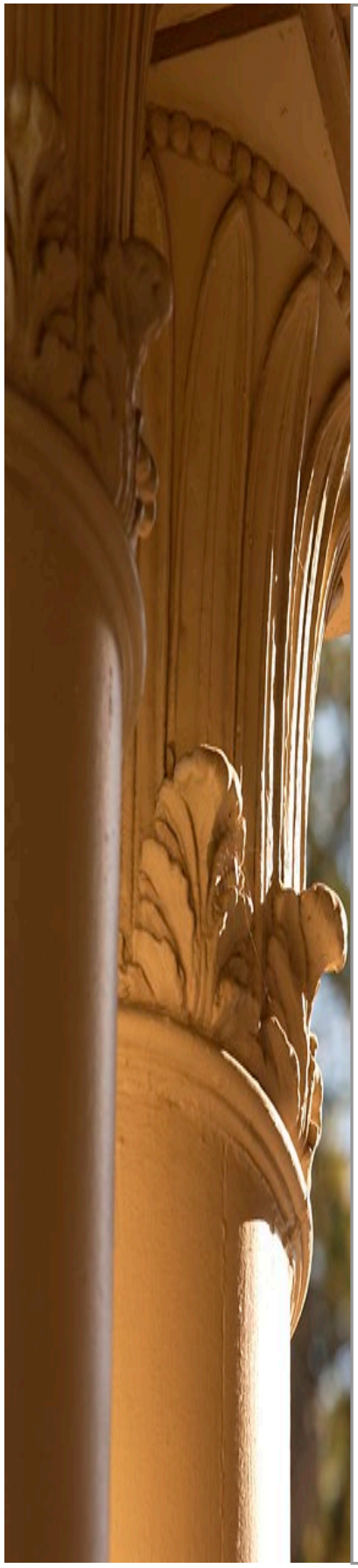

Evaluation of Alumni Networking and Industry Engagement Project: Grant Year 2023-2024

July 2024

Submitted by:

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July 2024

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SPONSORSHIP

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ABOUT SESRC

The Social and Economic Sciences Research Center (SESRC) at Washington State University is a recognized leader in the development and conduct of survey research.

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ACKNOWLEDGEMENTS

The evaluation gratefully acknowledges the assistance of the project's team, for their helpful leadership, insights, and coordination. We are also grateful to the students, alumni, and volunteers who contributed their feedback via the surveys.

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Evaluation of Alumni Networking and Industry Engagement Project: Grant Year 2023-2024

BY: ADAM MCKEE, J. MICHAEL SCHIWART, AND AZDREN COMA

SOCIAL & ECONOMIC SCIENCES RESEARCH CENTER, PUGET SOUND DIVISION

WASHINGTON STATE UNIVERSITY

JULY 2024

In September of 2022, Austin Community College received funding through the National Science Foundation's Advanced Technological Education (ATE) program for the project, "Increasing Student Retention and Recruitment Through Alumni Programs, Speed Networking, and Industry Engagement." As the title infers, the motivating rationale for this project is to develop tools, events, and resources to address recruitment, retention, and placement problems among biotechnology programs across the country.

As stated in the proposal, the project has two main goals under the current grant:

- **Goal 1:** Document alumni career pathways for the purpose of sharing this information with potential and existing students and other targeted entities (integrating alumni in CC biotech programs).
- **Goal 2:** To increase student recruitment and retention by increasing student and industry interactions - targeting alumni working in industry.

This report covers the period of September 1, 2022, through May 31, 2024.

Findings

Evaluation Question 1.1: To what extent do the guidelines provide a model for building and sustaining an alumni network within community college (CC) biotechnology programs? To what extent are the guidelines applicable to a diverse group of CC biotechnology programs?

Work on the guidelines to provide a model for building and sustaining an alumni network within community college biotechnology programs is in progress, with the project team testing a variety of activities across the three colleges.

Evaluation Question 1.2: To what extent do the guidelines reach the CC biotechnology community? How many programs develop alumni networks due to using the guidelines?

No data collected yet. Data collection efforts planned in the third year of the grant.

Evaluation Question 1.3: To what extent do alumni spotlight curricula and student success stories serve to increase students' awareness of biotechnology careers and career pathways and their sense of belonging, science identity, and self-efficacy?

The project team developed Scientist Spotlights for five alumni working in biotechnology. So far, three of them have been accepted and published on www.scientistspotlights.org, a nationally recognized platform for disseminating the stories and work of non-traditional scientists, which when utilized in the classroom has been shown to increase science identity and self-efficacy in science.

The team also developed a new podcast, Biotech Beat. Each episode is an interview with a community college alum working in the biotechnology industry in which they share their career and educational journey. The first two episodes are already available on most podcast platforms (Spotify, iHeart, Apple Podcasts, etc.) with plans for at least eight more episodes.[1]

Data collection efforts are planned in the third year of the grant to assess the impacts of the Spotlights and podcast.

Evaluation Question 2.1: To what extent do speed networking events (SNEs) influence student recruitment and retention? To what extent do SNEs serve to increase students' awareness of biotechnology careers and career pathways, and their sense of belonging, science identity, and self-efficacy?

Nearly all the students and alumni who responded to the Speed Networking Event survey agreed that the Speed Networking Event gave them a better understanding of the variety of jobs in bioscience-biotechnology, the skills needed for different bioscience-biotech jobs, and a better understanding of the possible career trajectories within bioscience-biotech (e.g., moving from an entry-level position on up). (See Figure 4) The overwhelming majority also agreed that taking part in the event influenced their confidence that they could succeed in a bioscience-biotech career, their confidence that they would feel comfortable in a bioscience-biotech work environment, and whether they feel that they fit the

[1] Adapted from the Alumni Networking and Industry Engagement Grant 2023-2024 Annual Report

description of someone who does science. (See Figure 2)

Evaluation Question 2.2: To what extent do SNEs increase students' interactions with alumni and industry? To what extent do SNEs increase interaction between industry and biotechnology programs?

Through the first two years of the grant, the project facilitated approximately 1,335 direct interactions between students/alumni and industry representatives, with almost all survey respondents agreeing that they made connections to bioscience-biotech professionals that will be helpful in their current or future job search at a Speed Networking Event. (See Figure 6) In addition to taking part in over 20 Speed Networking Events, representatives from industry also took part in a Virtual Resume Review Event in which they provided what students and alumni described as "invaluable" feedback.

Evaluation Question 2.3: To what extent does the SNE manual reach the CC biotechnology community? How many programs and faculty facilitate SNEs following the manual?

The three colleges involved in this project, Austin Community College, City College of San Francisco, and Johnston Community College, have hosted over 20 Speed Networking Events to assist in drafting, revising, and finalizing the SNE Manual. Due to a connection made at the 2023 ATE PI Conference, Dr. Wing Cheung, Professor of Geography at Palomar College, hosted a Speed Networking event with students from his Geographic Information Systems (GIS) program in May of 2024. In Year 3 of the grant, project leadership plans on working with community college faculty from biotechnology and other disciplines to host additional events using the SNE Manual.

The project team continues to engage in dissemination efforts with presentations at the ATE Office Hours, InnovATEBIO ATE Project Talks, 2023 National ATE Principal Investigators' Conference, and California Community College Bioscience Meeting. In addition, the project has their own website (https://sites.google.com/austincc.edu/alumni-and-industry-engagement/) and is featured on the InnovATEBIO website (https://hubs.innovatebio.org/alumni-network.html).

Recommendations

1. Evaluation results highlight the need for additional clarity when recruiting industry/academia volunteers to take part in events. Several volunteers noted that they were surprised and frustrated when attending Speed Networking Events that included students from non-biotech majors. They enjoyed talking with these students, but they found it difficult to provide information and advice that would be applicable to them.

2. In collaboration with the project team, questions were added to the Speed Networking Event survey to assess the importance of students and alumni meeting with community college alum and individuals with characteristics similar to their own during the events. Over three-quarters of students and alumni participants responded that meeting with these individuals was important. Meeting individuals with these characteristics was especially important for students and alumni who identified as being historically excluded from the sciences. The project team should try to ensure that the characteristics of the volunteers at events align with the participants and that community college alum are represented among volunteers.

3. Based on the comparative analyses, it is recommended that facilitators consider the intention of the event when deciding which types of students to invite. The data supports Speed Networking Events as useful recruiting tools for students who have not or are currently not taking a biotech course, as they rated most of the future-based careers questions positively, but lower than those with prior biotech coursework. With some targeted supports, perhaps even events specifically targeting students who have not yet taken any biotech courses, facilitators may be able to use the Speed Networking Model as an as effective recruiting tool for non-biotech students.

INTRODUCTION

In September of 2022, Austin Community College received funding through the National Science Foundation's Advanced Technological Education (ATE) program for the project, "Increasing Student Retention and Recruitment Through Alumni Programs, Speed Networking, and Industry Engagement." As the title infers, the motivating rationale for this project is to develop tools, events, and resources to address recruitment, retention, and placement problems among biotechnology programs across the country.

As stated in the proposal, the project has two main goals under the current grant:

- **Goal 1:** Document alumni career pathways for the purpose of sharing this information with potential and existing students and other targeted entities (integrating alumni in CC biotech programs).
- **Goal 2:** To increase student recruitment and retention by increasing student and industry interactions - targeting alumni working in industry.

This report covers the period of September 1, 2022, through May 31, 2024.

EVALUATION QUESTIONS

The evaluation connects each of the project goals with evaluation questions, as shown in Table 1, below.

Table 1: Evaluation Questions, Data Collection Tools, and Timing

Goals/Objectives	Evaluation Questions	Data Collection Tools and Timing
Goal 1: Document alumni career pathways for the purpose of sharing this information with potential and existing students and other targeted entities (integrating alumni in CC biotech programs)		
- Guidelines development (including coordination and revision) - Guidelines dissemination	**1.1.** To what extent do the guidelines provide a model for building and sustaining an alumni network within community college (CC) biotechnology programs? To what extent are the guidelines applicable to a diverse group of CC biotechnology programs? **1.2.** To what extent do the guidelines reach the CC biotechnology community? How many programs develop alumni networks due to using the guidelines?	**1.1.** Focus group of faculty, program directors, and college facilitators (Y1, Y3); survey(s) administered after presentation of guidelines at conferences (Y3) **1.2.** Questions added to the InnovATEBIO Annual Community Survey (distributed to community college biotechnology programs) (Y3)

Goals/Objectives	Evaluation Questions	Data Collection Tools and Timing
- Alumni spotlight curricula development - Alumni spotlight curricula dissemination -Student success stories	**1.3.** To what extent do alumni spotlight curricula and student success stories serve to increase students' awareness of biotechnology careers and career pathways and their sense of belonging, science identity, and self-efficacy?	**1.3.** Student survey administered at the end of each semester (Y1-Y2, CCSF only; Y3, all colleges)
Goal 2: To increase student recruitment and retention by increasing student and industry interactions - targeting alumni working in industry		
- Speed networking events held - Speed networking event institutionalization - Speed networking event manual dissemination	**2.1.** To what extent do speed networking events (SNEs) influence student recruitment and retention? To what extent do SNEs serve to increase students' awareness of biotechnology careers and career pathways, and their sense of belonging, science identity, and self-efficacy? **2.2.** To what extent do SNEs increase students' interactions with alumni and industry? To what extent do SNEs increase interaction between industry and biotechnology programs? **2.3.** To what extent does the SNE manual reach the CC biotechnology community? How many programs and faculty facilitate SNEs following the manual?	**2.1.** Institutional research data (recruitment and retention), survey administered to students after each SNE (Y1-Y3) **2.2.** Survey administered to students and industry representative after each SNE (Y1-Y3), program lead interviews (Y1-Y3) **2.3.** Questions added to the InnovATEBIO Annual Community Survey (distributed to community college biotechnology programs) (Y3)

DATA SOURCES AND TIMING

The evaluation relied on several sources of data, including the following:

Speed Networking Event Survey

The Speed Networking Event Survey was designed to collect feedback from student and alumni participants and volunteers from industry and academia. The survey asked about the quality of the event, suggestions for improving the event, and various demographic questions. In addition, it gathered information on the impacts of participating in the event. The full questionnaire can be found here: Speed Networking Event Survey.

The web survey was hosted on Qualtrics and was distributed via an anonymous link (the same link for all respondents). The link was distributed to students and volunteers from industry and academia after the conclusion of each Speed Networking Event. The link was shared in the Zoom chat at the conclusion of each event by a member of the project team. Additional information regarding attendees at each event is presented in Table 2 below.

Table 2: List of Speed Networking Events

No.	Date	No. of Students	No. of Industry and Academia Volunteers	No. Surveys / Response Rate	Host College
1	10/6/22	11	6	Surveys: 17 Response Rate: 100%	Austin Community College
2	10/21/22	12	12	Surveys: 22 Response Rate: 92%	City College of San Francisco
3	11/7/22	4	3	Surveys: 6 Response Rate: 86%	Austin Community College
4	11/14/22	6	5	Surveys: 10 Response Rate: 91%	Johnston Community College
5	11/18/22	17	16	Surveys: 31 Response Rate: 94%	City College of San Francisco
6	2/3/23	20	7	Surveys: 25 Response Rate: 93%	City College of San Francisco
7	3/17/23	26	17	Surveys: 31 Response Rate: 72%	City College of San Francisco
8	3/23/23	7	8	Surveys: 12 Response Rate: 80%	Johnston Community College
9	4/4/23	14	4	Surveys: 18 Response Rate: 100%	Austin Community College

10[2]	5/18/23-5/19/23	65	19	Surveys: 32 Response Rate: 38%	Various community colleges
11	6/23/23	22	10	Surveys: 32 Response Rate: 100%	Skyline College
12	7/14/23	13	7	Surveys: 16 Response Rate: 80%	Austin Community College
13	9/15/23	17	10	Surveys: 23 Response Rate: 85%	City College of San Francisco
14	10/20/23	13	12	Surveys: 22 Response Rate: 88%	City College of San Francisco
15	11/9/23	10	8	Surveys: 17 Response Rate: 94%	Johnston Community College
16	11/30/23	31	12	Surveys: 35 Response Rate: 81%	City College of San Francisco
17	4/2/24	15	6	Surveys: 20 Response Rate: 95%	Austin Community College
18	5/3/24	19	15	Surveys: 30 Response Rate: 88%	City College of San Francisco
19	5/9/24	20	8	Surveys: 26 Response Rate: 93%	City College of San Francisco

Findings broken out by host institution are not included in this report. However, these results were provided to the project team within one week of each event and will be included in the final evaluation report.

Virtual Resume Review Event Survey

The Virtual Resume Review Event Survey was designed to collect feedback from student and alumni participants and volunteers from industry and academia. The survey asked about the usefulness of the event, suggestions for improving the event, and various demographic questions. In addition, it gathered information on the impacts of participating in the event. The full questionnaire can be found here: Virtual Resume Review Event Survey.

The web survey was hosted on Qualtrics and was distributed via an anonymous link (the same link for all respondents). The link was distributed to students, alumni, and volunteers from industry and academia after the conclusion of the Virtual Resume Review Event. The link was shared in the Zoom chat at the conclusion of the event by a member of the project team. Twelve (12) students and eight alumni and 16

[2] These three events were held in collaboration with the NSF-funded project, "A Bridge to Bio-Link's Future," DUE #1764225.

volunteers attended the event. Thirty-three (33) of these individuals completed the survey, for a response rate of 92%.

Document Review

The evaluators reviewed additional documents, including the 2023-2024 annual report, event registration lists, and other materials.

Project Team Interviews

The evaluation conducts periodic interviews with the grant PI, co-PIs, and leadership team.

FINDINGS

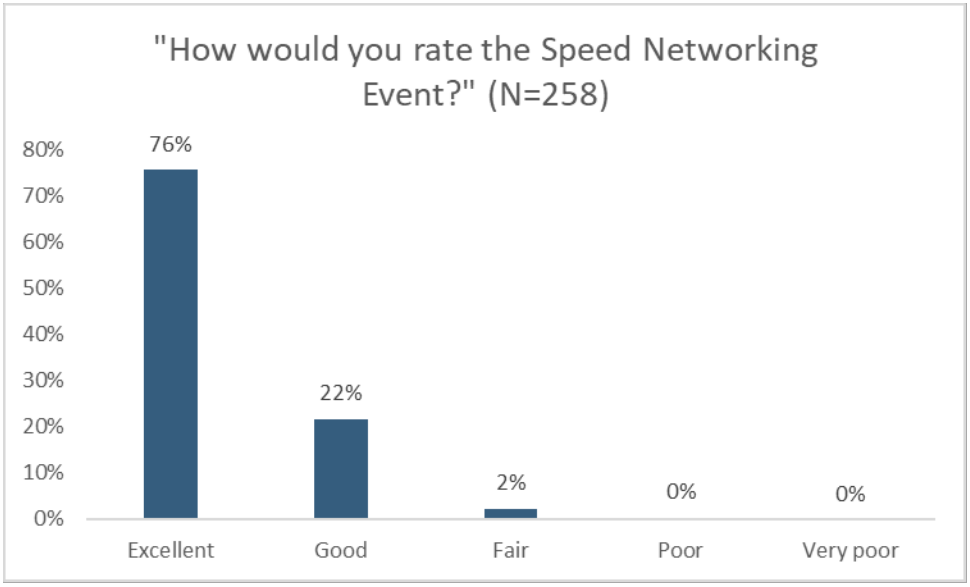
The Speed Networking Event Survey and Virtual Resume Review Event Survey gathered feedback from 1) student participants 2) alumni participants and 3) volunteers from industry and academia. Since the surveys contain questions unique to each user group, responses from student and alumni participants, and volunteers are presented separately.

Speed Networking Event Survey: Student and Alumni Participants

EVENT RATINGS

Student and alumni respondents (N=258) were asked to rate the Speed Networking Event they attended on a scale of *Excellent* to *Very poor*. Seventy-six percent (76%) gave the event a rating of *Excellent*, 10% a rating of *Good*, 2% a rating of *Fair*, and one respondent provided a rating of *Poor*. No respondents rated the event as *Very poor*. (See Figure 1)

Figure 1: Students and Alumni: Event Ratings



In written comments, students described the event as “informative” and “engaging,” and discussed gaining confidence and knowledge concerning searching for, applying to, and working in biotech jobs. They also praised the diverse, knowledgeable, and friendly industry professionals, the connections they made to industry professionals, and the organization and execution of the event. Students appreciated that the volunteers took the time to answer all questions they had. Selected comments are below:

Technically flawless, excellent opportunity for networking, learning about industry outlook, challenges, and opportunities, inspiring to hear stories about their career origins.

I have struggled to find places to network with professionals in the biotech industry. This event offered me a starting place where I was able to network with professionals of various jobs and backgrounds, as well as gain advice on how to continue to network with more industry professionals. Please continue to give the program funding! It's exactly what I needed to help guide me into the industry!

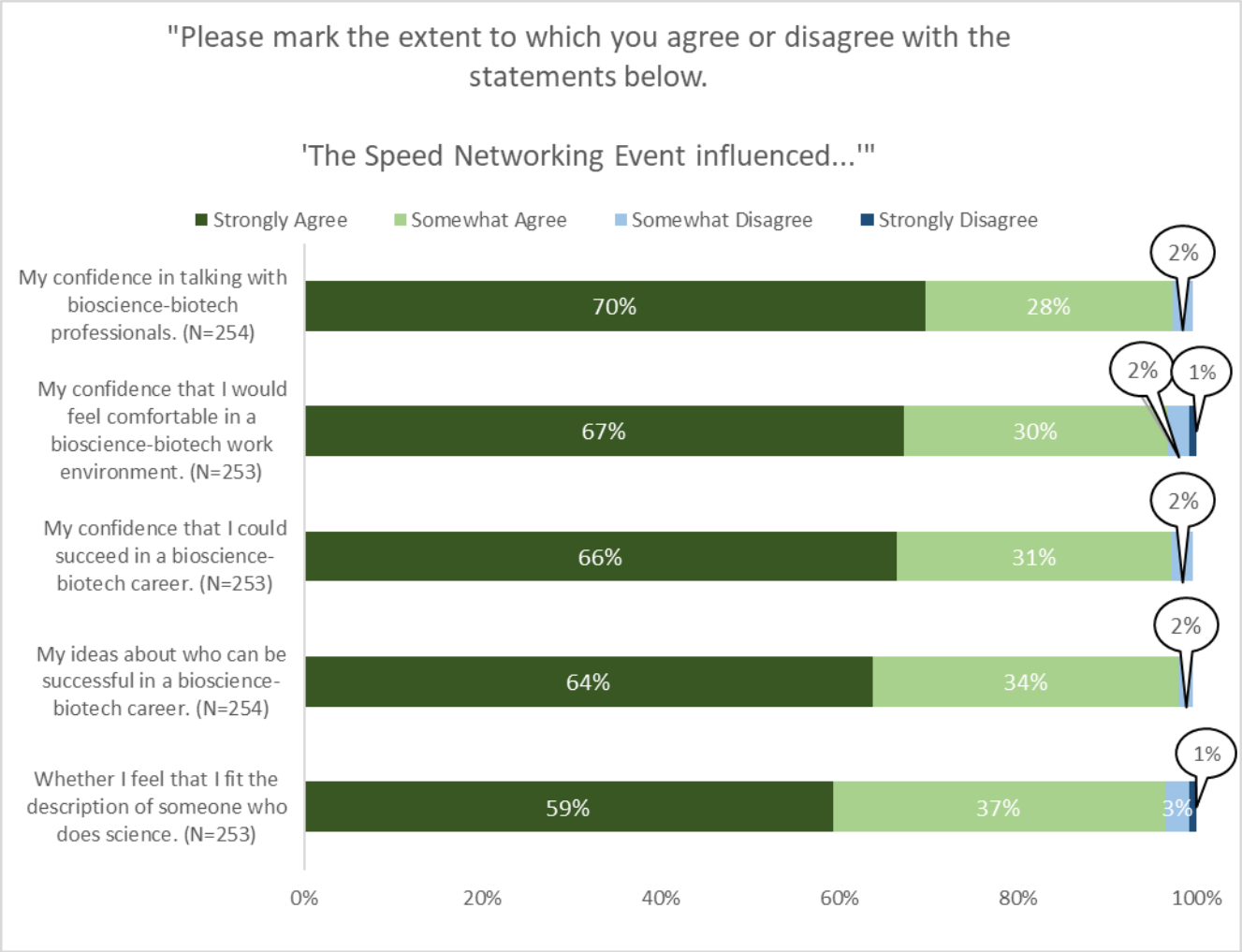
The volunteers were very friendly and engaging. The event was very well organized, and the time management was perfect. Exciting experience!

This networking event gave me the opportunity to have an in-depth conversation with multiple industry professionals and get a better idea of what my working field will consist of. I genuinely appreciate the chance to engage with these folks and look forward to the next event.

SELF-EFFICACY AND SCIENCE IDENTITY

Nearly all of the respondents (98%) agreed that the Speed Networking Event influenced their confidence in talking with bioscience-biotech professionals (*Strongly Agree*: 70%, *Somewhat Agree*: 28%; N=254), their confidence that they could succeed in a bioscience-biotech career (*Strongly Agree*: 66%, *Somewhat Agree*: 31%; N=253) and their ideas about who can be successful in a bioscience-biotech career (*Strongly Agree*: 64%, *Somewhat Agree*: 34%; N=254). Ninety-seven percent (97%) agreed that the event influenced their confidence that they would feel comfortable in a bioscience-biotech work environment (*Strongly Agree*: 67%, *Somewhat Agree*: 30%; N=253) and 96% agreed that the event influenced whether they feel that they fit the description of someone who does science (*Strongly Agree*: 59%, *Somewhat Agree*: 37%; N=253). (See Figure 2)

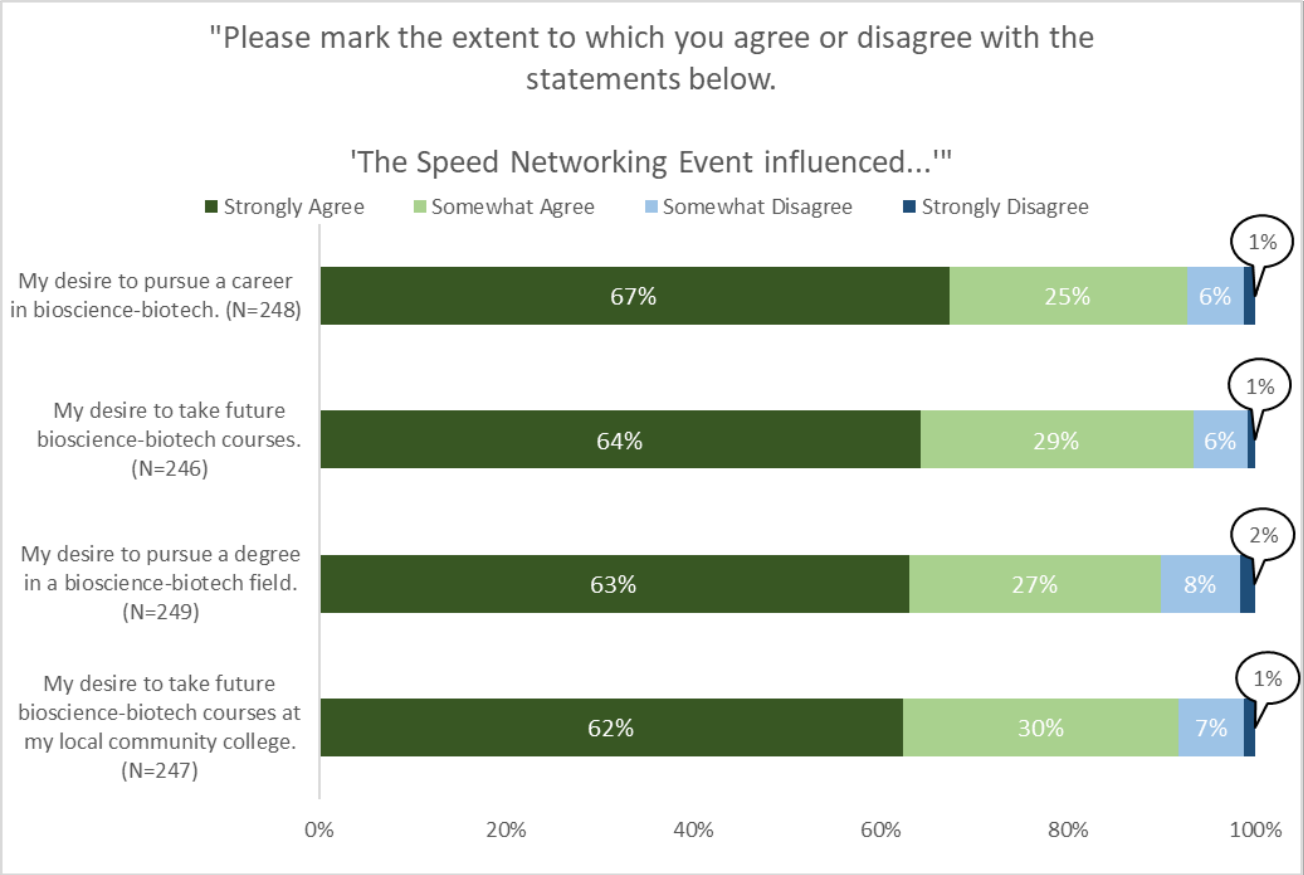
Figure 2: Students and Alumni: Self-Efficacy and Science Identity



INTEREST IN BIOSCIENCE-BIOTECH EDUCATION AND CAREERS

Ninety-three percent (93%) of student respondents agreed that the Speed Networking Event influenced their desire to pursue a career in a bioscience-biotech (*Strongly Agree*: 67%, *Somewhat Agree*: 25%; N=248) and that it influenced their desire to take future bioscience-biotech courses (*Strongly Agree*: 64%, *Somewhat Agree*: 29%; N=246). Ninety percent (90%) agreed that the event influenced their desire to pursue a degree in a bioscience-biotech field (*Strongly Agree*: 63%, *Somewhat Agree*: 27%; N=249) and 92% agreed that it influenced their desire to take future bioscience-biotech courses at their local community college (*Strongly Agree*: 62%, *Somewhat Agree*: 30%; N=247). (See Figure 3)

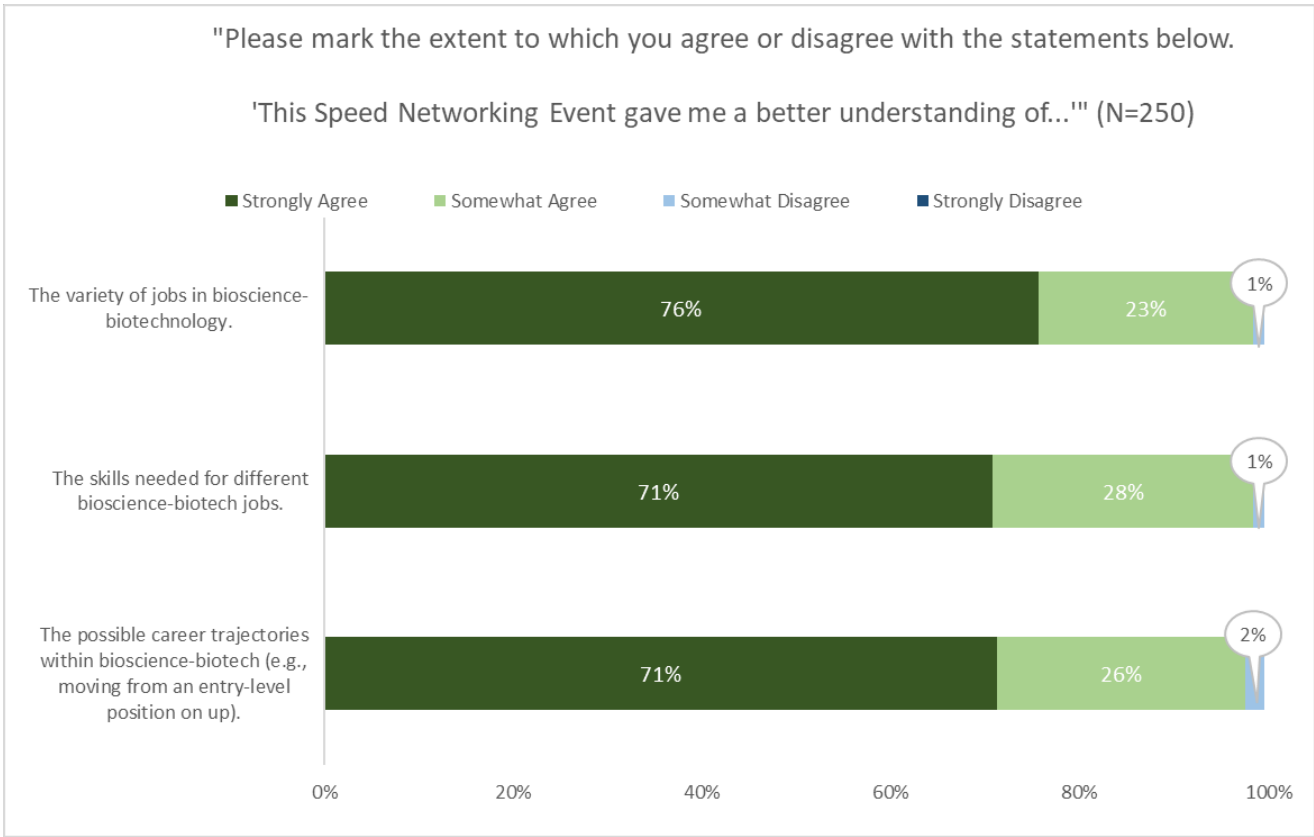
Figure 3: Students and Alumni: Interest in Bioscience-Biotech Education and Careers



UNDERSTANDING OF BIOSCIENCE-BIOTECH CAREERS

Almost all of the respondents (99%; N=250) agreed that the Speed Networking Event gave them a better understanding of the variety of jobs in bioscience-biotechnology (*Strongly Agree*: 76%, *Somewhat Agree*: 23%) and the skills needed for different bioscience-biotech jobs (*Strongly Agree*: 71%, *Somewhat Agree*: 28%). Similarly, almost all (98%) agreed that the event gave them a better understanding of the possible career trajectories within bioscience-biotech (e.g., moving from an entry-level position on up) (*Strongly Agree*: 71%, *Somewhat Agree*: 26%). (See Figure 4)

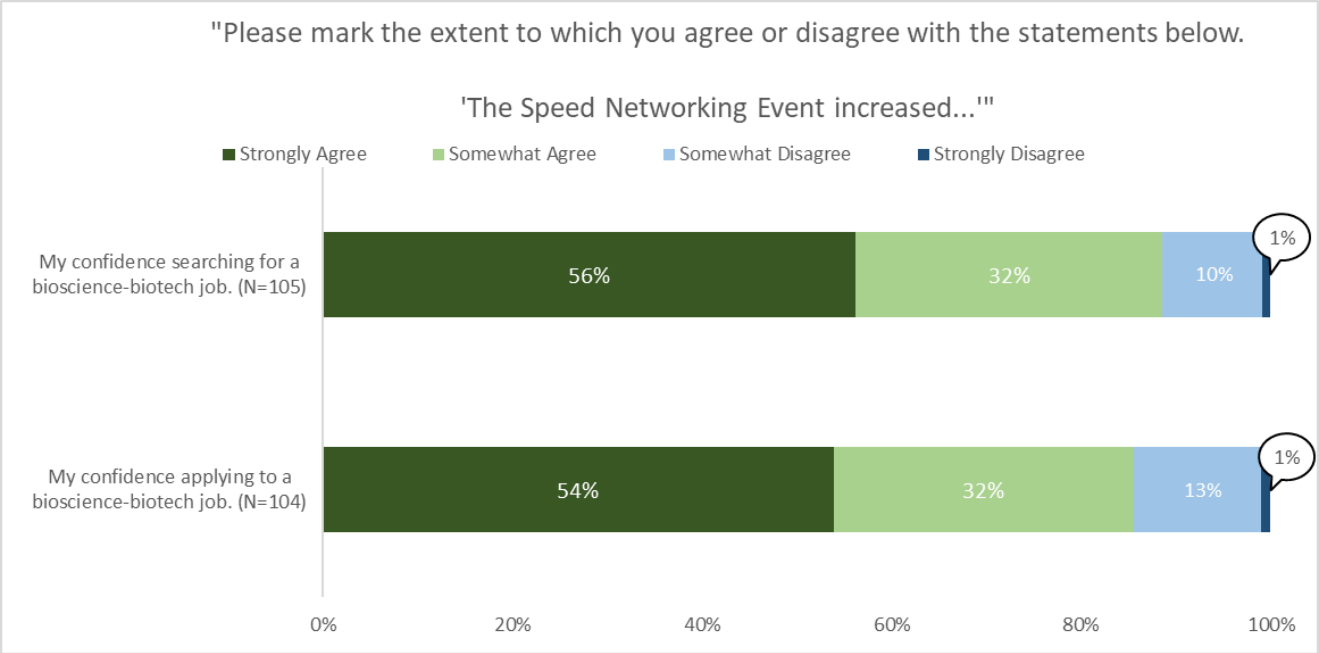
Figure 4: Students: Understanding of Bioscience-Biotech Careers



CONFIDENCE IN APPLYING TO AND SEARCHING FOR A JOB

Eighty-nine percent (89%) of student respondents (N=105) agreed that the Speed Networking Event increased their confidence searching for a bioscience-biotech job (*Strongly Agree*: 56%, *Somewhat Agree*: 32%). Eighty-six percent (86%) of students (N=104) agreed that the event increased their confidence applying to a bioscience-biotech job (*Strongly Agree*: 54%, *Somewhat Agree*: 32%). (See Figure 5)

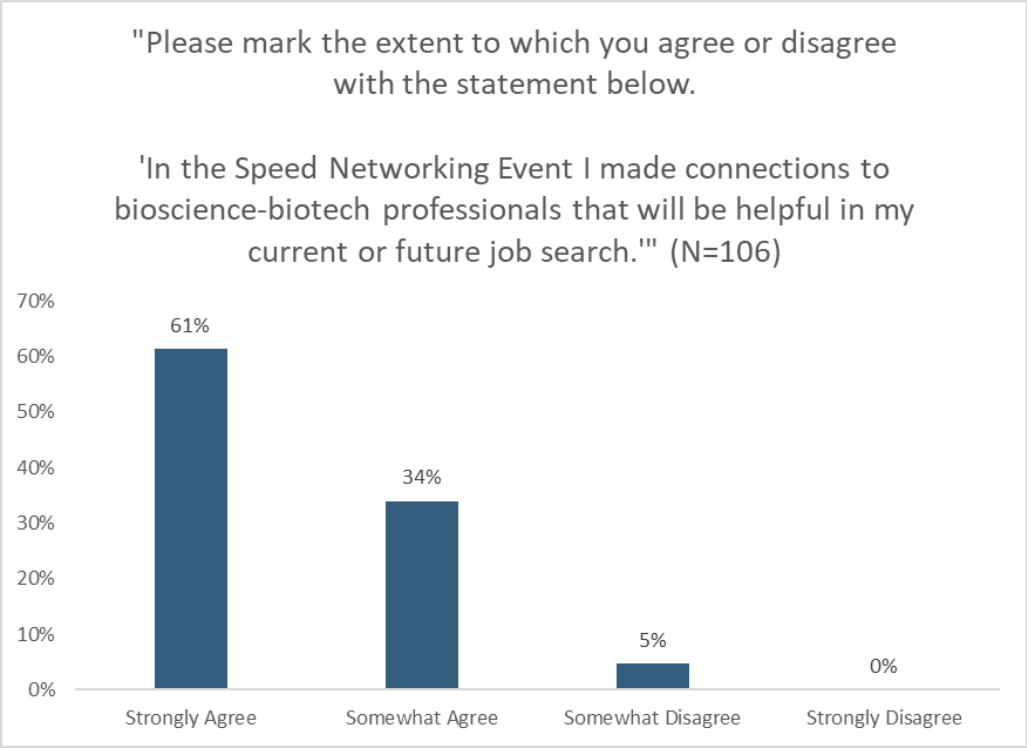
Figure 5: Students: Confidence in Applying to and Searching for a Job



CONNECTIONS TO BIOSCIENCE-BIOTECH PROFESSIONALS

The majority (95%) of student respondents (N=106) agreed that they made connections to bioscience-biotech professionals that will be helpful in their current or future job search in the Speed Networking Event (*Strongly Agree*: 61%, *Somewhat Agree*: 34%). (See Figure 6)

Figure 6: Students: Connections to Bioscience-Biotech Professionals



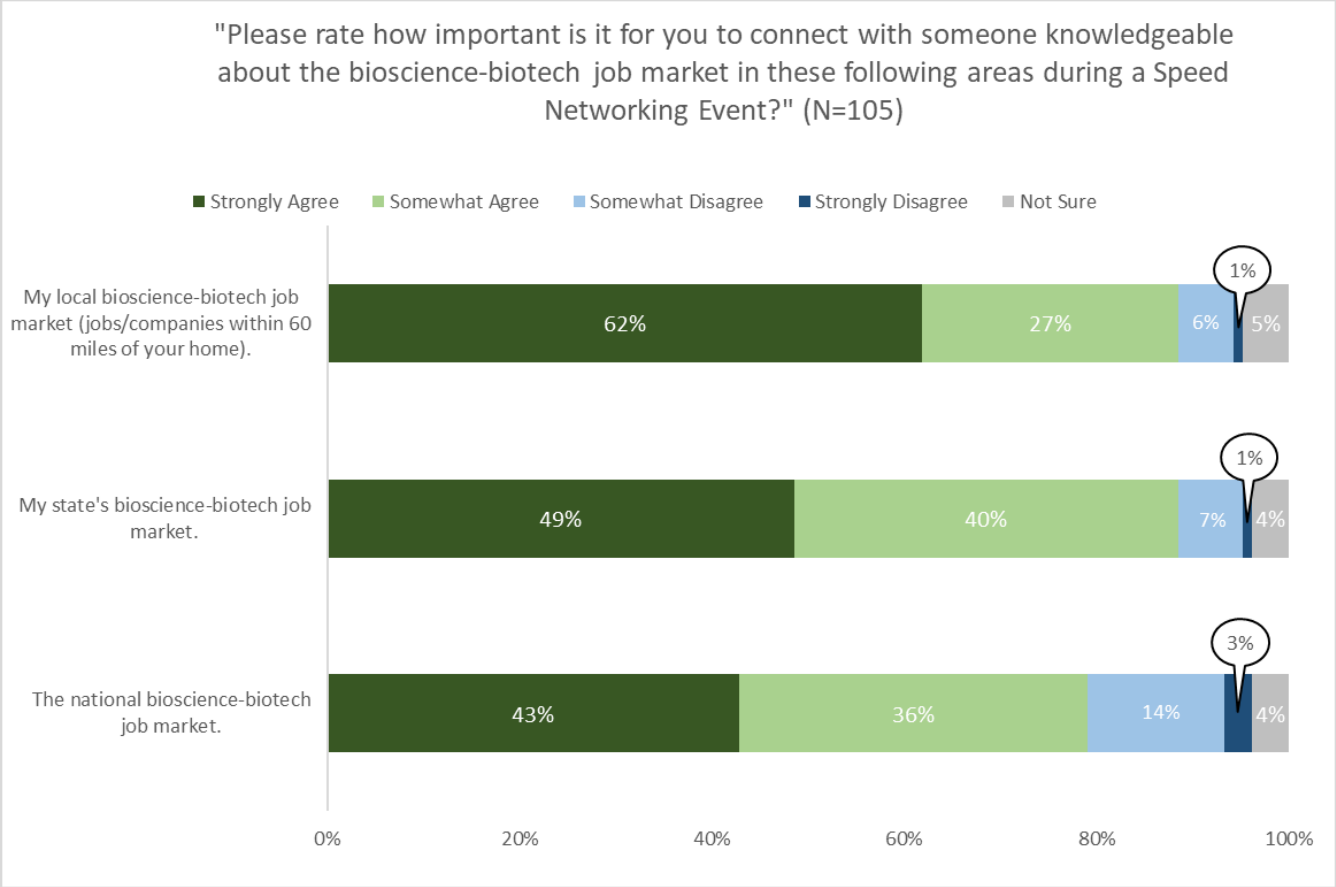
LEARNING ABOUT JOB OPENINGS

Sixty-five percent (65%) of students (N=105) responded *Yes* when asked: "In the Speed Networking Event, did you learn about any current or prospective job openings?" Thirty-five percent (35%) responded *No* to this question.

IMPORTANCE OF KNOWLEDGE ABOUT JOB MARKET

Eighty-nine percent (89%) of student respondents (N=105) agreed that it was important to connect with someone knowledgeable about their local bioscience-biotech job market (*Strongly Agree*: 62%, *Somewhat Agree*: 27%) and that it was important to connect with someone knowledgeable about their state's bioscience-biotech job market (*Strongly Agree*: 49%, *Somewhat Agree*: 40%). Seventy-nine percent (79%) agreed that it was important to connect with someone knowledgeable about the national bioscience-biotech job market (*Strongly Agree*: 43%, *Somewhat Agree*: 36%). (See Figure 7)

Figure 7: Students: Perceived Importance of Connecting With Someone Knowledgeable About the Bioscience-Biotech Job Market



FAVORITE ASPECTS OF EVENTS

In explaining what they liked best about the event, students praised their interactions with diverse, helpful, and kind industry representatives, the knowledge and advice shared by these individuals, and the connections they made with them. They enjoyed speaking with professionals at different points in their careers and from a wide variety of companies within biotech. Finally, students appreciated that every student was able to ask questions and speak with volunteers one-on-one in a relaxed setting, which made the conversations less intimidating. Selected quotations are below:

> *One thing I liked the most about this event was the breakout rooms. Since it was a small group, it was easier for me to ask questions compared to having the conversation as a class. I also appreciate that there were professionals from various positions within biotech companies.*

> *Networking and figuring out which career paths may be available. Learning about what skills are required for positions I am interested in. One-on-one conversations work great!*

I learned what I should do to equip me more to fit into biotechnology field, it gives me more understanding about how to design my career path for getting into this field

I liked talking to the industry professionals, they were so kind and helpful. The industry professionals were able to give me a better image of what to expect in a biotech job. I also liked how there were many different field professionals, who came from many pathways, it helped me alleviate the stress of being indecisive when it comes to picking a career/study path. Overall, the event is really helpful to students, who want to better understand the many industries involved in the field of biotech.

SUGGESTIONS FOR IMPROVING EVENTS

The survey also asked respondents how the event could be improved. The only strong theme among responses to this question was the suggestion to lengthen the event. Suggestions for improvement mentioned by fewer students include adding more volunteers and/or volunteers from different fields, providing informational packets on all participants, and ensuring all students and industry volunteers have a chance to meet each other.

PARTICIPATION IN PRIOR SPEED NETWORKING EVENTS

When asked if they had participated in previous Speed Networking Events, 39% of students (N=36) responded *Yes*, and 53% *No*. Eight percent (8%) of student respondents were unsure if they had participated in previous Speed Networking Events. Of the student respondents (N=14) who had participated in previous Speed Networking Events, all (100%) had participated as a student, and 21% indicated that they had also participated as an industry/academia volunteer.

SCHOOL AFFILIATIONS

Students (N=243) were asked what types of school they attend. Nine percent (9%) attend *High school* (including dual enrollment students), 77% attend *Community college*, 11% attend a *Four-year college/university*, and 3% indicated some type of other school affiliation. Of those that chose *Other*, student attendees gave the following answers: “Bio work class”; “Finished High School”; “Just graduated, planning on going to community college”; “Deciding to get a masters or phd after a bachelors and community college”; “I'm at HCC but I have my bachelor's at USF”; “Dual enrolled.”

IMPORTANCE OF MEETING WITH SOMEONE WITH SIMILAR CHARACTERISTICS

Seventy-six percent (76%) of student respondents (N=247) met with someone during the events whose characteristics aligned with their own characteristics. Seventy-six percent (76%) of respondents indicated that it was important for them to meet with someone whose characteristics aligned with their own characteristics (*Very important*: 40%, *Somewhat important*: 36%). (See Figure 8) Students who

identified as being historically excluded from the sciences were much more likely to share that it was *Very important* for them to meet with someone whose characteristics aligned with their own characteristics: 52% of excluded (N=92) vs. 27% of not excluded (N=87). (See Figure 9)

Figure 8: Students: Importance of Meeting With Someone With Similar Characteristics

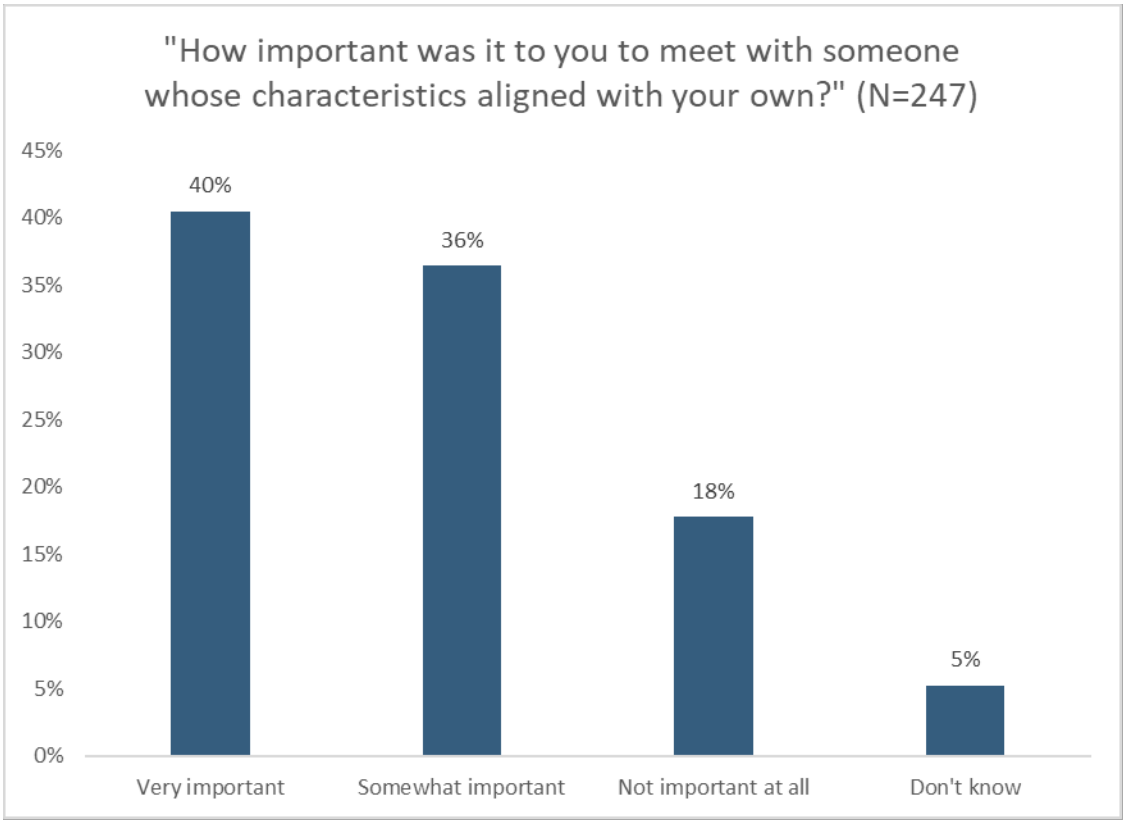
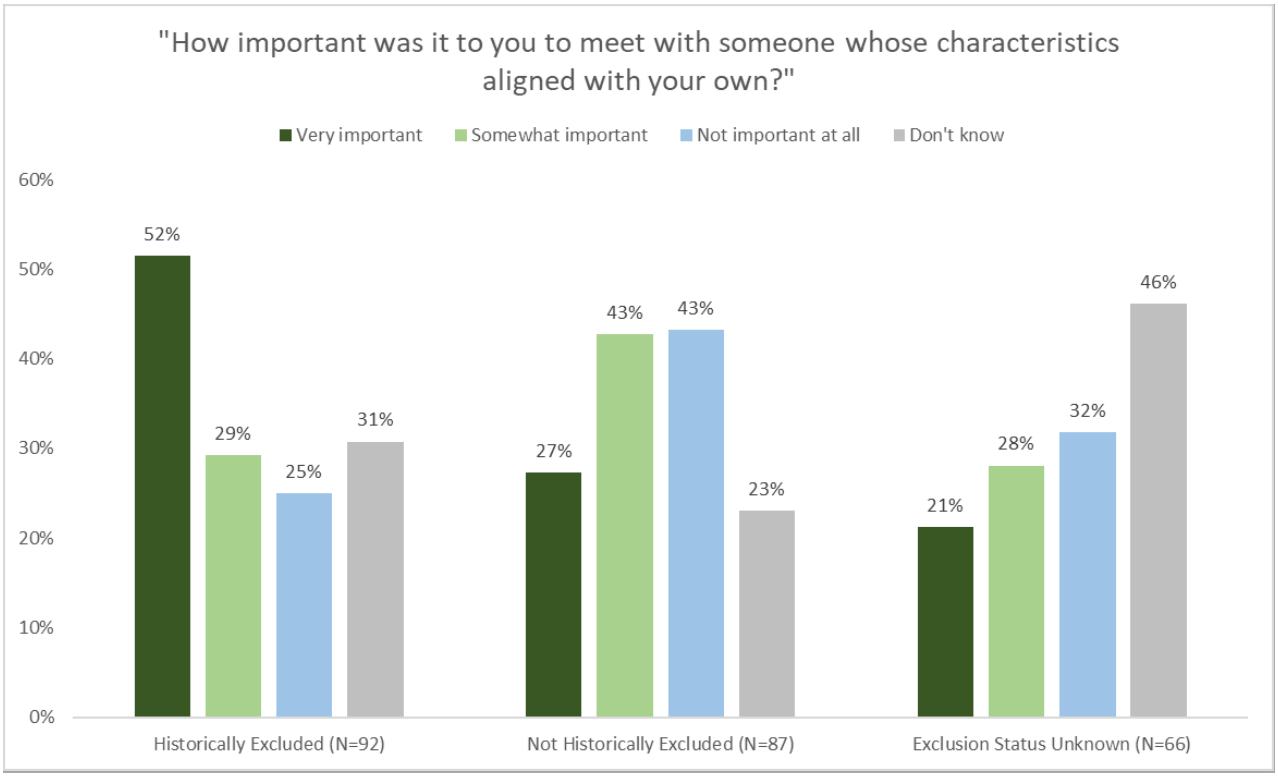


Figure 9: Students: Importance of Meeting With Someone With Similar Characteristics by Historically Excluded Status



In written comments describing how it felt meeting with someone whose characteristics aligned with their own, students most frequently mentioned gains in confidence through hearing success stories from individuals with similar backgrounds. As one student stated, "Meeting with someone whose characteristics align with my own makes me think that it is possible to achieve my goals such as graduating from college and being successful at a job." In addition to gains in confidence, students shared that they felt more comfortable connecting with individuals from similar backgrounds and that it felt good seeing individuals like them working in the field. Selected comments are below:

> *Meeting with someone whose characteristics aligned with my own gave me the confidence in the idea that I could prosper in specific job settings.*
>
> *I met with someone who also had a learning disability, so it was really helpful to know that someone with a learning disability can succeed to get a job in the biotech industry. It helped to ease some of my doubts.*
>
> *It made me feel understood and they can give guidance on what to do. Or they share their experiences and what they learned, so it helps me learn and understand how to navigate career.*
>
> *It was incredible meeting women who are thriving in the field of biotechnology, and it makes me confident about the future of women in the job market and their recognition for their work!*

It made me feel more comfortable having a conversation with them and asking them questions.

IMPORTANCE OF MEETING WITH COMMUNITY COLLEGE ALUMNI

Seventy-two percent (72%) of respondents (N=247) met with a community college alum during the events. Eighty percent (80%) of students indicated that it was important for them to meet with a community college alum (*Very important*: 52%, *Somewhat important*: 28%). (See Figure 10) Students who identified as being historically excluded from the sciences were more likely to share that it was *Very important* for them to meet with a community college alum: 46% of excluded (N=92) vs. 34% of not excluded (N=87), and much less likely to share that it was *Not important at all*, 12% vs. 52%. (See Figure 11)

Figure 10: Students: Importance of Meeting With a Community College Alumni

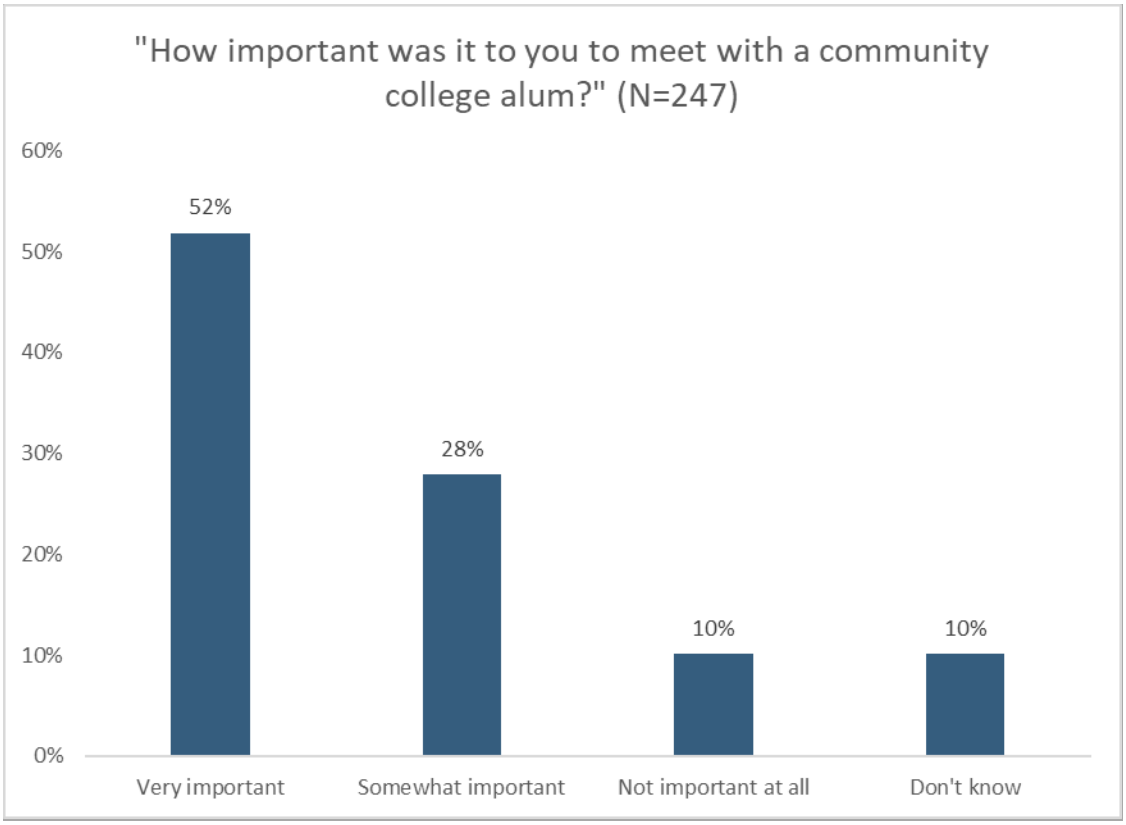
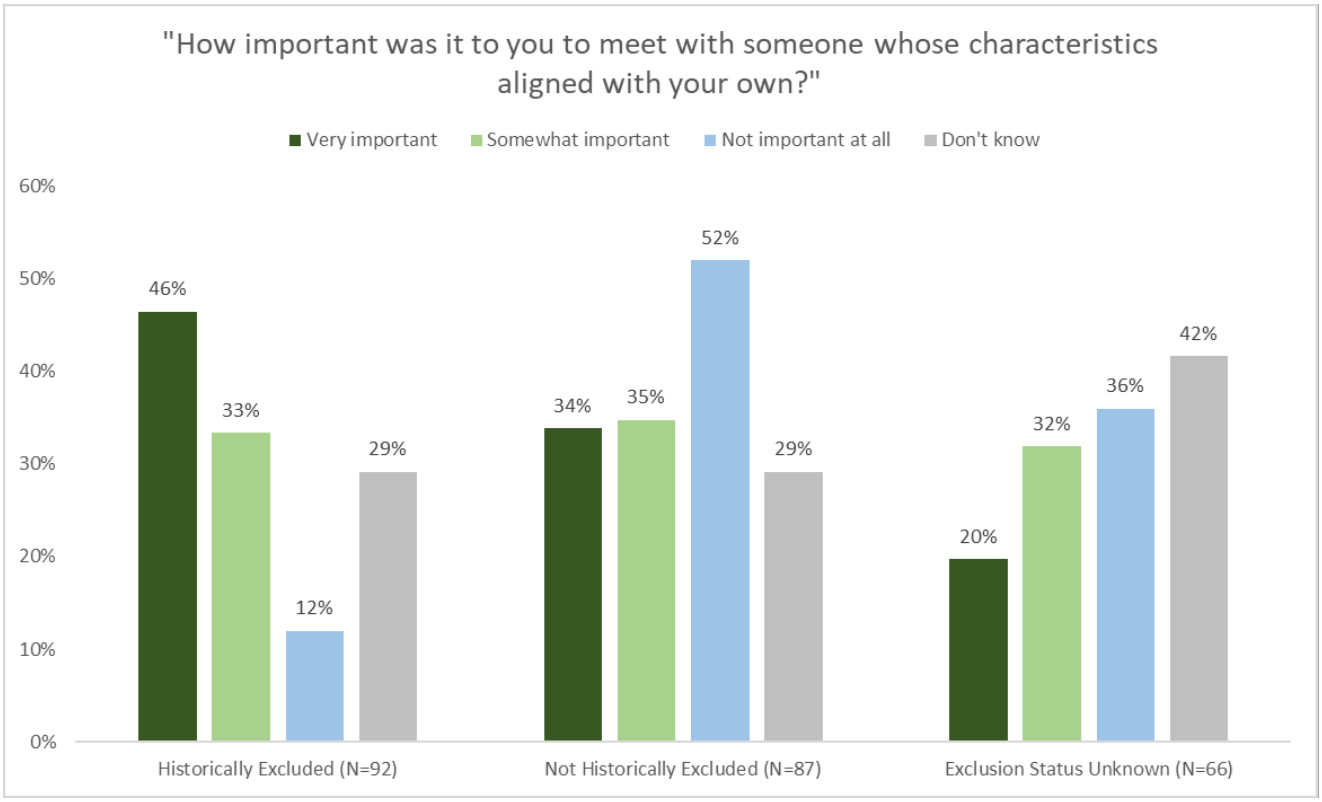


Figure 11: Students: Importance of Meeting With a Community College Alumni by Historically Excluded Status



In written comments describing how it felt meeting with a community college alum, students most commonly mentioned that it was great meeting with someone who found a successful career after attending a community college and gaining confidence through conversations with these individuals. As one respondent shared, "I felt much more secure knowing someone started where I was and is currently working successfully in their field of choice." In addition, they felt better informed after conversations with these individuals and felt supported and encouraged talking with community college alum. Selected comments are below:

> *It is great to meet people who has been in a similar situation and learn about the various paths they went to get where they are now.*
>
> *It made me feel like I got this. Meeting with a college alum shows me that anything is possible, it provides me with hope and motivation to strive as a student. I see myself in them, I could become them in the future. It also helps me to put my worries away, since they also struggled with the same issues. I feel empowered meeting them. They have motivated me to become a better person. I want to strive for the best, because of them.*
>
> *It was comforting to talk to someone that also has experience with community college.*

It gave me confidence when I know that someone with my education background is doing well and enjoying their work.

TAKEN OR TAKING BIOTECHNOLOGY COURSE

Students were asked if they have taken or are currently taking a biotechnology course. Eighty-three percent (83%) of student participants (N=246) indicated that they have taken or are currently taking a biotechnology course, with 17% indicating they have not or are currently not taking a biotechnology course.

HISTORICALLY EXCLUDED STATUS

Thirty-eight percent (38%) of respondents (N=245) identify as belonging to a group that has historically been excluded from sciences; 36% do not; 22% do not know if they do; and 4% preferred not to say.

DISABILITY STATUS

Ten percent (10%) of respondents (N=245) identify as someone with a disability and 76% said they do not. Six percent (6%) of students chose the *Don't know* response option and 8% the *Prefer not to say* option.

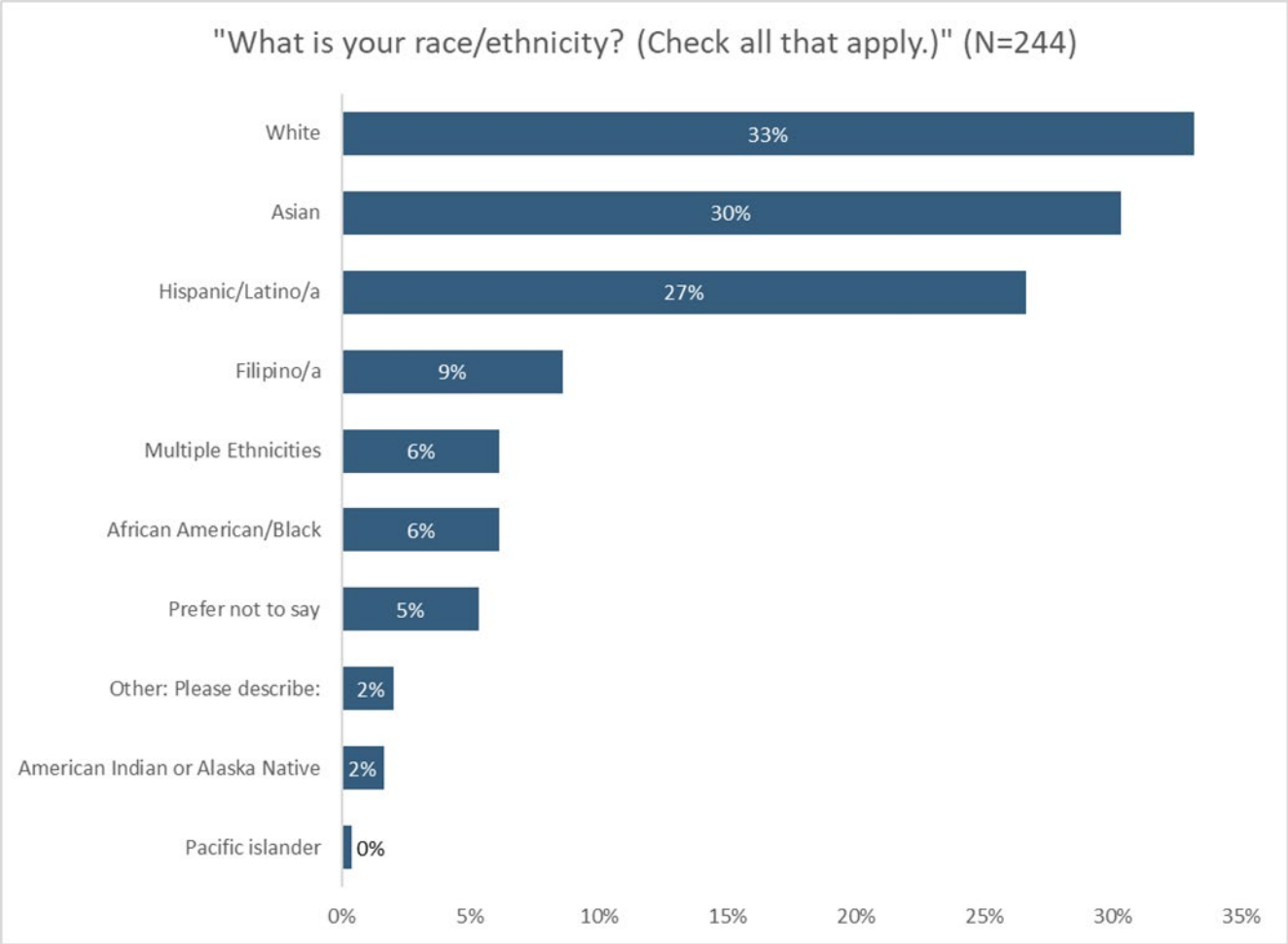
GENDER IDENTITY

More than half (56%) of the students (N=245) identify as women, 39% as men, and 4% chose the *Prefer not to say* response option.

RACE/ETHNICITY

Thirty-three percent (33%) of students (N=244) identify as *White*; 30% as *Asian*; 27% as *Hispanic/Latino/a*; 9% as *Filipino/a*; 6% as *Multiple Ethnicities*; 6% as *African American/Black*; 5% of respondents preferred not to say; 2% as *American Indian or Alaska Native;* and one student as *Pacific Islander*. Of the five students (2%) who selected *Other*, they manually entered the following races/ethnicities: "Indian"; "Latino"; "Russian, Ukrainian"; "Chaldean"; and "Native American (Navajo)." (See Figure 12)

Figure 12: Students: Race/Ethnicity



COMPARITIVE ANALYSES

The evaluation team explored several statistical comparisons in order to better understand the experiences of specific subgroups of student and alumni participants. Selected items were analyzed by responses to two questions that were chosen based on their ability to provide evidence in answering evaluation questions and having adequate response rates: “Have you taken or are you currently taking a biotechnology course?” and “Do you feel you belong to a group that has historically been excluded from the sciences?”. Analyses presented below are comprised of an independent *t*-test for each single item analyses (included together in one table), and a multivariate analysis of variance (MANOVA) for items grouped by common question stems with common response options.

Current or Previous Biotechnology Coursework

Participants were asked “Have you taken or are you currently taking a biotechnology course?” (N=255), with over four-fifths answering *Yes* (84%) and under one-fifth answering *No* (16%). Several comparative

analyses were conducted using the responses from this question (Yes = Biotech Course; No = No Biotech Course) as a grouping variable.

As seen in Table 3, ratings of the overall event were similar between those who have experienced a biotechnology course (*Mean* = 4.77) versus those who had not (*Mean* = 4.74). Similarly, ratings of professional connections were also similar between those who have experienced a biotechnology course (*Mean* = 3.63) and those who had not (*Mean* = 3.51). Lastly, similar proportions of respondents reported learning about job openings were found between those who have experienced a biotechnology course (*Mean* = 0.65) and those who had not (*Mean* = 0.71).

Table 3: Students: Biotech Course - Rating Comparison *t*-tests

	Biotech Course			No Biotech Course			*t*	*df*	*p*
	N	*Mean*	SD	*N*	*Mean*	SD			
How would you rate the Speed Networking Event? [a]	213	4.77	0.48	42	4.74	0.50	-0.447	253	.655
I made connections to bioscience-biotech professionals that will be helpful in my current or future job search. [b]	78	3.63	0.58	35	3.51	0.56	-0.970	111	.334
In the Speed Networking Event, did you learn about any current or prospective job openings? [c]	78	0.65	0.48	35	0.71	0.46	0.629	111	.531

[a] Response options: 1=Very Poor, 2=Poor, 3=Fair, 4=Good, 5=Excellent
[b] Response options: 1=Strongly Disagree, 2=Somewhat Disagree, 3=Somewhat Agree, 4=Strongly Agree
[c] Response options: 0=No, 1=Yes

Participants were asked to provide their level of agreement with several statements on how they felt that the event they attended influenced their perception of various aspects of the biotechnology field. (See Table 4) Overall, those who had experience with a biotechnology course provided a higher level of agreement with these statements than those who had not, except about "My ideas about who can be successful in science", which was rated similarly between the Biotech Course group (*Mean* = 3.65) and the No Biotech Course group (*Mean* = 3.50).

These results indicate that those involved with a biotechnology program may have been more aware of, or more invested in these aspects of the bioscience-biotechnology prior to their participation in the events. Alternatively, these results may highlight areas for Speed Networking facilitators to pay special attention to for students who have not had prior experience with biotechnology coursework.

Table 4: Students: Biotech Course - Ratings of Event Influence

The Speed Networking event influenced…	Biotech Course			No Biotech Course			*F*(1,242)	*p*
	N	*Mean*	*SD*	*N*	*Mean*	*SD*		
My ideas about who can be successful in a bioscience-biotech career	204	3.65	0.53	40	3.50	0.56	2.737	.099
Whether I feel that I fit the description of someone who does science	204	3.61	0.58	40	3.33	0.57	7.954	.005
My confidence that I would feel comfortable in a bioscience-biotech work environment	204	3.70	0.56	40	3.33	0.57	14.677	<.001
My confidence that I could succeed in a bioscience-biotech career	204	3.70	0.54	40	3.33	0.53	15.936	<.001
My confidence in talking with bioscience-biotech professionals	204	3.70	0.52	40	3.45	0.60	7.425	.007
My desire to take future bioscience-biotech courses	204	3.66	0.58	40	3.18	0.78	20.480	<.001
My desire to take future bioscience-biotech courses at my local community college	204	3.65	0.58	40	2.98	0.86	37.467	<.001
My desire to pursue a career in bioscience-biotech	204	3.70	0.57	40	3.10	0.84	31.001	<.001
My desire to pursue a degree in a bioscience-biotech field	204	3.66	0.60	40	2.92	0.86	42.186	<.001

Note: Multivariate results indicate a significant main effect ($V = .175$, $F(9,234) = 5.53$, $p < .001$).
All items were coded with the following response options: 1=Strongly Disagree, 2=Somewhat Disagree, 3=Somewhat Agree, 4=Strongly Agree.

Participants were asked to provide their level of agreement with several statements regarding how they felt the Speed Networking event affected their understanding of various aspects of the bioscience-biotechnology workforce. As seen in Table 5, participants across both groups responded similarly across all three aspects of the workforce, indicating that Speed Networking events provide similar educational opportunities to each group regarding the variety of jobs, skills needed, and possible trajectories in bioscience-biotech careers.

Table 5: Students: Biotech Course - Ratings of Understanding

The Speed Networking event gave me a better understanding of…	Biotech Course			No Biotech Course			*F*(1,250)	*p*
	N	*Mean*	*SD*	*N*	*Mean*	*SD*		
The variety of jobs in bioscience-biotechnology	210	3.73	0.50	42	3.83	0.38	1.486	.224
The skills needed for different bioscience-biotech jobs	210	3.70	0.52	42	3.71	0.46	0.028	.868
The possible career trajectories within bioscience-biotech	210	3.71	0.52	42	3.64	0.53	0.564	.453

Note: Multivariate results indicate a no significant main effect (V = .018, F(3,248) = 1.529, p = .207).
All items were coded with the following response options: 1=Strongly Disagree, 2=Somewhat Disagree, 3=Somewhat Agree, 4=Strongly Agree

Participants were asked questions on how they felt attending the Speed Networking event affected their level of confidence in searching and applying to a bioscience-biotech job. There were small differences in response between groups in searching for and applying to jobs between groups, with the Biotech Course group (*Mean* = 3.59; *Mean* = 3.54) providing higher ratings than the No Biotech Course (*Mean* = 3.29; *Mean* = 3.20). (See Table 6)

These results may stem from the No Biotech Course group being less inclined to be actively searching and applying for jobs in this field, but could be a point for facilitators to consider when including students without prior biotech coursework.

Table 6: Students: Biotech Course – Ratings of Increased Confidence

The Speed Networking event increased my confidence…	Biotech Course			No Biotech Course			*F*(1,109)	*p*
	N	*Mean*	*SD*	*N*	*Mean*	*SD*		
Searching for a bioscience-biotech job	76	3.59	0.64	35	3.29	0.83	4.584	.035
Applying to a bioscience-biotech job	76	3.54	0.66	35	3.20	0.87	5.147	.025

Note: Multivariate results indicate no significant main effect (V = .046, F(2,108) = 2.627, p = .077).
All items were coded with the following response options: 1=Strongly Disagree, 2=Somewhat Disagree, 3=Somewhat Agree, 4=Strongly Agree

Participants were asked to provide ratings on how important it was to them to connect with someone knowledgeable about the bioscience-biotech job market at the local, state, and national levels. As seen in Table 7, no differences in responses across each job market level were found between groups.

Table 7: Students: Biotech Course –Importance of Job Market Connection

Please rate how important is it for you to connect with someone knowledgeable about the bioscience-biotech job market…	Biotech Course			No Biotech Course			*F*(1,104)	*p*
	N	*Mean*	*SD*	*N*	*Mean*	*SD*		
My local bioscience-biotech job market	76	3.64	0.56	30	3.47	0.82	1.654	.201
My state's bioscience-biotech job market	76	3.47	0.64	30	3.50	0.73	0.033	.855
The national bioscience-biotech job market	76	3.24	0.85	30	3.40	0.77	0.839	.362

Note: Multivariate results indicate no significant main effect (V = .036, F(3,102) = 1.268, p = .289).
All items were coded with the following response options: 1=Not Important at All 2=Slightly Important 3=Somewhat Important 4=Very Important

Participants were asked about the importance of meeting with someone whose characteristics aligned with their own, as well as with community college alumni. There were no significant differences found between groups. (Table 8) This indicates that it was equally important to each group to meet with community college alumni as well as someone whose characteristics aligned with their own at these events.

Table 8: Students: Biotech Course – Importance of Meeting Alignment

How important was it to you to meet with…	Biotech Course			No Biotech Course			*F*(1,109)	*p*
	N	*Mean*	*SD*	*N*	*Mean*	*SD*		
Someone whose characteristics aligned with your own?	180	2.27	0.74	39	2.31	0.80	0.072	.789
A community college alum?	180	2.47	0.70	39	2.33	0.74	1.248	.265

Note: Multivariate results indicate no significant main effect (V = .009, F(2,216) = .996, p = .371).
All items were coded with the following response options: 1=Not Important at All 2=Somewhat Important 3=Very Important

Historical Exclusion from the Sciences

Participants were asked "Do you feel you belong to a group that has historically been excluded from the sciences?" (N=184), with about half answering *Yes* (48%) and under a half answering *No* (52%). Several comparative analyses were conducted using the responses from this question using Historically Excluded Status (HES) as a grouping variable (*Yes* = HES; *No* = Non-HES).

As seen in Table 9, ratings of the Speed Networking Events were similar for HES students (*Mean* = 4.81) and Non-HES students (*Mean* = 4.76). Additionally, students felt that they made connections with professionals that will be helpful in their job search at similar rate regardless of HES status (*Mean* =3.68) or Non-HES status (*Mean* = 3.57). Interestingly, a higher proportion of HES students (*Mean* = .75) reported learning about current or prospective job openings than Non-HES students (*Mean* = .49).

Table 9: Students: HES - Rating Comparison *t*-tests

	HES			Non-HES			*t*	*df*	*p*
	N	*Mean*	*SD*	*N*	*Mean*	*SD*			
How would you rate the Speed Networking Event? (Students)	96	4.81	0.466	87	4.76	0.481	-0.769	181	.443
I made connections to bioscience-biotech professionals that will be helpful in my current or future job search.	44	3.68	0.518	35	3.57	0.608	-0.871	77	.387
In the Speed Networking Event, did you learn about any current or prospective job openings?	44	0.75	0.438	35	0.49	0.507	-2.484	77	.015

[a] Response options: 1=Very Poor, 2=Poor, 3=Fair, 4=Good, 5=Excellent

[b] Response options: 1=Strongly Disagree, 2=Somewhat Disagree, 3=Somewhat Agree, 4=Strongly Agree

[c] Response options: 0=No, 1=Yes

Participants were asked to provide their level of agreement with several statements on how they felt that the event they attended influenced their perception of various aspects of the biotechnology field. As seen in Table 10, participants rated the items similarly between each group.

These results indicate that the Speed Networking Events are providing similar experiences to students regardless of historical exclusion status.

Table 10: Students: HES – Ratings of Event Influence

The Speed Networking event influenced…	HES			Non-HES			*F*(1,172)	*p*
	N	*Mean*	*SD*	*N*	*Mean*	*SD*		
My ideas about who can be successful in a bioscience-biotech career	88	3.69	0.55	86	3.60	0.52	1.190	.277
Whether I feel that I fit the description of someone who does science	88	3.66	0.59	86	3.52	0.59	2.331	.129
My confidence that I would feel comfortable in a bioscience-biotech work environment	88	3.67	0.56	86	3.62	0.56	0.408	.524
My confidence that I could succeed in a bioscience-biotech career	88	3.68	0.56	86	3.62	0.56	0.601	.439
My confidence in talking with bioscience-biotech professionals	88	3.72	0.55	86	3.66	0.50	0.448	.504
My desire to take future bioscience-biotech courses	88	3.65	0.64	86	3.58	0.60	0.491	.484
My desire to take future bioscience-biotech courses at my local community college	88	3.60	0.70	86	3.53	0.66	0.422	.517

My desire to pursue a career in bioscience-biotech	88	3.63	0.70	86	3.66	0.57	0.153	.696
My desire to pursue a degree in a bioscience-biotech field	88	3.59	0.74	86	3.52	0.68	0.395	.531

Note: Multivariate results indicate a significant main effect (V = .036, F(9,164) = 0.685, p = .722).
All items were coded with the following response options: 1=Strongly Disagree, 2=Somewhat Disagree, 3=Somewhat Agree, 4=Strongly Agree.

Participants were asked to provide their level of agreement with several statements regarding how they felt the Speed Networking event affected their understanding of various aspects of the bioscience-biotechnology workforce. As seen in Table 11, participants reported that the Speed Networking Event gave them a better understanding of the variety of jobs, skills needed, and possible career trajectories similarly regardless of historical exclusion status.

Table 11: Students: HES – Ratings of Understanding

The Speed Networking event gave me a better understanding of…	HES			Non-HES			F(1,179)	p
	N	*Mean*	*SD*	*N*	*Mean*	*SD*		
The variety of jobs in bioscience-biotechnology	94	3.74	0.51	87	3.77	0.45	0.127	.722
The skills needed for different bioscience-biotech jobs	94	3.79	0.48	87	3.67	0.47	2.862	.092
The possible career trajectories within bioscience-biotech	94	3.80	0.48	87	3.68	0.49	2.75	.099

Note: Multivariate results indicate a no significant main effect (V = .037, F(3,177) = 2.282, p = .081).
All items were coded with the following response options: 1=Strongly Disagree, 2=Somewhat Disagree, 3=Somewhat Agree, 4=Strongly Agree

Participants were asked questions on how they felt attending the Speed Networking event affected their level of confidence in searching and applying to a bioscience-biotech job. (Table 12) There were no differences in responses from either group regarding searching or applying for bioscience-biotech jobs, indicating that both groups had similar experiences at the Speed Networking Events.

Table 12: Students: HES – Ratings of Increased Confidence

The Speed Networking event increased my confidence…	HES			Non-HES			F(1,75)	p
	N	*Mean*	*SD*	*N*	*Mean*	*SD*		
Searching for a bioscience-biotech job	43	3.70	0.56	34	3.47	0.66	2.666	.107
Applying to a bioscience-biotech job	43	3.65	0.61	34	3.38	0.74	3.045	.085

Note: Multivariate results indicate no significant main effect (V = .040, F(2,74) = 1.555, p = .218).
All items were coded with the following response options: 1=Strongly Disagree, 2=Somewhat Disagree, 3=Somewhat Agree, 4=Strongly Agree

Participants were asked about the importance of meeting with someone knowledgeable about the local, state, and national bioscience-biotech job markets. While there was no difference between groups regarding the local bioscience-biotech job market, HES students (State *Mean* = 3.63; National *Mean* =

3.49) rated the importance of connecting with someone knowledgeable about the state and national job market higher than Non-HES students (State *Mean* = 3.24; National *Mean* = 3.03). (See Table 13) This may indicate that Non-HES students are less interested in non-local opportunities, as their ratings regarding the local job market (*Mean* = 3.55) are significantly higher than their ratings of the state (*Mean* = 3.24) and national job markets (*Mean* = 3.03), $F(2,64) = 6.005$, $p = .004$.

Table 13: Students: HES – Importance of Job Market Connection

Please rate how important is it for you to connect with someone knowledgeable about the bioscience-biotech job market…	HES			Non-HES			*F*(1,72)	*p*
	N	*Mean*	*SD*	*N*	*Mean*	*SD*		
My local bioscience-biotech job market	41	3.68	0.57	33	3.55	0.71	0.856	.358
My state's bioscience-biotech job market	41	3.63	0.54	33	3.24	0.79	6.398	.014
The national bioscience-biotech job market	41	3.49	0.64	33	3.03	0.98	5.836	.018

Note: Multivariate results indicate no significant main effect ($V = .099$, $F(3,70) = 2.555$, $p = .062$).
All items were coded with the following response options: 1=Not Important at All 2=Slightly Important 3=Somewhat Important 4=Very Important

Participants were asked about the importance of meeting with someone whose characteristics aligned with their own, as well as with community college alum. As seen in Table 14, HES students (Mean = 2.49) rated the importance of meeting with "someone whose characteristics aligned with your own" significantly higher than Non-HES students (*Mean* = 2.14). Additionally, HES students (*Mean* = 2.67) rated the importance of meeting with "a community college alum" significantly higher than Non-HES students (*Mean* = 2.35). These results seem to indicate that characteristic alignment, including status as a community college alum, may be more important to HES students than to non-HES students.

Table 14: Students: HES – Importance of Meeting Alignment

How important was it to you to meet with…	HES			Non-HES			*F*(1,109)	*p*
	N	*Mean*	*SD*	*N*	*Mean*	*SD*		
Someone whose characteristics aligned with your own?	86	2.49	0.70	78	2.14	0.73	9.639	.002
A community college alum?	86	2.67	0.54	78	2.35	0.75	10.418	.002

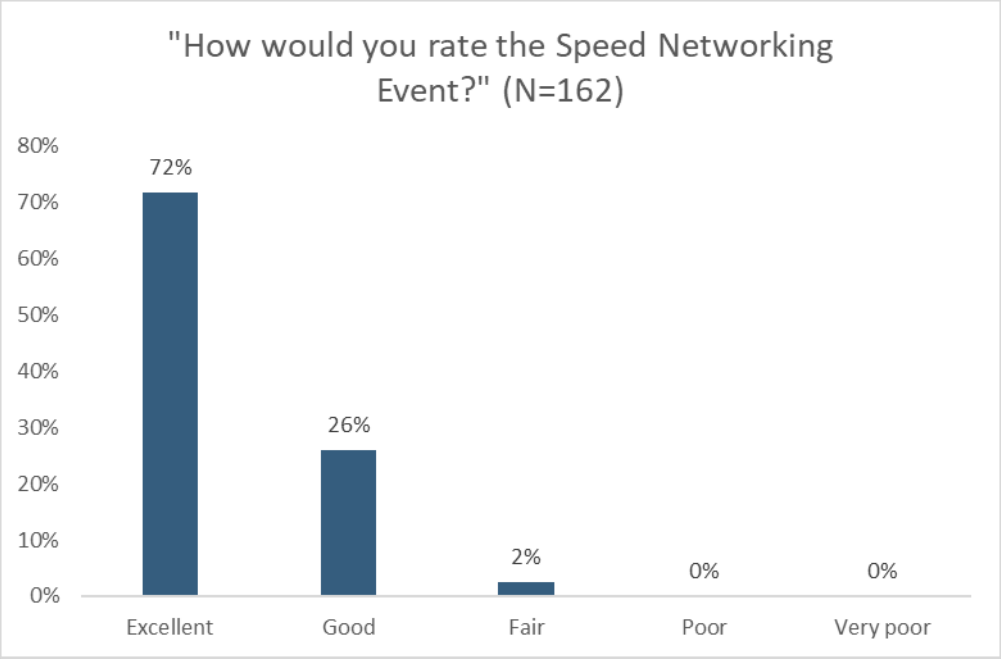
Note: Multivariate results indicate a significant main effect ($V = .081$, $F(2,161) = 7.075$, $p = .001$).
All items were coded with the following response options: 1=Not Important at All 2=Somewhat Important 3=Very Important

Speed Networking Event Survey: Industry/Academia Volunteers

EVENT RATINGS

Respondents (N=162) were asked to rate the Speed Networking Event they attended on a scale of *Excellent* to *Very poor*. Seventy-two (72%) gave the event a rating of *Excellent* and 26% rated the event as *Good*. (See Figure 13)

Figure 13: Industry/Academia Volunteers: Event Ratings



In written comments, industry/academia volunteers lauded how engaged and well-prepared the student participants were and how well the event was organized, many mentioning the great questions asked by students. Respondents also praised the organization and convenience of the event. They described taking part in the event as an enjoyable and rewarding experience that allowed them to give back to their respective programs. Selected comments are below:

> *Well organized and clear instructions. Students were prepared and engaged. Led to an enjoyable experience. Remote format made it easier to find time to participate.*
>
> *The event is a way for us to give back to prepare future students.*

It was fun chatting with students and hearing about what they are doing and what their goals are. I enjoyed giving advice, tips, thoughts, answering their questions, sharing my experience, and being a resource for them.

The event was very well organized and gave the opportunity to interact with the students in a relaxed/casual manner. I liked that the breakout sessions had only a few students so I was able to focus on asking specific questions to each student.

It was really rewarding to share career ideas with the students. The majority of students were highly engaged and asked great questions.

FAVORITE ASPECTS OF EVENTS

In describing their favorite aspects of the event, industry/academia volunteers most frequently shared their appreciation for: the conversations they had with students; the chance to share their own experiences and advice; helping students understand potential career opportunities; learning about students' backgrounds and interests; and instilling confidence in students. Respondents also praised the organization and concept of the event, noting the convenience of taking part in it and how efficient it is. Selected quotations are below:

There was not much down time and waiting. I really felt like my time was used fully.

All the students were well prepared and communicated very effectively. I enjoyed each student and hearing about their unique backgrounds.

Always a great pleasure to interact with the new aspiring leaders in Biotechnology and STEM. Energy they bring to the table is inspirational and makes us to do our job better.

I enjoyed getting to know the students and their career goals. It made me reflect on how I was in a similar position they were in and it felt great to offer advice on how to help them further their careers.

I really enjoyed the one-on-one meeting interaction with the students. I seemed to me that the students in this virtual meeting were more focused when compared to a meeting at a location onsite. Perhaps less distractions from people walking by or noise from other conversations.

SUGGESTIONS FOR IMPROVING EVENTS

The survey also asked respondents how the event could be improved. There were several themes in the responses to this question. These themes include sharing student and volunteer contact information and bios; making the events longer; encouraging students to have their cameras on; sharing expectations for volunteers; and holding separate events for non-biotech students.

OPINIONS ABOUT SPEED NETWORKING EVENTS

All (100%) industry/academia volunteer respondents agreed that participating in the event was a rewarding experience for them (*Strongly Agree*: 93%, *Somewhat Agree*: 7%; N=161), 99% agreed that they would be interested in participating in future events (*Strongly Agree*: 88%, *Somewhat Agree*: 11%; N=160), 97% agreed that they would recommend the Speed Networking Event to their colleagues (*Strongly Agree*: 86%, *Somewhat Agree*: 11%; N=160), and 98% of respondents agreed that the event helped students learn valuable information about careers in bioscience-biotech (*Strongly Agree*: 82%, *Somewhat Agree*: 16%; N=160). (See Figure 14) Furthermore, all respondents (100%) agreed that participating in the Speed Networking Event increased their interest in engaging with community college students and alumni in the future (*Strongly Agree*: 80%, *Somewhat Agree*: 20%; N=20), 90% agreed that participating in the Speed Networking Event increased their interest in considering community college students and alumni for employment (*Strongly Agree*: 65%, *Somewhat Agree*: 25% N=20), and 81% agreed that participating in the event was beneficial to their organization (*Strongly Agree*: 51%, *Somewhat Agree*: 30% N=161). (See Figure 15)

Figure 14: Industry/Academia Volunteers: Opinions About Speed Networking Events

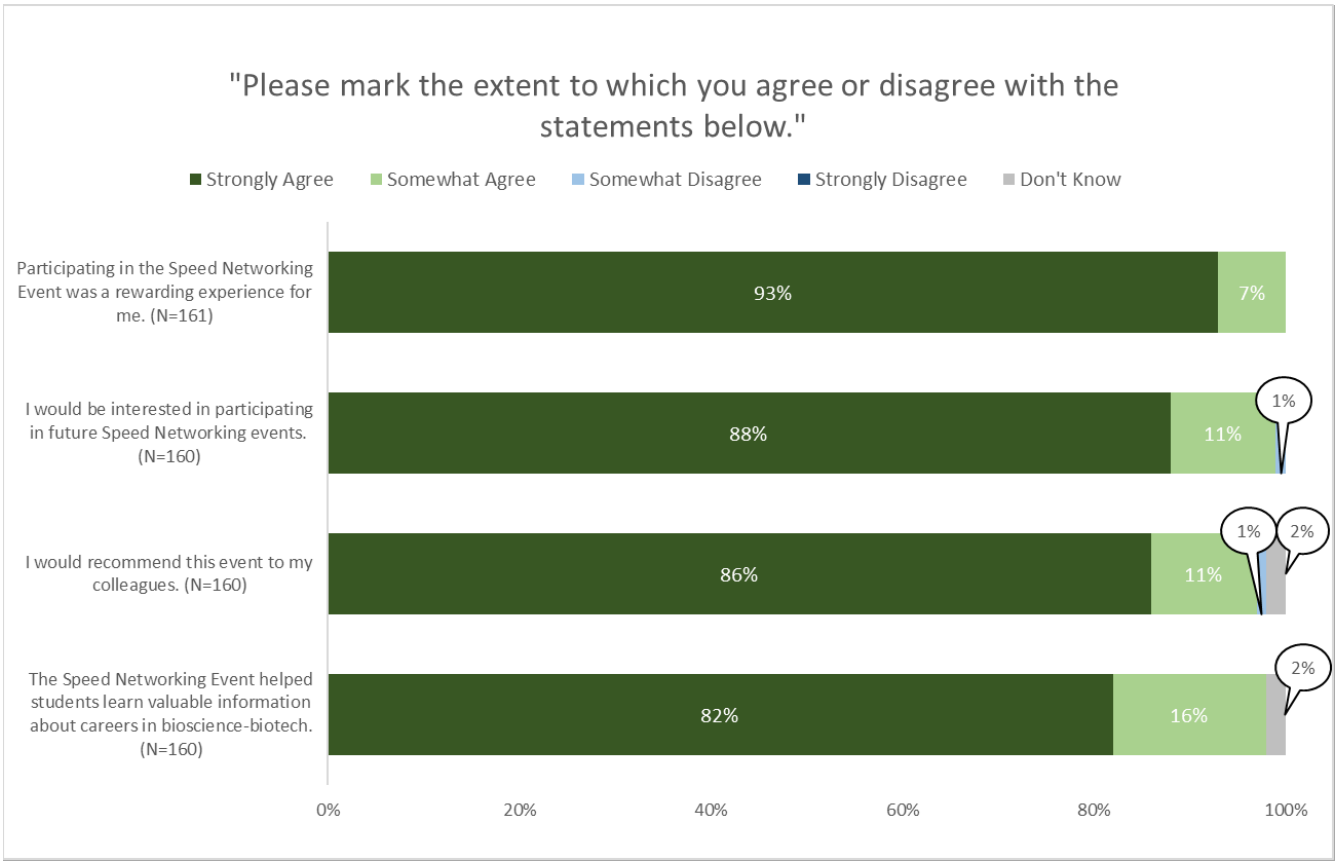
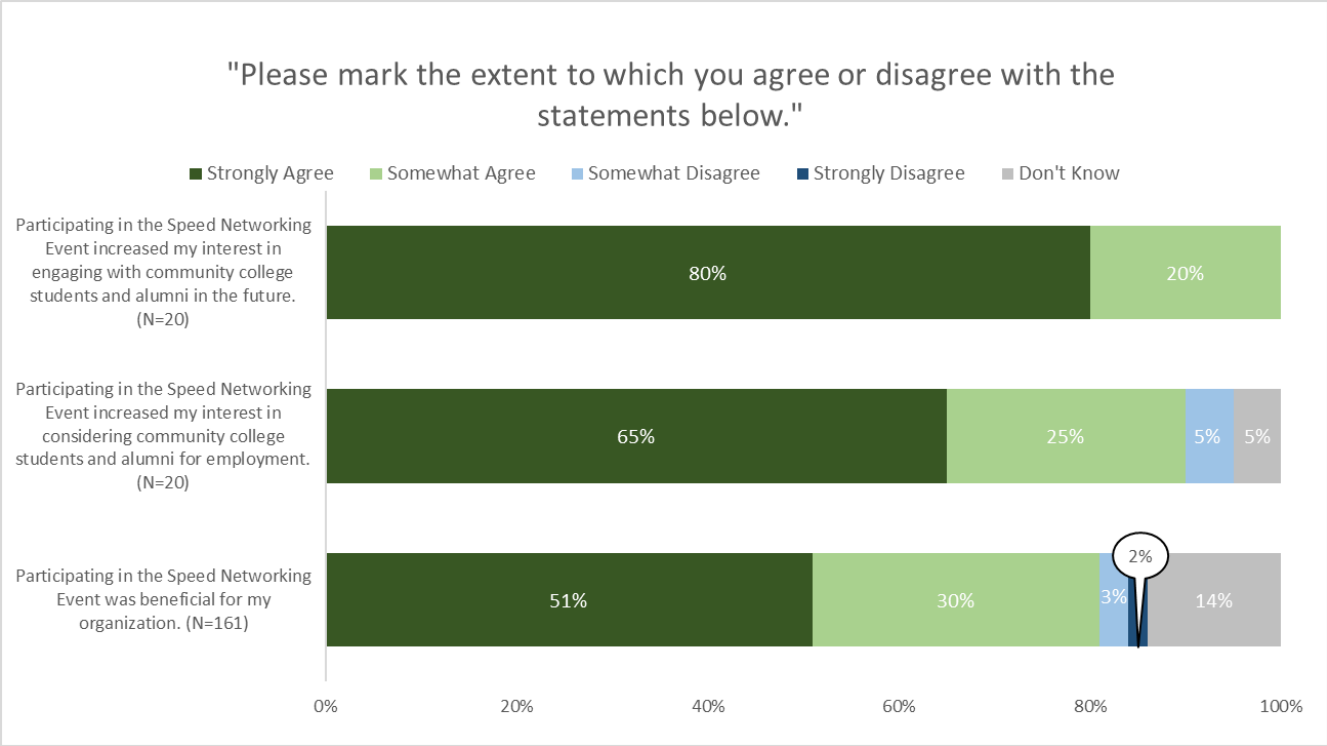


Figure 15: Industry/Academia Volunteers: Opinions About Speed Networking Events (Continued)



PARTICIPATION IN PRIOR EVENTS

When asked if industry/academia volunteers (N=20) had participated in previous Speed Networking Events, 45% said *Yes*, and 55% said *No*. Of the industry/academia volunteers (N=9) who had participated in previous Speed Networking Events, all (100%) said that they had participated as an industry/academia volunteer, and 11% indicated that they had also participated as a student.

COMMUNITY COLLEGE ALUM STATUS

Just over half (52%) of respondents (N=161) identified as a community college alum.

HISTORICALLY EXCLUDED STATUS

Forty percent (40%) of respondents (N=161) identified as belonging to a group that has historically been excluded from sciences and nearly half (48%) did not. Nine percent (9%) of volunteers responded that they *Don't know* and 2% *Prefer not to say* about their historically excluded status.

DISABILITY STATUS

Four percent (4%) of respondents (N=160) identified as someone with a disability; 93% did not; and five industry/academia volunteers (3%) responded that they *Prefer not to say*.

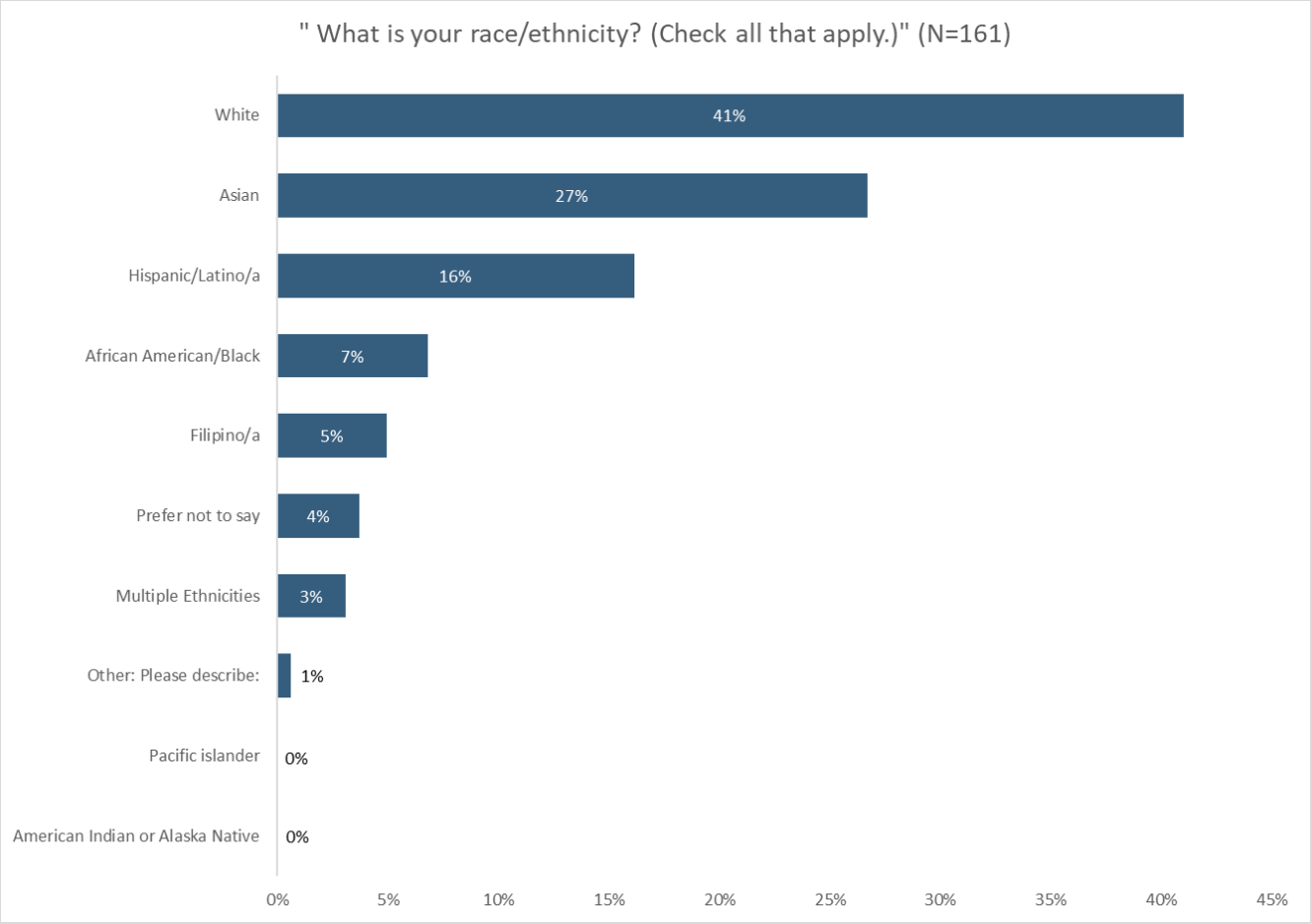
GENDER IDENTITY

Nearly half (48%) of the respondents (N=164) identify as women, 46% as men, and 2% as transgender. Two percent (2%) chose the *Not listed* response option and three respondents (2%) the *Prefer not to say* option.

RACE/ETHNICITY

Forty-one percent (41%) of industry/academia volunteers (N=161) were *White*; 27% were *Asian*; 16% were *Hispanic/Latino/a*; 7% were *African American/Black*; 5% were *Filipino/a*; 4% of respondents preferred not to say; 3% were multiple ethnicities, and one respondent selected *Other*, to which they said, "*middle eastern*." (See Figure 16)

Figure 16: Industry/Academia Volunteers: Race/Ethnicity



COMPARATIVE ANALYSES

The evaluation team explored several statistical comparisons in order to better understand the experiences of specific subgroups of event volunteers. Selected items were analyzed by responses to one question that was chosen based on its ability to provide evidence in answering evaluation questions and had an adequate response rate: "Do you feel you belong to a group that has historically been excluded from the sciences?". Analyses presented below are comprised of independent *t*-tests for each question analyzed. Overall, all responses were similar regardless of whether the volunteer identified as HES or Non-HES, indicating that they had similar experiences across both groups.

Volunteers were asked "Do you feel you belong to a group that has historically been excluded from the sciences?" (N=149), with over half answering *No* (56%) and under half answering *Yes* (44%). Several comparative analyses were conducted using the responses from this question using Historically Excluded Status (HES) as a grouping variable (*Yes* = HES; *No* = Non-HES).

Volunteers were asked to rate the Speed Networking Event that they attended. Volunteer ratings were similar between volunteers who identified as HES (*Mean* = 4.69) and those who identified as Non-HES (*Mean* = 4.69). Similar levels of agreement that the Speed Networking Event was a rewarding experience, and beneficial for their organizations were found between HES (*Mean* = 3.95; *Mean* = 3.57) and Non-HES (*Mean* = 3.90; *Mean* = 3.49) volunteers. (See Table 15)

Additionally, HES and non-HES volunteers reported similar levels of agreement with the events helping students learn valuable information about biotech careers, interest in participating in future events, and recommending these events to colleagues.

Table 15: Volunteers: HES Status - Ratings of Event and Influence of Event

	HES			Non-HES			*F*(1,172)	*df*	*p*
	N	*Mean*	*SD*	*N*	*Mean*	*SD*			
How would you rate the Speed Networking Event? [a]	65	4.69	0.528	84	4.69	0.514	-0.021	147	.983
Participating in the Speed Networking Event was a rewarding experience for me. [b]	65	3.95	0.21	84	3.90	0.30	-1.134	147	.259
Participating in the Speed Networking Event was beneficial for my organization. [b]	49	3.57	0.65	77	3.49	0.70	-0.628	124	.531
The Speed Networking Event helped students learn valuable information about careers in bioscience-biotech. [b]	65	3.80	0.40	80	3.86	0.35	1.004	143	.317
I would be interested in participating in future Speed Networking events. [b]	65	3.94	0.24	84	3.87	0.37	-1.302	147	.195

I would recommend this event to my colleagues. [b]	64	3.89	0.32	81	3.85	0.39	-0.645	143	.520

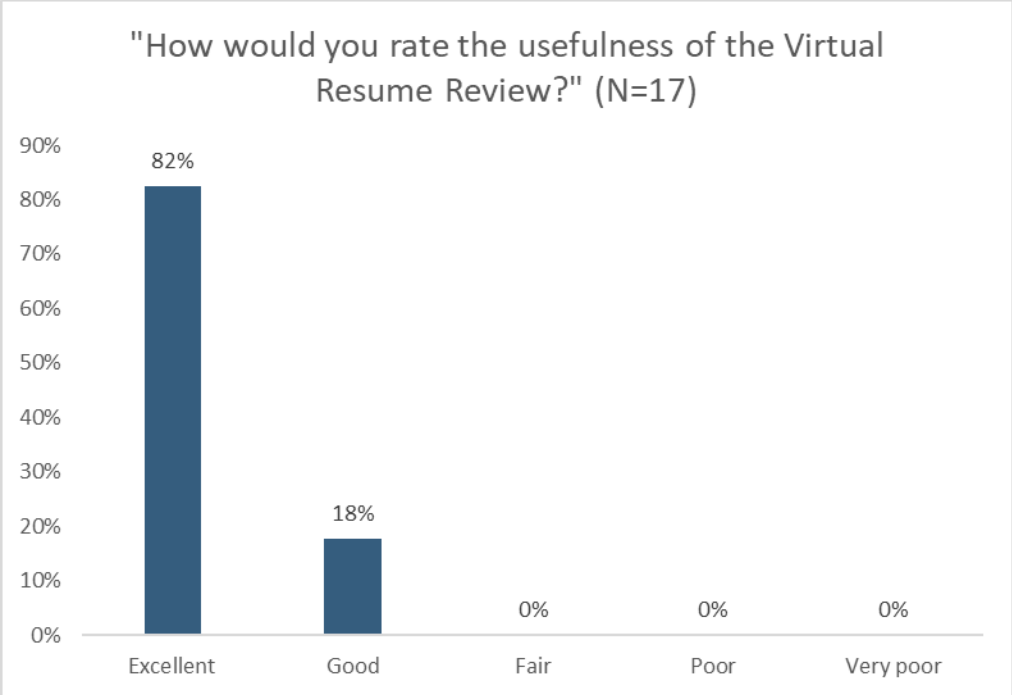
[a] Response options: 1=Very Poor, 2=Poor, 3=Fair, 4=Good, 5=Excellent
[b] Response options: 1=Strongly Disagree, 2=Somewhat Disagree, 3=Somewhat Agree, 4=Strongly Agree

Virtual Resume Review Event Survey: Student and Alumni Participants

EVENT RATINGS

Respondents (N=17) were asked to rate the usefulness of the Virtual Resume Review event they attended on a scale of *Excellent* to *Very poor*. Eighty-two percent (82%) gave the event a rating of *Excellent*, and 18% a rating of *Good*. (See Figure 17)

Figure 17: Students and Alumni: Event Rating



In written comments, almost every student and alumni participant brought up the feedback they received on their resumes during the event in explaining their ratings of the event. They described the feedback they received from the volunteers as “invaluable,” “useful,” “detailed,” and “thoughtful.” Respondents also mentioned learning about careers in biotech and growing their networks. Selected comments are below:

Even with my 20-year background it was hard to isolate what to highlight as well as format a coherent CV that would grab attention in the right ways. I think I gained a lot of insight on what to correct going forward and am glad I had another few sets of experienced eyes on my CV to give me insights that I did not have prior.

Very often, you put yourself out there and the only response is a lack of response. So, you know things are not working to your benefit, but you don't always have insights as to WHY. The benefit of receiving feedback is a rare and valuable commodity from those in a position to offer substantive advice.

I received very detailed feedback about my resume and how to tailor it to industry roles. I also received information about job roles that exist for my specific skill set and passions.

FAVORITE ASPECTS OF EVENT

In explaining what they liked best about the event, students and alumni again mentioned the feedback they received on their resumes during the event. They appreciated their discussions with biotech professionals, the advice they received from reviewers, connecting with current and former classmates, and networking. Selected quotations are below:

The reviewers gave usable and practical suggestions on my resume. They also gave bigger picture advice on how to position myself in the job market given my background, and also both reviewers offered to be in my network as I go through my job search.

The opportunity to get feedback and ask industry experts questions related to a critical element of the job search.

Unexpectedly, I found it refreshing to (re)connect with former friends/classmates/colleagues in between the sessions. But other than the resume review specifically, it was also a great opportunity to ask industry veterans about broader more general things such as their personal work experience/insights as opposed to mine.

Talking to people in industry! I'm currently in grad school and most of the people I talk to are in grad school. This gave me the wonderful opportunity to connect with people who are in the field I want a career in, and to find out how to represent myself so that I can start my own career.

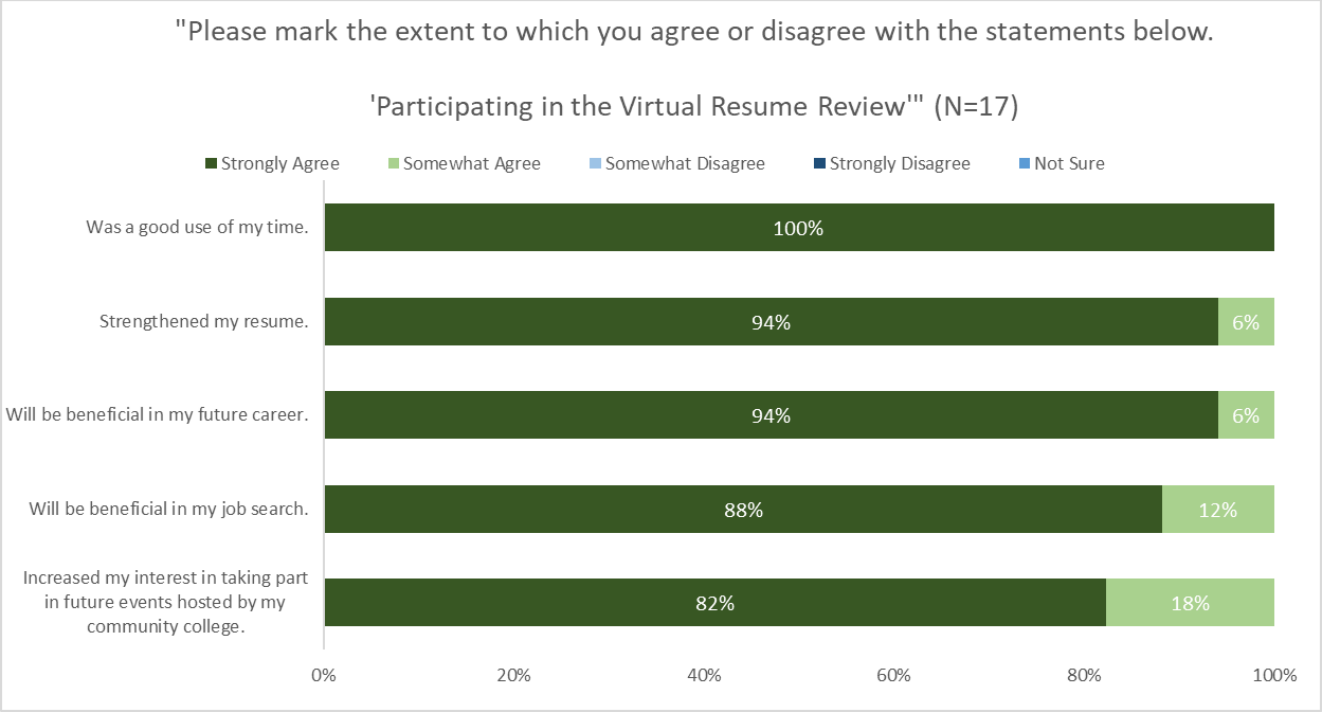
SUGGESTIONS FOR IMPROVING EVENT

There were no strong themes in response to the question, “How would you improve this event?” Many respondents shared they had no suggestions for improvement as the event was great as-is. Suggestions from one respondent apiece include holding an in-person event, making sure participants are paired with reviewers working at different companies, and adding additional reviewers.

OPINIONS ABOUT VIRTUAL RESUME REVIEW EVENT

All respondents (100%, N=17) agreed that: participating in the Virtual Resume Review was a good use of their time (*Strongly* Agree: 100%), the event strengthened their resume (*Strongly Agree*: 94%, *Somewhat Agree*: 6%), it will be beneficial to their future career (*Strongly Agree*: 94%, *Somewhat Agree*: 6%), it will be beneficial in their job search (*Strongly Agree*: 88%, *Somewhat Agree*: 12%), and that it increased their interest in taking part in future events hosted by their community college (*Strongly Agree*: 82%, *Somewhat Agree*: 18%). (See Figure 18)

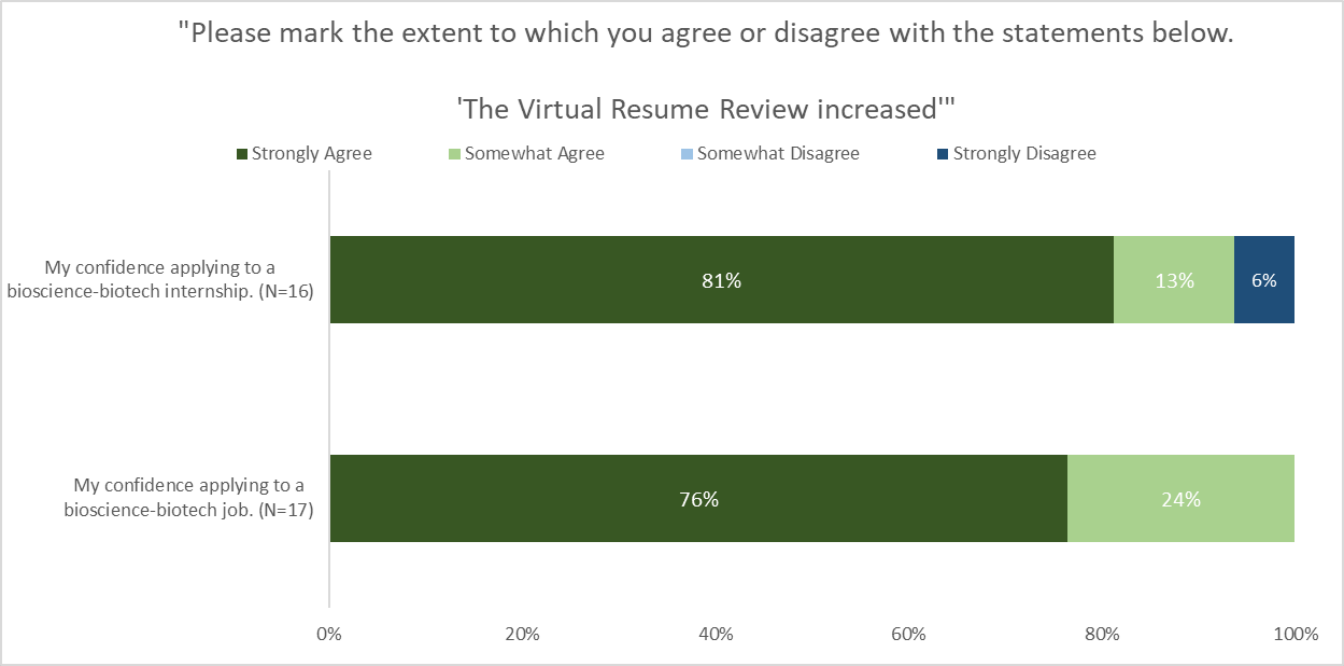
Figure 18: Students and Alumni: Opinions About the Virtual Resume Review Event



CONFIDENCE IN APPLYING TO AND SEARCHING FOR A JOB

Ninety-four percent (94%) of respondents agreed that the Virtual Resume Review increased their confidence applying to a bioscience-biotech internship (*Strongly Agree*: 81%, *Somewhat Agree*: 13%; N=16), and all respondents agreed that the event increased their confidence applying to a bioscience-biotech job (*Strongly Agree*: 76%, *Somewhat Agree*: 24%; N=17). (See Figure 19)

Figure 19: Students and Alumni: Confidence in Applying to and Searching for a Job



COMMUNITY COLLEGE AFFILIATION

Eighty-eight percent (88%) or respondents (N=17) attend *City College of San Francisco*, and twelve percent (12%) attend *Solano Community College*.

COMMUNITY COLLEGE ALUM STATUS

Just over half (53%) of respondents (N=19) identify as a *Current student*, and 47% identify as *Alum*.

HISTORICALLY EXCLUDED STATUS

Over half (56%) of respondents (N=16) identify as belonging to a group that has historically been excluded from sciences; 25% do not; and 13% do not know if they did.

DISABILITY STATUS

Twelve percent (12%) of respondents (N=17) identify as someone with a disability and 82% do not.

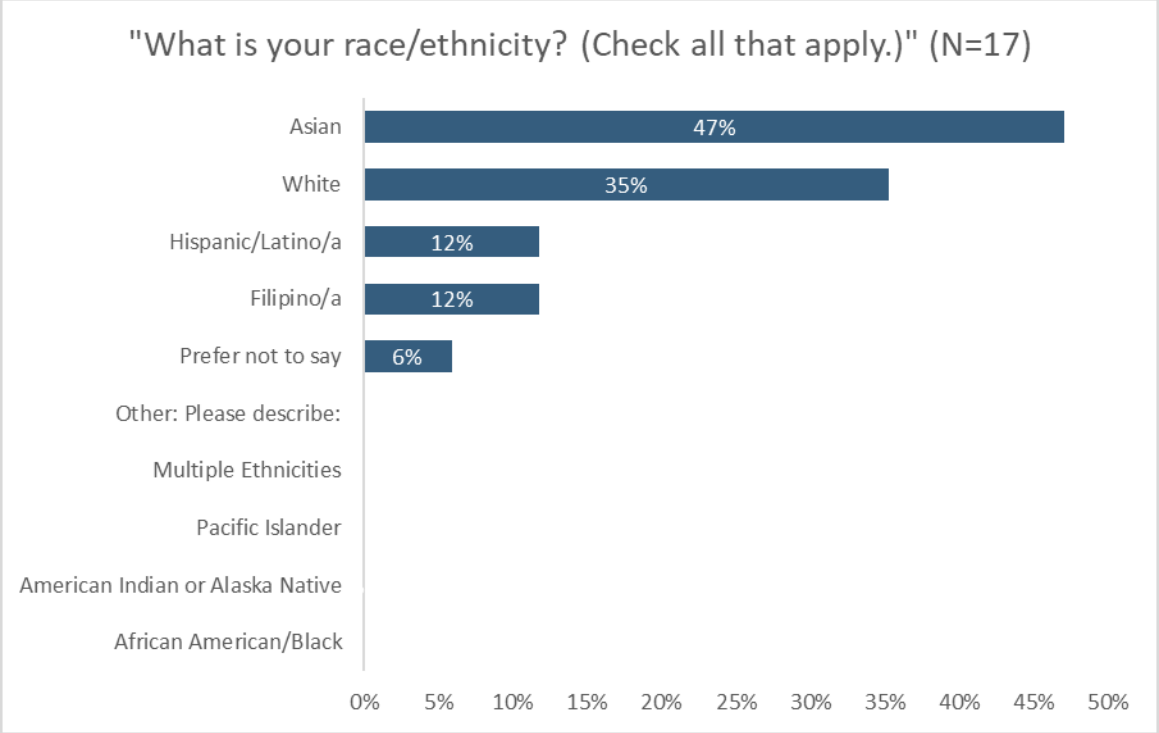
GENDER IDENTITY

Over half (59%) of the respondents (N=17) identify as women, 35% as men, and one respondent (6%) as transgender.

RACE/ETHNICITY

Almost half (47%) of students (N=17) identified as *Asian*, 35% as *White*, 12% as *Hispanic/Latino/a*, and 12% as *Filipino/a*. (See Figure 20)

Figure 20: Students and Alumni: Race/Ethnicity

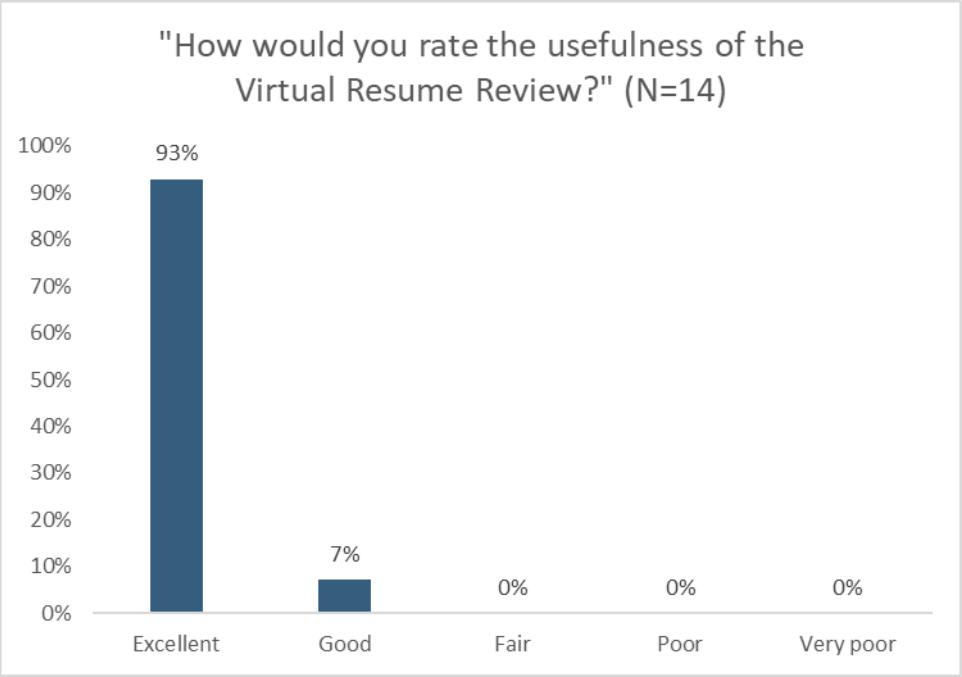


Virtual Resume Review Event Survey: Industry/Academia Volunteers

EVENT RATINGS

Respondents (N=14) were asked to rate the usefulness of the Virtual Resume Review event they attended on a scale of *Excellent* to *Very poor*. Ninety-three percent (93%) gave the event a rating of *Excellent* and 7% a rating of *Good*. (See Figure 21)

Figure 21: Industry/Academia Volunteers: Event Usefulness Rating



In written comments, industry/academia volunteers discussed enjoying meeting with students and sharing advice based on their own experiences, and that it felt good to help and give back by taking part in the event. They also praised the organization and convenience of the event. Selected quotes are below:

> *I enjoyed the 1:1 format and being able to talk to the students about their experiences and what positions they wanted to apply to in future, to help tailor their resume in that direction.*
>
> *This was a great experience overall, it is very important and fulfilling for me to be part of a community that is helping the next generation of scientists to move forward. The students seemed very appreciative of my support, I can't wait for the next time!*
>
> *Feels good to be helpful to people and give back to the community.*

FAVORITE ASPECTS OF EVENTS

In explaining what they liked best about the event, industry/academia respondents appreciated being able to help students and give back to the program they once attended; meeting and getting to know students; the productive and efficient nature of the event; and how motivated and engaged the students were. Selected quotations are below:

> *Helping the students to be more aware of how companies interview and what they may be looking for as well as sharing interview tips to help students speak to their skills in a way that*

helps them prioritize what that have that may benefit the employer. This helps them become more attractive candidates and hopefully, have a greater chance of gaining a new position.

Partnering with the students and providing perspective.

The students were genuinely interested in the feedback and discussion.

The opportunity to get to know students and offer my assistance where able.

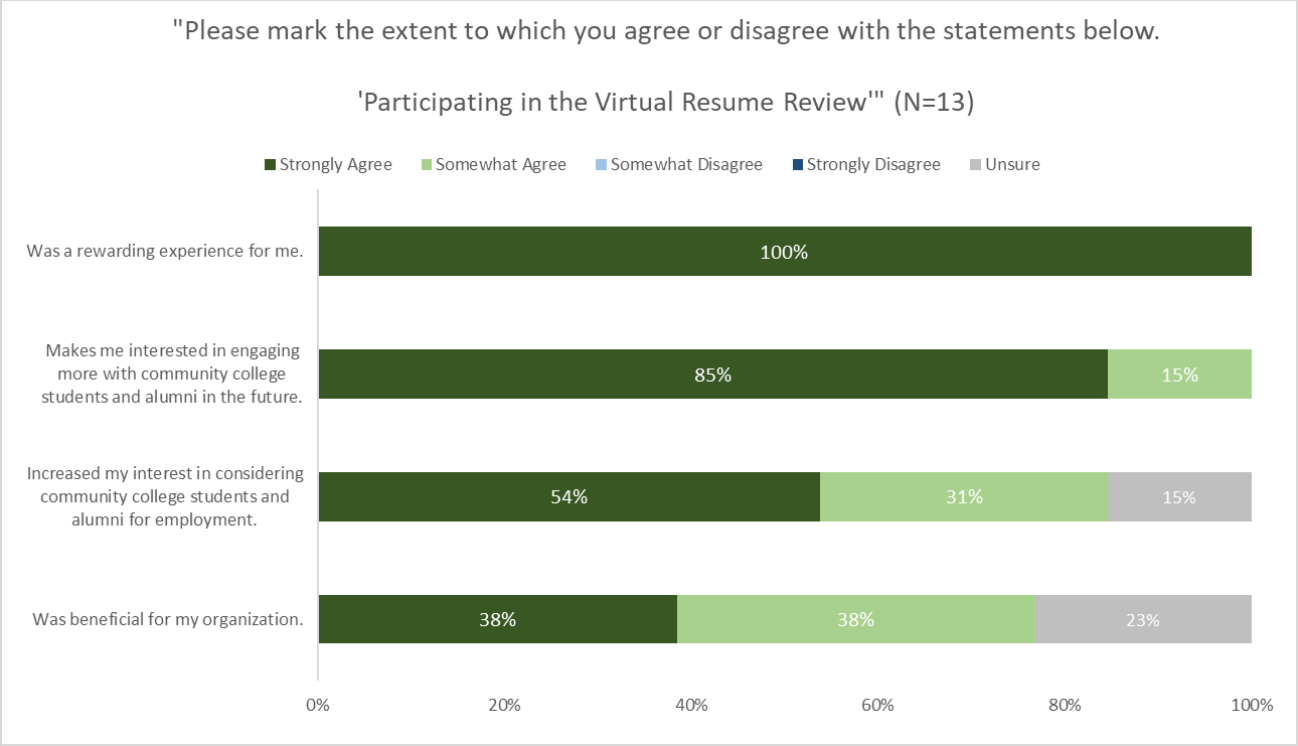
SUGGESTIONS FOR IMPROVING EVENTS

The only suggestion for improvement mentioned by more than one respondent was to provide additional background on the types of jobs students are interested in and what specific help they need. Individual suggestions for improvement include having students keep their cameras on, having a backup student in case someone is unable to attend, providing a directory of students' resumes, and including more students and students from other colleges in the event.

OPINIONS ABOUT VIRTUAL RESUME REVIEW EVENT

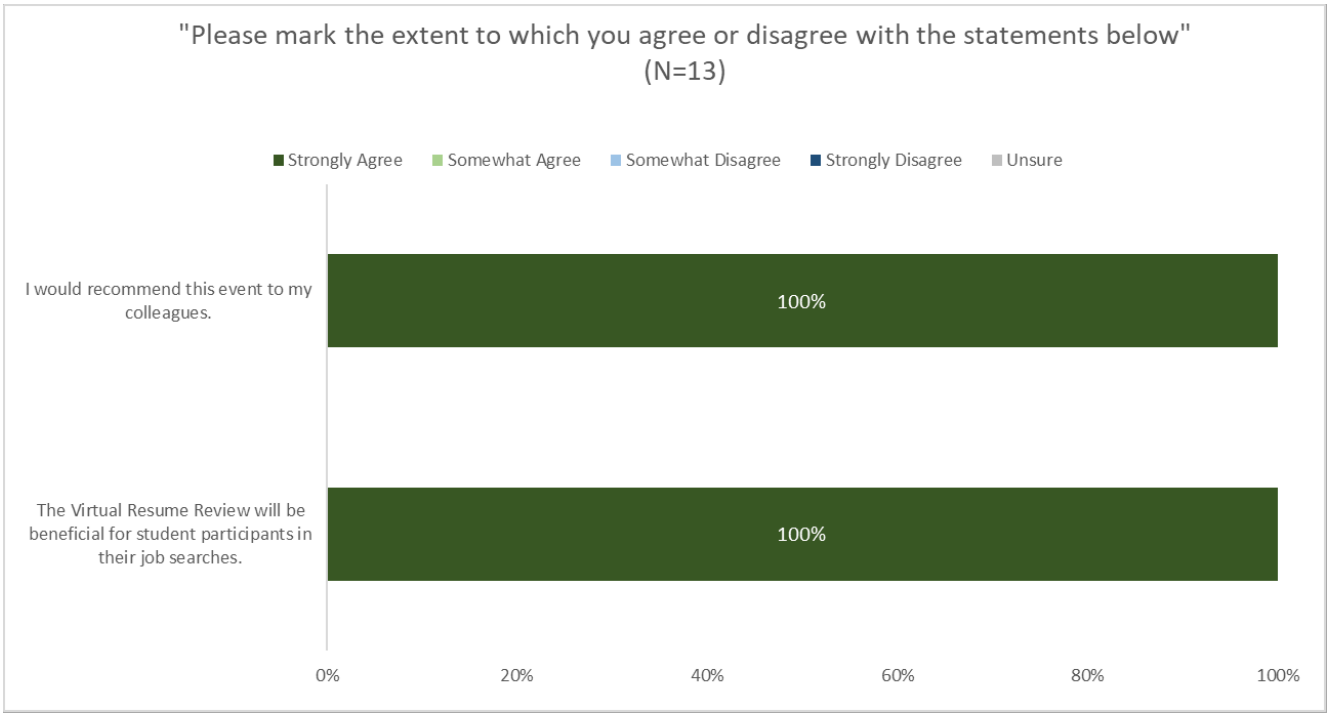
All respondents (100%, N=13) agreed that participating in the Virtual Resume Review event was a rewarding experience for them (*Strongly Agree*: 100%) and that the event made them interested in engaging more with community college students and alumni in the future (*Strongly Agree*: 85%, *Somewhat Agree*: 15%). Eighty-five (85%) said that the Virtual Resume Review event increased their interest in considering community college students and alumni for employment (*Strongly Agree*: 54%, *Somewhat Agree*: 31%) and 77% said that participating in the event was beneficial for their organization (*Strongly Agree*: 38%, *Somewhat Agree*: 38%). (See Figure 22)

Figure 22: Industry/Academia Volunteers: Opinions About Participating in the Virtual Resume Review Event



All participants (100%, N=13) *Strongly Agreed* that they would recommend this event to their colleagues and 100% also *Strongly Agreed* that the Virtual Resume Review will be beneficial for student participants in their job searches. (See Figure 23)

Figure 23: Industry/Academia Volunteers: Perceived Benefits and Potential for Recommendation of the Event



INTEREST IN TAKING PART IN FUTURE EVENTS

All respondents (100%, N=13) said that they would be interested in taking part in future events hosted and/or sponsored by community colleges. In explaining what would make them more interested in participating in future events, industry and academia volunteers shared the following: stress importance of students being engaged; add DEI component by partnering with multicultural student groups; make sure volunteer expertise matches up with the goals of the event; keep a virtual option for attending; and provide ample notice when recruiting volunteers.

HISTORICALLY EXCLUDED STATUS

Thirty-eight percent (38%) of respondents (N=13) identified as belonging to a group that has historically been excluded from sciences; 54% do not; and 8% do not know if they did.

DISABILITY STATUS

All respondents (100%, N=13) said that they do not identify as someone with a disability.

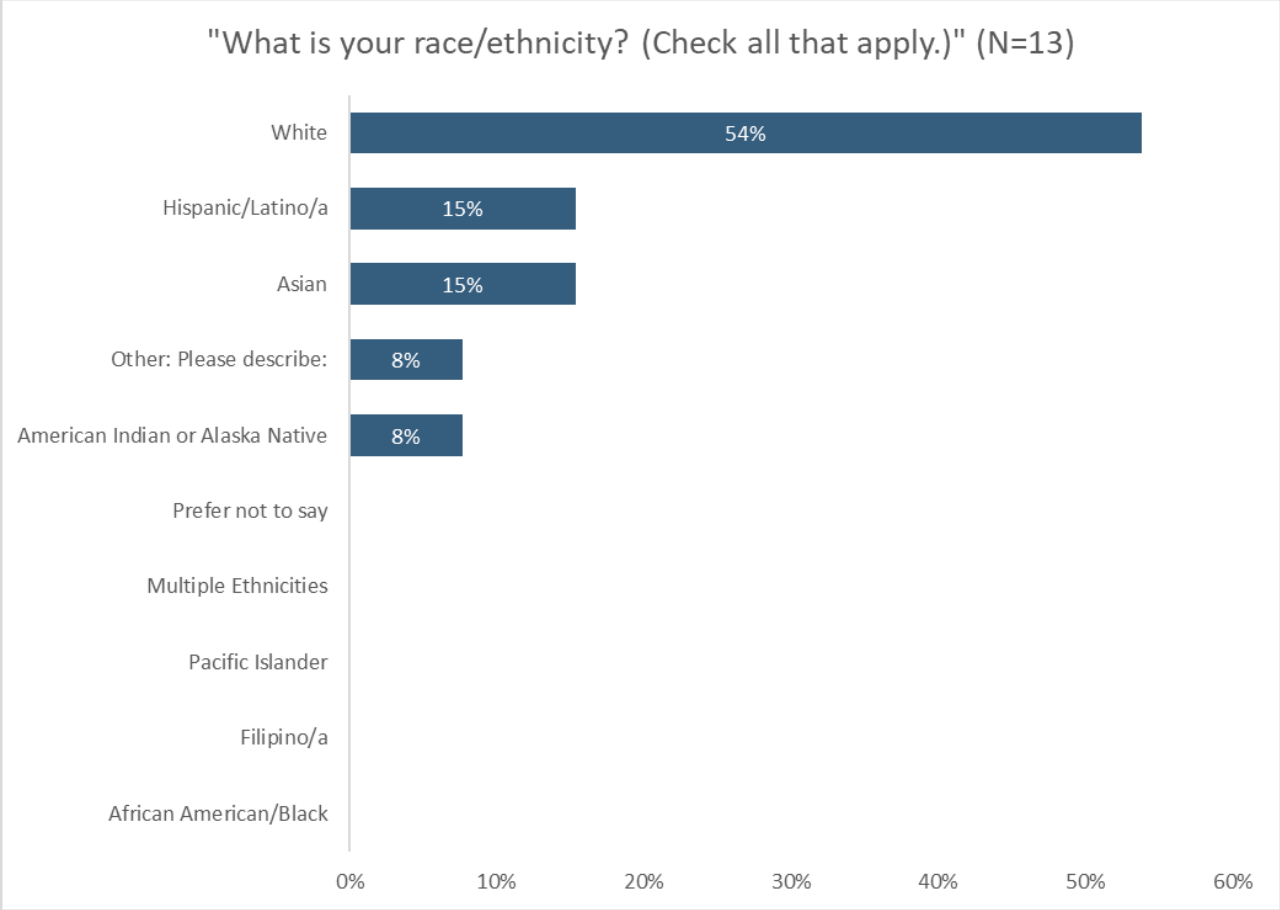
GENDER IDENTITY

Eighty-five percent (85%) of the respondents (N=13) identify as men and 15% identified as women.

RACE/ETHNICITY

Over half (54%) of respondents (N=13) identify as *White*; 15% *Hispanic/Latino/a*, 15% *Asian*; and 8% *American Indian or Alaska Native*. One respondent (8%) selected the *Other* response option, where they wrote-in "Middle Eastern." (See Figure 24)

Figure 24: Industry/Academia Volunteers: Race/Ethnicity



CONCLUSIONS

Overall, the evaluation finds that the Alumni Networking and Industry Engagement Project has successfully implemented the 2023-2024 year of the grant, taking steps to create tools that can be used by community colleges nationwide to assist in increasing alumni and industry interactions with students. In the first two years of the grant, the project facilitated approximately 1,335 direct interactions between students and industry representatives.

Students and alumni, most of whom were attending or attended a community college, shared that they gained confidence and knowledge concerning searching for, applying to, and working in biotech jobs through participating in a Speed Networking Event. The event increased their desire to pursue a career in bioscience-biotech, their desire to take future bioscience-biotech courses at their local community college, their understanding of the skills needed for different bioscience-biotech jobs, and their understanding of the variety of jobs in bioscience-biotechnology. Most students strongly agreed that the event influenced whether they feel that they fit the description of someone who does science and their ideas about who can be successful in a bioscience-biotech career.

Industry and academia volunteers praised the preparedness and level of engagement of the students, and how well the Speed Networking Events were organized. They also appreciated the opportunity to give back to their respective programs. Almost all industry/academia volunteers agreed that: they would be interested in participating in future events, the event helped students learn valuable information about careers in bioscience-biotech, and the event was a rewarding experience for them.

Students and alumni, all of whom were attending or attended a community college, received what they described as “invaluable,” “useful,” and “detailed” feedback on their resumes during the Virtual Resume Review Event. The event increased their confidence applying to a bioscience-biotech job and all rated the event positively.

Industry and academia volunteers discussed enjoying meeting with students and sharing advice based on their own experiences, and that it felt good to help and give back by taking part in the Virtual Resume Review Event. All of them agreed that taking part in the event was a rewarding experience and that taking part in the event will benefit students in their job searches.

In sum, the project effectively connected students and industry representatives, leading to increases in confidence among students and alumni in a variety of areas related to searching for, applying to, and working in a bioscience-biotech job.

APPENDIX

Speed Networking Event Survey

Thank you for participating in this Speed Networking Event! This survey asks for your feedback on the event. The results will help us plan future events and will contribute to our evaluation for the National Science Foundation. Survey responses will be kept confidential by our external evaluator, Washington State University's Social and Economic Sciences Research Center.

1. Are you a student participant, alumni participant, or industry/academia volunteer?
    a. Student participant
    b. Alumni participant (not volunteer)
    c. Industry/academia volunteer

2. [If Q1 = Student participant AND Q2 = Johnston Community College] Which program(s) at Johnston Community College are you affiliated with? (Check all that apply.)
    a. BioWork Certificate
    b. Applied Engineering Degree
    c. Bioprocess Technology Degree
    d. Other: Please specify: _____

3. What was the date of the Speed Networking Event?
    a. List of dates
    b. Other: Please specify: _____

4. How would you rate the Speed Networking Event?
    a. Excellent
    b. Good
    c. Fair
    d. Poor
    e. Very poor

5. Please share why you gave the Speed Networking Event this rating.

6. [If Q1 = Student participant OR Alumni participant] Please mark the extent to which you agree or disagree with the statements below.

    "The Speed Networking Event influenced…"

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree

My ideas about who can be successful in a bioscience-biotech career.				
Whether I feel that I fit the description of someone who does science.				
My confidence that I would feel comfortable in a bioscience-biotech work environment.				
My confidence that I could succeed in a bioscience-biotech career.				
My confidence in talking with bioscience-biotech professionals.				

7. [If Q1 = Student participant] Please mark the extent to which you agree or disagree with the statements below.

   "The Speed Networking Event influenced…"

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
My desire to take future bioscience-biotech courses.				
My desire to take future bioscience-biotech courses at my local community college.				
My desire to pursue a career in bioscience-biotech.				
My desire to pursue a degree in a bioscience-biotech field.				

8. [If Q1 = Student participant OR Alumni participant] Please mark the extent to which you agree or disagree with the statements below.

   "This Speed Networking Event gave me a better understanding of…"

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
The **variety of jobs** in bioscience-biotechnology.				
The **skills** needed for different bioscience-biotech jobs.				
The possible **career trajectories** within bioscience-biotech (e.g., moving from an entry-level position on up).				

9. [If Q1 = Student participant OR Alumni participant] Please mark the extent to which you agree or disagree with the statements below.

   "The Speed Networking Event increased…"

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
My confidence searching for a bioscience-biotech job.				
My confidence applying to a bioscience-biotech job.				

10. [If Q1 = Student participant OR Alumni participant] Please mark the extent to which you agree or disagree with the statements below.

    "In the Speed Networking Event…"

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
I made connections to bioscience-biotech professionals that will be helpful in my current or future job search.				

11. [If Q1 = Student participant OR Alumni participant] While the purpose of this event was not for industry professionals to provide current or prospective job openings, we're curious if this information is being shared during the event.

    In the Speed Networking Event, did you learn about any current or prospective job openings?
    a. Yes
    b. No

12. [If Q1 = Student participant OR Alumni participant] Please rate how important is it for you to connect with someone knowledgeable about the bioscience-biotech job market in these following areas during a Speed Networking Event?

	Very Important	Somewhat Important	Slightly Important	Not at All Important	Not Sure
My local bioscience-biotech job market (jobs/companies within 60 miles of your home).					
My state's bioscience-biotech job market.					
The national bioscience-biotech job market.					

13. What did you like most about this event?

14. How would you improve this event?

15. [If Q1 = Industry/academia volunteer] Please mark the extent to which you agree or disagree with the statements below.

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Don't Know
Participating in the Speed Networking Event was a rewarding experience for me.					
Participating in the Speed Networking Event was beneficial for my organization.					
The Speed Networking Event helped students learn valuable information about careers in bioscience-biotech.					
I would be interested in participating in future Speed Networking Events					
I would recommend this event to my colleagues					

16. [If Q1 = Alumni participant] Would you like to participate in future professional development opportunities?
    a. Yes
    b. No
    c. Unsure

17. [If Q17 = Yes OR Unsure] What types of professional development are you interested in?

18. Have you participated in previous speed networking events?
    a. Yes
    b. No
    c. Unsure

19. [If Q19 = Yes] How have you participated in previous speed networking events? (Check all that apply.)
    a. As a student participant
    b. As an industry/academia volunteer

c. Other: Please Describe: _____

20. [If Q1 = Student participant] What type of school do you attend?
    a. High school (including dual enrollment students)
    b. Community college
    c. Four-year college/university
    d. Other: Please describe: _____

21. [If Q1 = Student participant OR Alumni participant] Have you taken or are you currently taking a biotechnology course?
    a. Yes
    b. No

22. [If Q1 = Industry/academia volunteer] Are you a community college alum?
    a. Yes
    b. No

23. (If Q15 = Yes] Which community college(s) did you attend?

24. [If Q1 = Student OR Alumni participant] Did you meet with anyone today whose characteristics (e.g., gender identity, race/ethnicity, age, etc.) align with your own?
    a. Yes
    b. No
    c. Don't know

25. [If Q1 = Student OR Alumni participant] How important was it to you to meet with someone whose characteristics aligned with your own?
    a. Very important
    b. Somewhat important
    c. Not important at all
    d. Don't know

26. [If Q25 = Yes] How did it make you feel to meet with someone whose characteristics align with your own?

27. [If Q1 = Student OR Alumni participant] Did you meet with a community college alum during this event?
    a. Yes
    b. No
    c. Don't know

28. [If Q1 = Student OR Alumni participant] How important was it to you to meet with a community college alum?
    a. Very important
    b. Somewhat important
    c. Not important at all
    d. Don't know

29. [If Q28=Yes] How did it make you feel to meet with a community college alum?

30. Do you have any additional comments about the Speed Networking Event?

Virtual Resume Review Event Survey

Thank you for participating in this Virtual Resume Review! This survey asks for your feedback on the event. The results will help us plan future events and will contribute to our evaluation for the National Science Foundation. Survey responses will be kept confidential by our external evaluator, Washington State University's Social and Economic Sciences Research Center.

1. Are you a current community college student/alum or an industry representative?
    a. Current student
    b. Alum
    c. Industry representative

2. How would you rate the usefulness of the Virtual Resume Review?
    a. Excellent
    b. Good
    c. Fair
    d. Poor
    e. Very poor

3. Please share why you gave the Virtual Resume Review this rating.

4. What did you like most about this event?

5. How would you improve this event?

6. [If Q1 = Student/alum] Please mark the extent to which you agree or disagree with the statements below.
   "Participating in the Virtual Resume Review…"

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Not Sure
Was a good use of my time.					
Strengthened my resume.					
Will be beneficial in my job search.					
Will be beneficial in my future career.					
Increased my interest in taking part in future events hosted by my community college.					

7. [If Q1 = Student/alum] Please mark the extent to which you agree or disagree with the statements below.

   "The Virtual Resume Review increased…"

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
My confidence applying to a bioscience-biotech job.				
My confidence applying to a bioscience-biotech internship.				

8. [If Q1 = Industry representative] Please mark the extent to which you agree or disagree with the statements below.
   "Participating in the Virtual Resume Review…"

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Unsure
Was a rewarding experience for me.					
Was beneficial for my organization.					
Makes me interested in engaging more with community college students and alumni in the future.					
Increased my interest in considering community college students and alumni for employment.					

9. [If Q1 = Industry representative] Please mark the extent to which you agree or disagree with the statements below.

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Unsure
I would recommend this event to my colleagues.					
The Virtual Resume Review will be beneficial for student participants in their job searches.					

10. Do you have any additional comments about the Virtual Resume Review?

11. [If Q1 = Industry representative] Would you be interested in taking part in future events hosted and/or sponsored by community colleges?
    a. Yes
    b. No
    c. Unsure

12. [If Q1 = Industry representative] What would make you more interested in participating in future events hosted and/or sponsored by community colleges?

13. [If Q1 = Student/alum] Which college do/did you attend?
    a. Austin Community College
    b. City College of San Francisco
    c. Johnston Community College
    d. Solano Community College
    e. Other: Please specify: _____

14. Do you feel you belong to a group that has historically been excluded from the sciences?
    a. Yes
    b. No
    c. Unsure
    d. Prefer not to say

15. Do you identify as someone with a disability?
    a. Yes
    b. No
    c. Unsure
    d. Prefer not to say

16. What is your gender identity? (Check all that apply.)

a. Man
b. Woman
c. Transgender
d. Not listed
e. Prefer not to say

17. What is your race/ethnicity? (Check all that apply.)
    a. African American/Black
    b. American Indian or Alaska Native
    c. Asian
    d. Filipino/a
    e. Hispanic/Latino/a
    f. Pacific Islander
    g. White
    h. Multiple Ethnicities
    i. Other: Please describe: _____
    j. Prefer not to say