Business. What is interesting about our dataset is that we can continue to go further into the demographics of the respondents. When it comes to the different affiliations at the business school, students gave the survey more positive responses than the faculty and staff. Demographically, Whites and Asians feel better about their experiences than ethnicities like Blacks and Hispanics. However, we have to be careful about some of our results. This survey asked the population interesting questions, but our sample size is almost too small to draw conclusions of entire groups of people. We still can draw important clues from our findings, and make recommendations to ensure that everyone who comes to the Mason School has just a great experience as every other student. It is important to us that when we compare life at the Mason School to other jobs/schools, people feel positive about their experiences.