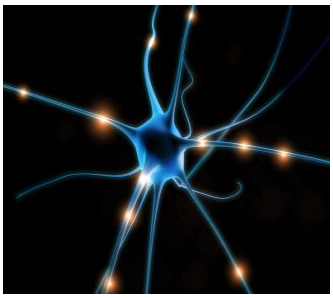

SUMMER RESEARCH PROGRAM EVALUATION: CLASS 2012

External Evaluation: ***Neuroscience Research Opportunity to Increase Diversity (NeuroID)***
University of Puerto Rico, Rio Piedras

Prepared by:

Center for Evaluation and Sociomedical Research
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CIES
Division of Community Services

Introduction

The primary goal of the Neuroscience Research Opportunity to Increase Diversity (NeuroID) Program is to foster and enhance the interest of undergraduate students to pursue a research career in neuroscience through the integration of formal courses, community outreach opportunities, and mentored research experience. The summer research program is an important component of the NeuroID program. Students are required to participate in a research summer program at the mainland. As part of their first summer research program, students also receive introductory trainings and workshops on how to keep a laboratory notebook, laboratory techniques and ethical conduct.

Evaluation Purpose and Scope

The Center for Evaluation and Sociomedical Research (CIES) of the Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus partnered with the NeuroID Program of the University of Puerto Rico to perform a process evaluation for the project. This report summarizes the evaluation of the ***Summer Research Program*** *experience of the NeuroID* ***Class 2012***. The evaluation focused on students' satisfaction with summer research program.

Methods and Procedure

Students' satisfaction with the summer research program was evaluated through an online questionnaire. The Surveymonkey.com website was used to design the instrument and allow students access to the questionnaire. Students were invited to participate by email. Students email addresses were provided by the program staff. Weekly reminders were sent to those who had not completed the questionnaires. Approximately, five reminders were sent to the participants.

The students' questionnaire includes 31 questions through which socio-demographic information, as well as information pertaining to general satisfaction and specific satisfaction with various aspects of the summer research program was gathered. The surveys were designed to be completed in 10 to 15 minutes.

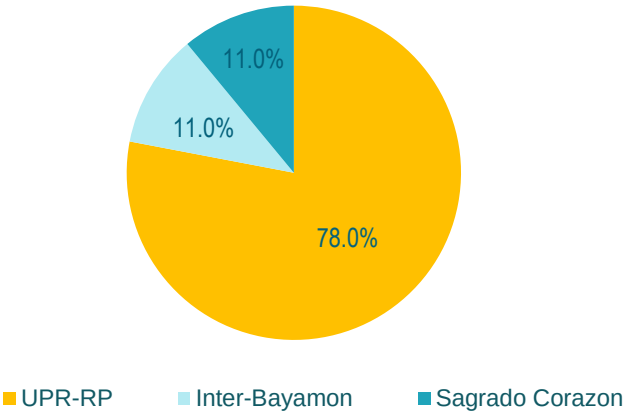
NeuroID Students Summer Program Experience (Class 2012)

UPR-Río Piedras Campus◆UPR-Medical Sciences Campus◆Universidad Central del Caribe ◆Institute of Neurobiology

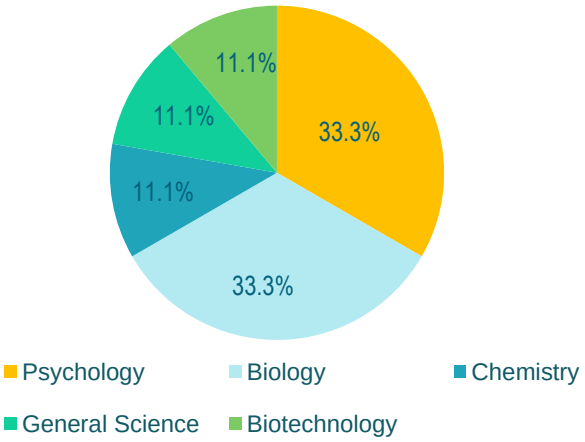
Demographics

There were a total of 9 participants that completed the questionnaire. Most of the students were female (78.0%) while (22.0%) were male. The majority of the students (78.0%) were affiliated to the University of Puerto Rico, Rio Piedras Campus (see Graph 1). More than half of the students (67.0%) reported Biology or Psychology as their major (see Graph 2).

Graph 1. Academic Institution Affiliation



Graph 2. Academic Concentration (major)



The majority of the students (80.0%) were 'very satisfied' with the summer research experience. Students also describe their summer research experience and the aspects they most liked (see Figure 1).

Figure 1. Students Summer Research Experience

"I am very satisfied with the summer research experience because it helped ***me discover the interest*** *I have* ***in the research area****. Allowed me to* ***explore,*** *and learn in a different way… "*

"I am satisfied because it was more than what it was hoping for. It gave me the ***necessary tools*** *for the semester"*

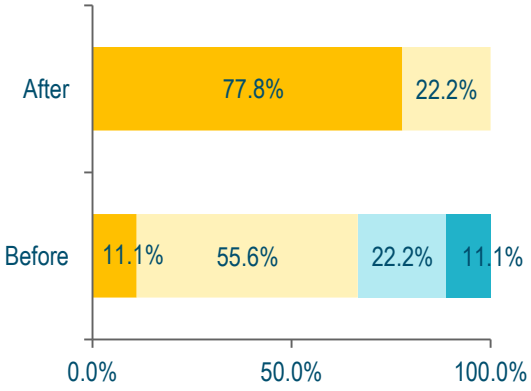
"I am very satisfied with this summer research because it ***met my expectations*** *of learning* ***new techniques*** *and it helped* ***to grow*** *as research student"*

"I got to learn a lot about ***interesting topics****. Working in a laboratory has* ***enhanced my desire*** *to study* ***Neuroscience*** *and sharing my ideas with my* ***supervisor has helped me narrow down my interest*** *in the field. Before this experience I had no idea of how hold pipettes correctly, now I have* ***learned t****o do that and* ***many other things****! It was a really good experience and* ***I wouldn't change it for anything****"*

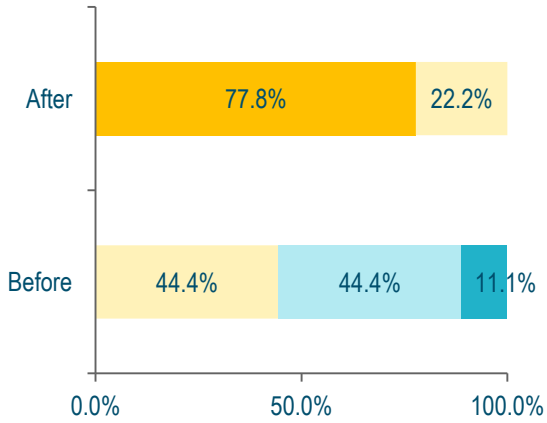
Skills Self-Assessment

Students were asked to rate their laboratory research skills **before and after** the summer research program**.** Before the summer program the majority of the students described their skills to ***prepare reports about the investigation work*** *and* ***critical interpretation of scientific literature*** as "low" or "none". It is important to highlight that these were the skills students reported the lower level of proficiency. Similarly, students evaluated their skills to perform data analysis as "low" or "medium". The skill with the highest level of proficiency before entering the summer program was ***determining the appropriate laboratory protocols to conduct experiment***. In general, after the summer program most of the students described their laboratory research skills between "medium" and high".

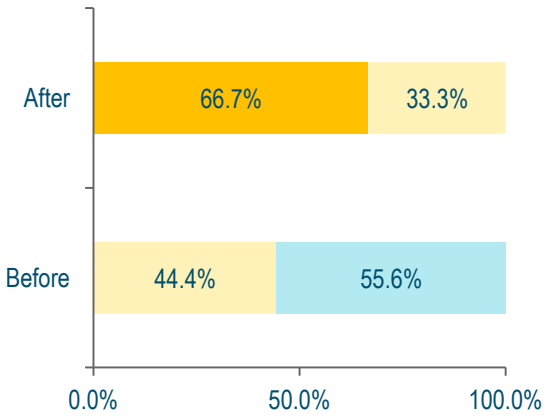
Graph 3. Determine the appropriate laboratory protocols to conduct experiments



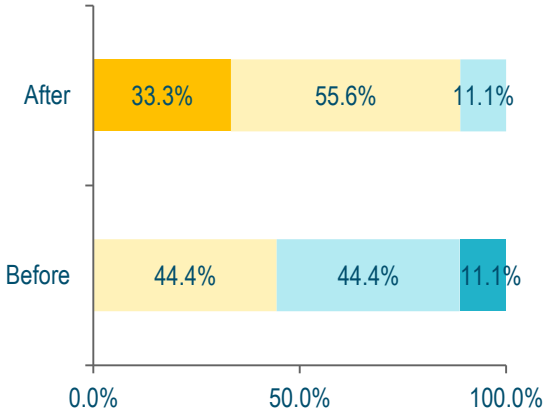
Graph 4. Manipulate the laboratory instruments and equipment properly



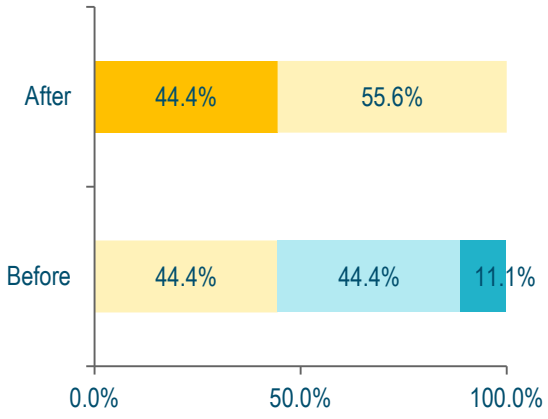
Graph 5. Identification of gap-in-knowledge



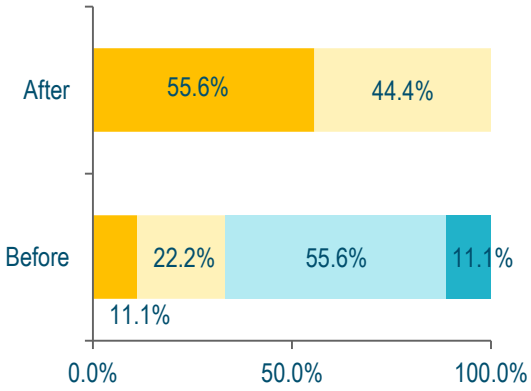
Graph 6. Data analysis



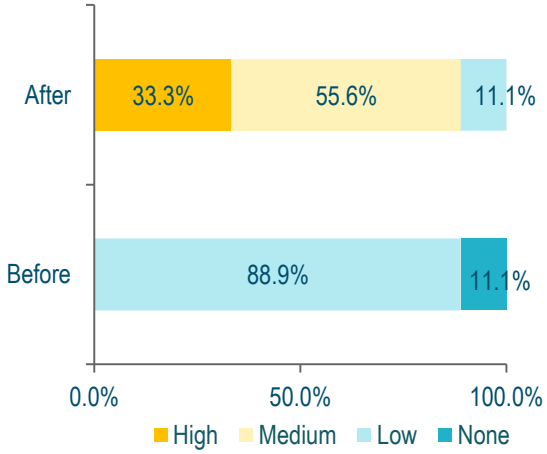
Graph 7. Development of plausible hypothesis



Graph 8. Critical interpretation of scientific literature



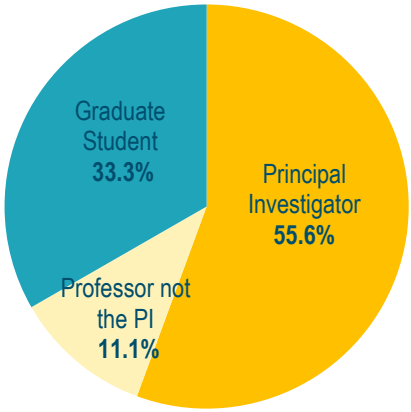
Graph 9. Prepare reports about the investigation work



Mentor

Students also evaluated the support received by their Mentor during the summer research program. More than half of the students (55.6%, n=5) reported that their Mentor (primary supervisor) were the principal investigator (see Graph 10).

Graph 10. My mentor in the summer program was...



Mentor: Principal Investigator

The majority of the students (80.0%) were *'very satisfied'* with the performance of the principal investigator during the summer program. However, some students (20.0%) reported that were 'unsatisfied' with the principal investigator.

> *"..I understand that mentoring should be composed of several stages.. I felt I have not a clear purpose or goal for my participation in the laboratory…"*

Students also evaluated specific aspect of the mentor performance (see Table 1). The majority of the participants (80.0%) reported that were *'very satisfied'* with the **feedback provided by the principal investigator to aid their research project during summer.** Similarly, students were *'very satisfied'* with the *scientific and technical support offered by the principal investigator to aid the development of their research project during summer*.

Table 1. Satisfaction with the Principal Investigator Performance

Specifically, how satisfied are you with the following?	Very Satisfied	Satisfied	Unsatisfied	Very Unsatisfied
Feedback provided by the principal investigator to **aid your research project** during summer	80.0%	-	20.0%	-
Scientific and **technical support** offered by your principal investigator to aid the **development** of your **research project** during summer	80.0%	-	20.0%	-

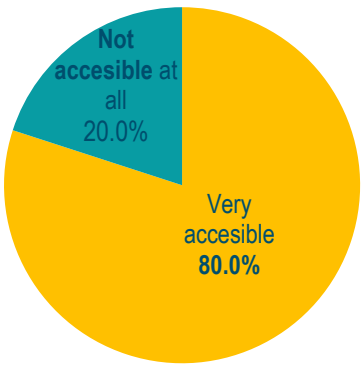
Additionally, students were asked to describe why they were satisfied with the performance of the principal investigator (see Figure 2). The majority of the comments were related to the guidance and support received from their mentors.

Figure 2. Satisfaction with the Performance of the Principal Investigator

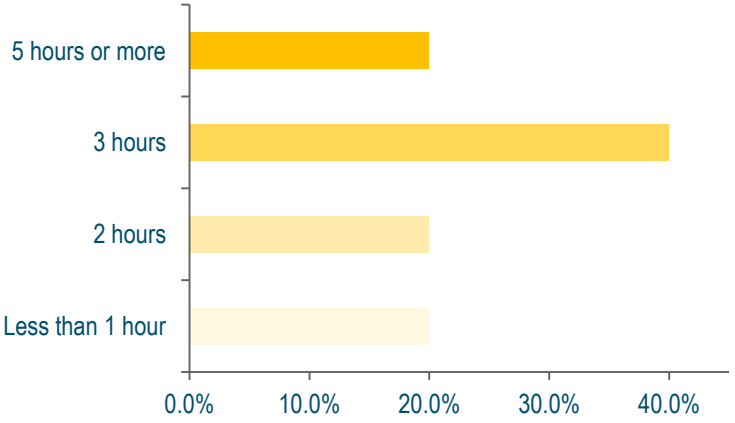
Principal Investigator (Mentor): Accessibility

Furthermore, students evaluated how accessible was the principal investigator. The majority of the students (80.0%) reported that their mentor were very accessible (see Graph 11). Moreover, students described how much time the principal investigator spend mentoring them. Approximately, half of the student (40.0%) reported the principal investigator spend 3 hours weekly mentoring them (see Graph 12).

Graph 11. Accessibility of the Principal Investigator to meet and provide reccomendations



Graph 12. Approximatly, how much time (hours-weekly) did the PI spend mentoring you?



Experience of the students that their primary supervisor was NOT the Principal Investigator

Approximately, half of the student (44.4%, n=4) reported that their mentor was not the principal investigator in the laboratory. Graduate students were identified as the primary supervisors (see Graphic 10). The majority of the students (75.0%) were *'very satisfied'* with the performance of their primary supervisor during the summer program. Students also evaluated specific aspect of their primary supervisor performance. The majority of the participants (75.0%) reported that were *'very satisfied'* with the **feedback provided by their primary supervisor to aid their research project.** Similarly, most of the students (75.0%) were *'very satisfied'* with the *scientific and technical support offered by their primary supervisor to aid the development of their research project*.

Additionally, students were asked to describe why they were satisfied with the performance of the primary supervisor. The majority of the comments were related to describe the support received from their primary supervisor (see comments below).

"I am very satisfied with my primary supervisor. She helped me through every obstacle I had and if she could not answer me, she would seek [other] source to help me understand a specific problem…We made a great link… We are more that collaborator or coworkers, we are friends and that facilitates my work…"

"I am very satisfied with my primary supervisor because he taught me to understand the techniques used in the laboratory. He also taught me how to apply the knowledge learned in the literature with the investigation…"

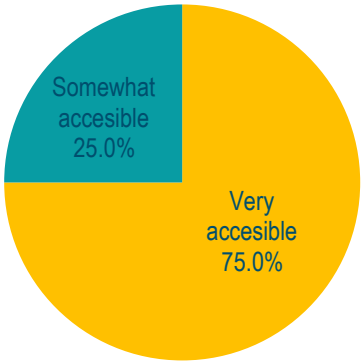
"*My experience with my primary supervisor was great because her attitude towards her trainees help us develop a great confidence. She always tell us when something is wrong in strong but really sweet way…she never forget to tell us when we do things right…we know that she is our mentor and we can totally trust her. She is an awesome mentor!*

"I am very satisfied with the performance of my primary supervisor because he was always making sure I had everything and answered all my questions. He is a very good teacher and responsible with this job"

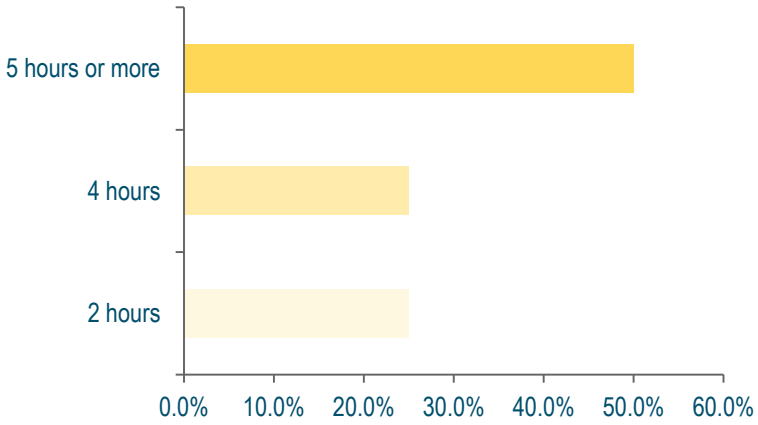
Primary Supervisor: Accessibility

Furthermore, students evaluated how accessible was the primary supervisor. The majority of the students (75.0%) reported that their mentor were very accessible (see Graph 13). Moreover, students described how much time the primary supervisor spend mentoring them. Half of the student (50.0%) reported the primary supervisor spends 5 hours or more weekly mentoring them (see Graph 14).

Graph 13. Accessibility of the Primary Supervisor to meet and provide reccomendations



Graph 14. Approximatly, how much time (hours-weekly) did the Primary Supervisor spend mentoring you?



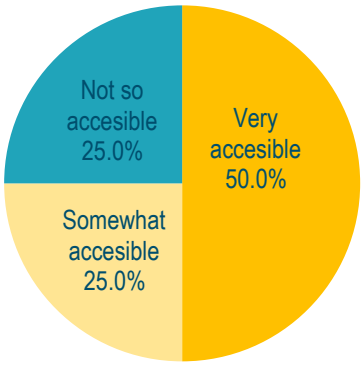
Even though the students **were not directly supervised** by the principal investigator they evaluated their interaction with them. In general, student were 'very satisfied' with the performance of the principal investigator. The majority of the participants (75.0%) reported that were *'very satisfied'* with the **feedback provided by the principal investigator to aid their research project during summer** even though he/she was not their primary supervisor**.** Half of students (50.0%) were *'satisfied'* with the **scientific and technical support offered by the principal investigator to aid the development of their research project during summer** (see Table 2).

Table 2. Satisfaction with the Principal Investigator Performance

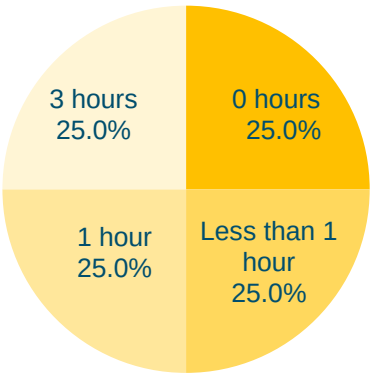
Specifically, how satisfied are you with the following?	Very Satisfied	Satisfied	Unsatisfied	Very Unsatisfied
Feedback provided by the principal investigator to **aid your research project** during summer	75.0%	25.0%	-	-
Scientific and **technical suppor**t offered by your principal investigator to aid the **development** of your **research project** during summer	50.0%	50.0%	-	-

Moreover, students evaluated how accessible was the principal investigator. Half of the students (50.0%) reported that the principal investigator was “somewhat accessible” or “not so accessible” (see Graph 15). Additionally, students described how much time the principal investigator spend with them. Half of the student (50.0%) reported the primary supervisor spends 1 hour or less weekly with them (see Graph 16).

Graph 15. Accessibility of the Principal Investigator



Graph 16. Approximatly, how much time (hours-weekly) did the Primary Supervisor spend mentoring you?



Students also described their interaction with the principal investigator even though they were not their primary supervisor. Most of the comments described their satisfaction with the principal investigator (see comments below).

“I am very satisfied with my primary investigator. Although I do not see him around much, he makes sure we are well-equipped and that all our needs are attended..”

“My experience with [the] principal investigator was really good. I could not meet a lot with her, but the few times that I did were very productive. She always called my principal supervisor and the three of us meet and discussed what I had done and learned, what I still have to learn and we also talked about my research…She is also a great mentor!

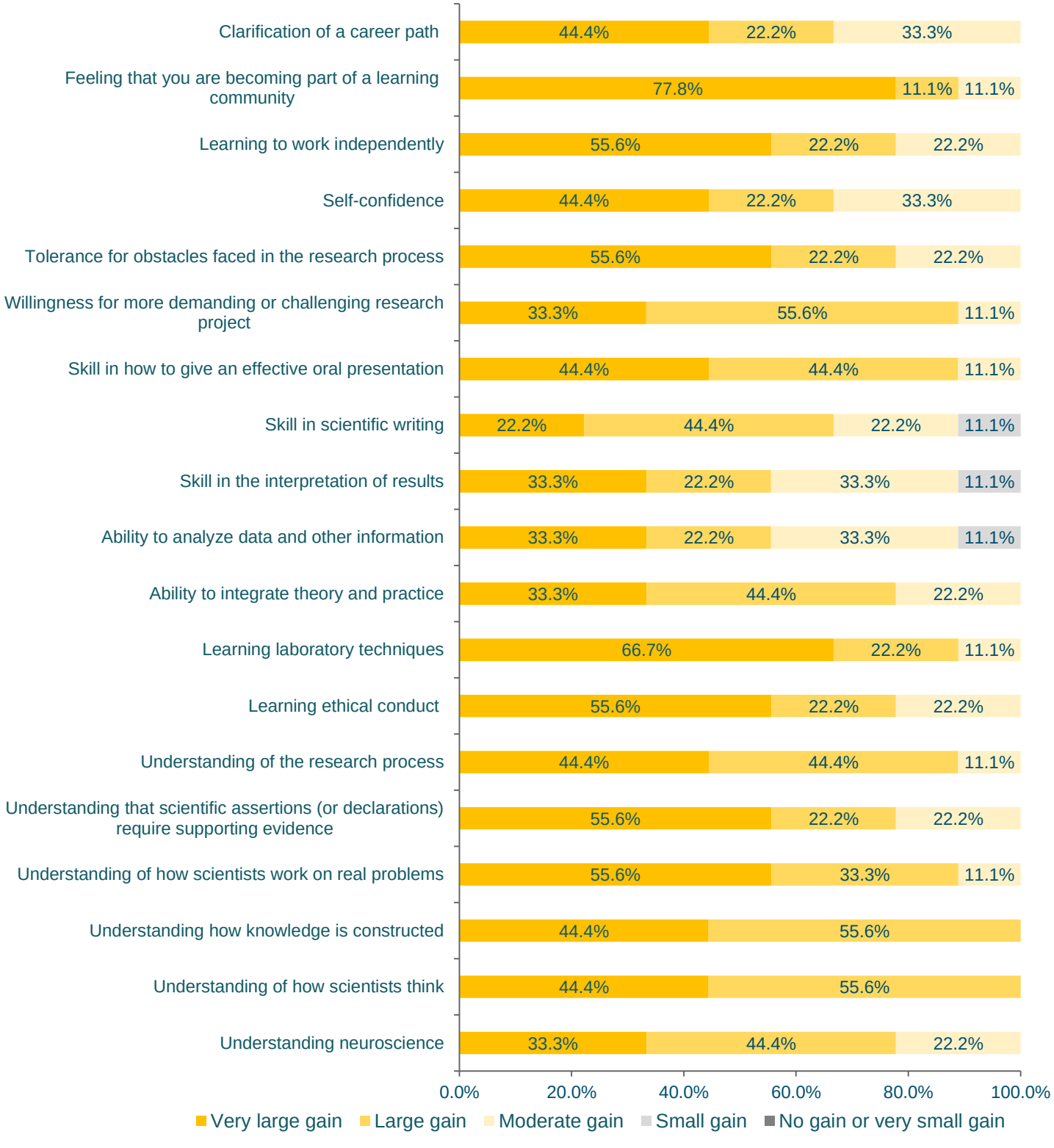
“I am very satisfied with my primary investigator because even though I don’t see her much she [was] always accessible for the students. She always asks if we need anything…”

“I am very satisfied with my primary investigator because he is always available to answer any doubts of the experiments. He always seems to be interested in the experiments of every student in the laboratory. He is also always willing to tell you the truth and guide you…”

Summer Program Impact

All the students were asked to evaluate how the summer program contributed or advanced their scientific career (see Graphic 17). The two aspects student rated as their major gain from the summer research experience were *"learning a laboratory technique"* and *"feeling that they are becoming part of a learning community*." The aspects with small or moderate gain were *"skill in the interpretation of results", "skills in scientific writing"* and *"ability to analyze data and other information".*

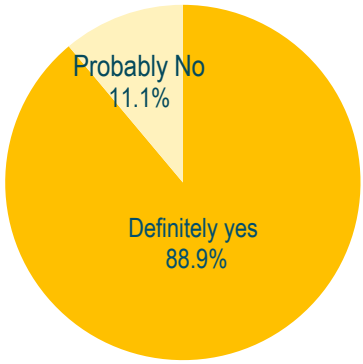
Graph 17. How the summer research experience contributed to the improvement of the following aspects…?



Recommendations

Finally, students provided recommendations and comments about the summer research experience (see comments below). The majority of the students (88.9%) agreed that they would recommend the laboratory where they had the summer experience to another NeuroID student (see Graphic 18).

Graph 18. Would you recommend the laboratory where you had the summer experience to another NeuroID student?



"The laboratory I work…is like a family in which if you need help there is always someone to help you. I would definitely recommend it to other students"

" …we have learn a lot of different techniques, concepts and neurobiology basic in a short period of time. The experience has been arduous, but still amazing and I am more than ever sure that this is the career I want to pursue. Also having the support of the NeuroID class and knowing that we are a group that gets along really good…"

"I am very satisfied with the summer experience because I have gained knowledge, experience and professionalism…this research experience has helped me to specifically know what fields I like of science..."

"I achieved a lot of things during this summer…I made a presentation and a written work which helps me in my laboratory meetings and in the thesis I have to write for the NeuroID program… I liked it very much!"