# Evaluation Report for Pioneer Academics

## December 2022

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SCHOOL of EDUCATION

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# I. Executive Summary

This program evaluation surveyed individuals who applied to be a Pioneer Academics scholar while in high school. The goal was to evaluate the effects of program participation. Comparisons across three groups were made. First, to assess effects of participation, responses from scholars were compared with responses from individuals who were offered placement but declined (***Participation***). Second, to assess whether effects of participation varied based on access to resources, responses from scholars who received a need-based scholarship (full or partial) were compared to scholars who did not receive a need-based scholarship (***Scholarship***). Third, to assess whether participation effects differed based on where students grew up, responses from those who attended high school in the U.S. students were compared to responses from students who attended high school outside the U.S. (***Geography***).

Follow-up focus groups were conducted with each group (declined participation, need-based scholarship recipients, participants from outside the U.S., and general).

## Key Findings

- Pioneer alums value their research experience with Pioneer Academics.
- Pioneer alums and applicants have high aspirations for themselves.
- Geography and Scholarship status do not appear to predict outcomes for Pioneer alums. Although small sample size limits conclusiveness of many comparisons.
- Potential gaps between Pioneer participants and non-participants (e.g., taking action during undergraduate experience and aspiring to take action). Although small sample size limits conclusiveness.

## Recommendations

Recommendations include:

- Begin regular collection of evaluation data.
- Interpret result reports with caution, many measures are new and have not been validated.
- Pursue deeper investigation of assessments and alumni experiences to validate measures in specific areas of interest and to verify outcomes.
- Alteration of existing communication strategy about existing opportunities (e.g., alumni network) may be needed to increase awareness and engagement.

# II. Introduction

In late 2021, Pioneer Academics reached out to the Primary Evaluator (Matthew C. Makel, PhD) about the development of program evaluation opportunity to: A) Facilitate the development of new partnerships with corporations and foundations; B) Enhance Pioneer's relationships with colleges and universities; and C) Inform the ongoing improvement of the Research Program and the development of new opportunities for students.

This led to a program evaluation to assess the underlying question of whether the Pioneer experience was leading to flourishing in college. The evaluation had two primary questions:

1. How well do alumni of Pioneer Academics' Research Program perform in subsequent university experiences relative to their peers who applied for but did not participate in the Research Program?

2. Is program participation associated with different outcomes for different student subgroups? With the primary subgroups of comparison being Pioneer alumni who received need-based scholarship vs those who did not (Scholarship) and Pioneer alumni who attended high school in the United States vs those who did not (Geography).

Quantitative data were collected via a survey and qualitative data were collected via focus groups.

## Method

The survey was developed by the evaluator through multiple consultation meetings with Pioneer Academics staff. Initial existing measures were shared with Pioneer Academics staff and after review and discussion, it was determined that existing measures did not sufficiently align with Pioneer Academics' goals. Because of this, new measures were developed especially for this evaluation to align more precisely with Pioneer Academics' goals. Specific concepts were agreed upon and draft items were developed and shared with Pioneer Academics. This specialization meant either revising several existing measures or creating new measures. Such specialization allows for survey items to align with the specific goals of Pioneer Academics. However, it also means that they have not yet be validated (see below Limitations section for more on this). The survey went through several rounds of review and revision prior to launch.

### Survey Distribution

All messages to potential participants were sent by Pioneer Academics with consultation from the evaluator. An initial pilot distribution to former Participants began on July 6th, 2022. Distribution to those who Did Not Participate began July 13th and 14th, 2022. Each group received two reminder emails. However, because the response rate for the Did Not Participate group was below target, this group was also offered a higher incentive ($50) via an email reminder that eventually increased to a $100 incentive that was sent via a text message to that group. Both surveys were closed on August 24th, 2022.

The Participant and Did Not Participate groups received intentionally different messages due to their expected different strength of affiliation with Pioneer Academics. For example, the Did Not

Participate group's message started with "A Gifted Card for Your Thoughts?" and a reminder that they had once applied to the Pioneer Academics' Research Program.

**Survey Measures**

Table 1 presents a brief overview of the subscales analyzed in this report. The full survey can be found in Appendix A.

**Table 1. Survey Subscales**

| Subscale | Brief Description |
|---|---|
| Academic Integrity | Frequency of ethical and integrity behaviors used |
| Activity Participation | Undergraduate activity participation |
| Activity Interests | Undergraduate activities students report planning/aspiring to pursue |
| Diverse Cultural Background | The extent to which they seek to engage with those from different cultural backgrounds when pursuing their academic/professional interests |
| Explore New Ideas | How they behave when hearing a new idea that captures their interests |
| Future Aspirations | Educational and occupational future plans |
| Motivation: Intrinsic Value | Source of motivation when pursuing academic/professional interests |
| Motivation: Self-Regulation | Self-regulating behaviors used when pursuing academic/professional interests |
| Personal Control | Areas in college where they feel control over their academic pursuits |
| Pursue Academic Interests | Frequency they enroll in non-required classes outside their typical course of study to pursue their interests |
| Pursue New Ideas | Actions taken when hearing a new idea that captures their interests |
| Self-Efficacy | Confidence that they can accomplish relevant tasks in their pursuit of their goals |
| Self-Efficacy Connect with Establishment | Connect with the established field when pursuing academic/professional interests |
| Self-Efficacy Cultural Background | Interact with people different from them when pursuing academic/professional interests |
| Self-Efficacy Executive Function | Make plans when pursuing academic/professional interests |
| Self-Efficacy Find Resources | Find resources when pursuing academic/professional interests |
| Self-Efficacy Learn New Things | Learn new things when pursuing academic/professional interests |
| Self-Efficacy Manage Demand | Manage task demands when pursuing academic/professional interests |
| Self-Efficacy Sustain Pursuits | Sustain pursuits when pursuing academic/professional interests |

**Survey Methods**
On March 25, 2022, the Johns Hopkins University Institutional Review Board approved the project as "not human subjects research" because the data were being collected for program evaluation purposes (HIRB00014794).

In coordination with the program evaluation team, Pioneer Academics distributed invitation emails to recent Pioneer alumni (Participants) as well as those who had declined an offer of a Pioneer research experience (non-Participants). These invitation emails explained the purpose of the project and contained links to a Qualtrics survey owned by the program evaluator.

**Survey Analysis**
Analysis was only conducted when responses were given. Respondents who stopped the survey before seeing a specific question or who skipped a question are not represented in any of those specific analyses. Randomization of the order in which survey sections were given helped reduce potential effects of order of items and make sure that each item had approximately the same number of responses.

Different analyses were conducted based on the type of comparison being conducted. An overview of the analysis types is provided below.

**Comparisons by Participation Status.** The statistical test used to compare the responses of participants with those who did not attend (Participation status) was the nonparametric Mann-Whitney test. This test was used because the two groups are independent and most of the comparisons were of responses on Likert-type scales, making them non-normally distributed. Some may consider this a conservative test. For these analyses, the goal was to assess whether there was evidence for differences in the responses between the two groups.

**Comparisons by Geography and Scholarship Status.** Unlike the Participation Status, where analyses sought evidence for expected *differences* between groups, comparisons based on Geography and Scholarship status sought to assess whether responses from each group were functionally *equivalent* to each other (e.g., no evidence of difference). The statistical analysis used to assess this is called an equivalence test (Lakens et al., 2018). Essentially, this analysis tested whether any observed differences between the groups exceeded a minimal value (often called the smallest effect size of interest).

This type of comparison can return three types of results. First, when there are large differences between groups, results can show that the groups are not statistically equivalent to each other. Second, when there are not large differences between groups, a conclusion of statistical equivalence can be made. Third, there are also instances there is insufficient data to draw conclusions. This can occur when a small sample size reduces statistical power. In such cases, collecting additional data can help make the results more conclusive.

As an example, imagine the price difference between two television sets was under a dollar, many people would not consider that a meaningful price difference and they would treat the two televisions as being essentially equivalent in price. The threshold for when a difference starts to matter can vary across context and individuals. It is usually preferential to make the

determination of what is meaningful prior to making the comparison. The smallest effect size of interest used in these comparisons was 0.2 standard deviations; effects smaller than 0.2 standard deviations were considered statistically equivalent. Different effects sizes of interest may yield different results, but the precision of the scales and relatively small sample sizes preclude such more fine-grained analyses with the current sample.

**Survey Responses**

364 respondents completed some portion of the survey.

**Table 2. Survey Responses**

| | Geography | | | | | Total |
|---|---|---|---|---|---|---|
| | US | | | Outside the US | | |
| **Pioneer Participation** | **Scholarship** | **No Scholarship** | | **Scholarship** | **No Scholarship** | |
| Yes | 97 | 79 | | 33 | 100 | 309 |
| No | 6 | 32 | | 1 | 16 | 55 |
| Total | 103 | 111 | | 34 | 116 | 364 |

**Follow up**

Participants were asked at the end of the survey whether they were interested in participating in a Focus Group about their experience. An additional incentive of $20 was offered for Focus Group participation. As with the survey, participation rates were low. Moreover, several individuals who volunteered to participate in a focus group did not show up for their scheduled focus group. Results of the focus groups are reported below after the survey results.

## III. Survey Results

Three comparisons (Attendance, Geography, and Scholarship) were conducted.

### Academic Integrity

These items assess how respondents responded to 5 items about the how often they report behaving with academic integrity

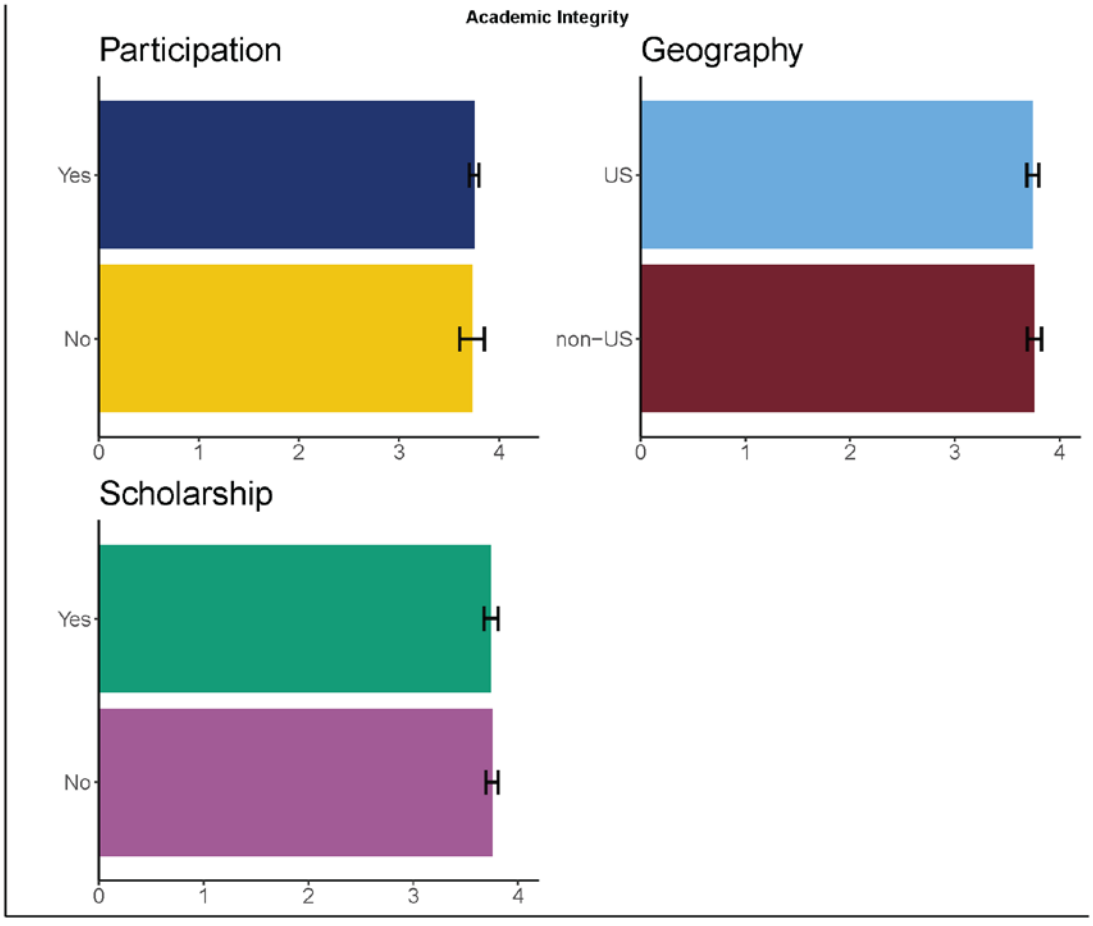
#### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in academic integrity ($p$ = .72). Mean responses for Participants were 3.75 while mean responses for non-Participants were 3.73.

#### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded inconclusive results and a very small effect size (-0.04) suggesting that more data are needed to assess equivalence. Mean responses for U.S. respondents was 3.74 while mean responses for non-U.S. respondents was 3.76.

Comparison of responses based on Scholarship status yielded inconclusive results and a very small effect size (-0.03) suggesting that more data are needed to assess equivalence. Mean responses for Scholarship recipients was 3.74 while mean responses for non-scholarship recipients was 3.75.



## Activity Participation

These items assess how respondents responded to 12 items about whether they have participated in activities during their undergraduate experience.

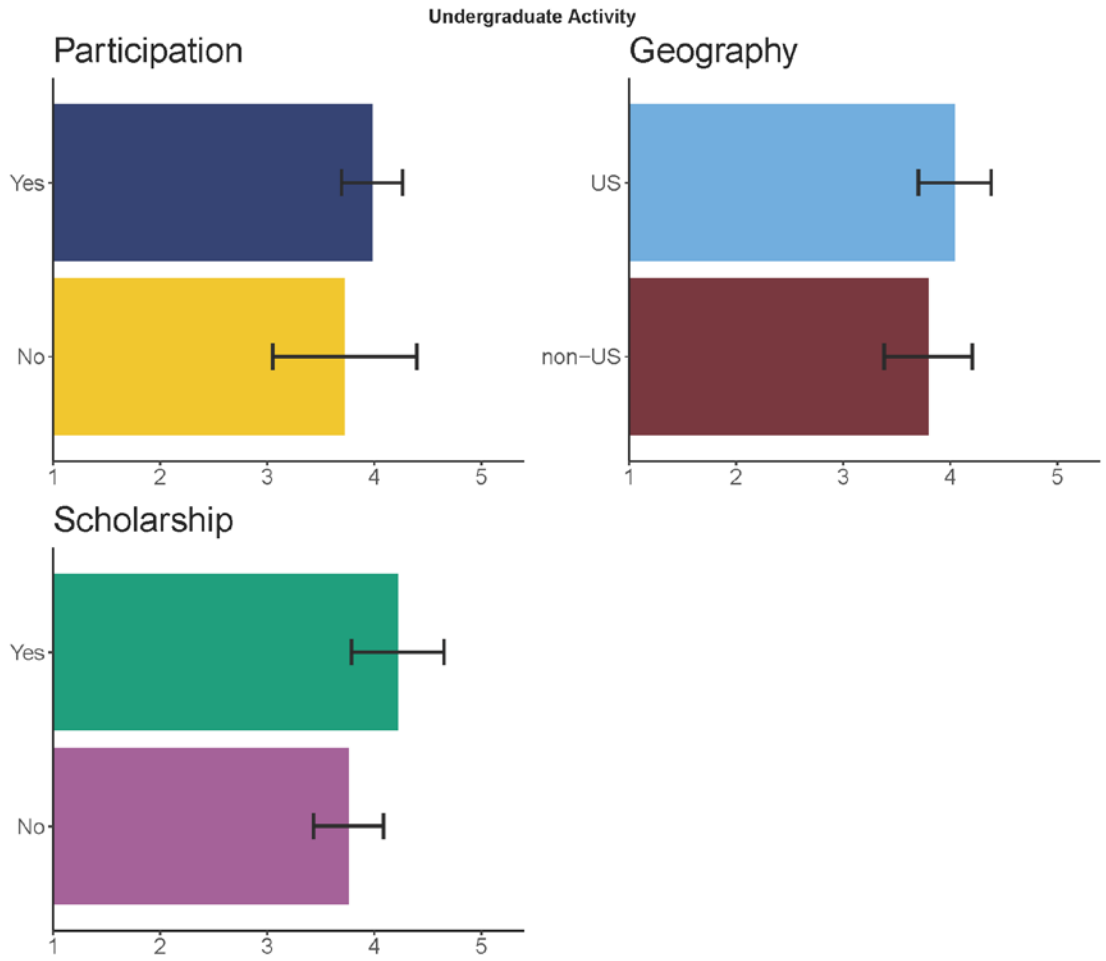
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in activity participation ($p$ = .41). Mean responses for Participants were 3.98 activities while mean responses for non-Participants were 3.73 activities.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded inconclusive results and an effect size (0.10) suggesting that more data are needed to assess equivalence. Mean responses for U.S. respondents was 4.04 activities while mean responses for non-U.S. respondents was 3.80 activities.

Comparison of responses based on Scholarship status yielded inconclusive results and an effect size (0.19) suggesting that more data are needed to assess equivalence. Mean responses for Scholarship recipients was 4.22 activities while mean responses for non-scholarship recipients was 3.76 activities.



## Activity Aspirations

These items assess how respondents responded to 12 items about whether they plan/aspire to participate in activities during their undergraduate experience.

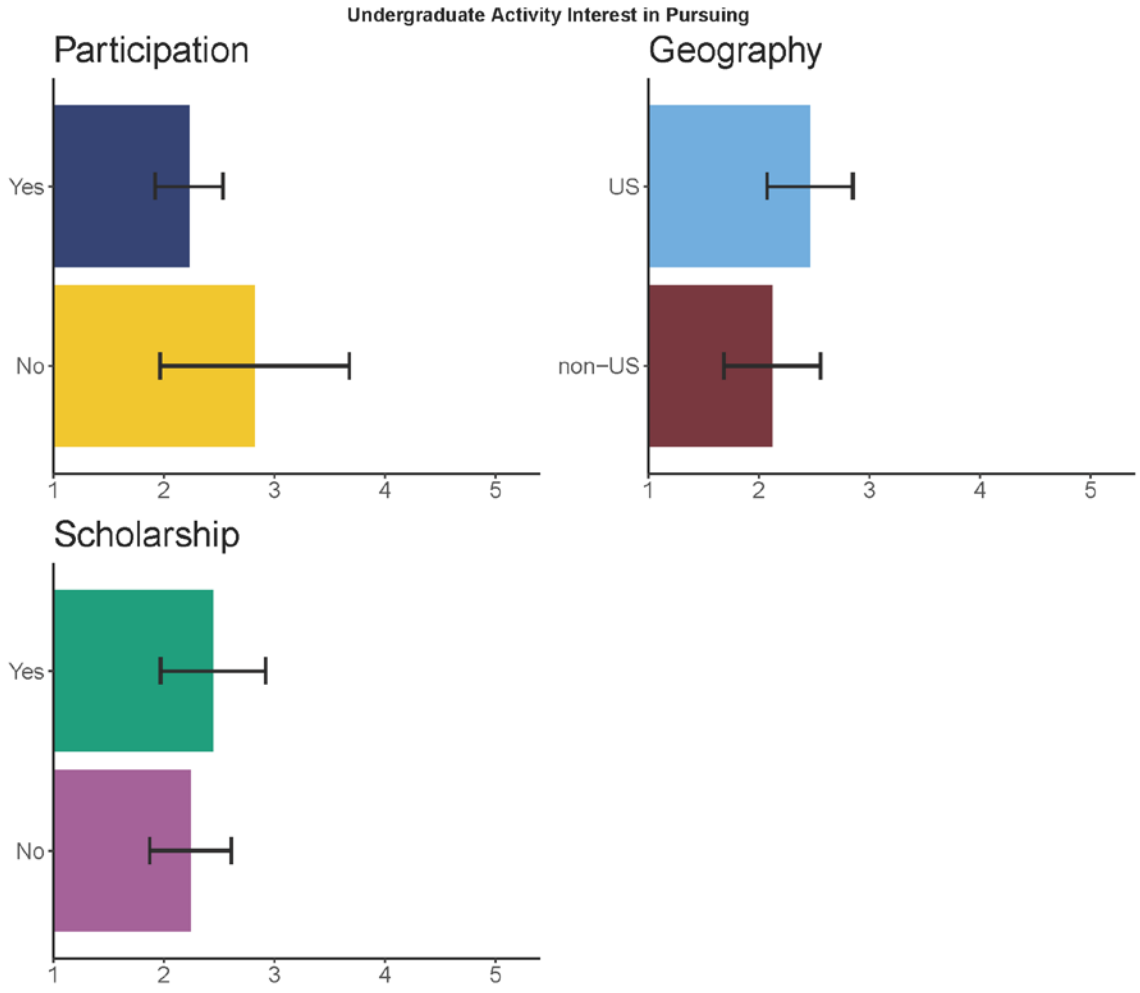
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in activity aspiration ($p$ = .28). Mean responses for Participants were 2.23 activities while mean responses for non-Participants were 3.82 activities.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded inconclusive results and an effect size (0.13) suggesting that more data are needed to assess equivalence. Mean responses for U.S. respondents was 2.46 activities while mean responses for non-U.S. respondents was 2.12 activities.

Comparison of responses based on Scholarship status yielded inconclusive results and a small effect size (0.08) suggesting more data are needed to assess equivalence. Mean responses for Scholarship recipients was 2.45 while mean responses for non-scholarship recipients was 2.24.



## Diverse Cultural Background

These items assess how respondents responded to 5 items about the frequency in which they seek to interact with those from cultural backgrounds different from their own.

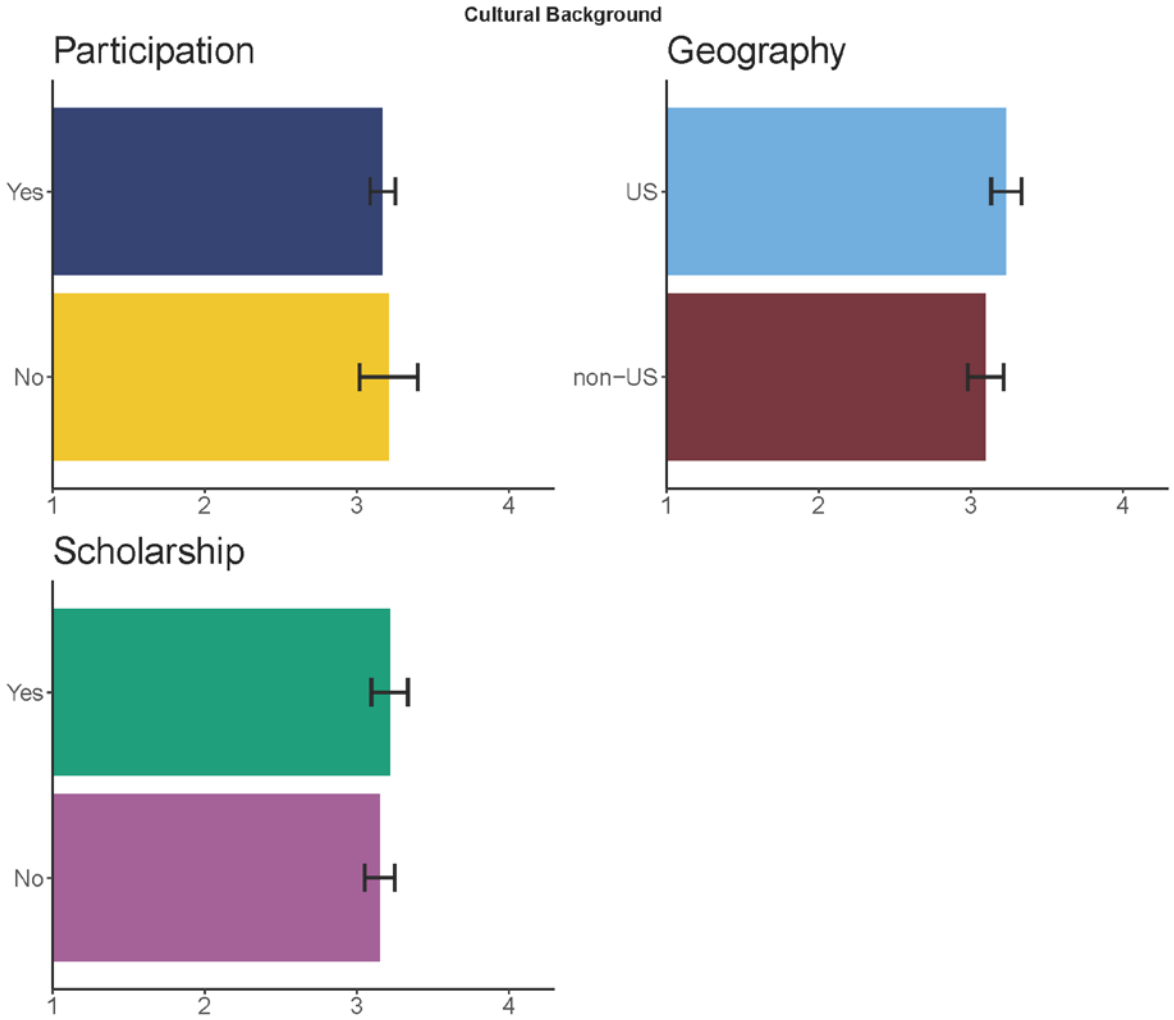
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in diverse cultural backgrounds ($p$ = .87). Mean responses for Participants were 3.17 while mean responses for non-Participants were 3.21.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded inconclusive results and an effect size (0.19) suggesting that they more data are needed to assess equivalence. Mean responses for U.S. respondents was 3.23 while mean responses for non-U.S. respondents was 3.10.

Comparison of responses based on Scholarship status yielded inconclusive results and an effect size (0.09) suggesting more data are needed to assess equivalence. Mean responses for Scholarship recipients was 3.22 while mean responses for non-scholarship recipients was 3.15.



## Explore New Ideas

These items assess how respondents responded to 5 items about how they behave when hearing a new idea that captures their interests.

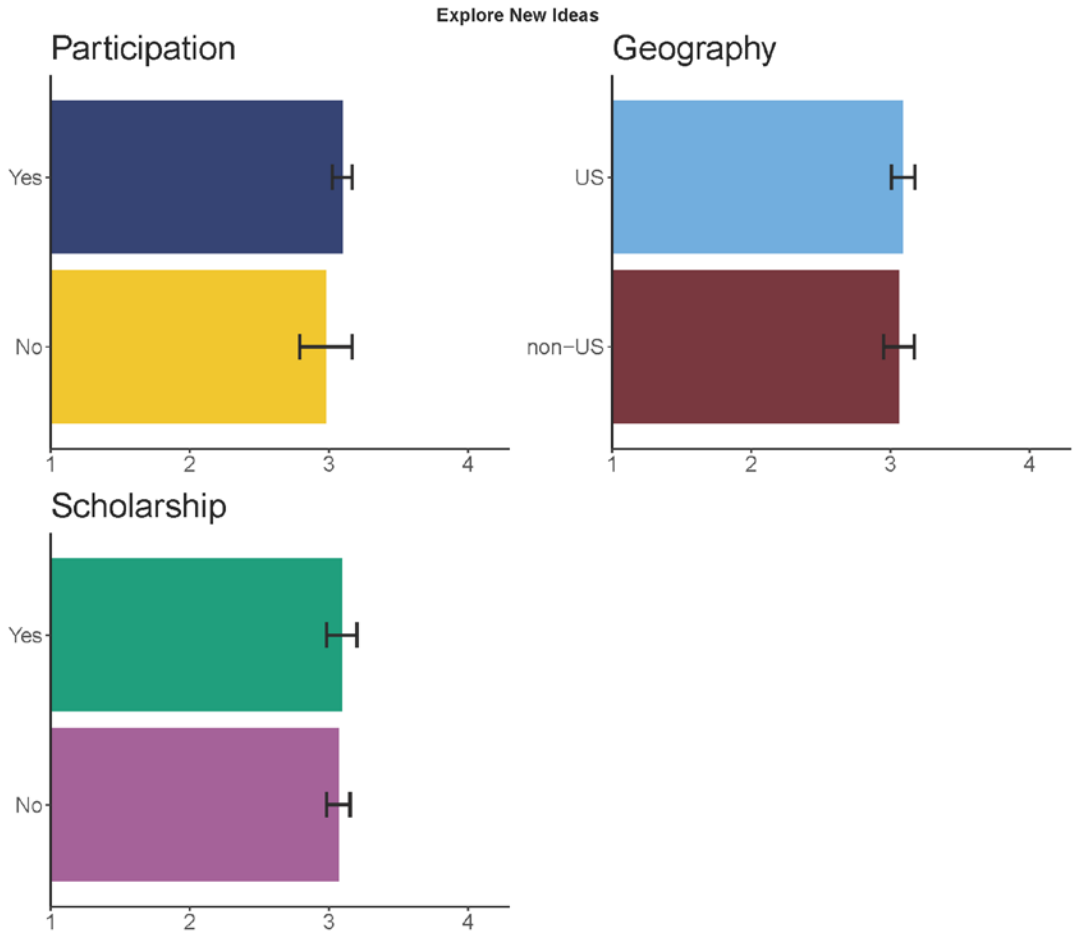
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in exploring new ideas ($p$ = .44). Mean responses for Participants were 3.10 while mean responses for non-Participants were 2.98.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded inconclusive results and an extremely small effect size (0.05) suggesting that more data are needed to assess equivalence. Mean responses for U.S. respondents was 3.09 while mean responses for non-U.S. respondents was 3.06.

Comparison of responses based on Scholarship status yielded inconclusive results and an extremely small effect size (0.04) suggesting that more data are needed to assess equivalence. Mean responses for Scholarship recipients was 3.09 while mean responses for non-scholarship recipients was 3.07.



## Future Aspirations

These items assess how respondents responded to 5 items about their future educational and professional aspirations. Respondents who had never enrolled in college had 6 items.

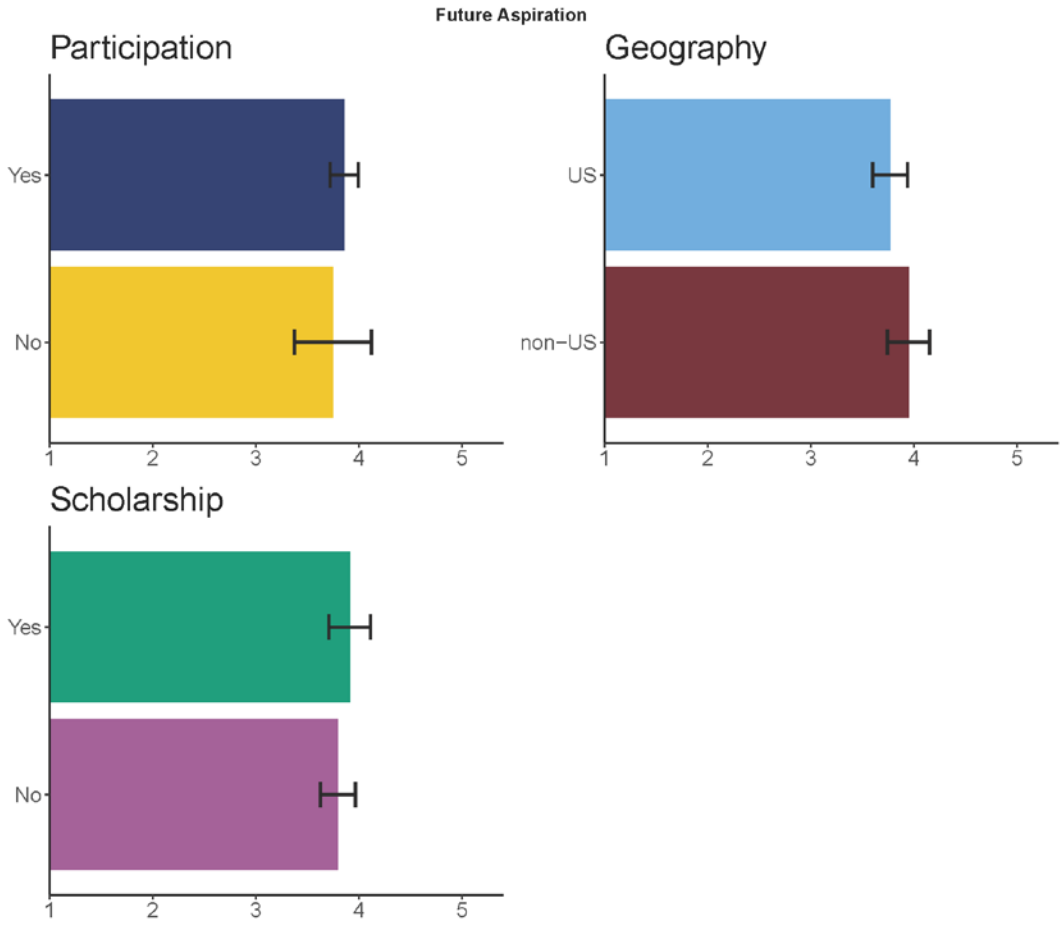
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in their future aspirations ($p$ = .73). Mean responses for Participants were 3.86 while mean responses for non-Participants were 3.75.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded inconclusive results and an effect size of (-0.15) suggesting that more data are needed to assess equivalence. However, this is muddied by the fact that some of the non-U.S. students were not attending college and thus had an added item (plan to attend college). Mean responses for U.S. respondents was 3.77 while mean responses for non-U.S. respondents was 3.95.

Comparison of responses based on Scholarship status yielded inconclusive results and an extremely small effect size (0.09) suggesting that more data are needed to assess equivalence. Mean responses for Scholarship recipients was 3.91 while mean responses for non-scholarship recipients was 3.80.



## Motivation: Intrinsic Value

These items assess how respondents responded to 7 items about their intrinsic motivation to pursue their own academic/professional interests.

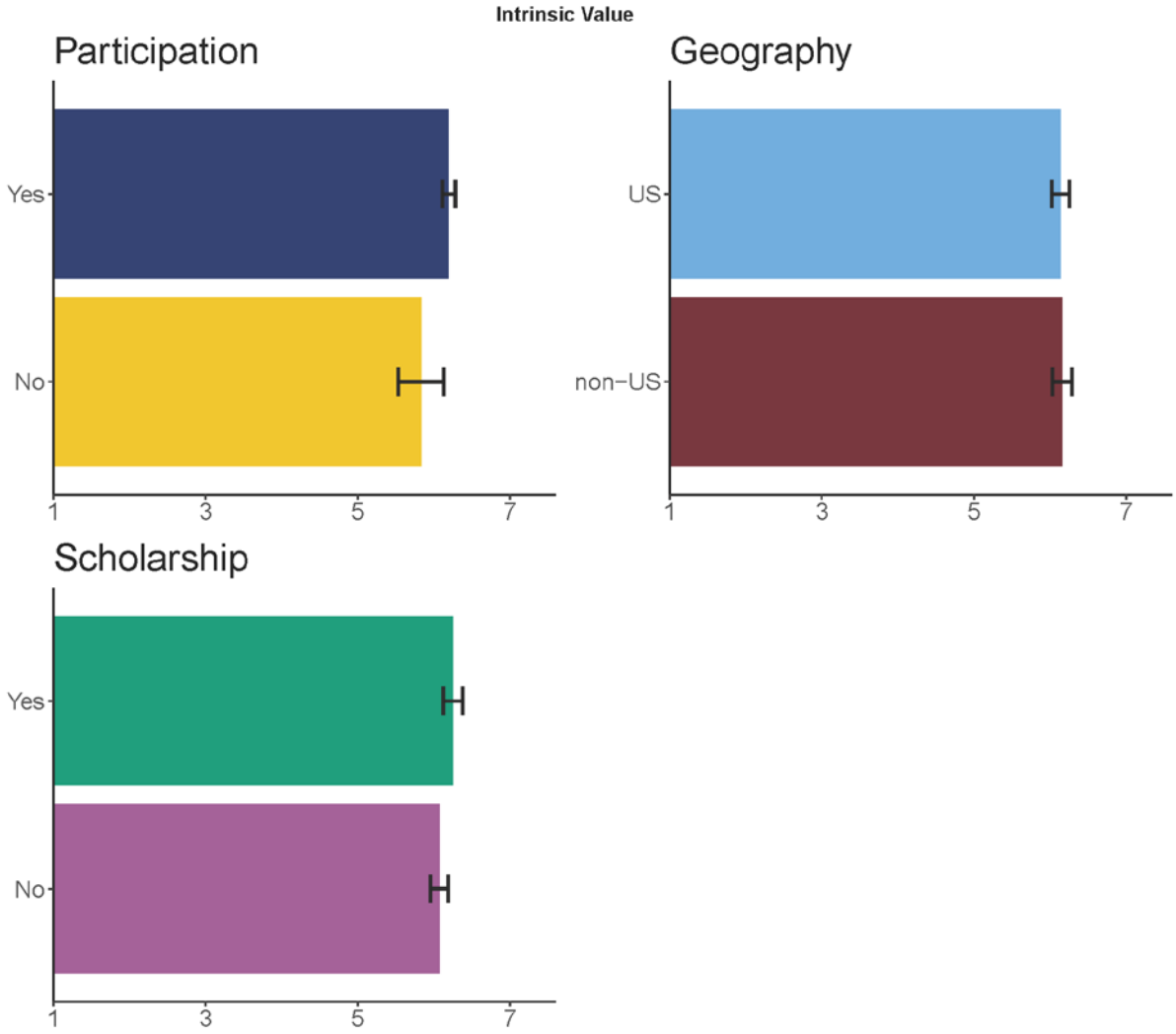
### Participation Comparison

As illustrated below, there is a statistically significant difference between Participants and non-Participants in their intrinsic motivation ($p$ = .01). Mean responses for Participants were 6.19 while mean responses for non-Participants were 5.83.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded inconclusive results and an extremely small effect size of (-0.03) suggesting that more data are needed to determine equivalence. Mean responses for U.S. respondents was 6.13 while mean responses for non-U.S. respondents was 6.15.

Comparison of responses based on Scholarship status showed a statistically significant difference between Scholarship and non-Scholarship recipients with an effect size (0.23). Mean responses for Scholarship recipients was 6.25 while mean responses for non-scholarship recipients was 6.07.



## Motivation: Self-Regulation

These items assess how respondents responded to 9 items about how much they self-regulate their behavior when pursuing their academic/professional interests.

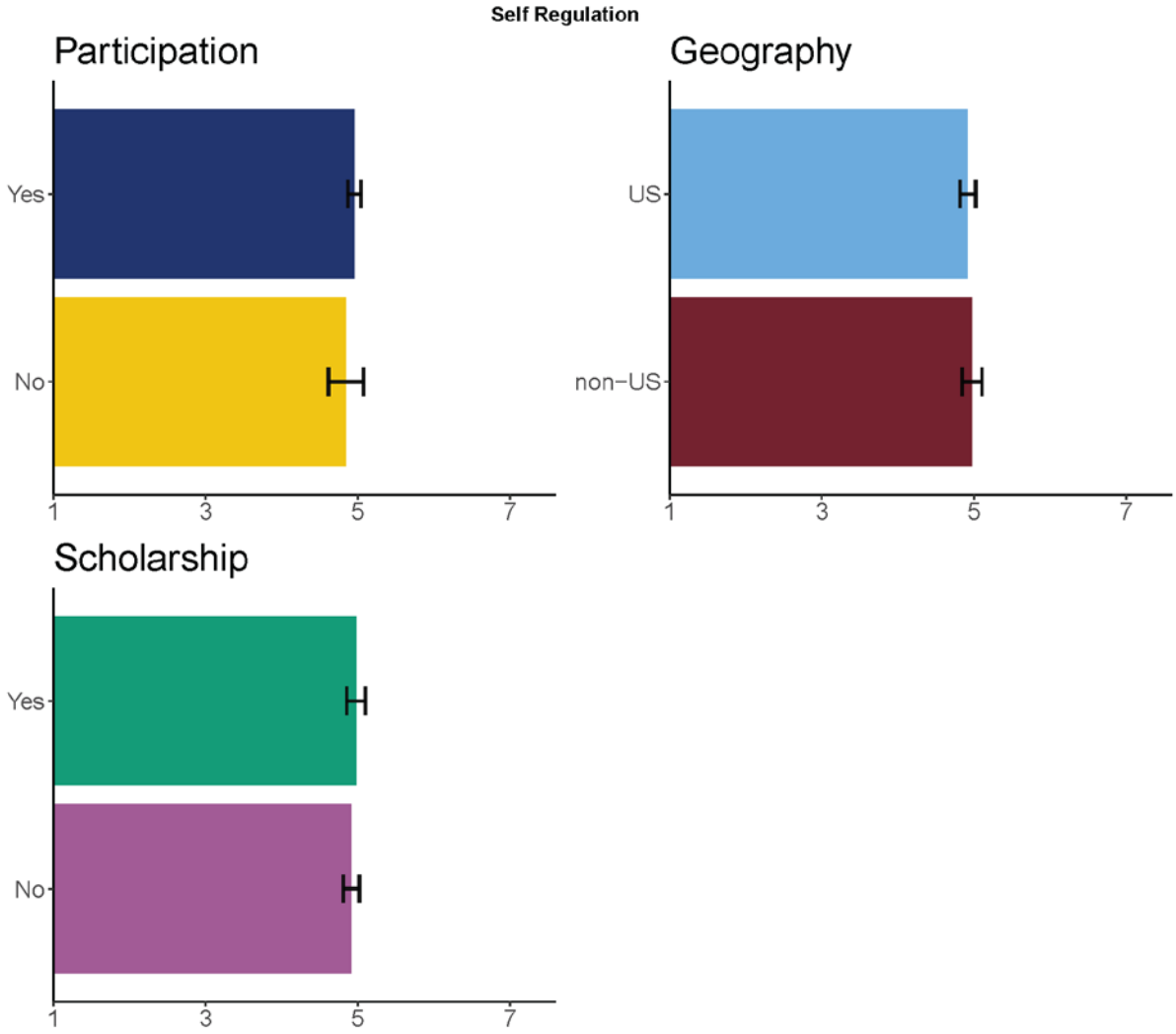
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in self-regulation ($p$ = .41). Mean responses for Participants were 4.95 while mean responses for non-Participants were 4.84.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded inconclusive results and a small effect size of (-0.08) suggesting that more data are needed to determine equivalence. Mean responses for U.S. respondents was 4.92 while mean responses for non-U.S. respondents was 4.97.

Comparison of responses based on Scholarship status showed a statistically significant difference between Scholarship and non-Scholarship recipients with a small effect size (0.09). Mean responses for Scholarship recipients was 4.98 while mean responses for non-scholarship recipients was 4.91.



## Personal Control

These items assess how respondents responded to 4 items about the level of their sense of control over their academic pursuits in college.

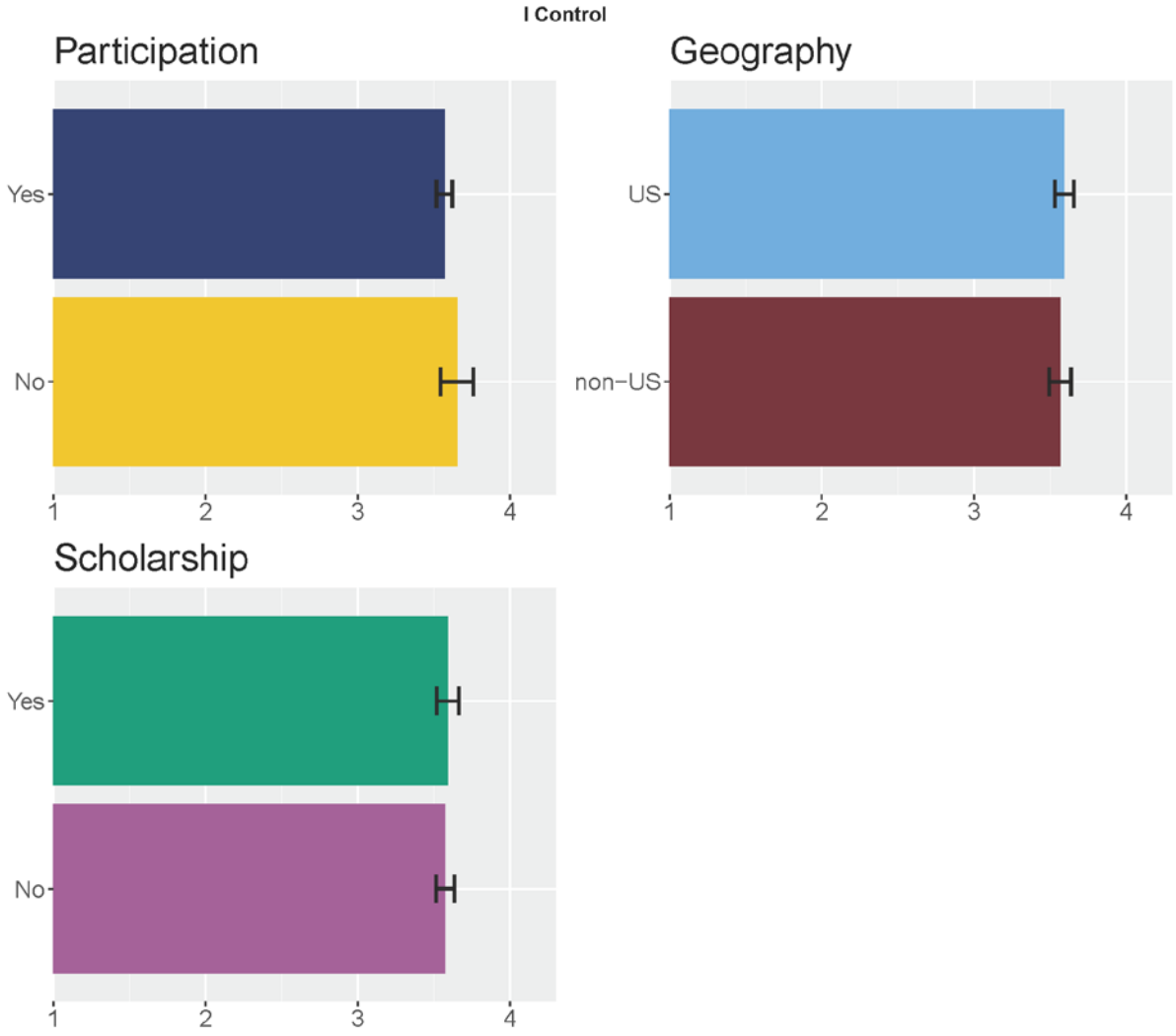
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in their sense of personal control over their academic pursuits ($p$ = .24). Mean responses for Participants were 3.57 while mean responses for non-Participants were 3.65.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded inconclusive results and a small effect size of (0.07) suggesting that more data are needed to assess equivalence. Mean responses for U.S. respondents was 3.59 while mean responses for non-U.S. respondents was 3.56.

Comparison of responses based on Scholarship status yielded inconclusive results and an extremely small effect size (0.04) suggesting that more data are needed to assess equivalence. Mean responses for Scholarship recipients was 3.59 while mean responses for non-scholarship recipients was 3.57.



## Pursue Academic Interests

These items assess how respondents responded to 5 items about the frequency they enroll in non-required classes outside their typical course of study to pursue their interests.

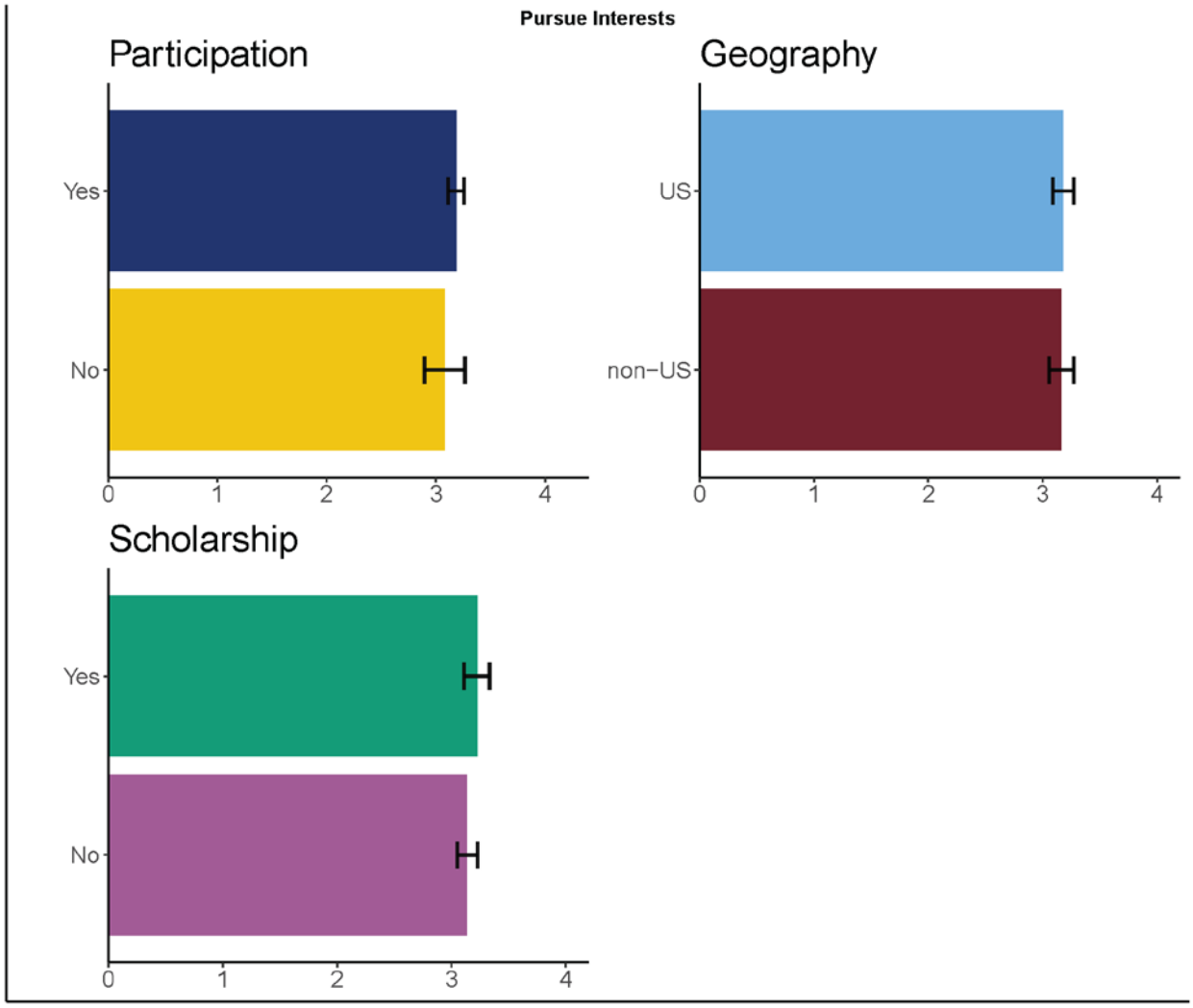
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in pursuing their interests ($p$ = .27). Mean responses for Participants were 3.19 while mean responses for non-Participants were 3.08.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded inconclusive results and an extremely small effect size of (0.02) suggesting that more data are needed to assess equivalence. Mean responses for U.S. respondents was 3.18 while mean responses for non-U.S. respondents was 3.16.

Comparison of responses based on Scholarship status yielded inconclusive results and an effect size (0.14) suggesting that more data are needed to assess equivalence. Mean responses for Scholarship recipients was 3.22 while mean responses for non-scholarship recipients was 3.14.



## Pursue New Ideas

These items assess how respondents responded to 9 items about actions taken when hearing a new idea that captures their interests.

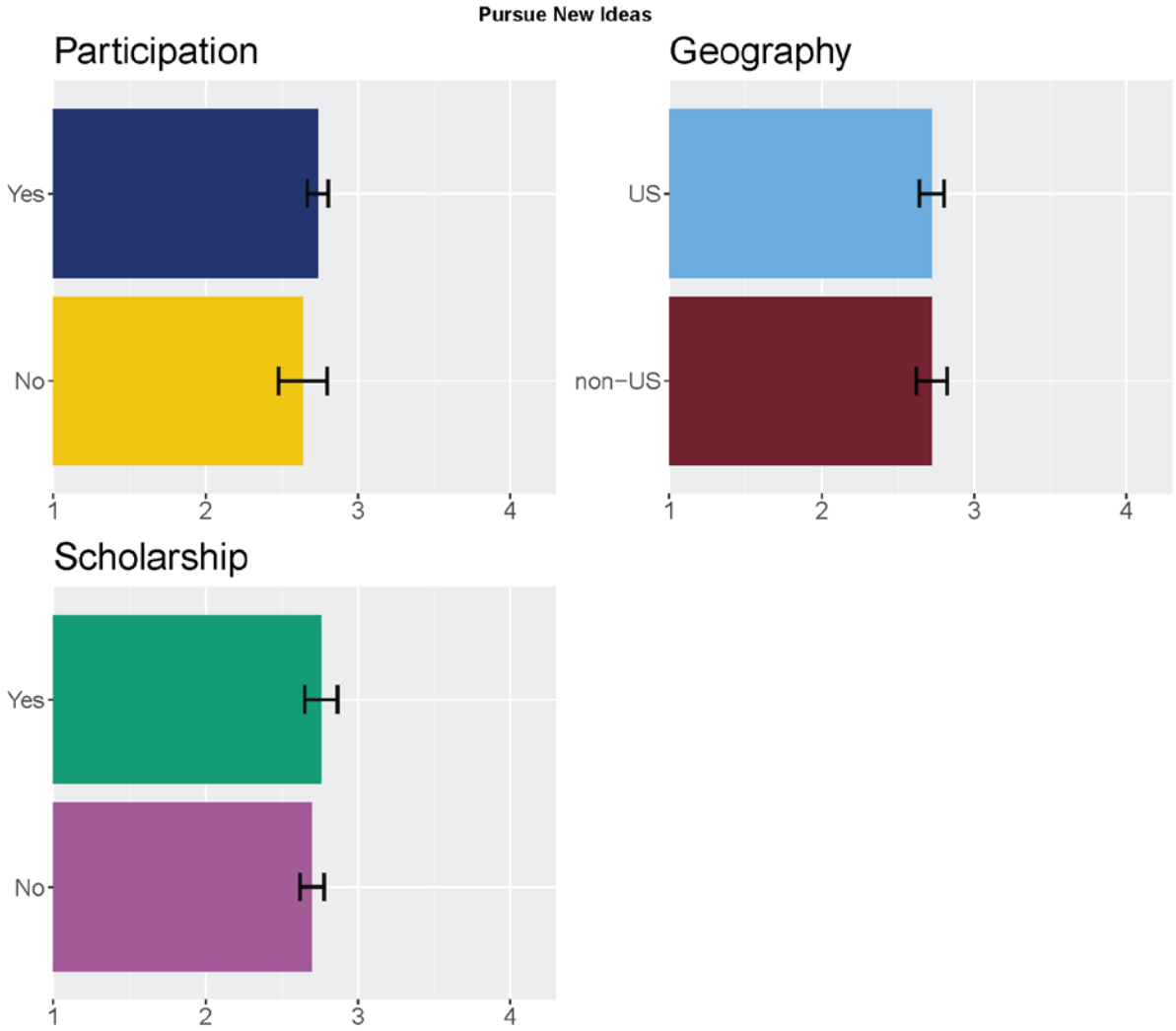
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in pursuing their interests ($p$ = .33). Mean responses for Participants were 2.74 while mean responses for non-Participants were 2.64.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography showed equivalence between U.S. and non-U.S. respondents with an effect size that was approximately 0. Mean responses for U.S. respondents was 2.72 while mean responses for non-U.S. respondents was 2.72.

Comparison of responses based on Scholarship status yielded inconclusive results and an effect size (0.10) suggesting that more data are needed to assess equivalence. Mean responses for Scholarship recipients was 2.76 while mean responses for non-scholarship recipients was 2.70.



## Self-Efficacy

Self-efficacy is a person's belief in their ability to accomplish specific tasks (Bandura, 1997). Self-efficacy varies across different domains within people; they can be confident that they can accomplish one task and less confident they can accomplish others. For this survey, the self-efficacy items measured respondent self-efficacy in seven different tasks (find resources, manage task demands, connect with establishment, sustain pursuits, make plans, learn new things, and interact with people different from them). The self-efficacy items were developed using Bandura's (2006) guide for constructing self-efficacy scales.

## Self-Efficacy: Connect with Establishment

These items assess how respondents responded to 3 items about their confidence in their ability to connect with the established field when pursuing their academic/professional interests.

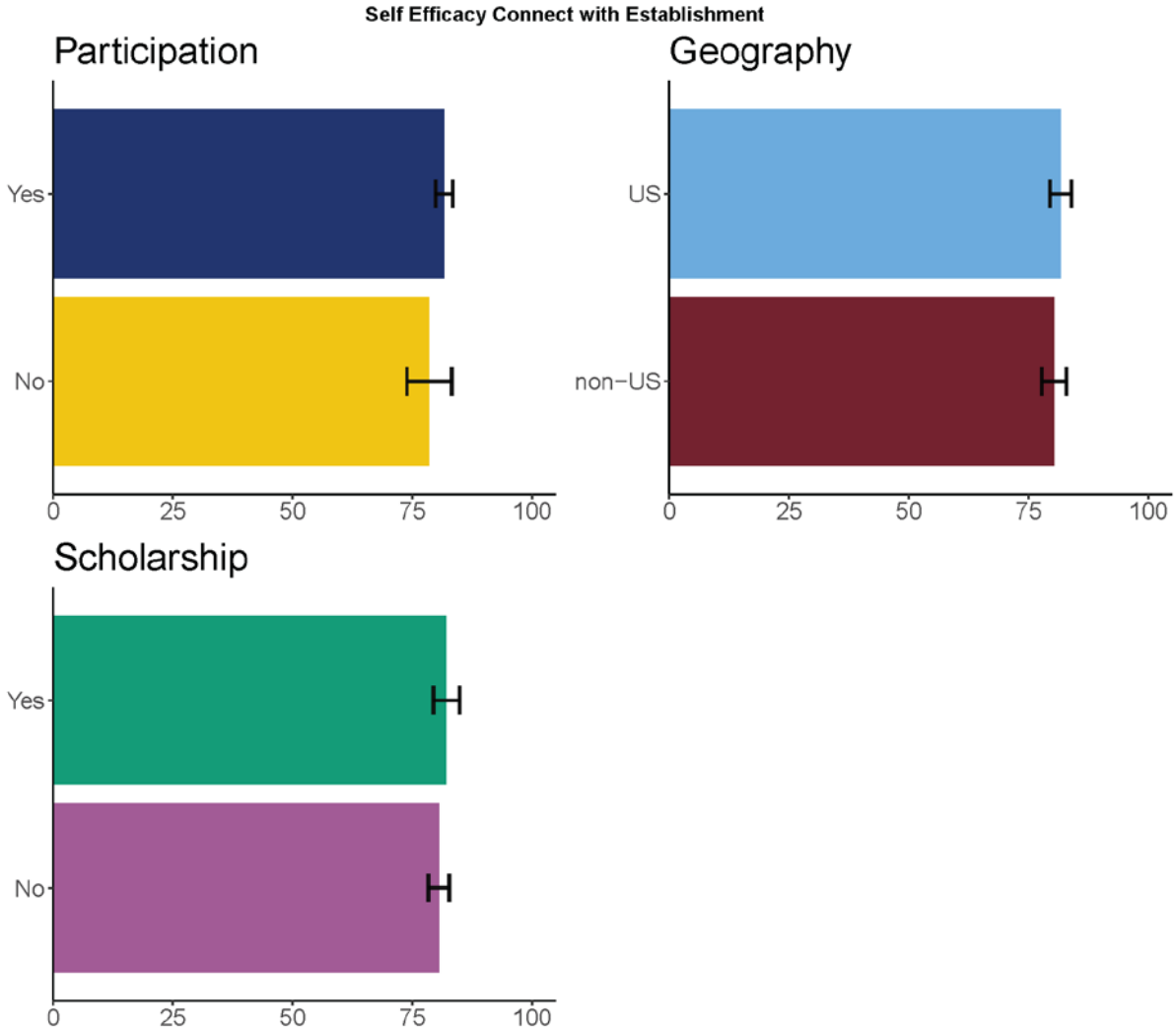
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in their connecting with the establishment self-efficacy ($p$ = .21). Mean responses for Participants were 81.7 while mean responses for non-Participants were 78.6.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded inconclusive results and a small effect size of (0.09) suggesting that more data are needed to assess equivalence. Mean responses for U.S. respondents was 81.7 while mean responses for non-U.S. respondents was 80.4.

Comparison of responses based on Scholarship status yielded inconclusive results and an effect size (0.10) suggesting that more data are needed to assess equivalence. Mean responses for Scholarship recipients was 82.2 while mean responses for non-scholarship recipients was 80.6.



## Self-Efficacy: Cultural Background

These items assess how respondents responded to 5 items about their confidence in their ability to interact with people different from them when pursuing academic/professional interests.

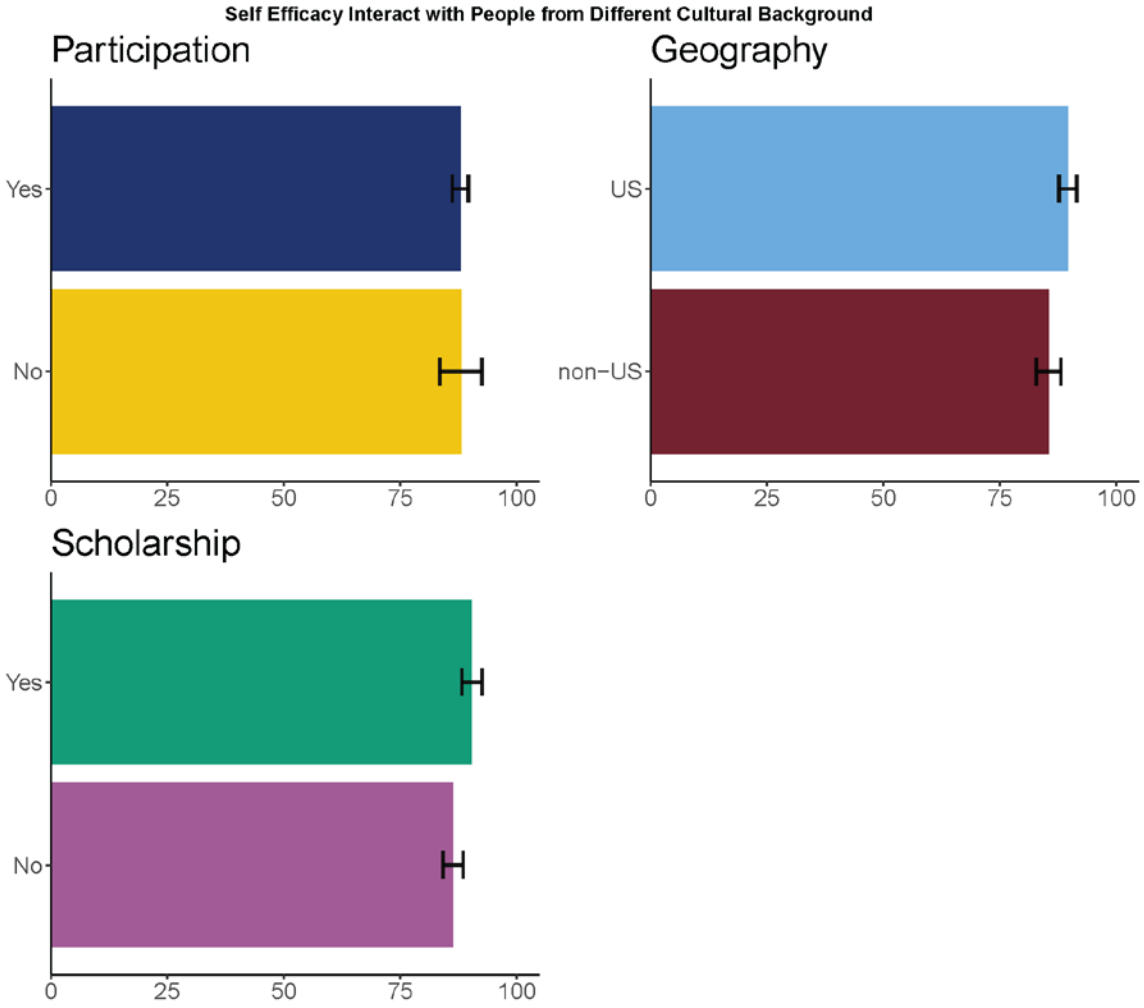
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in their cultural background self-efficacy ($p$ = .62). Mean responses for Participants were 87.9 while mean responses for non-Participants were 88.0.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded statistically significant results and an effect size of (0.28) suggesting that students from the U.S. reported higher cultural background self-efficacy than non-U.S. students. Mean responses for U.S. respondents was 89.6 while mean responses for non-U.S. respondents was 85.5.

Comparison of responses based on Scholarship status yielded statistically significant results and an effect size (0.29) suggesting that Scholarship recipients reported higher cultural background self-efficacy than non-scholarship recipients. Mean responses for Scholarship recipients was 90.4 while mean responses for non-scholarship recipients was 86.4.



## Self-Efficacy: Executive Function

These items assess how respondents responded to 4 items about their confidence in making plans when pursuing their academic/professional interests.

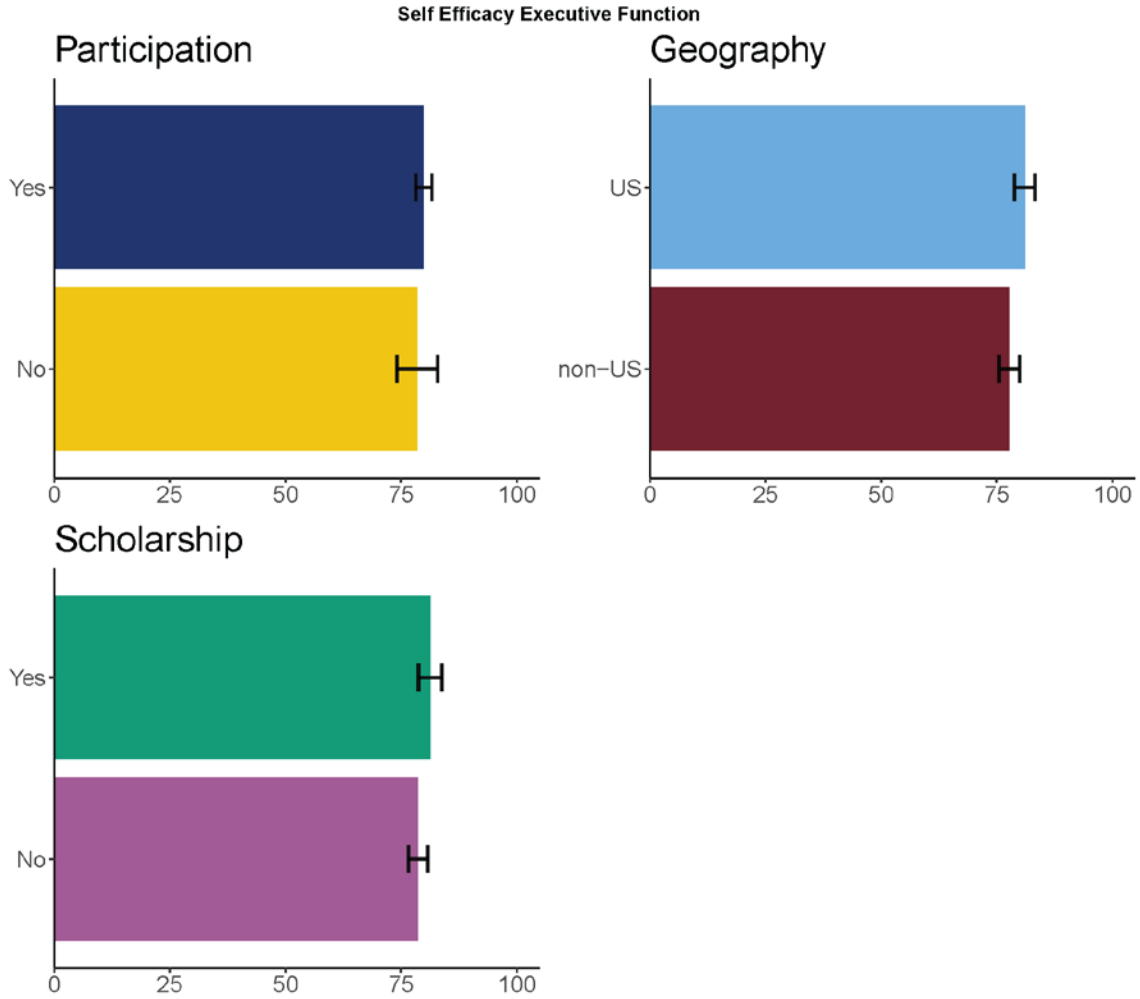
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in their executive function self-efficacy ($p$ = .68). Mean responses for Participants were 79.9 while mean responses for non-Participants were 78.5.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded statistically significant results and an effect size of (0.23) suggesting that students from the U.S. reported higher executive function self-efficacy than non-U.S. students. Mean responses for U.S. respondents was 81.0 while mean responses for non-U.S. respondents was 77.7.

Comparison of responses based on Scholarship status yielded statistically significant results and an effect size (0.18) suggesting that Scholarship recipients reported higher executive function self-efficacy than non-scholarship recipients. Mean responses for Scholarship recipients was 81.3 while mean responses for non-scholarship recipients was 78.7.



## Self-Efficacy: Find Resources

These items assess how respondents responded to 5 items about their confidence in finding resources when pursuing their academic/professional interests.

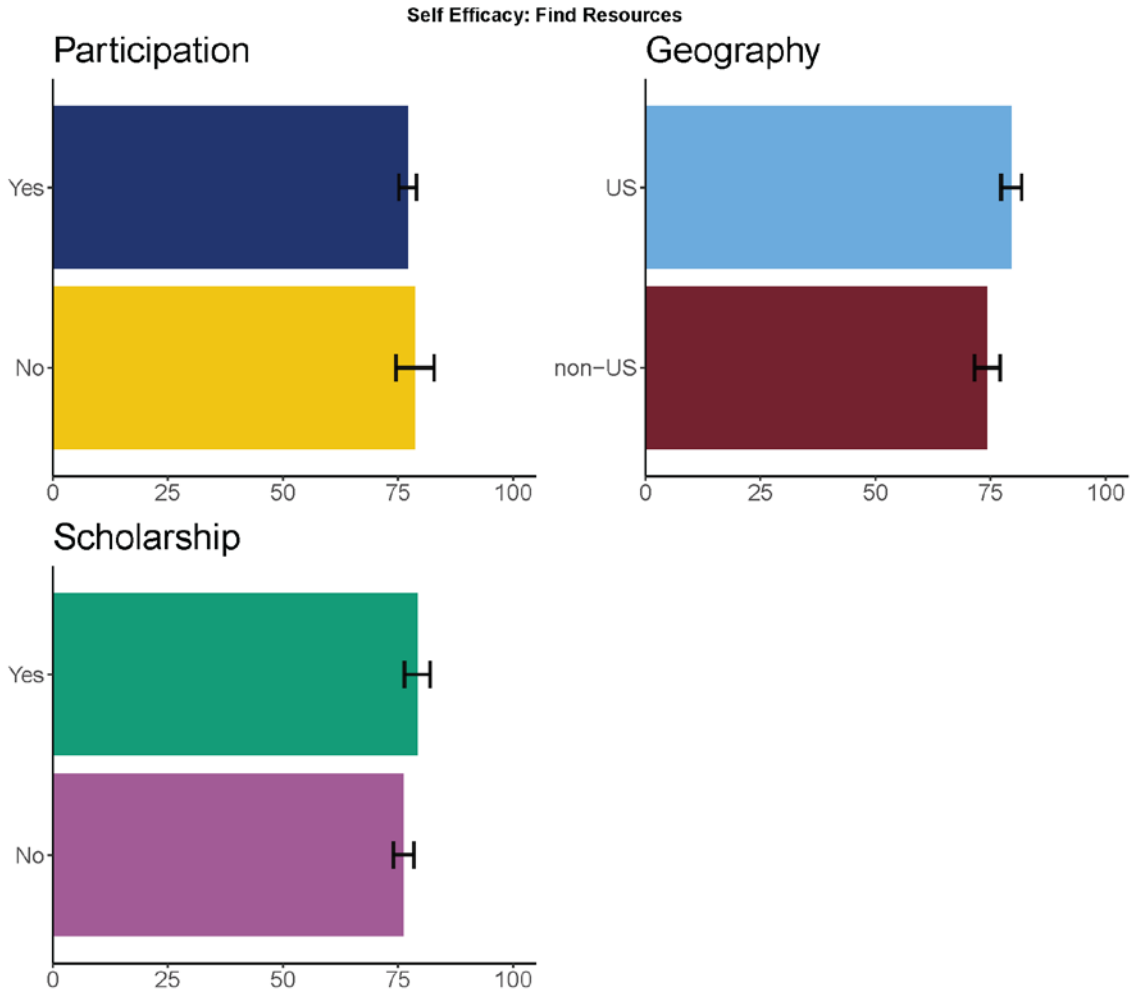
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in their finding resources self-efficacy ($p$ = .65). Mean responses for Participants were 77.2 while mean responses for non-Participants were 78.7.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded statistically significant results and an effect size of (0.33) suggesting that students from the U.S. reported higher finding resources self-efficacy than non-U.S. students. Mean responses for U.S. respondents was 79.6 while mean responses for non-U.S. respondents was 74.3.

Comparison of responses based on Geography yielded inconclusive results and an effect size of (0.19) suggesting that more data are needed to assess equivalence. Mean responses for Scholarship recipients was 79.2 while mean responses for non-scholarship recipients was 76.3.



## Self-Efficacy: Learn New Things

These items assess how respondents responded to 4 items about their confidence in learning new things when pursuing their academic/professional interests.

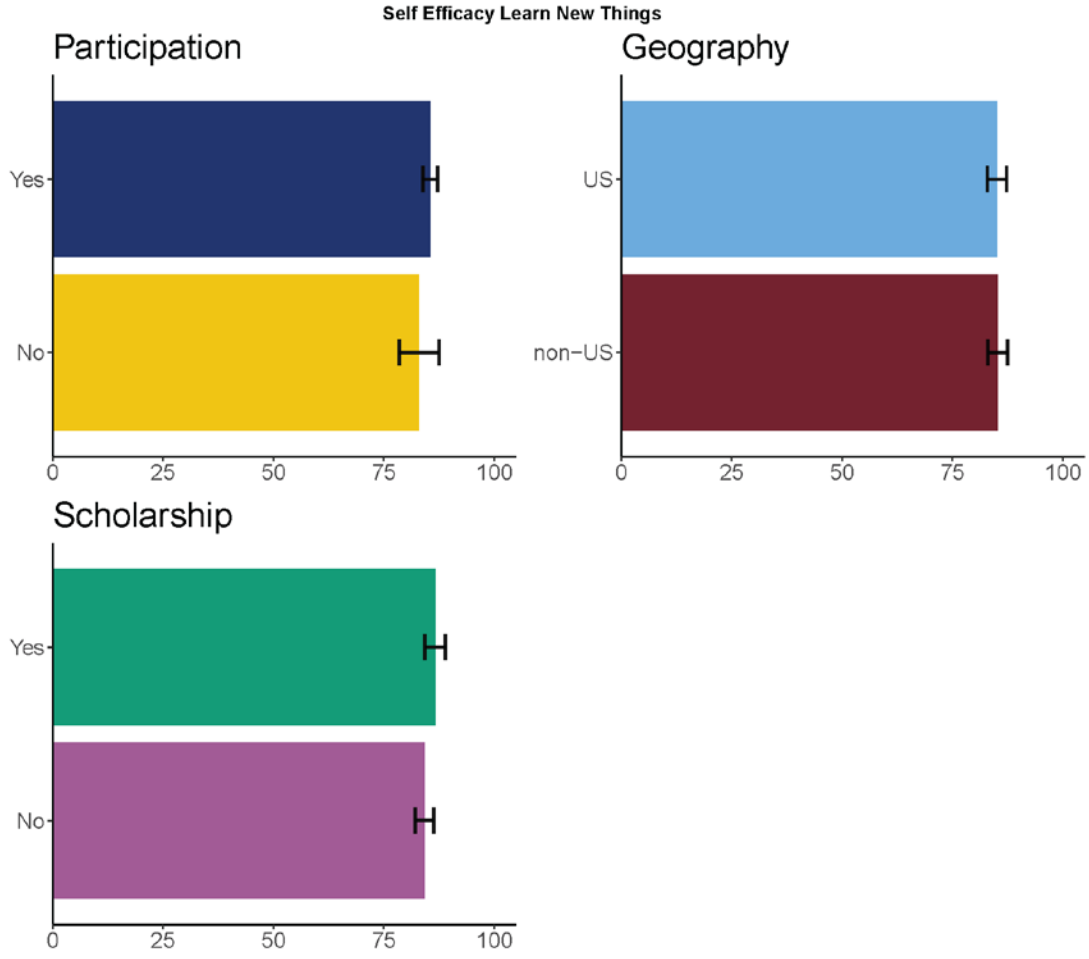
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in their sense of personal control over their academic pursuits ($p$ = .26). Mean responses for Participants were 85.5 while mean responses for non-Participants were 82.9.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded statistically equivalent results and an effect size of (-0.01). Mean responses for U.S. respondents was 85.1 while mean responses for non-U.S. respondents was 85.3.

Comparison of responses based on Scholarship status yielded inconclusive results and an effect size (0.17) suggesting that more data are needed to assess equivalence. Mean responses for Scholarship recipients was 86.7 while mean responses for non-scholarship recipients was 84.2.



## Self-Efficacy: Manage Demand

These items assess how respondents responded to 3 items about their confidence in managing task demands when pursuing their academic/professional interests.

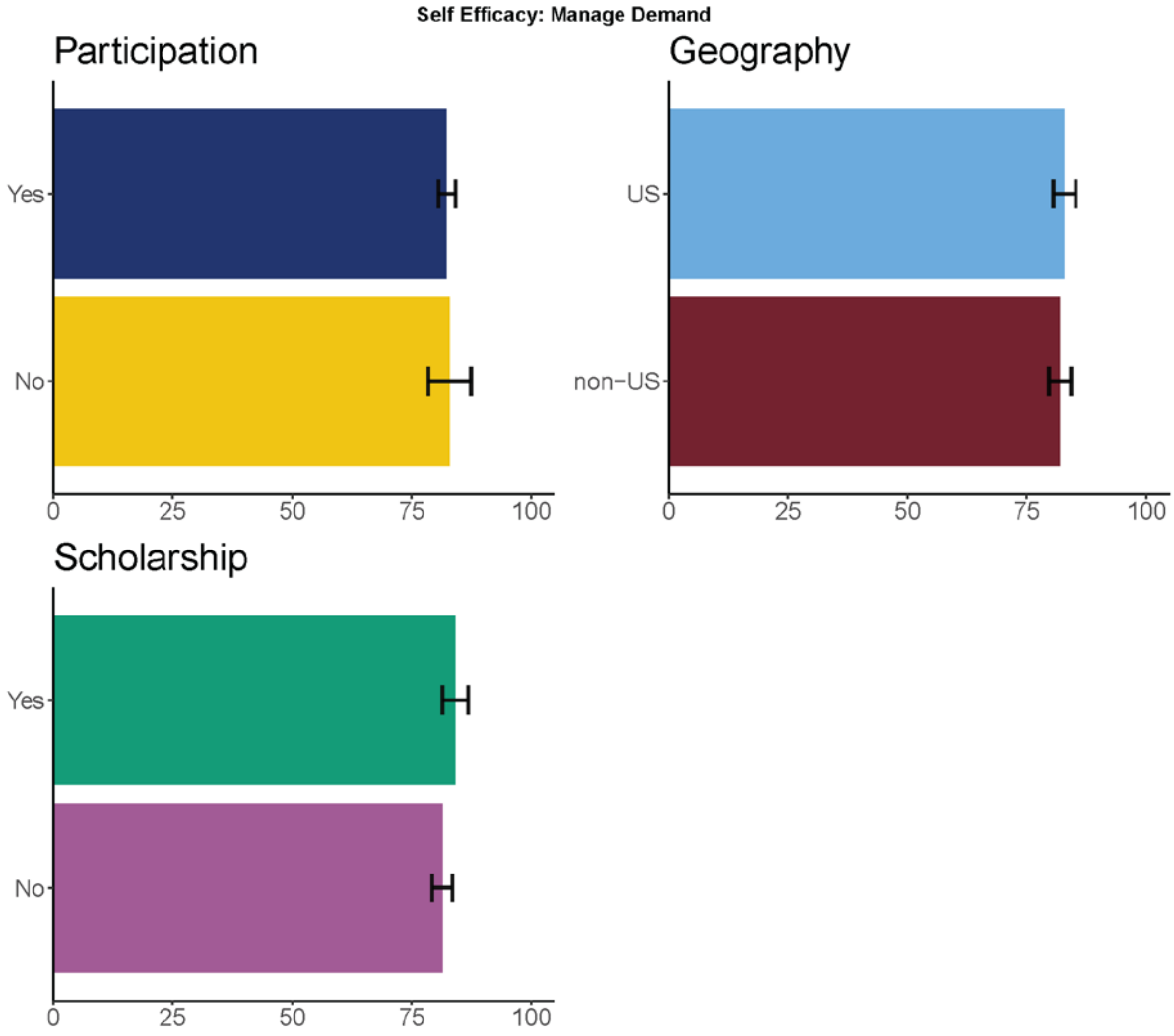
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in their sense of personal control over their academic pursuits ($p$ = .77). Mean responses for Participants were 82.4 while mean responses for non-Participants were 83.0.

### Geography and Scholarship Comparisons

Comparison of responses based on Scholarship status yielded inconclusive results and an effect size (0.06) suggesting that more data are needed to assess equivalence. Mean responses for U.S. respondents was 82.9 while mean responses for non-U.S. respondents was 81.9.

Comparison of responses based on Scholarship status yielded inconclusive results and an effect size (0.18) suggesting that more data are needed to assess equivalence. Mean responses for Scholarship recipients was 84.1 while mean responses for non-scholarship recipients was 81.4.



## Self-Efficacy: Sustain Pursuits

These items assess how respondents responded to 2 items about their confidence in sustaining their pursuits when pursuing their academic/professional interests.

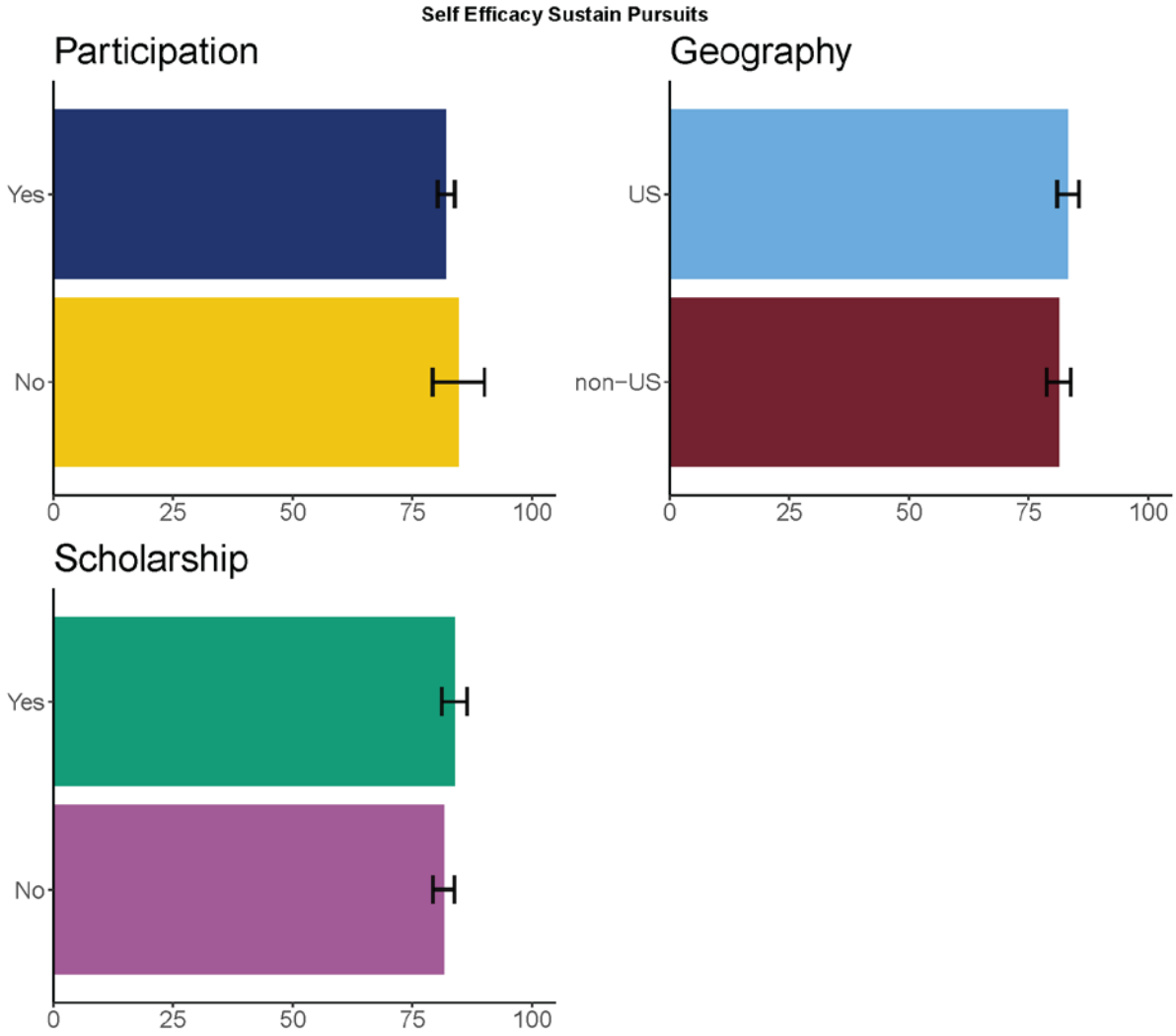
### Participation Comparison

As illustrated below, there does not appear to be a significant difference between Participants and non-Participants in their sense of personal control over their academic pursuits ($p$ = .07). Mean responses for Participants were 82.1 while mean responses for non-Participants were 84.7.

### Geography and Scholarship Comparisons

Comparison of responses based on Geography yielded inconclusive results and an effect size (0.12) suggesting that more data are needed to assess equivalence. Mean responses for U.S. respondents was 83.2 while mean responses for non-U.S. respondents was 81.3.

Comparison of responses based on Scholarship status yielded inconclusive results and an effect size (0.15) suggesting that more data are needed to assess equivalence. Mean responses for Scholarship recipients was 83.8 while mean responses for non-scholarship recipients was 81.6.



## IV. Focus Groups

Four groupings were created based on responses to the survey. The evaluation team offered a total of 16 focus group meetings across all 4 groups of participants. The four groups were:

DNP - Students who did not participate in Pioneer
Non-U.S. - Non-U.S. students who participated in Pioneer
SCH - Students who participated in Pioneer with scholarships
GEN - Students who participated in Pioneer and were not randomly selected to participate in the Non-U.S. or SCH groups.

Survey participants who had indicated an interest in participating in a focus group were contacted with potential time slots to participate in a focus group that matched their survey responses (i.e., if they had indicated that they received a Scholarship from Pioneer Academics, they were eligible for the Scholarship-based focus group).

The evaluation team ensured that each focus group had at least one morning time, one afternoon time, and one evening time. The focus group participants received session reminder emails with Zoom links 1-2 days before each session. After we observed a high no-show rate during the first round of focus groups, we added a one-hour reminder email to try and increase participation. However, there were still three sessions that received the one-hour reminders but could not proceed because of no-shows. General group participants who did not respond to the initial invitation were invited to participate in other sessions based on their eligibility. One general group participant sent some responses through email after a scheduling conflict required them to cancel.

The focus group sessions were spread over a two-week period in August 2022, with the first week containing sessions for DNP and Non-U.S. students and the second week containing sessions for SCH and GEN students. One additional day of sessions was offered to DNP students and non-U.S. students to try and recruit additional participants. This additional day of sessions resulted in 5 additional sign-ups, 2 additional participants, and 3 no-shows.

5 of the 16 sessions had entirely no-shows, so no data were collected. 3 of the 5 no-show groups were the DNP groups. Additionally, some of the intended focus group sessions turned into interviews because of limited sign-ups or no-shows. Although interviewing allowed the evaluation team to deep-dive issues with participants, it also removed the opportunity for the participant to build on the ideas and reflections of others. A summary of the sessions and participants is in Table 3. For anonymity purposes, the singular they is used to refer to all participants.

### Table 3. Focus Group Participation

| | Session 1 | Session 2 | Session 3 | Session 4 | Session 5 | Total Attended | Total Registered | Potential Possible |
|---|---|---|---|---|---|---|---|---|
| | Attend/ Register | Attend/ Register | Attend/ Register | Attend/ Register | Attend/ Register | | | |
| **DNP** | 0/2 | 1/3 | 0/3 | 1/1 | 0/2 | 2 | 11 | 16 |
| **non-US** | 3/4 | 1/1 | 2/2 | 0/1 | 1/1 | 7 | 9 | 21 |
| **Scholarship** | 4/4 | 1/1 | 0/2 | 2/2 | N/A | 7 | 9 | 27 |
| **General** | 3/8 | 3/3 | 2/2 | N/A | N/A | 8 | 13 | 36 |

## General Themes and Group Similarities

A few key themes were present across all four participant groups. These themes were:

- passion for learning
- eagerness to serve the community
- openness to new experiences
- desire for transparent communication
- hope for an alumni network.

**Participants**

Focus group participants were current undergraduate students enrolled in universities around the world and they represent a diverse group of majors from theoretical linguistics to commerce. Participants were sorted into three specific focus group categories based on if they did not participate in Pioneer, if they are U.S.-based Pioneer participants, and if they received financial aid to attend Pioneer. A fourth general group with a mix of Pioneer participants was created from the survey respondents who were not randomly selected to participate in another group.

**General Themes**

The participants pursue their interests through their decisions in majors, coursework, and extracurricular opportunities. They value flexibility, new experiences, and open-minded ways of viewing and interacting with the world. Mentors and role models can influence students' decisions to pursue particular fields or endeavors (e.g., careers that can be altruistic).

**Wish for a Pioneer Network**

Some participants would like the opportunity to be matched with someone in a similar location for in-person meetings to connect with other Pioneer alumni in college. Others would like the opportunity to be matched with other participants in the humanities and other fields. One respondent shared feeling like the existing Pioneer events were too STEM-heavy and another mentioned a perception that the current events were focused on getting juniors and seniors into universities. This respondent felt that more follow-up with soft skills and the realities of being a college student (e.g., navigating living independently) would be helpful. The theme of communication was strong among the participants and the participants shared that they valued the ability to make in-person connections, doing lab-based research instead of theoretical research, and that they turn their connections into friends.

**Challenges**
Several participants opened up their backgrounds, such as challenges they face studying in the United States as international students (e.g., visa-based limitations), financial difficulties that may require them to prioritize their time on activities not related to their interests (e.g., part-time jobs), gender-based expectations and discrimination (e.g., sibling care), and the steep learning curve of work-life balance. Although the particulars vary, all the participants identified different barriers they may need to overcome, or have overcome, to pursue their passions.

**Current Activities**
Eager for new challenges and experiences, the participants are active in various organizations like clubs, volunteering, and research. Many of the participants are looking towards graduate school and other post-baccalaureate learning opportunities such as internships. They value constantly learning and remaining curious about the world, and they enjoy the increased variety of learning opportunities that college has brought them. When asked about what they would like their future selves to be or to do, many of the participants expressed two key desires: to expand their knowledge and to improve the world.

**Aspirations**
Most of the participants desire to do something meaningful with their lives, but how this may manifest looks differently for each of them. Curiosity, compassion, and persistence drive the focus group participants in their academic paths and shape their future and career goals. Several participants indicated a desire to serve others with their future careers.

**Reflections on Pioneer Experience**
They value mentorship and connection, and most of the Pioneer participants seemed regretful (one participant used the word "ashamed") that they had not stayed in touch with their cohort-mates. They spoke positively of the connections they made, and the opportunities Pioneer gave them, such as the opportunity to publish with a professor or get hands-on experience with university learning. One participant shared, **"Pioneer set me up for a lot of success in my life** because it gave me the chance to do research. And I think that that... the chance to be published **... really helped my college application. I was probably helped more than I think it did for getting into school like [Ivy League institution]. And so I think that in itself is like really good for students to experience, because you not only have this exposure to like college professors, and like other students like yourself, that helps you get become comfortable forming those connections but it also allows you to write at the level of that. You would be writing research in university, which is really great.**

A second participant shared that **Pioneer did not feel like the online learning during COVID. They were appreciative of how connected their cohort was and of the relationships they could establish during the Pioneer experience**.

Finally, the participants generally felt their work-life balance was better than it had been previously – especially during high school. They mostly learned how to find this balance through trial and error as they transitioned from high school to college, and they are learning how to prioritize their many interests. They feel that they can now focus on their interests instead of

following a rigid plan of study and participating in hobbies just to be a competitive college applicant.

## Themes from non-participant Focus Groups

Two focus group participants did not participate in a Pioneer Academics research experience. Although neither of these participants joined the Pioneer program, they found alternative long-term opportunities to nurture their interests.

### Mentorship

Both participants shared how sustained relationships with mentors shaped their career plans and sustained their motivation and passion for their chosen majors. Both participants also shared that sustained mentorship and personal relationships were critical in their identification of their passions and interests as well as in their educational trajectories and career goals. Both discussed the impact that their educators had on their decision to pursue their college majors and fields of choice. They also connected these mentors to their interest in serving others and doing something meaningful with their lives. One participant shared how their "developing sense of morals has really driven me to want to pursue the career that currently interests me… Especially during the pandemic when health disparities have really, really come to light, I've become way more interested in trying to leverage my privilege to help other people and to help other people leverage their own resources." The impact of meaningful, consistent mentorship can have multiple effects on students' trajectories, not just career development.

### Financial Need

One of the participants shared that they had received a competing local offer that was less of a financial burden on the family. This participant shared that the **lack of financial assistance from Pioneer was a key factor in their decision to accept another summer research opportunity** instead of Pioneer's offer. The other participant did not mention if they had received competing offers or if financial reasons influenced why they did not participate in Pioneer, but future focus groups may highlight other factors potential participants make when deciding if they will participate in Pioneer online research programs.

### Integration with Academic Culture

When asked what they would like educational organizations to keep in mind about their students, one participant shared that there is a perception of professors being extremely busy. The participant shared that this perception might intimidate students and make them feel uncomfortable reaching out to professors for help. Both participants discussed the importance of mentorship, and one participant mentioned that advising that goes beyond checklists or administrative responsibilities to include aspects of career or life design or long-term planning would be helpful. This participant shared, "I think it would be really impactful if we met with advisors who talk to us about things, we should keep in mind that are outside the realm of being a student." Participants feel the weight of the decisions they may make for their futures, and they wish for additional guidance that addresses some of their questions and concerns.

## Themes from Pioneer Participants

### Navigating Pioneer Academics' Systems

One participant discussed the challenges of participating in Pioneer, stating that they felt Pioneer could be more transparent about the costs of the program especially for international students. For example, the participant shared that the both the **criteria for need-based aid and the steps to verify financial need were unclear for contexts that use a currency other than USD**. This participant actively encourages others in their network to participate in Pioneer and speaks positively of the growth and learning opportunities, but they also emphasize to potential participants the importance of asking for financial aid.

### Seeking Greater Connection with Pioneer Cohort Mates

Participants in multiple focus group sessions indicated an interest in staying in touch with their cohort mates and would like a system to help them connect. One participant shared,

> "**It would be a great idea if we could really take advantage of alumni relations. Because I think like a big barrier to information is just simply not knowing people.** I think networking plays a really big role in pretty much everything and like concrete term in terms of like getting really concrete information as like opportunities available and advice. But also less concrete information in terms of getting information about people's experiences, and what they've learned in their stories. And I think that's really powerful information to have and a lot of students. Some students have more of an advantage in like networking and like knowing people than others, but I think like being able to leverage alumni relations and giving students an opportunity to reach out to like even people like us. I think would really help like with that knowledge barrier."

### Seeking Sustained Connection with Pioneer Professors

Overall, participants would like greater connection with their Pioneer professors and cohorts. There was also a general interest in **connecting with other Pioneer graduates at their colleges**. Although one participant shared that they did not stay in touch with their cohort and chose not to expand on the reason, this participant was an exception to the group. Some **participants regretted that they hadn't stayed in touch** or asked for advice from a participant who did stay in touch with their cohort about how to foster those connections and continue the relationships. One participant mentioned that Pioneer had contacted them about a new Pioneer alum who would be joining the same university and hoped that they would be able to connect. Participants shared that **one barrier to these connections may be the uniqueness of each Pioneer experience** based on each cohort's uniqueness and the variety of opportunities and fields that people can study. Participants also indicated an interest in maintaining contact with their Pioneer professors and cohort after completing the program, but they were not sure of how to maintain these connections.

## Group-Specific Themes

Some themes were unique to specific participant groups. These themes are discussed in the following sections.

## Themes from non-U.S. Focus Groups

### Participants

Participants in this group were non-U.S. students who participated in Pioneer's online research program. Some of these students are studying in the United States and some of them are at universities around the world.

Overall, the participants reported enjoying their college experience and feeling confident in their abilities, eagerness to try new things, and excitement to push themselves outside of their comfort zone. The participants shared how their interests were nurtured during the Pioneer online research experience through high-quality mentorship with a professor who is leading the field. One participant commented that their choice in double-major is because of the relationship formed with a professor during the Pioneer program and that the professor's mentoring and instructional style were key reasons as to why they enjoyed the program. The participants also discussed how finding a balance between engagement and obligation in online learning can be a challenge, both during Pioneer and in college, and they view learning as a dynamic process that should meet learners where they are, model that it's okay to feel frustrated or upset when challenged by something new, and curiosity should be encouraged.

### Challenges for non-U.S. Participants

#### Navigating U.S. Systems in College

The participants shared how there are institutional and individual constraints to success, and some of their ideas for increasing opportunity accessibility were more remote research opportunities. These non-U.S. participants shared some of the challenges of being an international college student in the United States, such as visa-based restrictions on their activities or not being on-campus for summer research and learning opportunities.
They also shared concerns about the time constraints of Optional Practical Training post-graduation and how the timing might influence their decisions to continue in higher education or seek employment.

### International Students' Pioneer Experiences

The participants credited their Pioneer experiences both with exposure to new disciplines and an opportunity to turn a passion into an academic path and a career. They shared how their exposure to research in Pioneer connected them to people around the world who could exchange ideas and help them challenge themselves, and they have brought these experiences into their work with Pioneer participants and tutoring experiences. When asked about how to encourage others to pursue self-challenging experiences, one participant shared, "What we should be looking for is encouraging people during that short span of time (of Pioneer online research program) to develop a curiosity about the program and to develop the connections that they want such that they will actually want to continue learning once it's over."

### Financial Transparency

One participant shared frustration with the Pioneer experience related to information

transparency and communication. A partial-scholarship recipient shared, “What happened in my case is that I was accepted already, and they didn't have any information on pricing anywhere on their website… That was not cool, and I didn't know how much the program was gonna cost. They didn't have any clear procedures on how financial aid is gonna be. And then, so, I just applied and already got accepted, right? And then they told me that the fee was like a couple of thousand dollars which is a lot of money. And they said, “Oh, sorry, you're from [country], and we don't have like we don't have any system to verify your need.” The participant expressed that the **financial support was critical to their attending both Pioneer and their undergraduate institution**, and they would have liked greater transparency about the financial commitments of the Pioneer program.

## Themes from Scholarship Recipient Focus Groups

### Participants

Participants self-reported that they all received scholarships to attend Pioneer as well as some financial/socioeconomic details about their home backgrounds that made participating in some educational experiences difficult for them. For example, one participant shared that they only participated in school-based activities because they did not have transportation or funds to participate in off-campus opportunities. The group also had participants studying in different countries, and they discussed that what **one group might need to overcome barriers can depend on the social and legal support in that area**.

### Themes

Some themes that emerged were never wanting to feel bored, doing something that was related to their passions, and working in careers that involved helping others. The participants also shared that financial difficulties can be a big barrier to students trying to participate in learning opportunities, but a big part of **the challenge is making sure students also feel welcome in those opportunities**. There was some small discussion about transmission of institutional knowledge, with three participants feeling like it was an issue that universities should support and one participant feeling like it is part of the learning and growing process. Participants also discussed **the impact that parental expectations had on their trajectories**. One U.S.-based participant shared, “I grew up as child of immigrants and they really instilled the value of an education. Just, like, the kind of the prospects that you can get. And I was just, you know, good at math and science, and it was kind of a natural fit. But then, you know, obviously, later on, I really like I genuinely liked it outside of those practical concerns.”

### College Expectations and Challenges

Another theme that emerged related to how students may feel intimidated trying to access resources and providing funds and financial training on how to leverage these funds could be useful. A participant shared that “I have a lot more freedom in college to do what I want, especially since colleges tend to be really well-resourced and have a lot of different activities. I am pretty limited by what my school offers because outside of that I don't really have the money to get transportation to go elsewhere or do many things outside of that.“ However, this increased number of opportunities also comes with some challenges in identifying and navigating the options. Participants mentioned that the pandemic made it easier to cold contact an older student to get involved.

**Expectations and Online Learning**

This participant also shared how the pandemic established an expectation about connecting with upperclassmen and other seniors online, without an introduction, and how that cultural shift made finding resources and connecting with peers less challenging. Specifically, these students mentioned that their Pioneer experiences exposed them to the expectations professors would have during college and provided a glimpse into college culture. The participants shared that this knowledge is especially important for first generation or international students who may not be aware of the invisible expectations and norms of a college experience. One participant shared that **they were grateful to Pioneer for providing an online learning experience before COVID so they would know what to expect.** One participant shared,

> "I think Pioneer was the first time I used Zoom, before Zoom was the default and everything. And I think Zoom was the perfect choice because we had group meetings. And then it moved into individual meetings. And I think that was a really nice use of a transition because it allowed us to be comfortable in a group setting and take baby steps into being comfortable with a professor in a one-on-one setting. I think that that helped set the tone for university. Because, in a sense, Zoom was a transition into college because it was like an interaction with the professor online and then interactions with the professor in person. And I think **it really helped set me up for building good relationships with the professors at my university**."

**Wish for Pioneer Networks**

The participants mentioned wanting some sort of Pioneer group in their schools to connect with others who have this shared experience, and they think some sort of alumni network or Pioneer reunion would be beneficial. One of the participants shared that "it would have been cool" to keep in touch with colleagues.

## Themes from General Focus Groups

A repeated theme in the General groups was **the desire for a Pioneer-facilitated alumni network to help them foster and continue their relationships**.

The participants also explored their expectations of their college classes, and one suggestion for Pioneer was to include some sessions about what majoring in something (e.g., Psychology) really looks like during college. One participant mentioned changing their major because the original major did not meet their expectations based on their Pioneer experience and mentorship. This participant shared, "[College courses] can be very general and lecture-heavy. So, it's quite different from what we did at Pioneer. Also, that's one of the reasons I switched majors because I didn't think it was getting much out of it." Another participant discussed their positive relationship with their mentor and the Pioneer online research experience, sharing, "I wish I had learned more about networking and stayed connected with my professor... what [Pioneer] actually do[es] is pretty nice, you know. People do take away a lot from it." The respondents mentioned not having the best school-life balance at the beginning of their college experiences but noted that they are trying to figure it out as they go and learn from their mistakes. The overall attitude of keep learning and don't stop trying also arose both in the school-life balance discussion and the future plan discussion.

## Group Differences

One key difference between groups is how the scholarship group specifically self-reported in the sessions about receiving financial assistance. Although some of the other groups also contained scholarship recipients, these participants did not disclose if they had received aid, how much they might have received, or if it influenced their decisions to participate. One student who did not participate in Pioneer cited the financial obligation as a reason for not participating.

Another important point is how the barriers to opportunities vary based on each group's contexts and needs. However, students in **every group are invested in actively engaging with all the options that are available**. The participants identified curiosity as a motivator for college and career goals, and their work-life balance may sometimes suffer because they are curious and eager to learn about so many things.

# V. General Discussion

**Summary of Results**
Overall, there were few differences based on Participation. Additionally, many of the Geography and Scholarship comparisons were inconclusive.

**Intrinsic Motivation Difference Between Participants and non-Participants**
The current results indicate that Pioneer Participants reported higher intrinsic motivation than those who had declined to participate in a Pioneer experience. What the current study cannot answer is whether this intrinsic motivation gap existed prior to the Pioneer experience (possibly contributing to the decision to participate in Pioneer) or was catalyzed by Pioneer participation. It could be that having a research experience inspired subsequent motivation. As recommended below, systematically collecting data at time of application could disentangle this possible interpretation.

Similarly, Scholarship recipients also showed significantly higher intrinsic motivation than non-Scholarship recipients. Again, this gap could have been present prior to Pioneer experienced (and been necessary for Scholarship recipients to persist despite financial difficulties). Given that both Scholarship recipients and non-recipients participated in a Pioneer experience, it is unlikely that their research experience caused this gap.

**Potential Differences Between Participants and non-Participants**
There may be several additional latent differences between Pioneer participants and non-participants that would be better revealed through additional data collection. For example, there is the pattern of observed (non-significant) directional differences between Participants engaging in more activities during college and non-Participants aspiring to participate in more activities (but not yet doing so) during college. If this gap were revealed after more data collection, it may suggest a group difference between Participants and non-Participants in taking action to pursue their interests. This *acting vs aspiring* gap would align with the observed significant difference between the groups on Intrinsic Motivation. This gap could also contribute to why non-participants chose not to pursue the Pioneer research opportunity. Alternatively, the Pioneer experience may have contributed to creating an *acting vs aspiring* group difference. Additional data are needed to assess.

**Differences in Self-Efficacy**
Two conclusive comparisons revealed that students from the U.S. as well as Scholarship recipients both report higher self-efficacy than their peers (those not from the U.S. and non-scholarship recipients) in their ability to interact with people different from them when pursuing academic/professional interests. The Geography result is particularly interesting given that it appears that most U.S. students also attend college in the U.S. and it is their nonUS peers who have more *experience* interacting with others from a different cultural background. Thus, it may be that U.S. students feel confidence out of ignorance; they simply have less experience interacting with people from different backgrounds than their peers from outside the U.S. (who may be attending college in the U.S.). To assess this conjecture data assessing cultural fluency would need to be collected.

**Interpreting Inconclusive Results**

There were many inconclusive equivalence comparisons based on Geography and Scholarship status. Even sometimes trivially small mean differences (e.g., Pursue Academic Interests for U.S. students of 3.18 and non-U.S. students of 3.16 with an effect size of 0.02) could not be conclusively determined as equivalent.

Many of the Geography and Scholarship status comparisons being inconclusive stem from one direction being inconclusive (i.e., more data are needed to determine whether they are equivalent). With more data, responses that appear quite similar would likely be determined as equivalent. In the current analyses, it was usually only one direction (i.e., the lower limit) that could not be determined as equivalent whereas the other direction (i.e., the high end of responses) that appeared equivalent.

A few trial post hoc comparisons using 0.5 standard deviations as the equivalence boundary (instead of 0.2) yielded conclusive equivalence. However, 0.5 standard deviation is a large boundary. Rather than expand the breadth of what is considered equivalent, collecting additional data would generate more precise understanding.

## VI. Report Limitations

As is the case in any program evaluation, this report has limitations that should be considered when interpreting these results.

**1. New/untested measures**

To meet the specific needs of Pioneer Academics, many measures used to collect the data for this report are newly created. As such, they have not yet been validated. This means that items have not been tested to make sure that participants read and interpreted them the way they were intended. The benefit of this tailoring is that it allowed for both the survey and the focus group to target the questions specifically desired by Pioneer Academics.

**2. Generalizability Assumptions**

The responses reported in this report may not generalize to future Pioneer Academics participants. Generalizability may be limited for several reasons including Retrospective nature of this implementation, response bias, and potential age/experience differences across groups.

**Retrospective Nature**. Many participants in this program evaluation were answering items retrospectively, sometimes years after the fact. This lag between experience and survey may have altered how they would have responded if given the survey more proximately to their attendance (or potential attendance).

**Response Bias**. Respondents may not represent the broader population of Pioneer alums or applicants. Respondents may disproportionately represent individuals who had an extreme (positive or negative) experience. If this is the case, responses may constitute a more extreme end of what the broader population experienced.

**Age/Experience Difference Across Groups**. Age difference between groups could influence differences in responses to survey or focus group questions. Similarly, there were 5 respondents who had no college experience, all attended high school outside the U.S. Whether this is representative of an experience gap based on where students attended high school is unknown.

**3. Low Response Rate**

As is often the case, the number of survey responses received from those who did not attend a Pioneer program was low. Individuals in this group were offered higher incentive rate after Participant survey participation ended (first $50, then $100). It is possible that this higher incentive rate attracted a different type of respondent or response, but we have no strong reason to believe this altered the results in anyway. Regardless, such low response rates may affect whether responses are representative of the larger population of interest.

**4. Multiple Comparisons Caution**

Whenever multiple comparisons are made using the related data, there is a chance that a result will appear meaningful due to chance (e.g., a fair coin landing on heads 5 times in a row or a broken clock being right twice a day). Such occurrences can make things that are not meaningful appear meaningful. We have been somewhat conservative when making such comparisons throughout this report to avoid this error.

# VII. Observations and Recommendations

In this section, we make several observations based on the data and pair them with some recommendations for Pioneer Academics to consider.

### Observation 1: New Collection of Program Evaluation Data.

This is the first time Pioneer Academics has collected formal program evaluation data on the outcomes of its programs.

**Recommendation A.** Pioneer Academics should consider gathering data regularly (e.g., end-of-program evaluation, annual alumni check-in, 5-year check-in) to monitor effects and potential changes over time. Regular collection of evaluation data will help address several limitations listed above (new measures, low response rate from individuals who did not participate).

**Recommendation B.** Pioneer Academics may want to pursue deeper investigation of assessments and alumni experiences to verify outcomes and validate measures in specific areas of interest. As discussed in the Limitations section, many of the measures used in this report were newly developed (to specifically address the needs of Pioneer Academics) and have not been validated. Additional verification can help solidify the results reported here.

**Recommendation C.** Consider using—or triangulating with— established measures for some outcomes. Use of established measures will help balance the use of new measures and connect outcomes with established prior results.

### Observation 2. Lack of Awareness and Understanding in Processes and Opportunities

Focus group responses suggest that some alums and applicants may not fully understand all Pioneer processes and opportunities it provides.

**Recommendation D.** Alteration of existing communication strategy about existing opportunities (e.g., alumni network) may be needed to increase awareness and engagement. Not all Pioneer alums are aware of the alumni network, including some focus group participants who specifically expressed a desire for an alumni network based on geographic location or undergraduate institution.

**Recommendation E.** Increase transparency about the financial aid process for international student participants, such as income verification and details about expected costs. Even though the information may be clear for most participants, focus group participants suggest that some of the information may be inaccessible for students from certain contexts (or was at their time of application). Adjusting the timing and delivery of financial aid information may increase the transparency of this information for participants.

### Observation 3. Desire for Mentorship in Non-academic Side of Research

Several focus group participants expressed interest in receiving mentorship in portions of the research process that extend beyond academic research.

**Recommendation F.** Consider providing soft-skills (e.g., time management) development opportunities in conjunction with the academic and research programming.

**Recommendation G.** Help unveil some professors' and colleges' expectations for students, especially about work-life balance.

## VIII. References

Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds), (pp. 307-337.) *Self-Efficacy Beliefs of Adolescents*. Information Age Publishing.

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## IX. Appendix A. Survey

See separate Document.

## X. Appendix B. Focus Group Protocol

See separate Document.