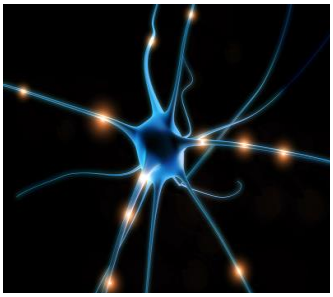


PROGRESS REPORT 2012-2013

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

Prepared by:

Gladys J. Ayala Sepulveda

John Rodriguez Adames

Nicole M. Ortiz Vega

CIES

External Evaluation

Progress Report

The *Center for Evaluation and Sociomedical Research* (CIES) of the Graduate School of Public Health, University of Puerto Rico Medical Sciences Campus has served as the external independent evaluator of the *Neuroscience Research Opportunity to Increase Diversity Program* (NeuroID) of the University of Puerto Rico. CIES specializes in the evaluation of social programs, applied research on human service organizations, basic research on public health issues, and the development of methods to measure program success.

CIES evaluators' work during this year focused on the development of a program theory of change. The NeuroID Logic Model and Evaluation Plan were also revised. Additionally, CIES developed and implemented instruments to measure program success with mentoring and community outreach activities (e.g., *Neuro Pizza Night, Summer Research Experience*) as well as students' knowledge, scientific skills development, and satisfaction with program activities. Below is a description of the evaluation activities by Core.

Student Development Activities

During this year, the CIES team worked in the development and implementation of three evaluation instruments, including: *NeuroPizza Night Speaker Survey*, *Community Outreach Activity Evaluation* and *Research with Purpose Instrument*.

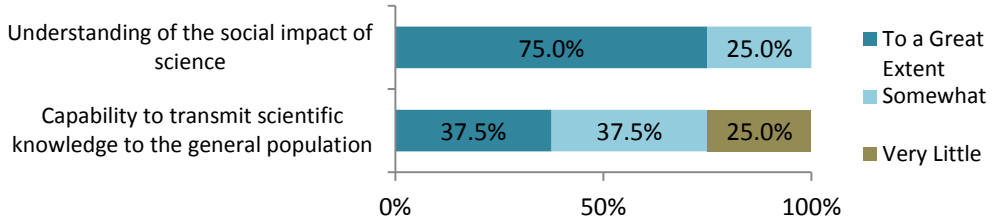
The ***NeuroPizza Night Speaker Survey*** was designed to gather information about speakers' satisfaction, experience with the NeuroID students, collaboration-networking, and recommendations to improve the activity. The questionnaire contains eleven questions and is subdivided into five sections: demographics, general experience, activity structure, students' participation and collaboration. The questionnaire was sent electronically via Surveymonkey.com to the email addresses provided by the program directors. All of the invited speakers evaluated the NeuroPizza night activity as an *'excellent'* mentoring initiative. The majority of the speakers (75%) described the participation of the NeuroID students as 'very good' or 'good'. The complete result of this evaluation (including the student evaluation) is available in the Appendix.

> ***"I had a great impression due to the fact that it is different way to approach undergraduate students and they feel very relax to interact with the speaker"***
>
> *Male Speaker*

The ***Community Outreach Activity Evaluation*** was designed to gather information about students' satisfaction, the experience and impact of the activity on their skills to transmit

scientific knowledge to general population, and civic responsibility. The instrument contains ten questions and is subdivided into four sections: demographics, general experience, self-assessment, and recommendations. The questionnaire was sent electronically via Surveymonkey.com to the email addresses provided by the program directors. The majority of the students (75%) reported that the activity fostered their *understanding of the social impact of science* (see Graph 2). Moreover, approximately half of the students reported the community outreach activity advanced their *skills to transmit scientific knowledge to the general population*. The complete results of this evaluation is included in the Appendix.

Graphic 2. How the activity contributed to the improvement or advancement of ...?



"This activity made me realize why I'm doing research about Alzheimer's disease and at the same time, the activity gave me reasons to keep working in that field"

The ***Research with Purpose Questionnaire*** (RPQ) was designed to measure students' motivation to learn sciences and civic responsibility. The survey was designed using the Sciences Motivation Questionnaire II (Glynn et.al., 2011)[1] and the Civic Responsibility Survey III (Furco, Muller & Ammon, 1998)[2]. The questionnaire was pilot tested with the NeuroID class 2012. The questionnaire was sent electronically via Surveymonkey.com to the NeuroID students. The students completed the survey at the beginning of the 2012 summer workshops. The RPQ was also revised in December 2012 during the NeuroID Focus Groups. The NeuroID class 2011 completed a paper-pencil version of the RPQ and provided feedback on how to improve it. The updated version of the RPQ will be administered to the NeuroID class 2011 at the end of May, 2013. The preliminary results of the RPQ is included in the Appendix.

Currently, the CIES team is working on the development of the **Emotional Intelligence Instrument**. The questionnaire is expected to be completed at the end of the summer 2013.

[1] Glynn, S., Brickman,P., Armstrong,N., Taasoobshirazi,G.(2011). Science Motivation Questionnaire II: Validation with Science Majors and Noscience Majors. Journal of Research in Science Teaching. 1-16

[2] Furco, A., Muller, P., Ammon,M. (1998). The Civic Responsibility Survey. Service-Learning Research & Development Center, University of California-Berkeley.

Research Experience

The CIES team developed and implemented several instruments to measure students' research skills and experience. The following evaluation instruments were developed: *NeuroID Skills Self-Assessment Questionnaire (Baseline), NeuroID Students Summer Research Experience and NeuroID Mentors Summer Research Experience.*

The ***NeuroID Skills Self-Assessment Questionnaire*** (Baseline) was designed to measure students' general knowledge in Neurosciences, laboratory research skills, presentation skills and various aspects related to career development. The students from the NeuroID class 2012 completed this paper and pencil instrument at the beginning of the summer intensive program. The questionnaire will be administered again in the last semester of their senior year to measure program impact. The baseline questionnaire included 27 questions to assess four areas: socio-demographics, self-assessment, career development and program dissemination. In general, students reported laboratory skills levels between "low" and "moderate" before entering NeuroID Program. Similarly, more than half of the students (56% or more) rated their skills on *manuscript preparation and poster presentation* as "low" or "very low". Most of the students (78%) reported "low" or "moderate" knowledge about *Neurosciences graduate programs* and *the process of mentor selection*. The complete result of this evaluation is included in the Appendix.

The ***NeuroID Students Summer Research Experience Instrument*** was designed to explore students' experience in the summer program (local and mainland). The students from the NeuroID class 2011 and class 2012 completed this online questionnaire at the end of the summer program. The questionnaire included 31 questions to assess four areas: socio-demographics, skills self-assessment, mentor evaluation, and summer program impact. At the end of the summer program most of the students (80% or more) described their laboratory research skills between "medium" or "high". More than half of the students (56% or more) reported that their mentor was the principal investigator. The majority of the students were very satisfied with the feedback, scientific and technical support provided by the principal investigator. Similarly, most of the students reported their mentor were "very accessible". The complete results of this evaluation is included in the Appendix.

The ***NeuroID Mentor Summer Research Evaluation*** was designed to gather mentors' experience with the NeuroID students. The online questionnaire focused on mentors' satisfaction with the students' performance and included 16 questions. Mentors completed the evaluation at the end of the summer program. All of the mentors were "very satisfied" with the NeuroID students' performance. At the beginning of the summer internship, the majority of the mentors described students skills (i.e., data analysis, manipulate instruments and equipment) as "low" or "medium". However, at the end of the summer most of the mentors described

students skills as “medium” or “high”. The complete results of this evaluation is included in the Appendix.

The evaluation team, in collaboration with the students, also developed the ***NeuroID Tips***. This brochure is a tool and space for the students to share lessons learned with the future NeuroID classes. The first edition of this informative brochure highlighted NeuroID class 2011 summer experience. The brochure is included in the Appendix.

Academic Training

The academic training was evaluated during the ***NeuroID Focus Groups***. This activity was designed to explore student’s opinions and experience with the academic training received through the program as well as the research and community outreach activities. Specifically, students were asked to describe their experience with the required courses (i.e., General Psychology, Neurobiology, and Scientific Writing). Most of the students were satisfied with the courses’ overall content. The two courses with the lowest level of satisfaction were scientific writing and general psychology. Students’ main concerns with the scientific courses were the course instructor and the deficiency of the content in topics or activities related to scientific writing or grant writing. However, students highlighted the course enhanced their skills to write articles for the community. An executive summary of the focus groups results is available in the appendix section.

Currently, the evaluation team is working on the development of the following instruments: *NeuroID Exit Survey, NeuroID Mentor Annual Evaluation and NeuroID Self-Assessment Research Skills (Post).* The evaluation team anticipates that the instruments implementation, data entry, data analysis and synthesis will occur between April and May 2013. The final report will be completed in June 2013. The tables below summarize some of the NeuroID accomplishments for the academic year 2012. Table 1 presents the accomplishments for the student and development activities core. Table 2 highlights the accomplishment for the research experience core.

Table1. Student Development Activities

Expected Outcome	Accomplishment
*Increase students understanding of the personal and professional aspects of a research career** *Measure: 90% of the students self-report an increase in their understanding of the personal and professional aspects of a research career	**100%** of the students self-reported an increase in their **understanding of the personal and professional aspects of a research career** after the NeuroPizza night activity
Increase students’ motivation to pursue a graduate program in neurosciences	**100%** of the students self-reported an increase of their **willingness to pursue a Neurosciences career** at the

Expected Outcome	Accomplishment
*Measure: 75% of the students self-report an increase in their interest to continue a graduate program in neurosciences.	last NeuroPizza Night
Students will be able to relate with the invited neuroscientist and consider them a "role-model" *Measure: 75% of the students self-report that were able to identify with the invited scientist	**100%** of the students were able to relate with the four speaker experience during the NeuroPizza Night activity
Increase student's understanding of the social impact of a research career and community engagement *Measures: 75% of the students self-report an increase in their understanding of the social impact of a research career and community engagement 100% of the students self-report an increase in civic responsibility	**75%** of the students reported that the **community outreach** activity *"foster their understanding of the social impact of science"*

Table2. Research Experience

Expected Outcome	Accomplishment
Increase students research experience *Measure: Annually, 90% of the NeuroID students will participate in off-site research program	100% of the NeuroID students participated in a neuroscience research project (on-site & off-site)
Increase knowledge about ethical and responsible conduct in research *Measure: At the end of the 1st summer, 90% of the students self-report and increase in knowledge in responsible conduct in research	100% of the NeuroID students reported an increase in their knowledge about ethical and responsible conduct in research
Enhance students research skills and laboratory techniques *Measure: 75% of the students self-report and increase in the research skills	100% of the NeuroID students reported an increase in their research skills at the end of the summer internship(2012)

Appendix

Appendix Content

- NeuroPizza Night **Speaker** Evaluation Results
- NeuroPizza Night **Students** Evaluation Results
- Community Outreach Activity Evaluation
- Research with Purpose Questionnaire
- NeuroID Skills Self-Assessment Questionnaire
- NeuroID **Students** Summer Research Experience
- NeuroID **Mentor** Summer Research Evaluation
- NeuroID Tips
- NeuroID Focus Groups Executive Summary

NeuroPizza Night **Speaker** Evaluation Results

Neuro Pizza Night Speaker Evaluation 2012-2013

Preliminary Results

During the academic year 2012-2013, neuroscientists of Puerto Rican, Hispanic and Latino descent that are faculty members at universities in mainland USA were invited to participate in the Neuro Pizza Night activity. The neuroscientists were the speakers of the activity. The neuroscientists share their experience and how they manage the professional and personal implications of a research career. A total of 4 speakers completed the evaluation survey. The majority of the surveyed were male (75.0%) while (25.0%) were female. All of the speakers (75.0%) evaluated the Neuro Pizza Night as *"excellent".* Moreover, all of the speakers agreed the Neuro Pizza night activity is an *"excellent mentoring initiative".*

Activity Structure

The majority of the invited speaker's (75.0%) rated the interview format implemented in the Neuro Pizza Night as *"excellent"*. The Neuroscientist also evaluated the activity structure (see Figure 1).

"I had a great impression due to the fact that it is different way to approach undergraduate students and they feel very relax to interact with the speaker"

"… the format is excellent in the sense that it creates a more intimate atmosphere between the speaker and the audience"

"The relaxed environment was ideal for this kind of activity"

"I think it was at the right level--informal and student led, but with Dr. Vega adding some direction periodically"

Figure 1. Speakers Impression of the Activity Structure

Speakers also evaluated the interview topics. Figure 2 summarize speakers' comments about the interview focusing in topics like challenge of graduate school, professional & personal aspects of a research career.

"I think the different topics raised by the moderator were excellent. I think those are the issues that undergrads face when making a decision of whether going to grad school or med school"

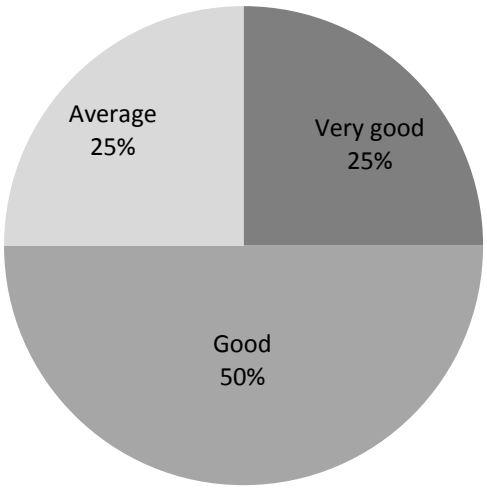
"The questions brought into focus the fact that once you go into grad school, there are many other aspects about life that come into play, specifically in the personal life and these are aspects that normally are not taken into account until a grad student comes to face them. Therefore I think that talking about these aspects and giving advice was really helpful for the students"

Figure 2. Speakers' Opinions about the Interview Focus in Topics Related to Personal Aspects of a Research Career

NeuroID Students Participation

The speakers also evaluated the student's participation during the activity (see Graph 1). Half of the participants (50.0%) described the students' participation as *"good"*.

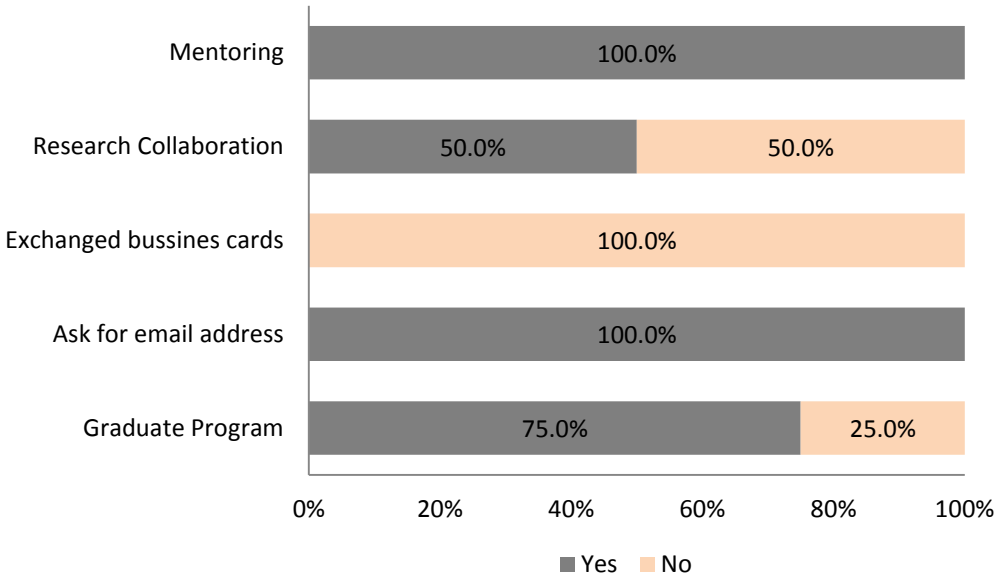
Graph 1. How would you describe the participation of the students?



Collaborations

The speakers were also asked to report if the students made an approach after the activity (see Graph 2). All of the speakers (100.0%) reported the students asked for their email address as well as advice or mentoring after the Neuro Pizza Night.

Graph 2. Students approaches to the speaker during the NeuroPizza Night



Moreover, the speakers indicated how many students (approximately) made the approaches (see Table 2).The majority of the approaches were related to ask for the speaker email address or mentoring.

Table 2. Quantity of Students Approaches

Approach	Quantity of students
Graduate Program (e.g. interested in apply to the speaker graduate program)	9
Research Collaboration (e.g. interested in an internship opportunity)	6
Mentoring (e.g. interested in professional aspects of research career)	10
Ask for email address	15
Exchanged business cards	--

Recommendations

The invited neuroscientist also provided recommendations for improve the Neuro Pizza Night mentoring initiative. The main recommendation was to prepare a list of questions prior the meeting as strategy to encourage shy students to participate (see Table below).

Area	Comments
List of Questions	*"…I would like to see more question from the students in general, but I also have to admit that I was able to speak with several student on a one on one basis after the activity"* *"…Ask the students to prepare some questions for the pizza night beforehand so none of their questions and doubts [goes] unanswered. You can also give these questions to the presenter the night before so he or she can have a good answer for the students."*
One-One Session	*"…I guess one potential recommendation is to have session where students can meet and talk with the speaker on a one-on-one basis. Sometimes people are more comfortable that [way, at least which] was my impression from several of the students that approached me after the activity."*

"Keep up the excellent work…"

Male Speaker

NeuroPizza Night **Students** Evaluation Results

NeuroPizza Night Evaluation Results

Experience as researcher and points to consider when applying to a T32-Neuroscience Graduate Program

Prepared by:

Center for Evaluation and Sociomedical Research

Gladys J. Ayala Sepúlveda, B.S.

Nicole M. Ortiz Vega, M.S.

CIES

Division of Community Services

*Experience as researcher and points to consider when applying to a **T32-Neuroscience Graduate Program***

Overview

Students' satisfaction with the seminar was assessed using an online questionnaire. The Surveymonkey.com website was used to design the instrument and allow students access to the questionnaire. There were a total of **12 participants** (**50% male** and **50% female**). More than half of the participants (58%) were NeuroID students from class 2012 (see Figure 1). The majority of the students (76%, n=12) were affiliated to the University of Puerto Rico, Rio Piedras Campus (see Graph 1). Most of the students (58%) reported Biology as their academic concentration (see Graph 2).

The questionnaire included questions assessing participants' knowledge about how to apply to a *T32-Neuroscience Graduate Program*. **Before the seminar**, the majority of the students describe their understanding of the topic as "medium" or "low". **After the seminar**, most of the students reported "high" or "medium" levels of understanding on the topic (see Graph 2).

Graph 2. Overall knowledge about how to apply a T32-Neuroscience Graduate Program seminar

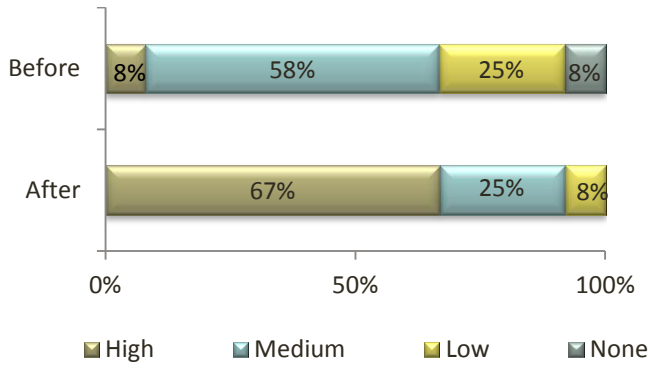
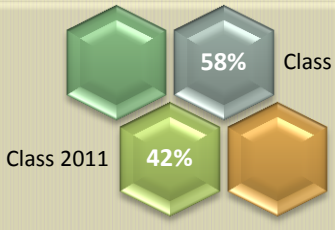


Figure 1. NeuroID Participants



Graph 1. Current Academic Institution

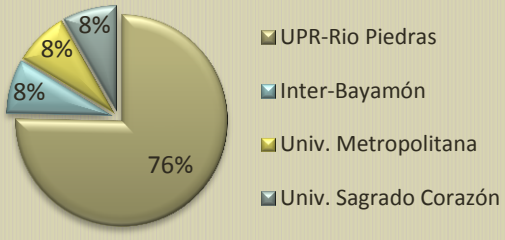
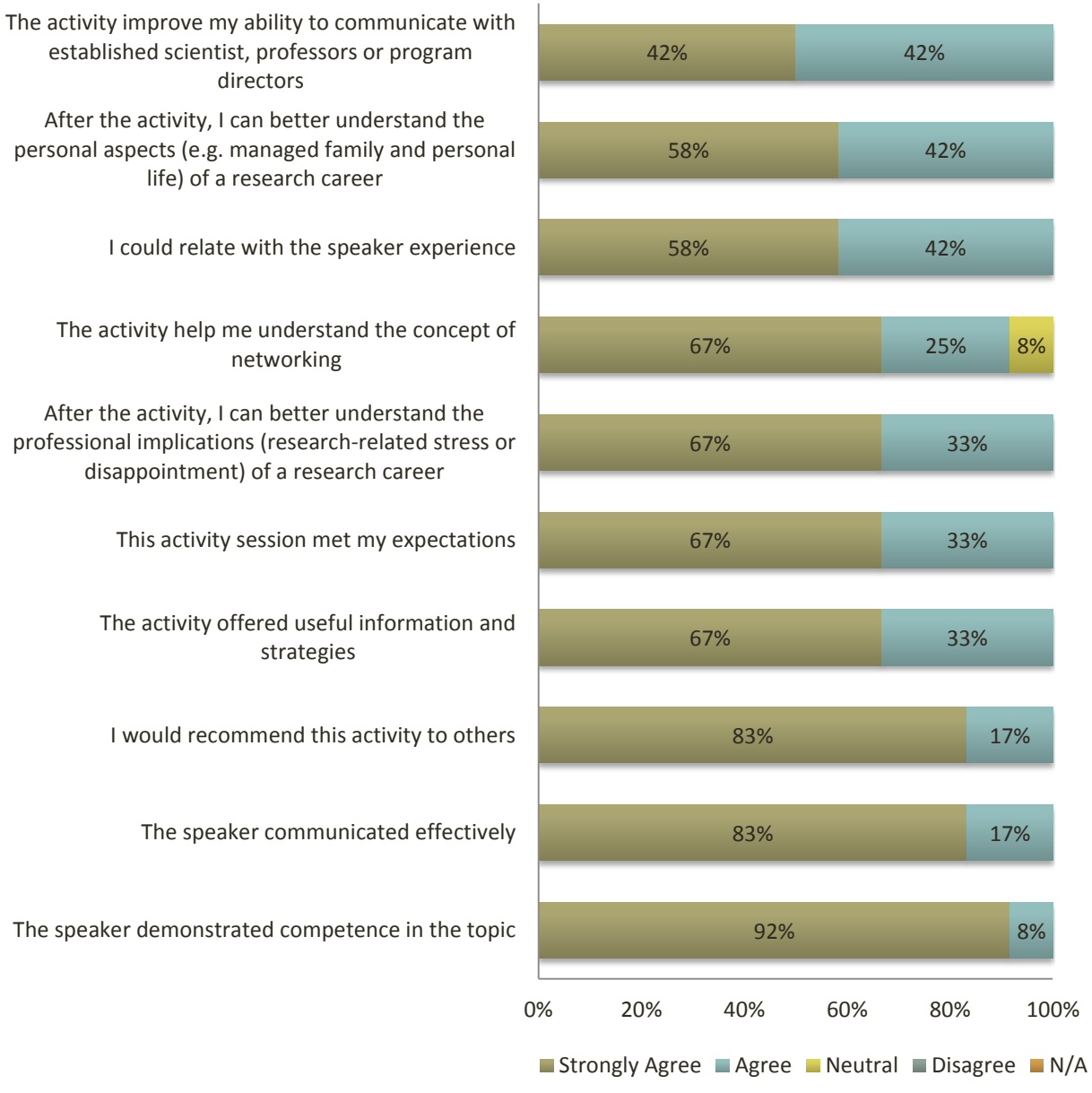


Figure 2. Academic Concentration

Satisfaction with the Seminar

In general, the majority of the students were satisfied with the activity. Most of the participants "strongly agree" with *the* ***speaker demonstrated competence in the topic***, I *would recommended this activity to others* and *the speaker communicated effectively* (see Table 3). However, some participants report being "neutral" with ***the activity helps me understand the concept of networking***.

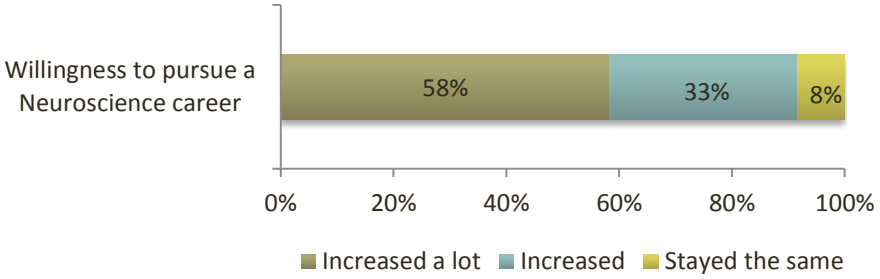
Table 3. Satisfaction of General Aspects of the Seminar (n=17)



Impact on Neuroscience Career

Students were also asked to rate how the seminar changed their willingness to pursue a Neurosciences career (see Graph below).

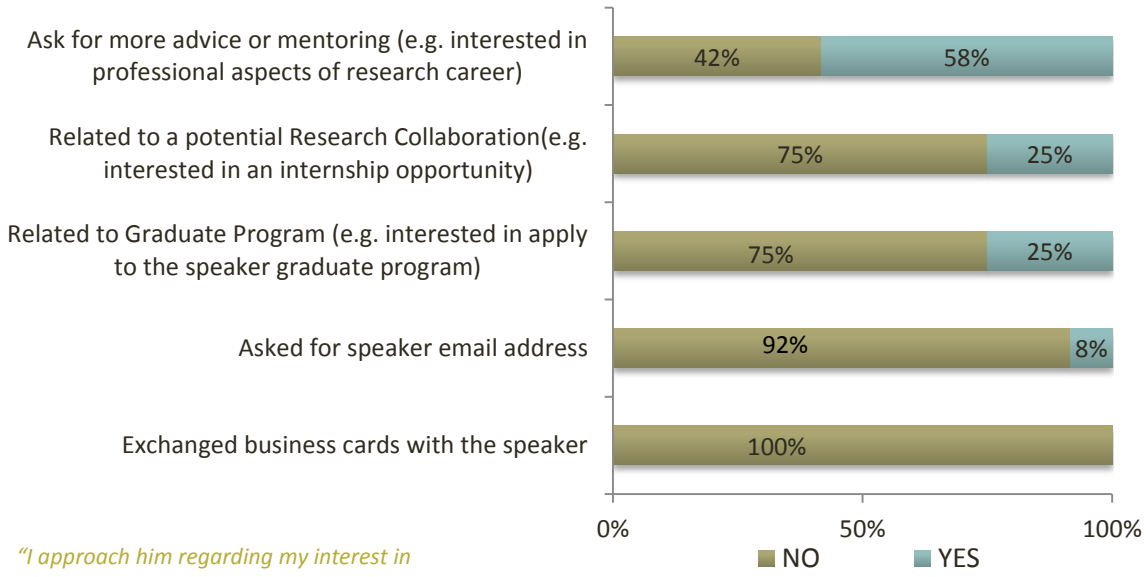
Graph 4. How did the seminar change students' willingness to pursue a Neuroscience Career?



Collaborations

Furthermore, students were asked to report if they made any approach (informal or formal, e.g.: verbally, email, letter) to the speaker during or after the NeuroPizza Night activity. Most of the students **asked for speaker email address** (92%, n=11). It is important to highlight that also a high proportion of students made an **approach related to a potential Research Collaboration** and an **approach related to Graduate Program** (see graph 5).

Graph 5. Approach made by Students to the Speaker During or After the Seminar

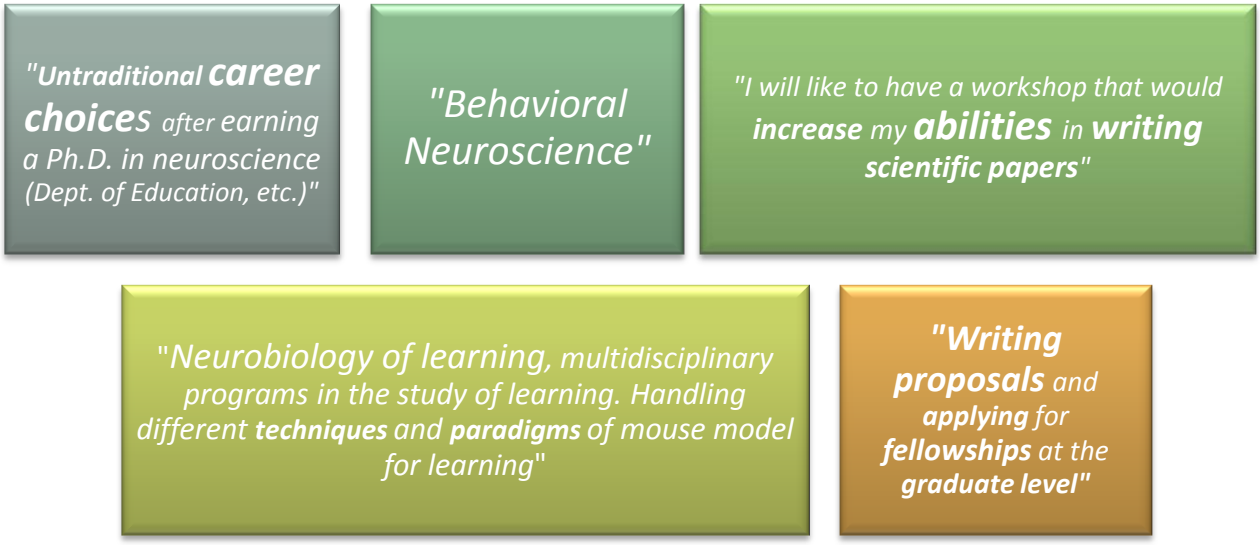


"I approach him regarding my interest in Neuroscience and he respond by recommending a few of his colleague's books and given me one of their e-mail addresses" ***Male Participant***

Areas & Topics for Future Seminars

Students were asked to identify areas or topics of interest for future activities (see Figure below). Approximately, half of students (42%, n=5) mentioned a topic or area of interest.

Figure 3. Topics of interest for future activities



Comments or Recommendations

Students also provide comments about their experience in the NeuroPizza activity (see comments below).

"The speaker was both interesting and approachable as well as being very knowledgeable"

"I really enjoyed Dr. Born's talk and he really motivated me into looking forward to pursuing a PhD"

NeuroPizza Night Evaluation Results

Transition from the island to the mainland
Speakers: Dr. Manuel Navedo (UC Davis) & Dr. Steven Arnold (UPENN)

Prepared by:

Center for Evaluation and Sociomedical Research

Gladys J. Ayala Sepúlveda, B.S.

Nicole M. Ortiz Vega, M.S.

CIES

Division of Community Services

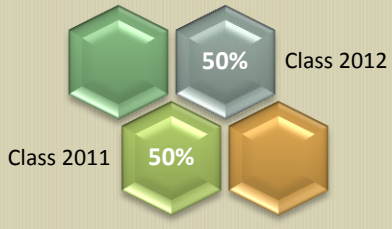
Transition from the island to the mainland
Speaker: Dr. Manuel Navedo (UC Davis)

Overview

Students' satisfaction with the seminar was assessed using an online questionnaire. The Surveymonkey.com website was used to design the instrument and allow students access to the questionnaire. There were a total of **18 participants**. Only **67% of the participants completed the online questionnaire (n=12), 58% female** and **42% male**. Half of the participants (50%) who completed the questionnaire were NeuroID students from class 2012 (see Figure 1). The majority of the students (75%, n=9) were affiliated to the University of Puerto Rico, Rio Piedras Campus (see Graph 1). Half of the students (50%) reported Biology as their academic concentration (see Figure 2).

The questionnaire included questions assessing participants' satisfaction with the seminar, impact on Neurosciences career, collaborations and areas & topics for future seminars.

Figure 1. NeuroID Participants



Graph 1. Current Academic Institution

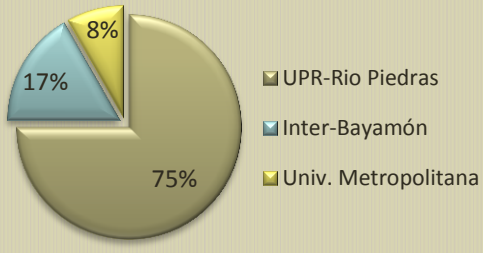
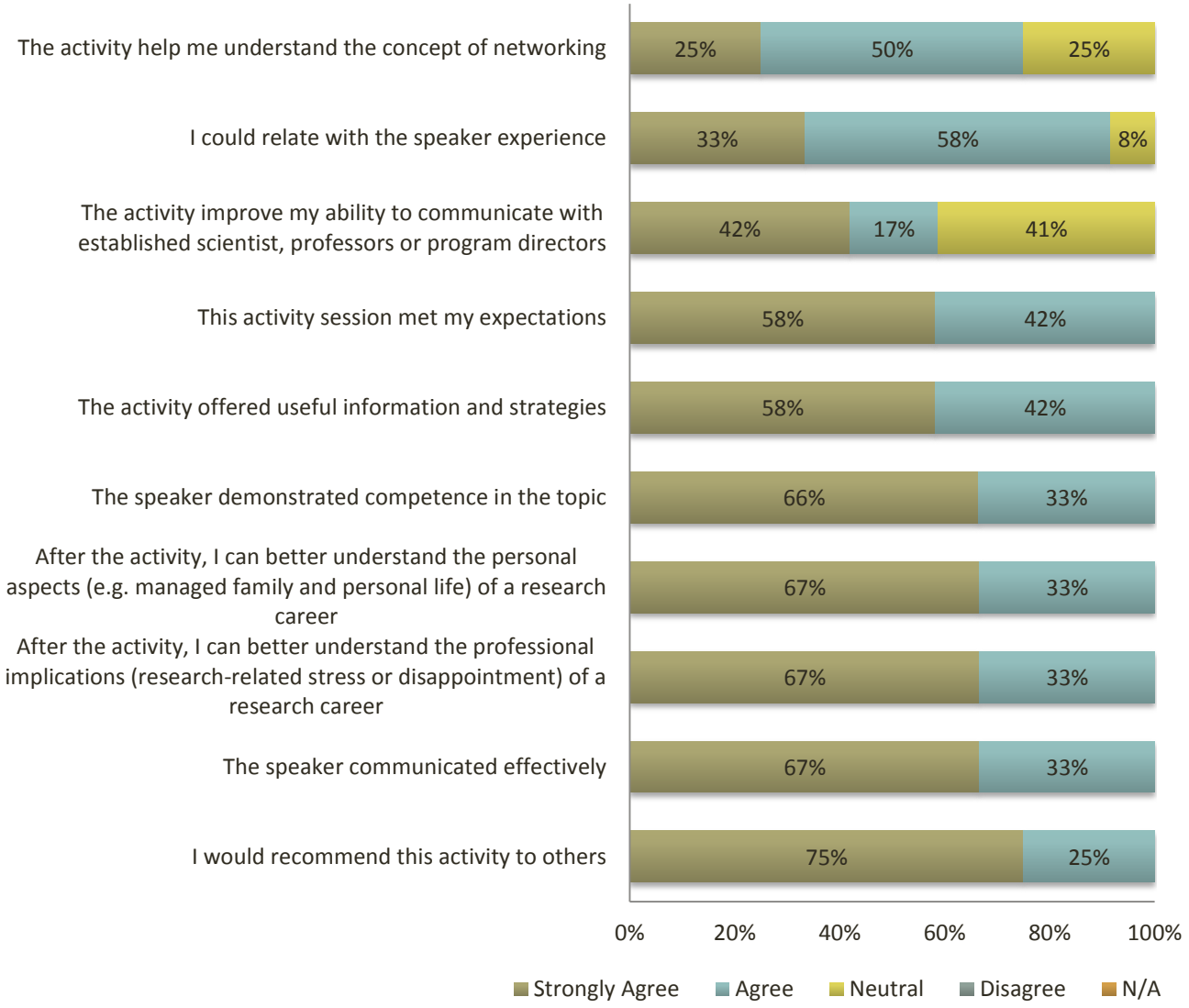


Figure 2. Academic Concentration

Satisfaction with the Seminar

In general, the majority of the students were satisfied with the activity (see Graph 2). Most of the participants were "strongly agree" to **recommend this activity to others. Similarly, students** "agree" the ***speaker communicated effectively***. Participants also reported that ***after the activity, [I can better understand the professional implications and the personal aspects of a research career*]**. However, approximately half of the participants reported being "neutral" with the activity ***improves my ability to communicate with established scientist, professors or program directors.***

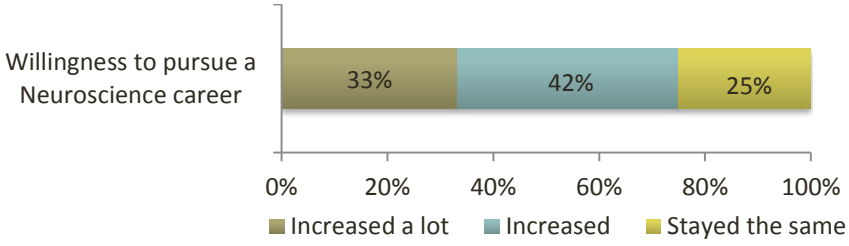
Graph 2. Satisfaction of General Aspects of the Seminar (n=12)



Impact on Neuroscience Career

Students were also asked to rate how the seminar changed their willingness to pursue a Neurosciences career (see Graph below). The majority (75%, n=9) of the students reported an increase in their willingness to pursue a neuroscience career.

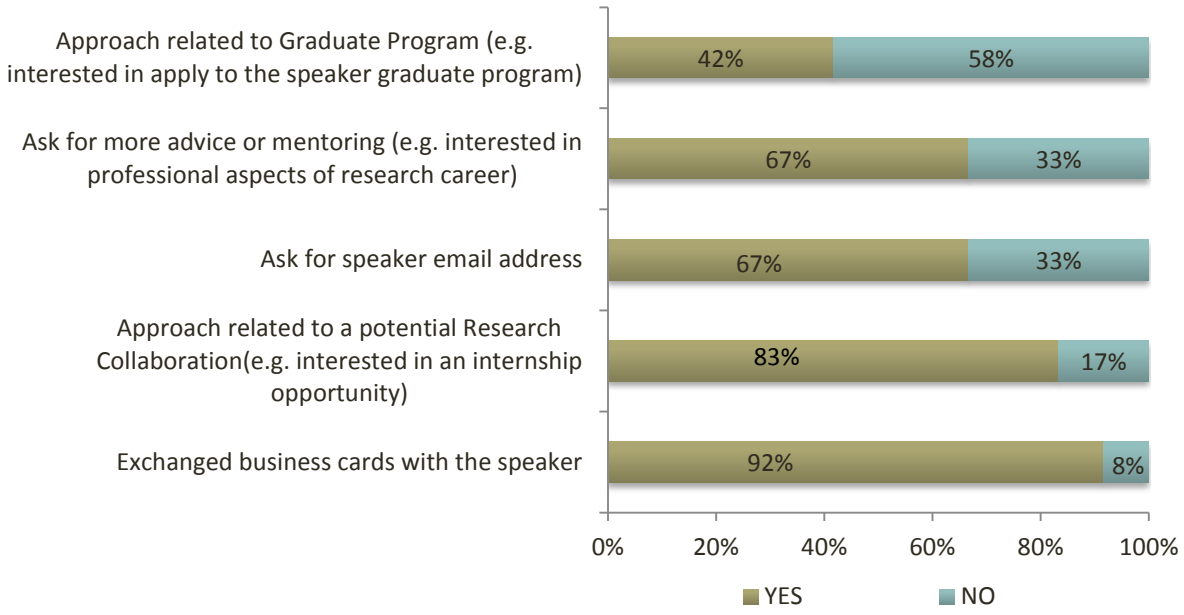
Graph 3. How did the activity change your willingness to pursue a Neuroscience Career?



Collaborations

Furthermore, students were asked to report if they made any approach (e.g. verbally, email, letter) to the speaker during or after the NeuroPizza Night activity. Most of the students report they **exchanged business cards with the speaker** (92%, n=11) and made an **approach related to a potential research collaboration** (83%, n=10), see Graph 4. It is important to highlight that a high proportion of students made an **approach to ask for speaker email address** and **ask for more advice or mentoring**.

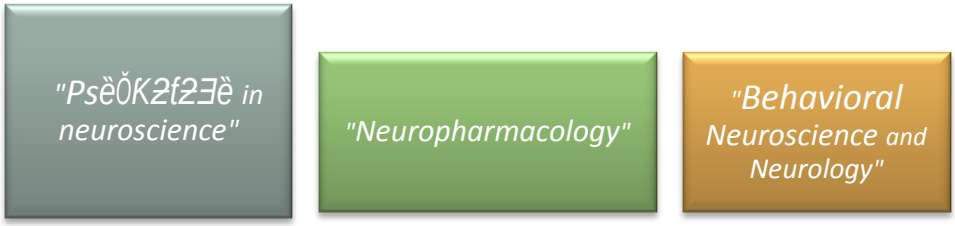
Graph 4. Approach made by Students to the Speaker During or After the Seminar



Areas & Topics for Future Seminars

Students were asked to identify areas or topics of interest for future activities (see Figure below). Only three students mentioned a topic or area of interest.

Figure 3. Topics of interest for future NeuroID activities



NeuroPizza Night Evaluation Results

Peer Mentoring: Interview process and life as graduate student
Speaker: Héctor De Jesús (UT Southwestern)

Prepared by:

Center for Evaluation and Sociomedical Research

John Rodríguez Adames, B.A.

Nicole M. Ortiz Vega, M.S.

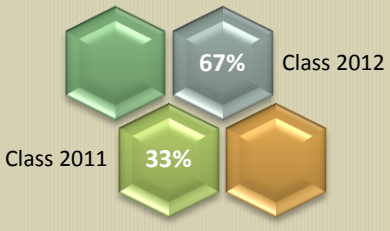
CIES
Division of Community Services

Peer Mentoring: Interview process and life as graduate student
Speaker: Héctor De Jesús (UT Southwestern)

Overview

Students' satisfaction with the seminar was assessed using an online questionnaire. The Surveymonkey.com website was used to design the instrument and allow students access to the questionnaire. There were a total of **14 participants**. Only 86% of the participants completed the online questionnaire (n=12), **67% female** and **33% male**. Most of the participants (67%) who completed the questionnaire were NeuroID students from class 2012 (see Figure 1). The majority of the students (75%, n=9) were affiliated to the University of Puerto Rico, Rio Piedras Campus (see Graph 1). The majority of the students (42%) reported Biology as their academic concentration (see Figure 2).

Figure 1. NeuroID Participants



Graph 1. Current Academic Institution

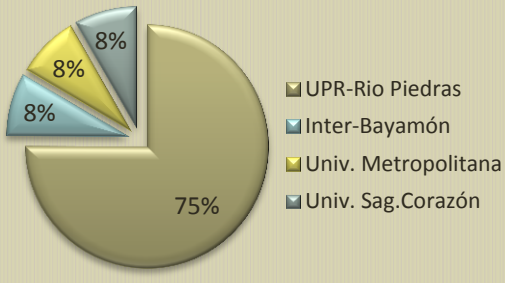
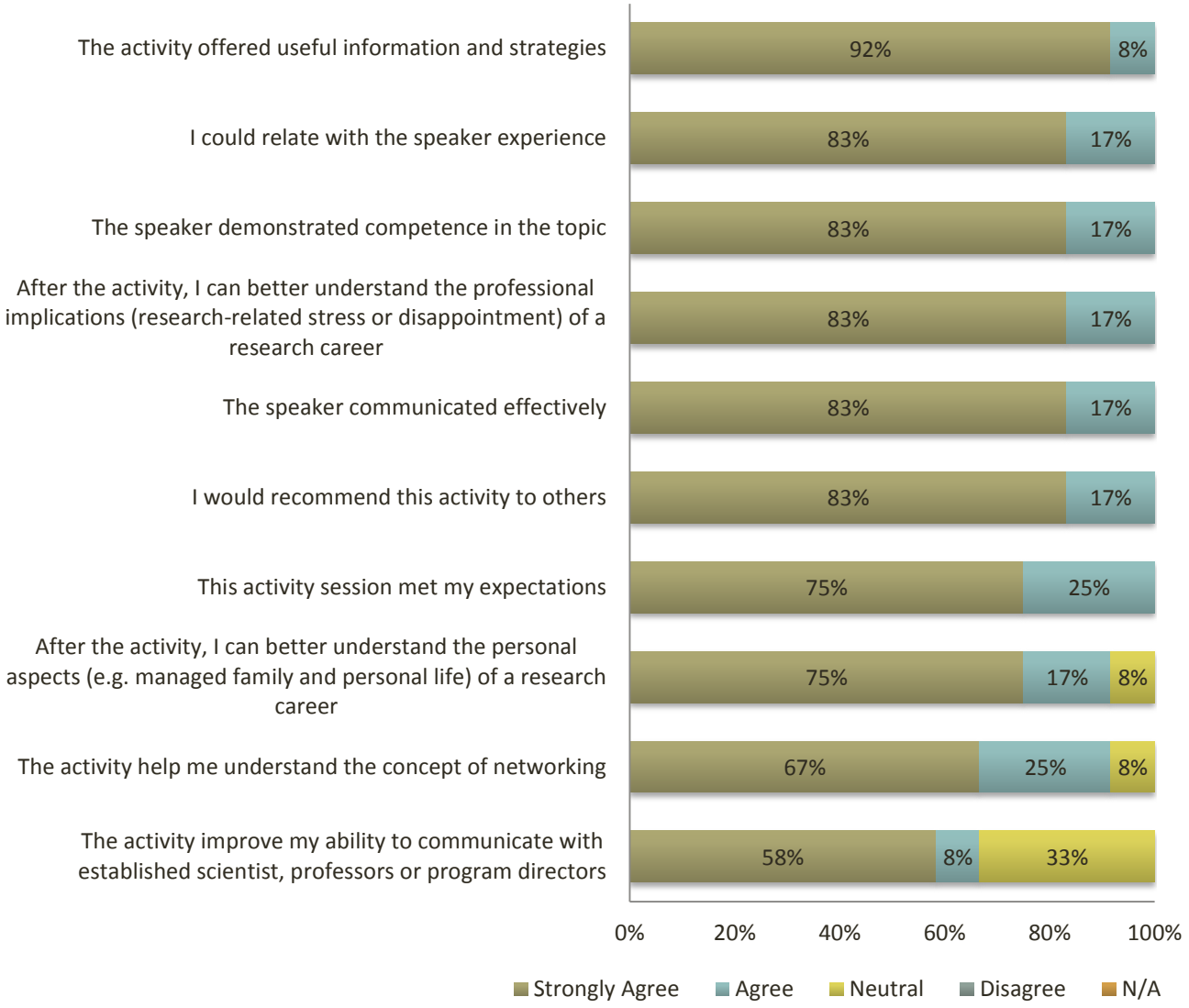


Figure 2. Academic Concentration

Satisfaction with the Seminar

In general, the majority of the students were satisfied with the activity (see Graph 2). Most of the participants were *"strongly agree"* to **recommend this activity to others.** Similarly, students *"strongly agree"* the ***speaker communicated effectively***. Participants also reported that ***after the activity, [I can better understand the professional implications and the personal aspects of a research career*]**. However, approximately half of the participants reported being *"strongly agree"* with the activity ***improves my ability to communicate with established scientist, professors or program directors.***

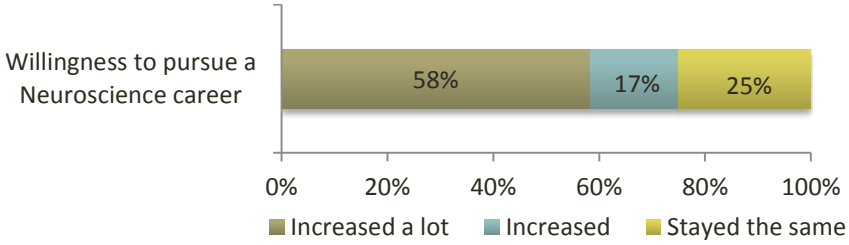
Graph 2. Satisfaction of General Aspects of the Seminar (n=12)



Impact on Neuroscience Career

Students were also asked to rate how the seminar changed their willingness to pursue a Neurosciences career (see Graph below). The majority (75%, n=9) of the students reported an increase in their willingness to pursue a neuroscience career.

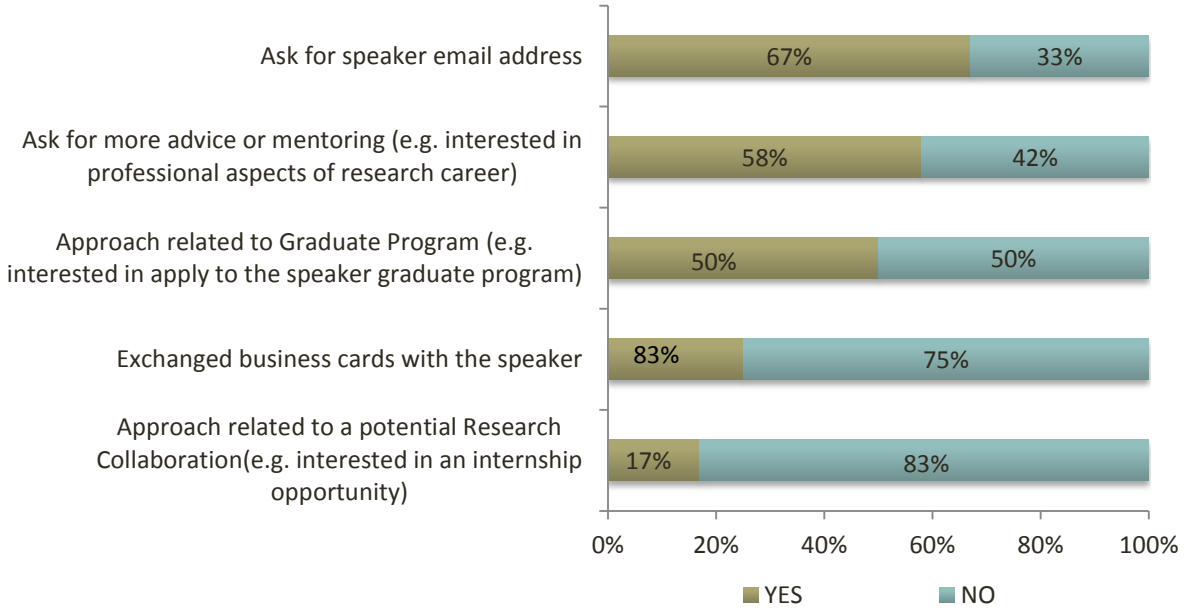
Graph 3. How did the activity change your willingness to pursue a Neuroscience Career?



Collaborations

Furthermore, students were asked to report if they made any approach (*e.g. verbally, email, letter*) to the speaker during or after the NeuroPizza Night activity. Most of the students report they did not ***exchanged business cards with the speaker*** (75%, n=9) and did not made an ***approach related to a potential research collaboration*** (83%, n=10), see Graph 4. It is important to highlight that a high proportion of students made an ***approach to ask for speaker email address*** *and* ***ask for more advice or mentoring***.

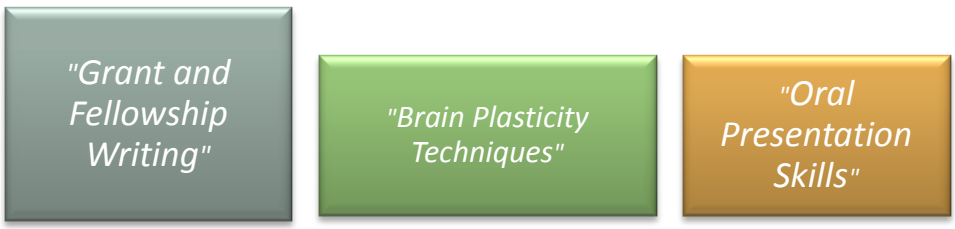
Graph 4. Approach made by Students to the Speaker During or After the Seminar



Areas & Topics for Future Seminars

Students were asked to identify areas or topics of interest for future activities (see Figure below). Only three students mentioned a topic or area of interest.

Figure 3. Topics of interest for future NeuroID activities



Community Outreach Activity Evaluation

NeuroID Community Outreach Activity
Class 2012

The Residence Senior Living

August 17, 2012

The Residence Senior Living

The 2012 NeuroID student' class organized their first community outreach activity. The students visited the *The Residence Senior Living* in Guaynabo. This is an assisted living facility for seniors. The Residence provides care for seniors needing assistance with daily activities, as well as those with Alzheimer's and other neurodegenerative diseases.

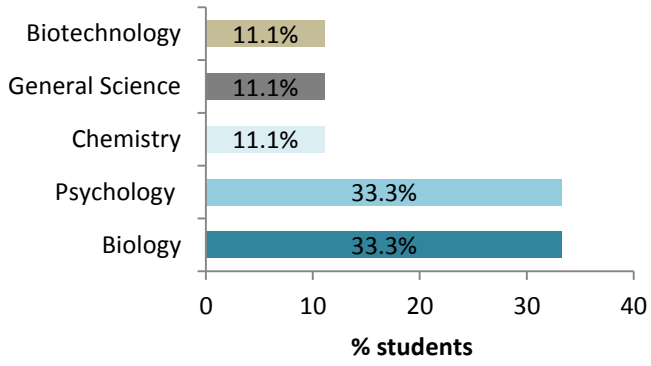
NeuroID Student Class 2012

Evaluation Results

Student Profile

Students' experience and satisfaction with the outreach activity was assessed using an online questionnaire. The Surveymonkey.com website was used to design the instrument and allow students access to the questionnaire. There were a total of 9 participants**.** The majority of the students were female (77.8%) and, affiliated to the University of Puerto Rico, Rio Piedras Campus. More than half of the students (66.6%) reported Biology or Psychology as their major (see Graphic 1).

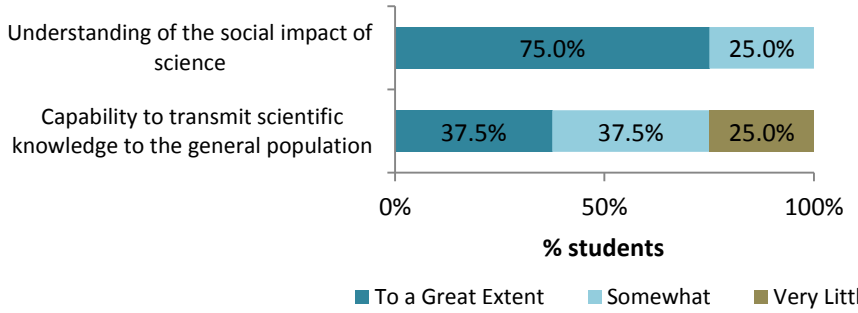
Graphic 1. Academic Concentration



Self-Assessment

Students were asked to rate how the activity contributed to the improvement or advancement of their skills. The majority of the students (75.0%) reported that the activity fostered their *understanding of the social impact of science*. Moreover, approximately half of the students reported that the activity advanced their *skills to transmit scientific knowledge to the general population* (see Graphic 2).

Graphic 2. How the activity contributed to the improvement or advancement of ...?



“The experience was excellent because we got to see people afflicted by the disease [that] our lab's are trying to study, spend time with them and also connect with them…”

NeuroID Student 2012

Experience

INTERACT◆ CONNECT◆ JOY

Students described their experience with the activity. All of the NeuroID students (100.0%) evaluated the activity as an excellent experience. Students mentioned the interaction with the elderly and the connection established among the NeuroID class as the reason for their satisfaction.

“I am very satisfied with the community outreach experience because it gave us the opportunity to be in contact with people that needed the attention and …. the joy that we brought them”

“I am very satisfied with the community outreach activity because we participated together as a group to bring joy and affection to the elderly”

“I'm very satisfied because the goal was obtained [accomplished]. The interaction with [the senior] was very special to me”

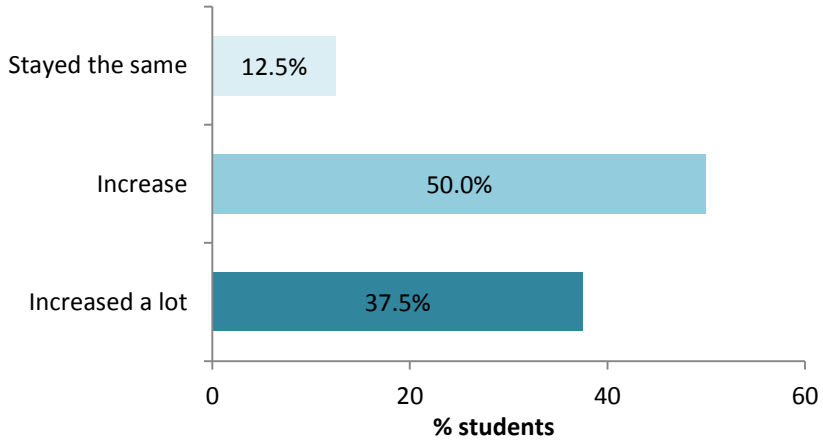
“It was an amazing experience and I think as a group we got closer”

"This activity made me realize why I'm doing research about Alzheimer's disease and at the same time, the activity gave me reasons to keep working in that field"

Impact on Neuroscience Career

Students also evaluated the impact of the activity on their decision to pursue a Neurosciences career. After the activity, most of the students (87.5%) reported an *"increase" or "increase a lot"* in their willingness to continue a Neurosciences career (see Graphic 3).

Graphic 3. How did the activity change your willingness to pursue a Neuroscience career?



Strengths and Participant Recommendations

Students provided input regarding strengths of the activity and areas for improvement. The interaction with the elderly, work as team, the joy and stories shared were the aspects that students most liked about the activity. Participants also mentioned the staff and facility as strength of the activity. Students recommended improving the time frame, the activity coordination and organization. They also suggested coordinating an activity for children. Some of the comments were*: "have a little more time for the activity*", *"be prepared with more scientific information about neurodegenerative diseases", "Excellent".*

The aspects students liked…..

*"Bring **happiness** and laughter to the elderly.."* "Worked together as a group.."

"…to be [in] **contact with people** that have neurodegenerative diseases.." "..the **staff** was helpful and approving.."

"The contrast between normal elders and **elders with Alzheimer's** disease" ".. **giving** other people a little time of entertainment"

"The **facilities [**were] very clean, spacious, and great service.."

"the elderly were kind, attentive and willing to **share their stories** and experiences.."

*"…improved my capability of **transmitting scientific** knowledge to the **community"***

"…made me realize why I'm doing research and the importance of it…"

Skills Self-Assessment Questionnaire (Baseline)

Research with Purpose Questionnaire

Evaluation Instruments

- **NeuroID Skills Self-Assessment Questionnaire (Baseline)**- Students' general knowledge in Neurosciences, laboratory research skills, presentation skills and various aspects related to career development was assessed using a self-administered questionnaire (see Appendix). The students completed this paper and pencil instrument at the beginning of the summer workshops 2012. The questionnaire will be administered again at the end of the summer workshops. The questionnaire included 27 questions to assess four areas: socio-demographics, self-assessment, career development and dissemination. The questionnaire was designed to be completed in approximately 15 minutes.

- **Research with Purpose Questionnaire –** Students' motivations to learn sciences and civic responsibility was assessed using an online survey. The survey was designed using the Sciences Motivation Questionnaire II (Glynn et.al., 2011)[1] and the Civic Responsibility Survey III (Furco, Muller & Ammon, 1998)[2]. The SMQ II assesses five components of students' motivation to learn science in college. The five components of motivation are: intrinsic motivation, self-efficacy, self-determination, grade motivation and career motivation (see Appendix-Table 1. Research with Purpose Key Components Description). The SMQ II is reliable in terms of its internal consistency, as measured by coefficient alpha (α = .92). The civic responsibility questions measure students' perceptions of civic responsibility, as expressed in statements such as "*I like to help people, even if it's hard work*" and "*I feel like I can make a difference in my community*". The civic responsibility scale assesses three sub-dimensions: connection to community, civic awareness, and civic efficacy. The civic responsibility survey is reliable in terms of its internal consistency, as measured by coefficient alpha (α = .93). The final version of the survey compromised 52 questions and was subdivided in three sections (demographics, sciences to me and science and the community). The questionnaire was sent electronically via Surveymonkey.com to the email addresses provided by the program directors. The students completed the survey at the beginning of the summer workshops 2012. The questionnaire will be administered again next year, 2013. The questionnaire was designed to be completed in approximately 30-40 minutes.

[1] Glynn, S., Brickman,P., Armstrong,N., Taasoobshirazi,G.(2011). Science Motivation Questionnaire II: Validation with Science Majors and Noscience Majors. Journal of Research in Science Teaching. 1-16

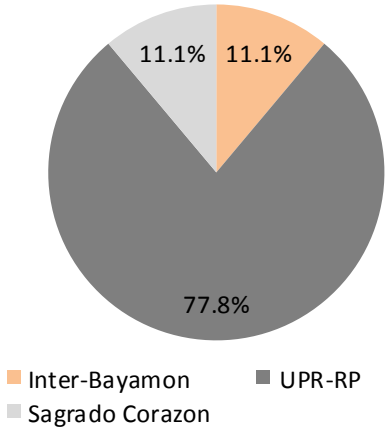
[2] Furco, A., Muller, P., Ammon,M. (1998). The Civic Responsibility Survey. Service-Learning Research & Development Center, University of California-Berkeley.

Skills Self-Assessment: Summer Baseline (Cohort 2*)

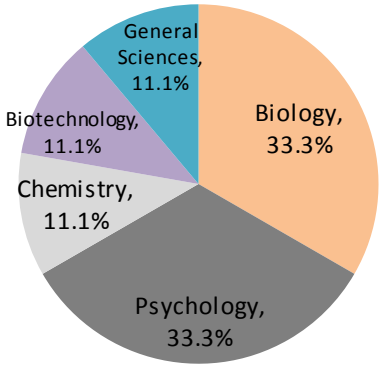
Demographic

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 11). More than half of the students (67.0%) reported Biology or Psychology as their major (see Graph 12).

Graph 11. Academic Institution Affiliation



Graph 12. Academic Concentration (Major)

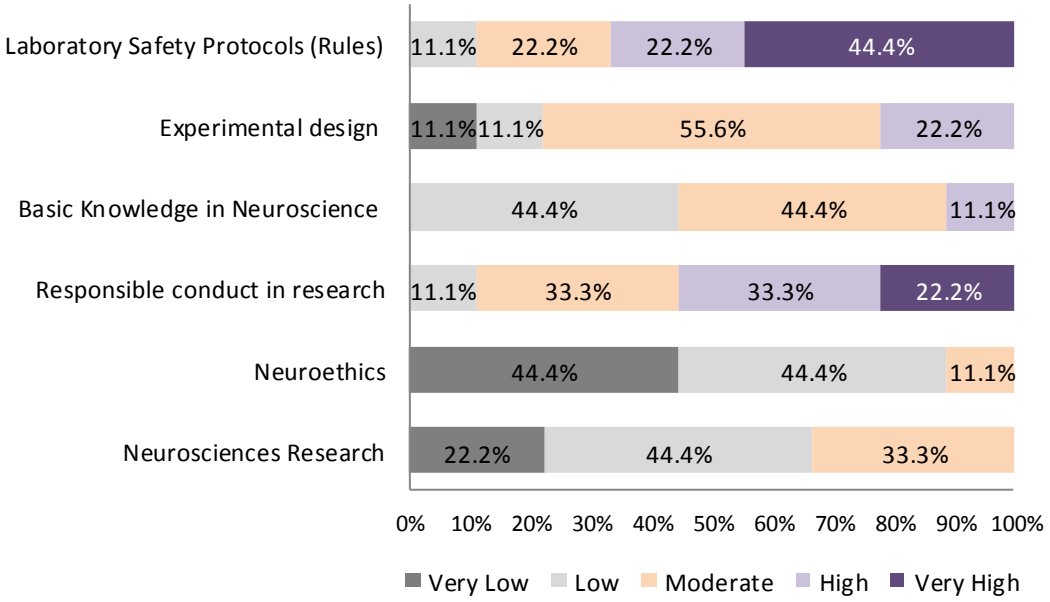


General Research

Students were asked to rate their knowledge in general research **before** entering the NeuroID Program (see Graph 13). The majority of the students reported a "low" or "very low" knowledge about *Neuroethics* and *Neurosciences Research*. Similarly, half of the students reported knowledge levels between "moderate" and "low" *for basic knowledge in Neurosciences.* Students also rated their knowledge in *experimental design* as "moderate". However, more than half of the students indicated a "high" or "very high" knowledge about *laboratory safety protocols* (rules) and *responsible conduct in research*. It is important to highlight that approximately half of the students (n= 4, 44.0%) indicated that had participated in a research laboratory **before** entering NeuroID Program.

*Cohort 2 refers to NeuroID second class 2012

Graph 13. General Research Knowledge



Laboratory Research Skills

Students were also asked to rate their laboratory research skills **before** entering NeuroID Program (see Table 2). In general, students reported laboratory skills levels between "low" and "moderate". Less than half of the students (44.4% or less) reported "high" or "very high" levels of knowledge about *keep a laboratory notebook* and *determine the appropriate laboratory protocols to conduct experiments*.

Table 2. Students Laboratory Research Skills Self-Assessment

Your Skills and Proficiency in....	Very Low (1)	Low (2)	Moderate (3)	High (4)	Very High (5)
Keep a laboratory notebook	22.2%	11.1%	22.2%	22.2%	22.2%
Determine the appropriate laboratory protocols to conduct experiments.	-	44.4%	22.2%	22.2%	11.1%
Identification of gap-in-knowledge	11.1%	55.6%	11.1%	22.2%	-
Development of plausible hypothesis	-	44.4%	44.4%	11.1%	-
Manipulate the laboratory instruments and equipment properly.	-	22.2%	44.4%	33.3%	-
Data analysis	11.1%	33.3%	33.3%	22.2%	-
Critical interpretation of scientific literature	-	33.3%	33.3%	33.3%	-
Prepare reports about the investigation work	-	22.2%	66.7%	11.1%	-

Presentation Skills

Additionally, students evaluated their presentation skills **before** entering NeuroID Program (see Table 3). In general, students rated their presentation skills between "low" and "moderate". More than half of the students (55.6% or more) rated their skills on *manuscript preparation and poster presentation* as "low" or "very low". Similarly, 66.6% of the students reported "very low" or "moderate" skills about *abstract preparation*.

Table 3. Students Presentation Skills Self-Assessment

Your Skills and Proficiency in….	Very Low (1)	Low (2)	Moderate (3)	High (4)	Very High (5)
Abstract preparation	11.1%	22.2%	33.3%	33.3%	-
Preparation of manuscript	-	55.6%	22.2%	22.2%	-
Preparation of an oral presentation	-	33.3%	33.3%	33.3%	-
Preparation of a poster presentation	22.2%	66.7%	-	11.1%	-
Use of presentation programs (ex. Power Point, Publisher)	-	-	33.3%	55.6%	11.1%

Career Development

Participants also rated their knowledge for aspects related to career development (see Table 4).). In general, students indicated "low" or "moderate" knowledge levels. Most of the students (77.8%) reported "low" or "moderate" knowledge about *Neurosciences graduate programs* and *the process of mentor selection*. Less than half of the students (22.0%) reported "high" levels of knowledge about *summer internships opportunities*.

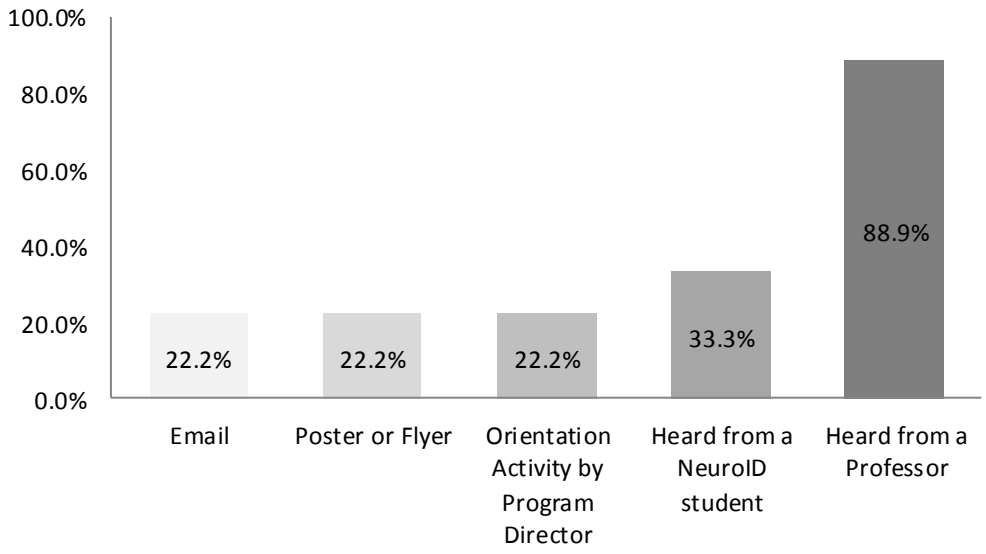
Table 4. Students Career Development Self-Assessment

Your Knowledge about….	Very Low (1)	Low (2)	Moderate (3)	High (4)	Very High (5)
Summer Internships Opportunities	11.1%	-	66.7%	22.2%	-
Neurosciences Graduate Programs	11.1%	66.7%	11.1%	11.1%	-
The process of Mentor Selection	-	22.2%	55.6%	22.2%	-
The process of applying for a pre-doctoral fellowship	44.4%	55.6%	-	-	-

NeuroID Dissemination

Finally, students were asked to indicate how they found out about the NeuroID program. The majority of the students indicated *word of mouth* as the main source of information. Specifically, 89.0% of the students reported they heard from a professor followed by other NeuroID students (33.3%) and the Program Director (see Graph 14).

Graph 14. How did you learn or find about *NeuroID Program*?



Conclusions and Recommendations

The main purpose of this survey was to collect baseline data about the scientific skills and general knowledge in Neurosciences in order to monitor students' development and progress. Overall, the students reported "low" and "moderate" knowledge levels and research skill before entering the program. The majority of the students learn about the program through word of mouth. In order to maximize the information collected the following suggestion are made:

- Follow Up students progress through a post survey
- During the summer workshops emphasizes the topics that students reported "low" levels of knowledge or proficiency (*Neuroethics, Neurosciences research, Identification of gap-in-knowledge, Data analysis, and poster preparation*)
- Provide information regarding the process of applying for a pre-doctoral fellowship.

Research with Purpose Questionnaire (Cohort 2)

Overview

This section summarizes the prelimary results of the *"Research with Purpose Questionnaire"*. A total of 9 students completed the questionnaire at the beginning of the summer 2012. The questionnaire explore students' motivation to learn sciences and civic responsibility. 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, followed by Universidad del Sagrado Corazon (11.0%) and InterAmericana-Bayamon (11.0%). More than half of the students (67.0%) reported Biology or Psychology as their major, followed by Chemistry (11.1%), General Sciences (11.1%) and Biotechnology (11.1%).

Motivation to learn Science

Students' motivation to learn sciences scale included the following subcategories: *intrinsic motivation, career motivation, self-efficacy, self-determination and grade motivation*. In general, students answered most of the scale items as "always" or "usually" (see Table 11). Most of the students (88.9%) had an intrinsic motivation to learn sciences. Specifically, the majority of the students are "always" *curious about discoveries in science* and *sciences make their life more meaningful.* Similarly, students reported high levels of motivation to pursue a science career. All of the students (100.0%) agree their *career will involve science*. Students also reported high levels of self-determination and self-efficacy. The majority of the students reported that they "usually" or "always" spend a lot of time learning sciences and believe they can earn a grade of "A" in science.

Table 11. Students Motivation to Learn Sciences

In general….	Never (0)	Rarely (1)	Sometimes (2)	Usually (3)	Always (4)
Intrinsic Motivation					
The science I learn is relevant to my life.	-	-	-	33.3%	66.7%
Learning science is interesting.	-	-	-	11.1%	88.9%
Learning science makes my life more meaningful.	-	-	-	11.1%	88.9%
I am curious about discoveries in science.	-	-	-	11.1%	88.9%

In general….	Never (0)	Rarely (1)	Sometimes (2)	Usually (3)	Always (4)
I enjoy learning science.	-	-	-	11.1%	88.9%
Career Motivation					
Learning science will help me get a good job.	-	-	11.1%	11.1%	77.8%
Knowing science will give me a career advantage.	-	-	-	33.3%	66.7%
Understanding science will benefit me in my career.	-	-	-	-	100.0%
My career will involve science.	-	-	-	-	100.0%
I will use science problem-solving skills in my career.	-	-	-	22.2%	77.8%
Self-Determination					
I put enough effort into learning science.	-	-	-	22.2%	77.8%
I use strategies to learn science well.	-	-	11.1%	33.3%	55.6%
I spend a lot of time learning science.	-	-	-	44.4%	55.6%
I prepare well for science tests and labs.	-	-	11.1%	44.4%	44.4%
I study hard to learn science.	-	-	22.2%	22.2%	55.6%
Self-Efficacy					
I am confident I will do well on science tests.	-	-	11.1%	55.6%	33.3%
I am confident I will do well on science labs and projects	-	-	11.1%	33.3%	55.6%
I believe I can master science knowledge and skills.	-	-	11.1%	33.3%	55.6%
I believe I can earn a grade of “A” in science	-	-	-	33.3%	66.7%
I am sure I can understand science.	-	-	11.1%	11.1%	77.8%
Grade Motivation					
I like to do better than other students on science tests.	-	11.1%	-	-	88.9%
Getting a good science grade is important to me.	-	-	-	11.1%	88.9%
It is important that I get an "A" in science.	-	-	33.3%	-	66.7%
I think about the grade I will get in science.	-	11.1%	-	33.3%	55.6%
Scoring high on science tests and labs matters to me.	-	-	-	22.2%	77.8%

Civic Responsability

Students' civic responsibility questions included the following subcategories: *connection to community, civic awareness and civic efficacy* (see Table 12). The majority of the students "strongly agree" *that they felt an obligation to contributing with the community*. Moreover, all of the students (100.0%) reported that they *felt a personal obligation to contribute in some way to the community*. However, more than half of the students "slightly disagree" that they *have a strong and personal attachment to a particular community*. It is important to highlight that most of the students "agree" or "strongly agree" with the items that explored civic awareness and civic efficacy.

Table 12. Students Civic Responsibility

In general…	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly agree
Connection to community						
I have a strong and personal attachment to a particular community	11.1%	-	44.4%	11.1%	22.2%	11.1%
I benefit emotionally from contributing to the community, even if it is hard and challenging work	-	-	-	-	11.1%	88.9%
I feel a personal obligation to contribute in some way to the community	-	-	-	-	44.4%	55.6%
I have a lot of personal contact with people in the community	-	11.1%	11.1%	44.4%	33.3%	-
Civic Awareness						
I often discuss and think about how political, social, local or national issues affect the community	-	-	-	33.3%	44.4%	22.2%
It is my responsibility to help improve the community	-	-	-	11.1%	22.2%	66.7%
I am aware of the important needs in the community	-	-	11.1%	11.1%	22.2%	55.6%
I am aware of what can be done to meet the important needs in the community	-	11.1%	-	22.2%	44.4%	22.2%

In general…	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly agree
Helping other people is something that I am personally responsible for	-	-	-	33.3%	22.2%	44.4%
It is easy for me to put aside myself interest in favor of a greater good	-	-	-	11.1%	66.7%	22.2%
Becoming involved in political or social issues is a good way to improve the community	-	-	-	11.1%	66.7%	22.2%
Being concerned about state and local issues is an important responsibility for everybody	-	-	-	11.1%	55.6%	33.3%
Being actively involved in community issues is everyone's responsibility, including mine	-	-	-	-	33.3%	66.7%
I understand how political and social policies or issues affect members in the community	-	-	-	44.4%	44.4%	11.1%
Civic Efficacy						
I participate in political or social causes in order to improve the community	-	11.1%	-	-	77.8%	11.1%
Providing service to the community is something I prefer to let others do	66.7%	22.2%	-	-	11.1%	-
I feel I have the power to make a difference in the community	-	-	-	11.1%	77.8%	11.1%
I often try to act on solutions that address political, social, local or national problems in the community	-	22.2%	-	33.3%	44.4%	-
I participate in activities that help to improve the community, even if I am new to them	-	-	11.1%	11.1%	55.6%	22.2%
I try to encourage others to participate in the community	-	-	22.2%	22.2%	33.3%	22.2%
I believe that I can have enough influence to impact community decisions	-	11.1%	11.1%	44.4%	22.2%	11.1%
I am or plan to become actively involved in issues that positively affect the community	-	11.1%	-	-	44.4%	44.4%

In general…	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly agree
I try to find time or a way to make a positive difference in the community	-	-	-	33.3%	55.6%	11.1%
I believe that I can make a difference in the community	-	-	-	-	66.7%	33.3%

Conclusions and Recommendations

The Neuro ID program activities are expected to facilitate the integration of the "research-with-purpose" philosophy. This approach proposes the integration of three core components: Academic, Research and Community Outreach, having as expected outcome an increase on motivation and civic responsibility. This survey was designed to collect baseline data of the motivation to learn sciences and the students' level of civic responsibility. Overall, students reported high levels of motivation to learn sciences. In order to maximize the information collected the following suggestion are made:

- Follow Up students development of motivation and civic responsibility through a post questionnaire

Program Accomplishments

The following figures illustrate the NeuroID Evaluation Plan outcome, indicator (measure) and accomplishment related to this evaluation instrument.

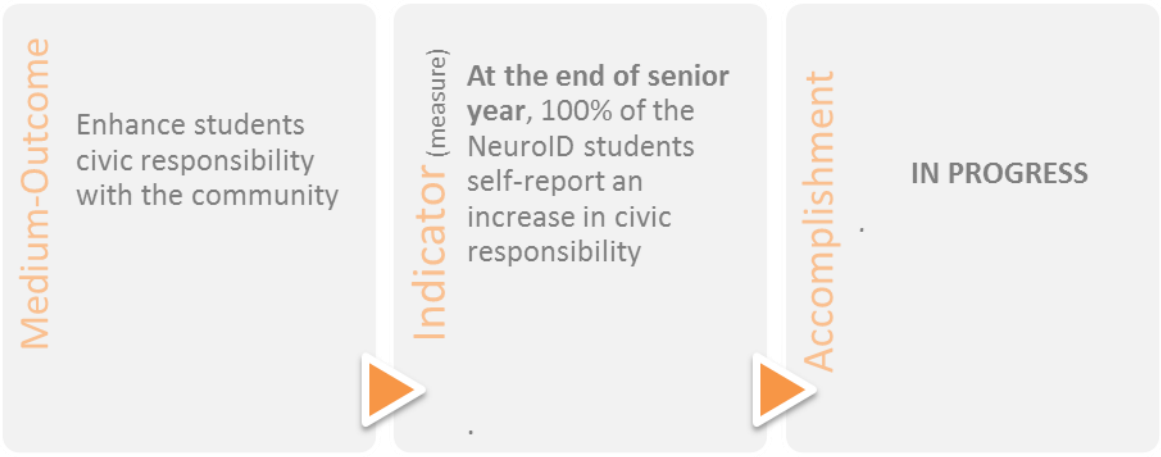


Table 1. Students Motivation to Learn Sciences (Class 2011)

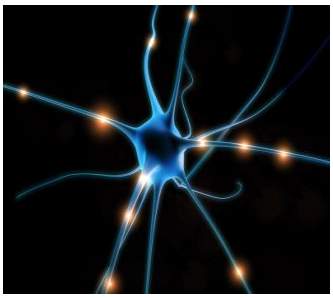
In general….	Never (0)	Rarely (1)	Sometimes (2)	Usually (3)	Always (4)
INTRINSIC MOTIVATION					
The science I learn is relevant to my life.	-	-	-	16.7%	**83.3%**
Learning science is interesting.	-	-	-	16.7%	**83.3%**
Learning science makes my life more meaningful.	-	-	-	**50.0%**	**50.0%**
I am curious about discoveries in science.	-	-	-	-	**100.0%**
I enjoy learning science.	-	-	-	-	**100.0%**
CAREER MOTIVATION					
Learning science will help me get a good job.	-	-	-	-	**100.0%**
Knowing science will give me a career advantage.	-	-	-	33.3%	**66.7%**
Understanding science will benefit me in my career.	-	-	-	-	**100.0%**
My career will involve science.	-	-	-	-	**100.0%**
I will use science problem-solving skills in my career.	-	-	-	-	**100.0%**
SELF-DETERMINATION					
I put enough effort into learning science.	-	-	-	33.3%	**66.7%**
I use strategies to learn science well.	-	-	-	**50.0%**	**50.0%**
I spend a lot of time learning science.	-	-	-	**50.0%**	**50.0%**
I prepare well for science tests and labs.	-	-	-	**66.7%**	33.3%
I study hard to learn science.	-	-	-	**50.0%**	**50.0%**
SELF-EFFICACY					
I am confident I will do well on science tests.	-	-	-	**50.0%**	**50.0%**
I am confident I will do well on science labs and projects	-	-	-	-	**100.0%**
I believe I can master science knowledge and skills.	-	-	-	33.3%	**66.7%**
I believe I can earn a grade of “A” in science	-	-	-	-	**100.0%**
I am sure I can understand science.	-	-	-	16.7%	**83.3%**
GRADE MOTIVATION					
I like to do better than other students on science tests.	-	-	-	33.3%	**66.7%**
Getting a good science grade is important to me.	-	-	-	33.3%	**66.7%**
It is important that I get an "A" in science.	-	-	-	**50.0%**	**50.0%**
I think about the grade I will get in science.	-	-	-	33.3%	**66.7%**
Scoring high on science tests and labs matters to me.	-	-	-	33.3%	**66.7%**

Table 2. Students Civic Responsibility (Class 2011)

In general…	Strongly Disagree (1)	Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Agree (5)	Strongly agree (6)
CONNECTION TO COMMUNITY						
I have a strong and personal attachment to a particular community	-	-	-	16.7%	33.3%	**50.0%**
I benefit emotionally from contributing to the community, even if it is hard and challenging work	-	-	-	-	-	**100.0%**
I feel a personal obligation to contribute in some way to the community	-	-	-	-	16.7%	**83.3%**
I have a lot of personal contact with people in the community	-	-	-	33.3%	**50.0%**	16.7%
CIVIC AWARENESS						
I often discuss and think about how political, social, local or national issues affect the community	-	-	-	-	**83.3%**	16.7%
It is my responsibility to help improve the community	-	-	-	-	-	**100.0%**
I am aware of the important needs in the community	-	-	-	-	**50.0%**	**50.0%**
I am aware of what can be done to meet the important needs in the community	-	-	-	16.7%	**66.7%**	16.7%
Helping other people is something that I am personally responsible for	-	-	16.7%	-	16.7%	**66.7%**
It is easy for me to put aside myself interest in favor of a greater good	-	-	-	-	33.3%	**66.7%**
Becoming involved in political or social issues is a good way to improve the community	-	-	-	-	**50.0%**	**50.0%**
Being concerned about state and local issues is an important responsibility for everybody	-	-	-	-	33.3%	**66.7%**
Being actively involved in community issues is everyone's responsibility, including mine	-	-	-	-	16.7%	**83.3%**
I understand how political and social policies or issues affect members in the community	-	-	-	-	**50.0%**	33.3%
CIVIC EFFICACY						
I participate in political or social causes in order to improve the community	-	-	16.7%	-	33.3%	**50.0%**
Providing service to the community is something I prefer to let others do	**66.7%**	33.3%	-	-	-	-
I feel I have the power to make a difference in the	-	-	-	-	-	**83.3%**

In general…	Strongly Disagree (1)	Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Agree (5)	Strongly agree (6)
community						
I often try to act on solutions that address political, social, local or national problems in the community	-	-	-	16.7%	**66.7%**	16.7%
I participate in activities that help to improve the community, even if I am new to them	-	-	-	16.7%	33.3%	**50.0%**
I try to encourage others to participate in the community	-	-	-	16.7%	33.3%	**50.0%**
I believe that I can have enough influence to impact community decisions	-	-	-	-	33.3%	**66.7%**
I am or plan to become actively involved in issues that positively affect the community	-	-	-	16.7%	33.3%	**50.0%**
I try to find time or a way to make a positive difference in the community	-	-	-	-	**50.0%**	**50.0%**
I believe that I can make a difference in the community	-	-	-	-	-	**100.0%**

NeuroID Students Summer Research Experience



SUMMER RESEARCH PROGRAM EVALUATION: CLASS 2011

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

Prepared by:

Center for Evaluation and Sociomedical Research

Nicole M. Ortiz Vega, M.S.

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 in their junior year are required to participate in a summer research program at the State. Students can apply for a summer program that is a laboratory of a mentor's close collaborator, a laboratory based on specific techniques that may need to be transferred for the benefit of their research project or a potential institution to pursue graduate school.

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 2011***. 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, six 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.

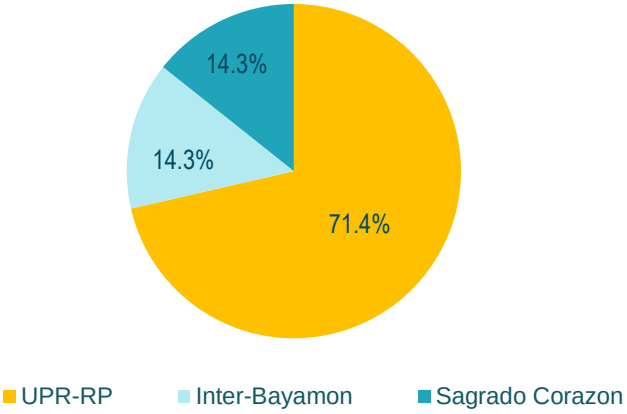
NeuroID Students Summer Program Experience (Class 2011)

◆◆Boston ◆◆New York◆◆Texas ◆◆Florida◆◆Nebraska◆◆

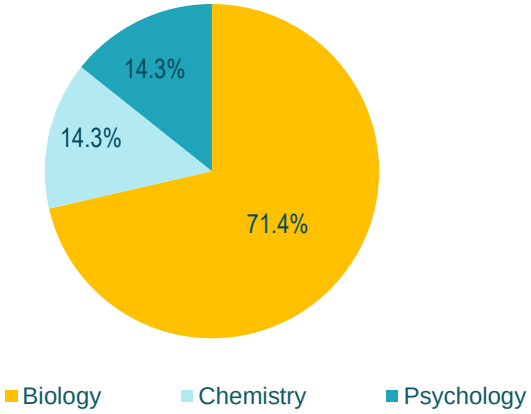
Demographics

There were a total of 7students that completed the questionnaire. Most of the participants were male (71.4%) while (28.6%) were female. The majority of the students (71.4%) were affiliated to the University of Puerto Rico, Rio Piedras Campus (see Graph 1). More than half of the students (71.4%) reported Biology as their major (see Graph 2).

Graph 1. Academic Institution Affiliation



Graph 2. Academic Concentration (major)



All of the students (100.0%) 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

"The summer research experience ***allowed me to gain insights into the field of work*** *that most interest me in neuroscience…I am certainly, even more convinced that I want to pursue a career in neuroscience..."*

"I am very satisfied with this summer research experience because it ***fulfilled*** *all my* ***expectations****..."*

"… the experience was very ***enriching*** *and worthwhile. I was able to* ***learn new techniques*** *and approaches to scientific questions..."*

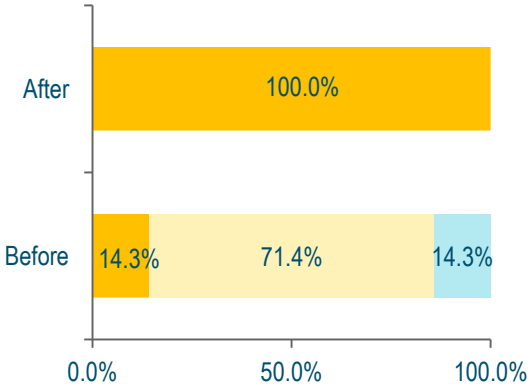
"…I was able to study a subject with ***high ties*** *to my personal* ***future goals*** *and I was encouraged to think and act likes a graduate student. It reinforced my commitment to science and my* ***passion for neuroscience research****"*

" I am very satisfied…I was able to ***contribute****…and at the same time I learn a lot of* ***new things****, techniques, theory [and] used new scientific equipment…"*

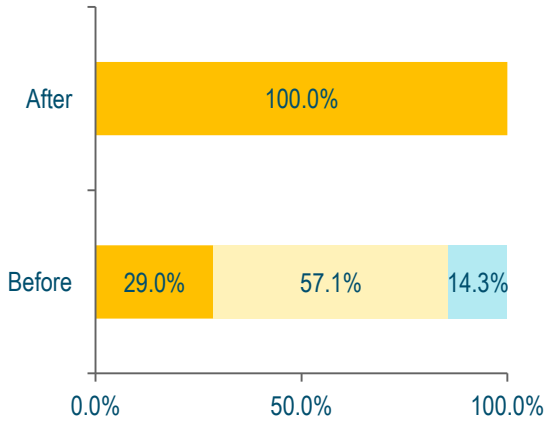
Skills Self-Assessment

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 "medium" or "low" (see Graphs 8-9). It is important to highlight that these were the skills students reported the lower level of proficiency. In general, after the summer program most of the students described their laboratory research skills between "high" or "medium". The skills with the highest level of proficiency after the summer program were ***determine the appropriate laboratory protocols to conduct experiments***, ***development of plausible hypothesis***, ***manipulate the laboratory instruments and equipment properly*** (see Graphs 3-4, 7).

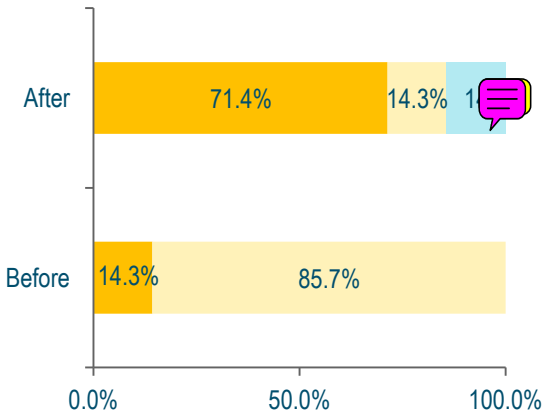
Graph 3. Determine the appropriate laboratory protocols to conduct experiments



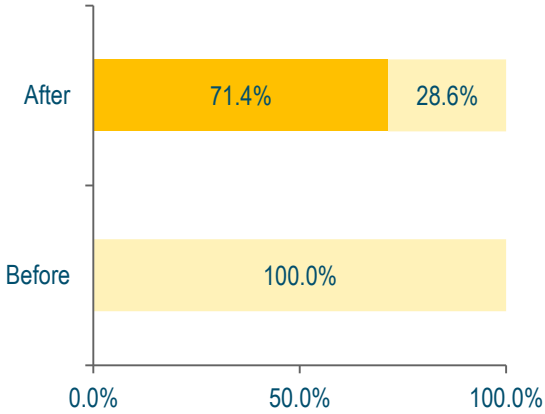
Graph 4. Manipulate the laboratory instruments and equipment properly



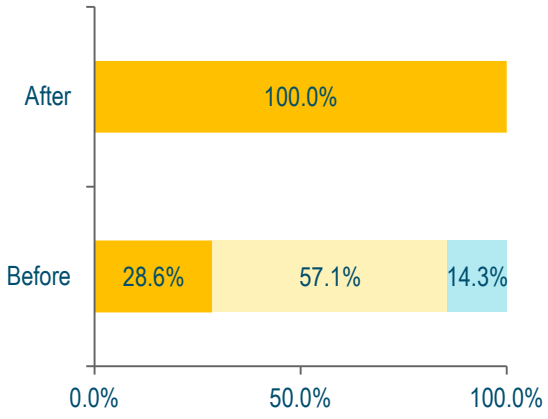
Graph 5. Identification of gap-in-knowledge



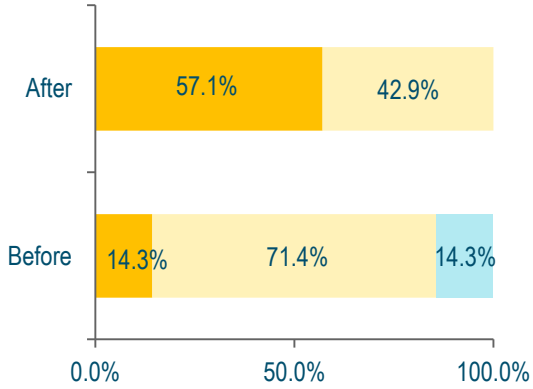
Graph 6. Data analysis



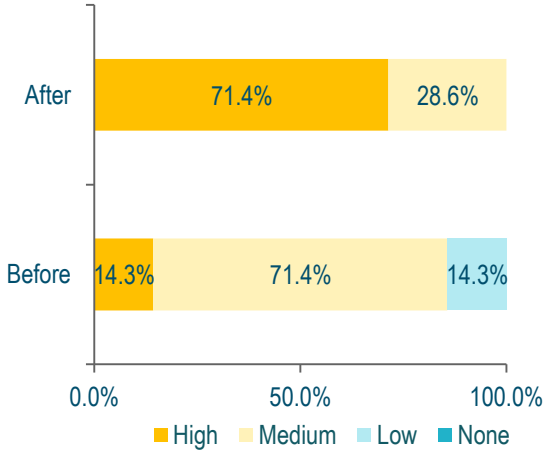
Graph 7. Development of plausible hypothesis



Graph 8. Critical interpretation of scientific literature



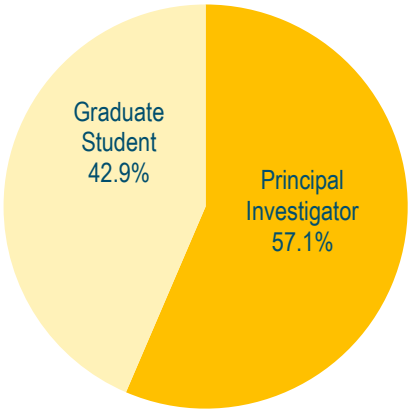
Graph 9. Prepare reports about the investigation work



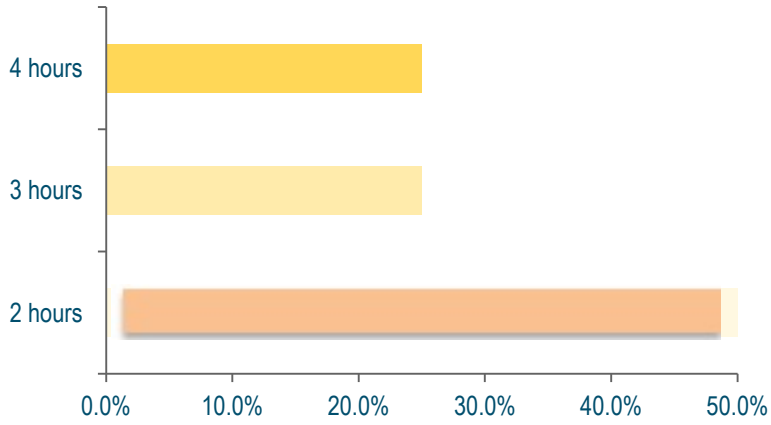
Mentor

Students also evaluated the support received by their mentor during the summer research program. More than half of the students (57.1%, n=4) reported that their mentor (primary supervisor) were the principal investigator (see Graph 10).

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



Graph 11. Approximatly, how much time (hours-weekly) did the Principal Investigator spend mentoring you?



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

Approximately, half of the student (42.9%, n=3) reported that their mentor was not the principal investigator in the laboratory. Graduate students were identified as the primary supervisors (see Graphic 10). All of the students (100.0%) were *'very satisfied'* with the performance of their primary supervisor during the summer program. Students also evaluated specific aspect of their primary supervisor performance. All of participants (100.0%) reported that were *'very satisfied'* with the **feedback provided by their primary supervisor to aid their research project.** Similarly, the students (100.0%) 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 because she was very accessible, professional and supportive during the whole process of my summer research…"

"I am very satisfied because the mentor was always present and available to answer my questions. He explained well the concepts and was very supportive throughout the entire experience"

"My primary supervisor was very helpful; primarily during the first few weeks while she was demonstrating the techniques…Overall, she was ALWAYS available to answer questions…She was very patient and gave a lot of feedback on my performance"

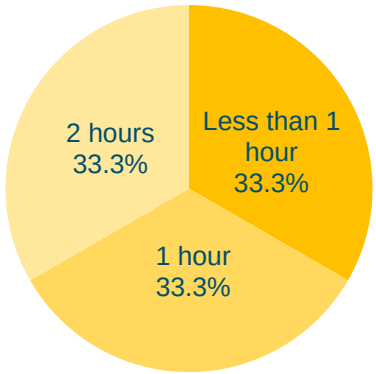
Primary Supervisor: Accessibility

Furthermore, students evaluated how accessible was the primary supervisor. All of the students (100.0%) reported that their mentor were very accessible. Moreover, students described how much time the principal investigator spend mentoring them. Student (100.0%) reported the primary supervisor spends 5 hours or more weekly mentoring them.

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. All of the participants (100.0%) 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**.** Similarly, students (100.0%) were *'very satisfied'* with the *scientific and technical support offered by the principal investigator to aid the development of their research project during summer.*

Moreover, students evaluated how accessible was the principal investigator. All of the students (100.0%) reported that the principal investigator was *'very accessible'*. Additionally, students described how much time the principal investigator spend with them. Less than half of the student (33.3%) reported the primary supervisor spends 2 hours weekly with them (see Graph 12).

Graph 12. 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 the principal investigator because she was very helpful in clearing doubts about the project and revising the project informs. In addition, I really liked the way in which she manages her laboratory and interacts with the laboratory member"

"Very satisfied, she was available whenever I needed to meet with her, responded emails promptly and was helpful during the process of preparing a presentation, abstract and paper…"

"I am extremely happy with my PI for the summer. From the very beginning he took time from his obviously very busy schedule… met with me regularly to discuss my work. He showed enthusiasm for having me there during the summer. He gave a lot of positive feedback and was very happy with my work."

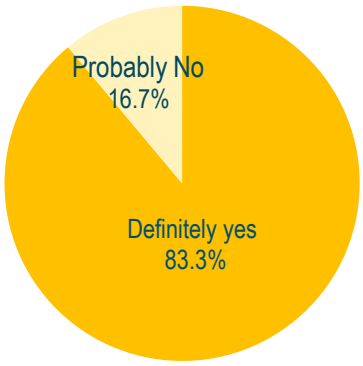
Summer Program Impact

All the students were asked to evaluate how the summer program contributed or advanced their scientific career (see Graphic 13). The aspect student rated as their major gain from the summer research experience was *"learning a laboratory technique"*. The aspects with small or moderate gain were the following: *"understanding of the research process", "learning ethical conduct" and "skills in scientific writing".*

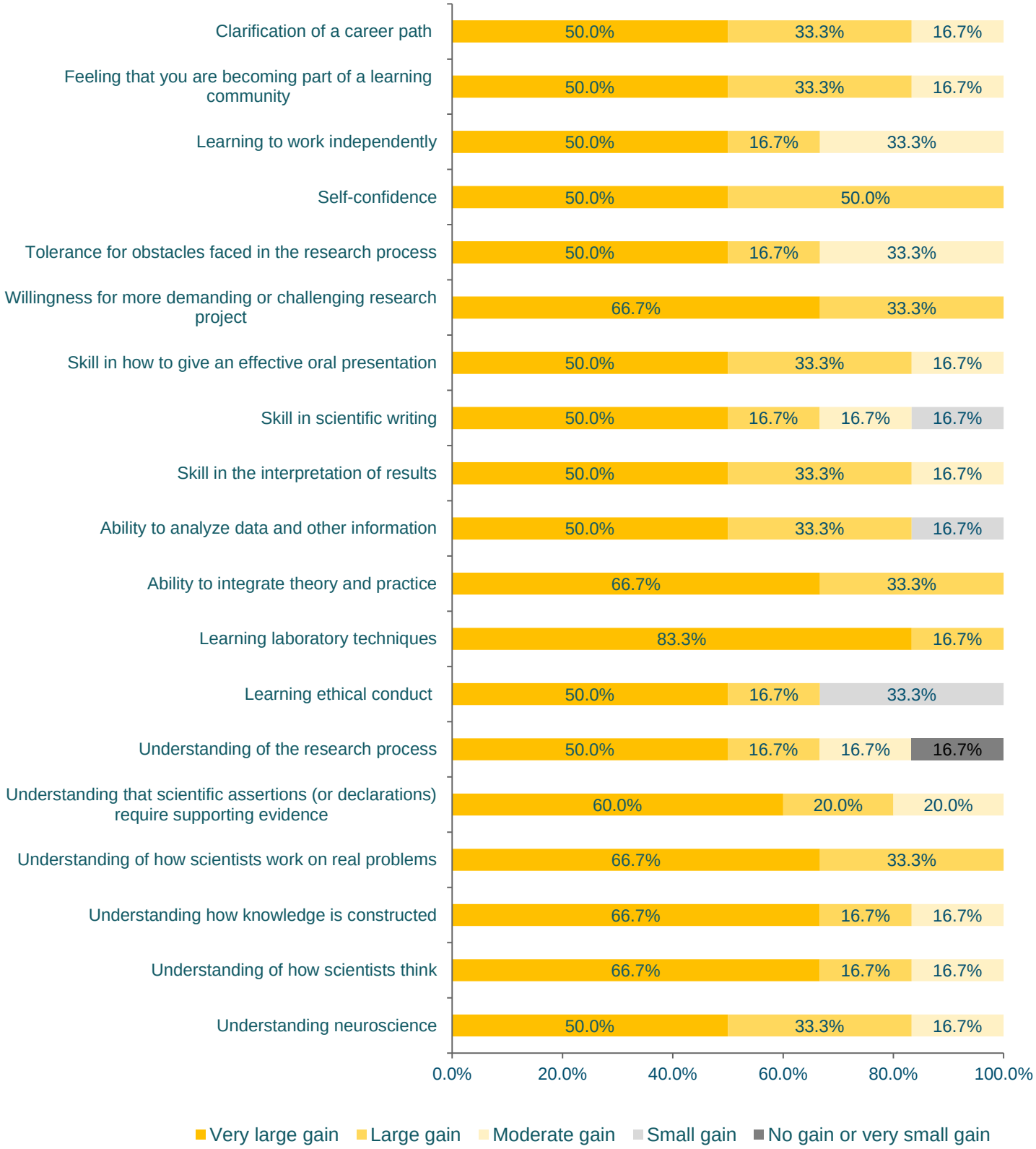
Recommendations

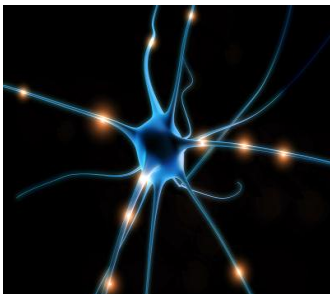
The majority of the students (83.3%) agreed that they would recommend the laboratory where they had the summer experience to another NeuroID student (see Graphic 14).

Graph 14. Would you recommend the laboratory where you had the summer experience to another NeuroID student?



Graph 13. How the summer research experience contributed to the improvement of the following aspects…?





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
Nicole M. Ortiz Vega*, M.S.*

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 introductory ***Summer Research Program*** *experience of the NeuroID* ***Class 2012*** at the University of Puerto Rico. 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.

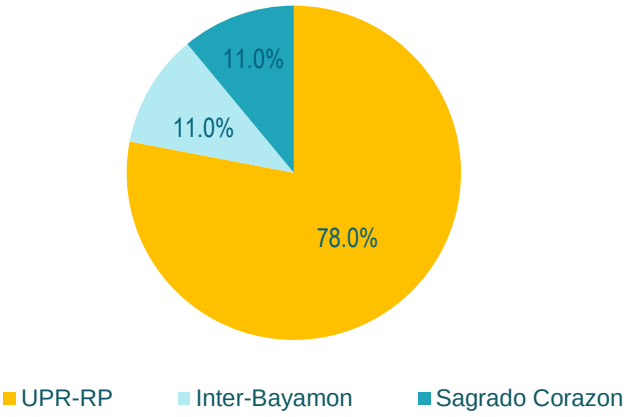
NeuroID Students Summer Program Experience (Class 2012)

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

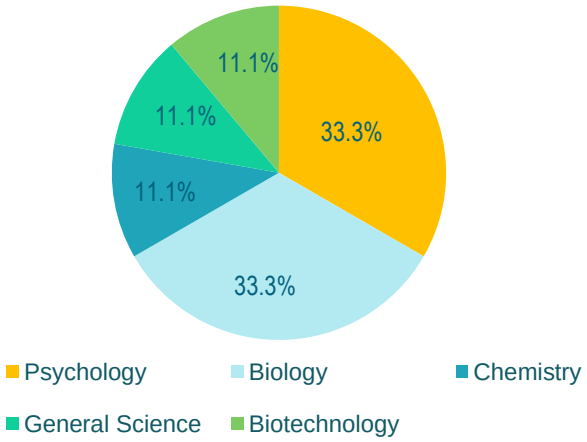
Demographics

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"*

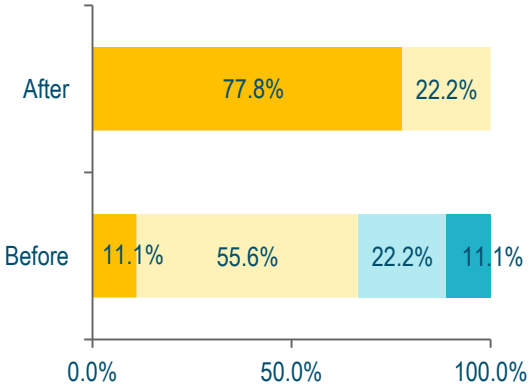
"I am very satisfied with this summer research because it ***met my expectations*** *of learning* ***new techniques*** *and it helped* ***to grow*** *as research student"*

"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****"*

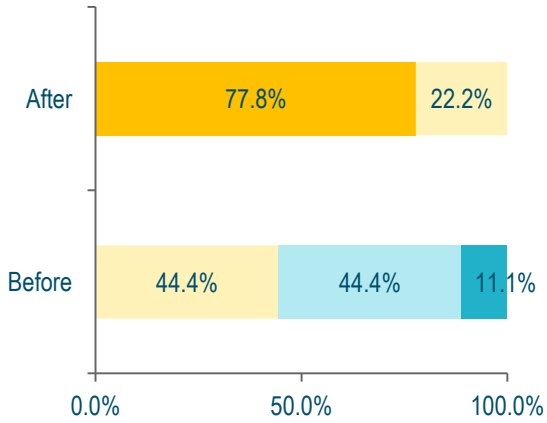
Skills Self-Assessment

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".

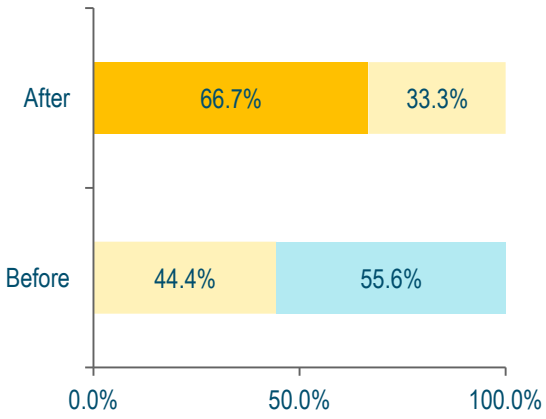
Graph 3. Determine the appropriate laboratory protocols to conduct experiments



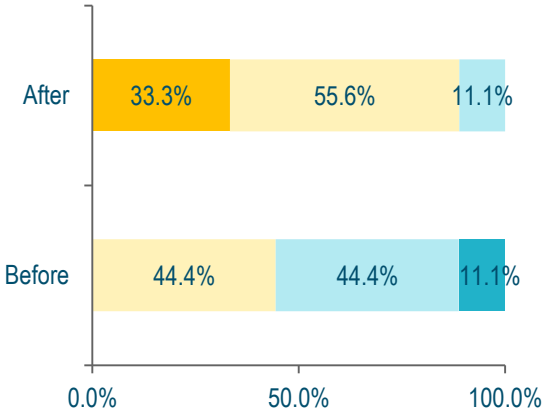
Graph 4. Manipulate the laboratory instruments and equipment properly



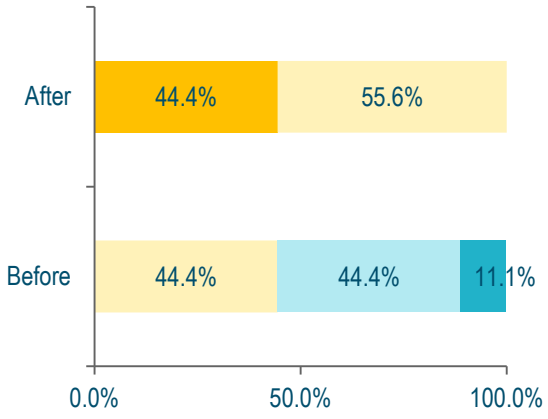
Graph 5. Identification of gap-in-knowledge



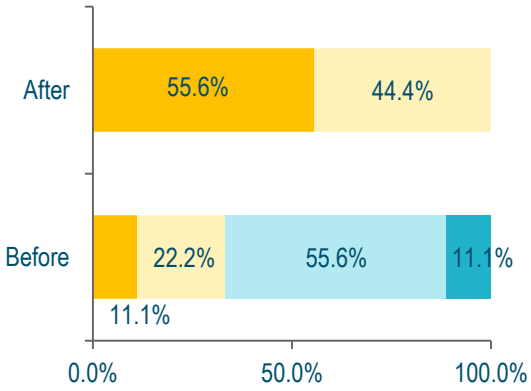
Graph 6. Data analysis



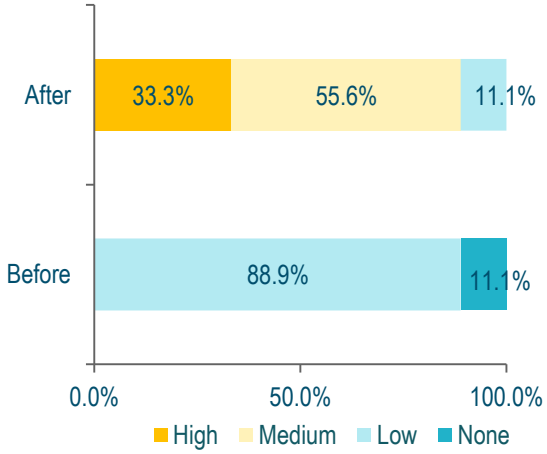
Graph 7. Development of plausible hypothesis



Graph 8. Critical interpretation of scientific literature



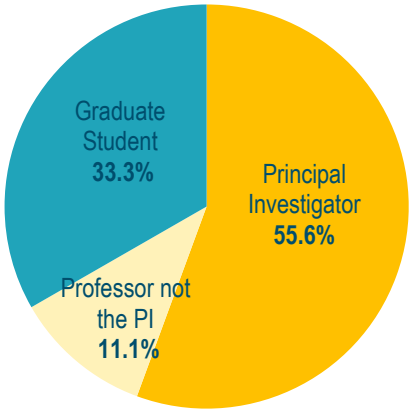
Graph 9. Prepare reports about the investigation work



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%	-

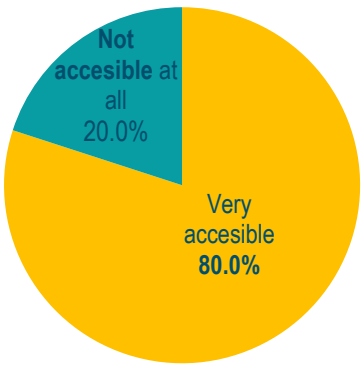
Additionally, students were asked to describe why they were satisfied with the performance of the principal investigator (see Figure 2). The majority of the comments were related to the guidance and support received from their mentors.

Figure 2. Satisfaction with the Performance of the Principal Investigator

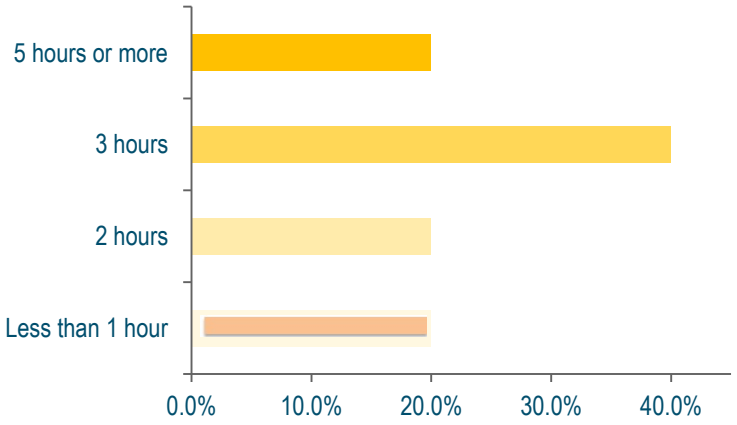
Principal Investigator (Mentor): Accessibility

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…"

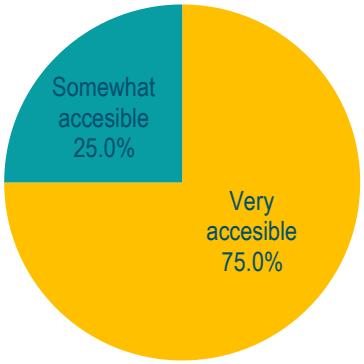
"*My experience with my primary supervisor was great because her attitude towards her trainees help us develop a great confidence. She always tell us when something is wrong in strong but really sweet way…she never forget to tell us when we do things right…we know that she is our mentor and we can totally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

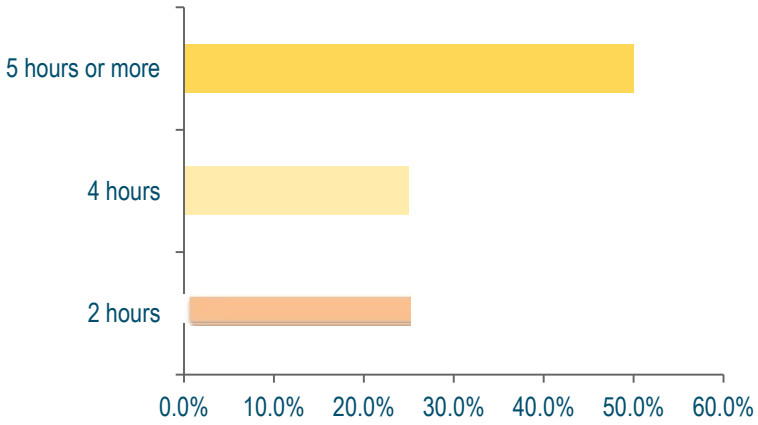
Primary Supervisor: Accessibility

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?



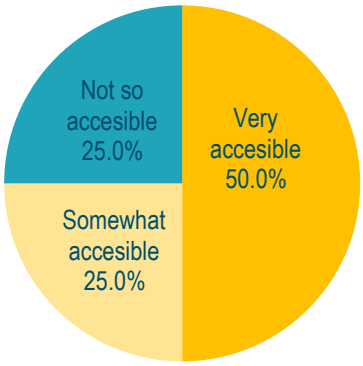
Even though the students **were not directly supervised** by the principal investigator they evaluated their interaction with them. In general, student were 'very satisfied' with the performance of the principal investigator. The majority of the participants (75.0%) reported that were *'very satisfied'* 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

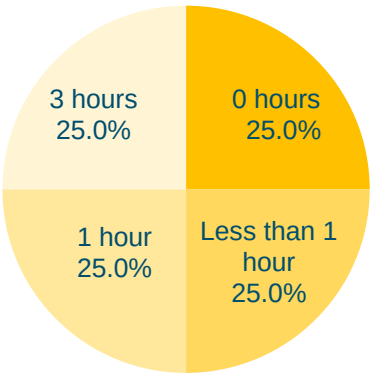
Specifically, how satisfied are you with the following?	Very Satisfied	Satisfied	Unsatisfied	Very Unsatisfied
Feedback provided by the principal investigator to **aid your research project** during summer	75.0%	25.0%	-	-
Scientific and **technical suppor**t offered by your principal investigator to aid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

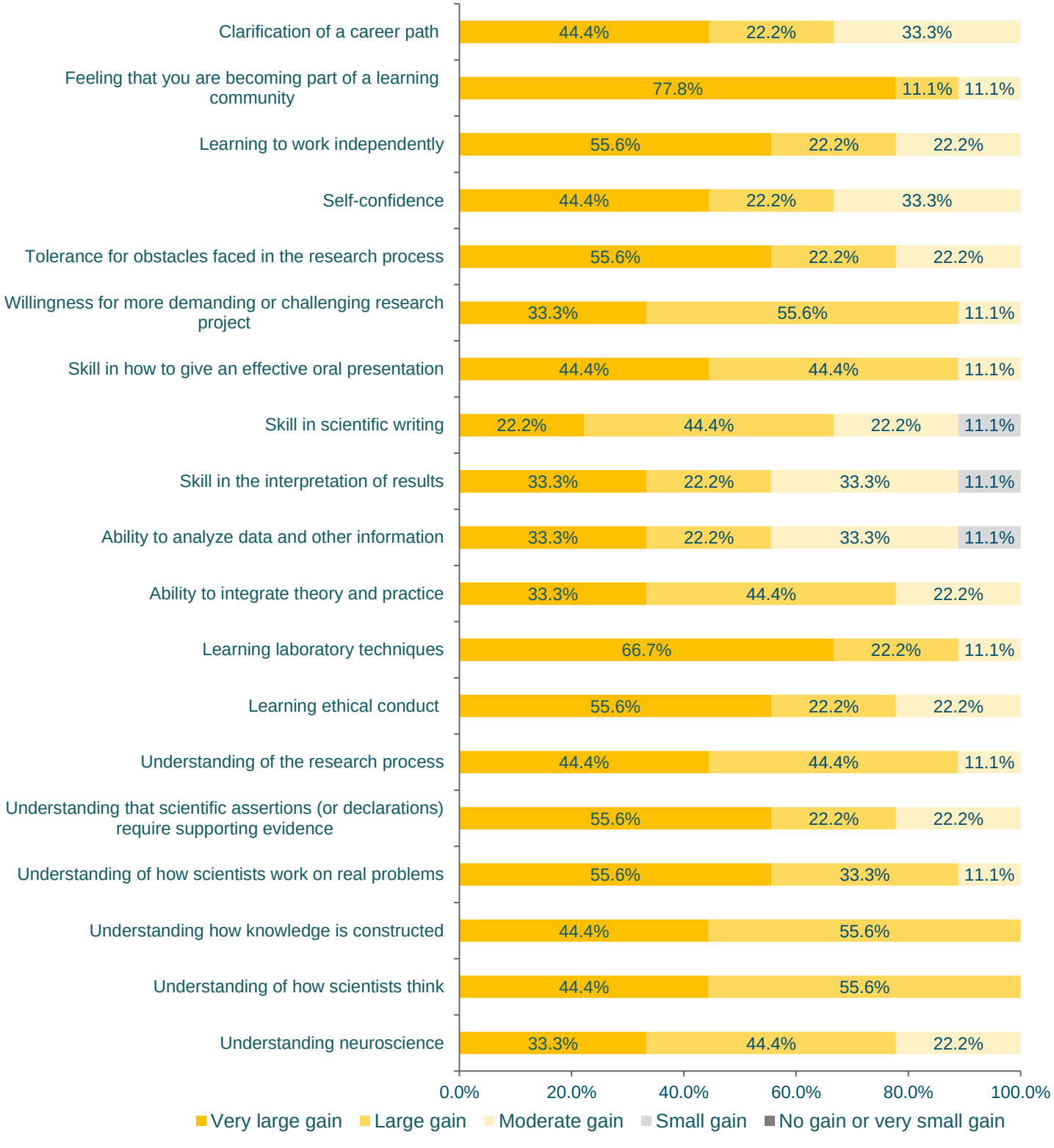
“I am very satisfied with my primary investigator because even though I don’t see her much she [was] always accessible for the students. She always asks if we need anything…”

“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".*

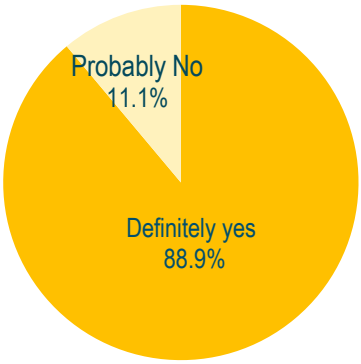
Graph 17. How the summer research experience contributed to the improvement of the following aspects…?



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?



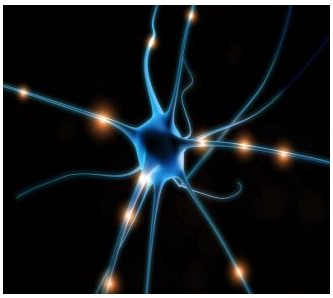
"The laboratory I work…is like a family in which if you need help there is always someone to help you. I would definitely recommend it to other students"

" …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!"

NeuroID Mentor Summer Research Evaluation



SUMMER RESEARCH PROGRAM: MENTOR EVALUATION

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

Prepared by:

Center for Evaluation and Sociomedical Research

Gladys J. Ayala Sepúlveda, B.S.

Nicole M. Ortiz Vega, M.S.

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 and students are required to participate in a summer research program. Students can apply for a summer program that is a laboratory of a mentor's close collaborator, a laboratory based on specific techniques that may need to be transferred for the benefit of their research project, or a potential institution to pursue graduate school. Mentors are key elements of the summer research program. The NeuroID program established collaborations with mentors on the mainland and across the State to facilitate this summer experience.

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 2012*. The evaluation focused on mentors' satisfaction with the student performance at the summer research program.

Methods and Procedure

Mentors' satisfaction with the summer research program was evaluated through an online questionnaire. The Surveymonkey.com website was used to design the instrument and allow mentor access to the questionnaire. Mentors were invited to participate by email; NeuroID students provided mentors email addresses. Weekly reminders were sent to those who had not completed the questionnaires in order to increase participation. An acceptable response rate was obtained (71.4%-Mentors Class 2011, 77.7%-Mentor Class 2012).

The mentor questionnaire was designed to gather information about general satisfaction, experience with the NeuroID students, self-assessment and recommendations for improvement. The mentor questionnaire includes 16 questions and was designed to be completed in 10 to15 minutes.

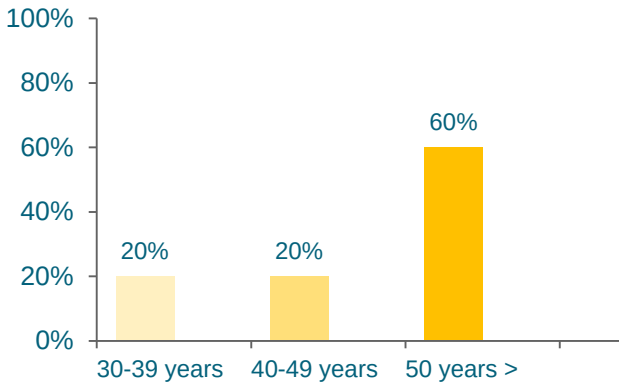
Mentor Experience (Class 2011)

◆◆Boston ◆◆New York◆◆Texas ◆◆Florida◆◆Nebraska◆◆

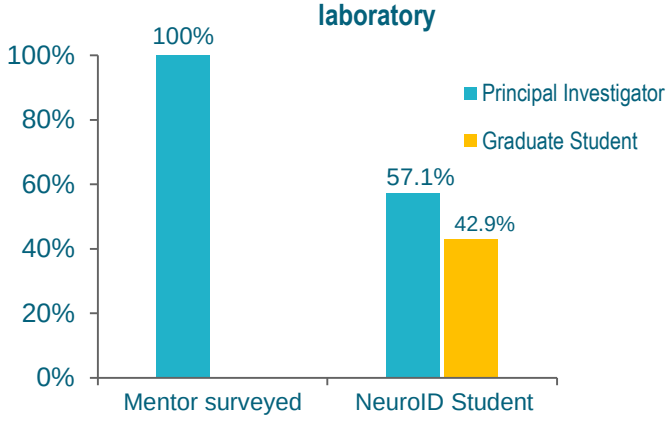
Demographics

There were a total of 5 participants that completed the questionnaire. Three of the mentor participants were male while two were female. More than half of the participants (60.0%) were 50 years old and up (see Graph 1). All of the participants (100.0%) described their current position as *'principal investigator'* (data not shown). It is important to highlight that half of the NeuroID students (57.1%) reported the principal investigator as their primary supervisor (see Graph 2)

Graph 1. Mentors age



Graph 2. Describe your current position in the laboratory



All of the mentors (100.0%) were 'very satisfied' with the students' performance. Mentors also described their experience with the NeuroID students during the summer program (see Figure below).

*"I am extremely satisfied ….due to his **eagerness** and passion for science and his **curiosity** at asking questions with no hesitation when…was unclear about a topic"*

*"I am very satisfied with the performance because he showed **dedication, intelligence** and **meticulousness** in his experimental studies over the 10 weeks he spent in my laboratory. The **results** of his experiments were **very clear** and **reproducible** and will likely be incorporated into a **manuscript** for **publication** in a high-quality peer-reviewed research journal"*

*" [the student] was an exceptionally **hard worker** and managed the project with **great dedication** and care. [The student] read all the literature given… [The student] took great care conducting the analysis and did a **wonderful job synthesizing** this data into the final talk and research report. Overall, we were all very **impressed with [the student] work**…"*

*"… [the student] was **very responsible** and completed everything that was assigned.. was **a joy** to have [this student] in the laboratory…"*

Mentors were asked to evaluate the improvement of the students' research skills during the summer research program (see Table 1). At the beginning of the summer internship, the majority of the mentors described student's skills between "medium" or "low". Specifically, most of the mentors rated the skills to prepare ***reports about the investigation work, data analysis*** *and* ***critical interpretation of scientific literature*** as "low" or "none". It is important to highlight that these were the skills that mentors rated with the lower level of proficiency as well the students. In general, at the end of the summer program most of the mentors described students laboratory research skills between "medium" and "high". Similarly, students after the summer program experience rated their skills between "medium" or "high". However, a difference was observed among student and mentor evaluation for the skill ***identification of gap-in-knowledge.***

Table 1. Research Skills Development

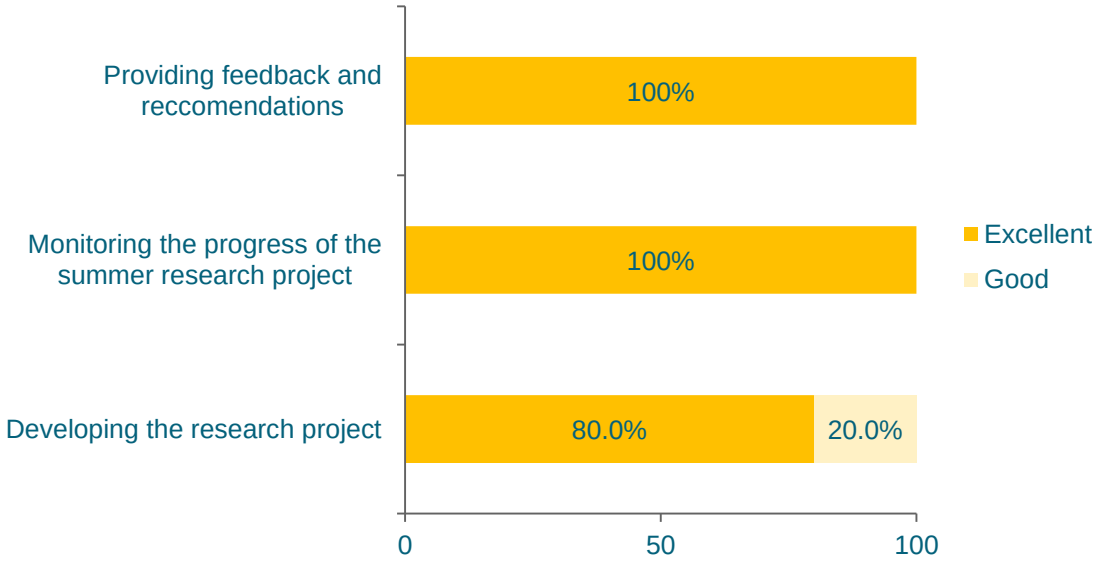
Skills	Mentor		NeuroID Student (Class 2011)	
	At the **beginning**	At the **end**	Before	After
Determine the appropriate laboratory protocols to conduct experiments	20.0% 80.0%	100%	14.3% 71.4% 14.3%	100%
Identification of gap-in-knowledge	20.0% 20.0% 60.0%	20.0% 20.0% 60.0%	85.7% 14.3%	14.3% 14.3% 71.4%
Development of plausible hypothesis	20.0% 40.0% 40.0%	40.0% 60.0%	85.7% 14.3%	100%

Skills	Mentor		NeuroID Student (Class 2011)	
	Before	After	Before	After
Manipulate the laboratory instruments and equipment properly	60.0% 40.0%	20.0% 80.0%	14.3% 57.1% 28.6%	100%
Data analysis	80.0% 20.0%	40.0% 60.0%	100%	28.6% 71.4%
Critical interpretation of scientific literature	20.0% 40.0% 40.0%	20.0% 80.0%	14.3% 71.4% 14.3%	42.9% 57.1%
Prepare reports about the investigation work	25.0% 25.0% 50.0%	60.0% 40.0%	14.3% 71.4% 14.3%	28.6% 71.4%

Mentor Self-Assessment

Mentors also were asked to self-evaluate their performance during the summer program (see Graph 3). Most of the mentors described their performance as *'excellent'*. Specifically, the majority of the mentors (80.0%) described their support provided to NeuroID student for **developing research projects** as 'excellent'. Similarly, all of the mentors (100.0%) rated as *'excellent'* their **performance monitoring the progress of the project** and **providing feedback**.

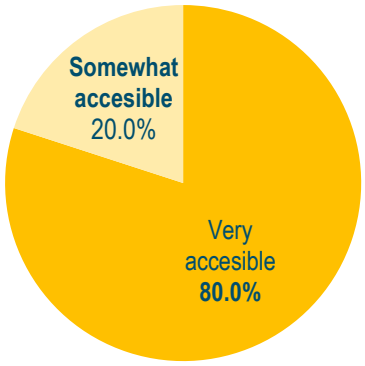
Graph 3. Mentor performance self-assessment



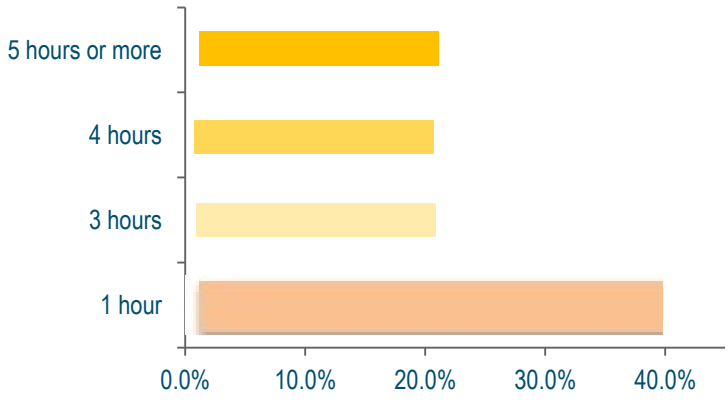
Accessibility

Additionally, mentors evaluated how accessible they were to meet with the NeuroID student to provide recommendations for the research project. The majority of the mentors were *'very accessible'* to meet with the students (see Graph 4). Moreover, mentors described how much time weekly they spend mentoring the NeuroID students. Approximately, half of the mentors (40.0%) spend 1 hour weekly mentoring the students (see Graph 5).

Graph 4. Mentor Accessibility to meet and provide reccomendations



Graph 5. Approximatly, how much time (hours-weekly) did you spend mentoring the NeuroID student?



Comments

Mentors also made general comments about their experience with the students. All of the comments described their satisfaction with the students' performance during the summer research program (see comments below).

"I was impressed with the student and he interacted well with everyone in the lab.."

"… [the student] worked most directly with graduate student…, but we met once a week for 1 hour to go over results, troubleshoot problems and plan for the coming week. In addition, I went over a poster [the student] prepared, asked questions during [the] presentation in our lab-wide meeting, and attended [the student] final presentation in the summer program's symposium…"

"…has the dedication and the desire to pursue a career in neuroscience …very evident this summer… [the student] always asked inquisitive questions and was quick to follow the directions.. [the student] was an excellent team player…[the student] will go far in life.."

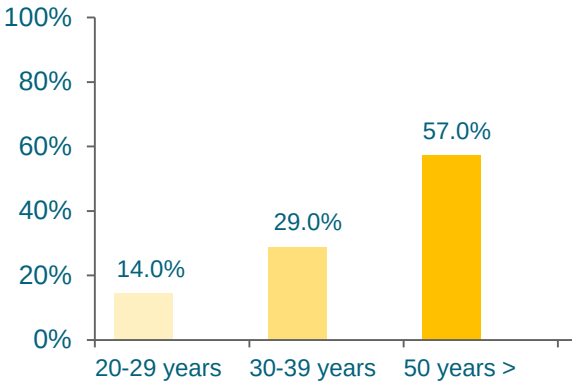
NeuroID Students Summer Program Experience (Class 2012)

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

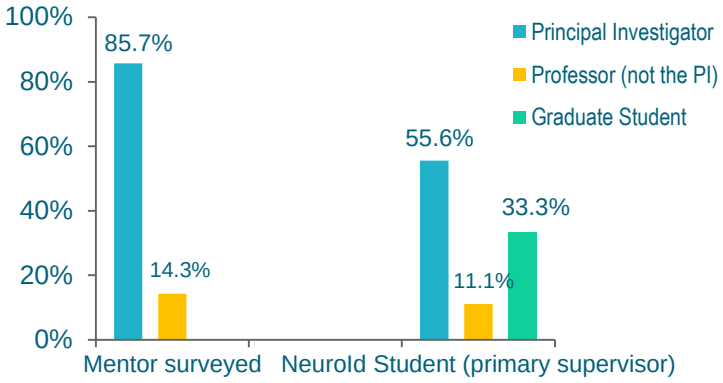
Demographics

A total of 7 participants completed the mentor questionnaire. Four of the participants were male, while three were female. More than half of the participants were 50 years old and up (see Graph 6). The majority of the participants (85.7%) described their current position as *'principal investigator'* (see Graph 7). It is important to highlight that half of the NeuroID students (55.6%) reported the *'principal investigator'* as their primary supervisor (see Graph 7).

Graph 6. Mentors age



Graph 7. Describe your current position in the laboratory



All of the mentors (100.0%) were 'very satisfied' or 'satisfied' with the students' performance. Mentors also described their experience with the NeuroID students during the summer (see Figure below).

*"**Excellent student**...Highly interested in the work they were doing…**fast learners**…highly **motivated**..."*

*"I am very satisfied with the student performance because she demonstrated excellent work.. ethics, complete **dedication** to her work and **great disposition**..."*

*"I am very satisfied with the student performance because she is very **interested** in the **neuroscience field**, has excellent base knowledge, well **organized**, able to learn fast and **working hard**.."*

*..[the student] has shown **great initiative** and desire to learn. She has actively **pursued new projects** and at the same time participates in all lab activities…"*

*"...most **energetic** and **persistent** students I have met and had working in my laboratory…She has a tremendous level of drive and **great determination to succeed**. She has an **innovative intellect** and is very much a lateral thinker. [the student] treats her peers with respect and is accommodating to reasonable requests. She is **responsible**, **considerate**, works well with others, and is clearly a team player..."*

Research Skills Development

Mentors were also asked to evaluate the improvement of the students' research skills during the summer research program (see Table 2). At the beginning, the majority of the mentors described student's skills between "medium" or "low". Specifically, most of the mentors rated the skills to ***manipulate the laboratory instruments and equipment properly and data analysis*** as "low" or "none". It is important to highlight that these were the skills that mentors rated with the lower level of proficiency. Conversely, students rated with the lower level of proficiency the skills of prepare ***reports about the investigation work*** *and* ***critical interpretation of scientific literature***. In general, at the end of the summer program most of the mentors described students laboratory research skills between "medium" and "high". Similarly, students after the summer program experience rated their skills between "medium" or "high".

Table 2. Research Skills Development

Skills	Mentor		NeuroID Student (Class 2012)	
	At the **beginning**	At the **end**	Before	After
Determine the appropriate laboratory protocols to conduct experiments	50.0% 50.0%	14.3% 42.9% 42.9%	11.1% 22.2% 55.6% 11.1%	**22.2%** 77.8%
Identification of gap-in-knowledge	33.3% 50.0% 16.7%	14.3% 28.6% 57.1%	55.6% 44.4%	33.3% 66.7%
Development of plausible hypothesis	66.7% 33.3%	14.3% 57.1% 28.6%	11.1% 44.4% 44.4%	55.6% 44.4%
	High Medium Low None		High Medium Low None	

Skills	Mentor		NeuroID Student (Class 2012)	
	Before	After	Before	After
Manipulate the laboratory instruments and equipment properly	16.7% 50.0% 33.3%	14.3% 28.6% 57.1%	11.1% 44.4% 44.4%	22.2% 77.8%
Data analysis	66.7% 33.3%	14.3% 14.3% 42.9% 28.6%	11.1% 44.4% 44.4%	11.1% 55.6% 33.3%
Critical interpretation of scientific literature	50.0% 33.3% 16.7%	14.3% 42.9% 42.9%	11.1% 55.6% 22.2% 11.1%	44.4% 55.6%
Prepare reports about the investigation work	33.3% 50.0% 16.7%	57.1% 42.9%	11.1% 88.9%	11.1% 55.6% 33.3%

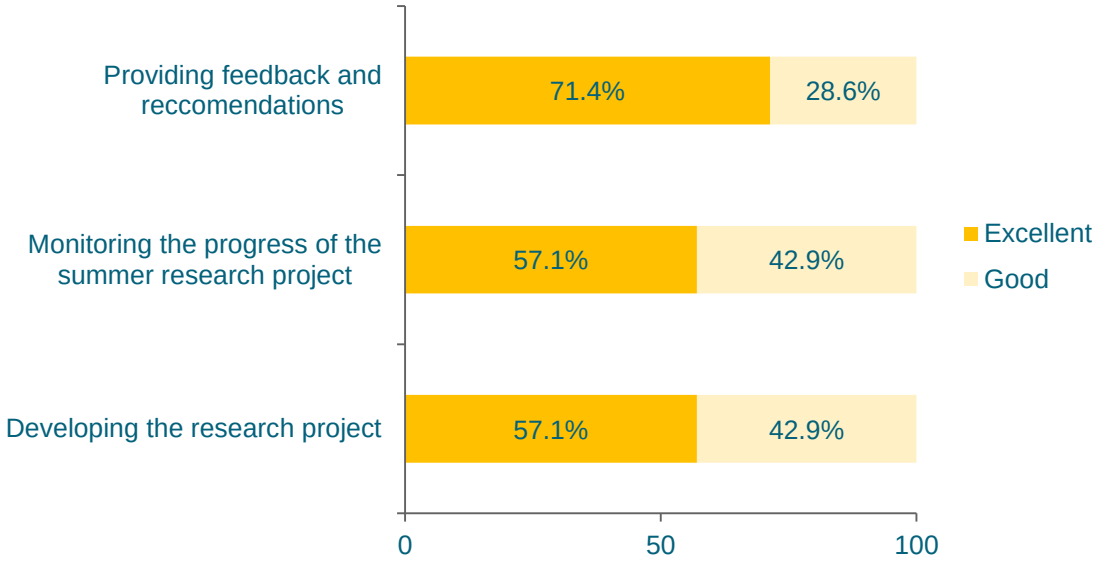
High Medium Low None

High Medium Low None

Mentor Self-Assessment

Mentors also were asked to self-evaluate their performance during the summer program (see Graph 8). More than half the mentors described their performance as *'excellent'*. Specifically, the majority of the mentors (71.4%) described their performance **providing feedback** and recommendations as *'excellent'*. Similarly, most of the mentors rated as *'excellent'* their **performance monitoring the progress of the project**.

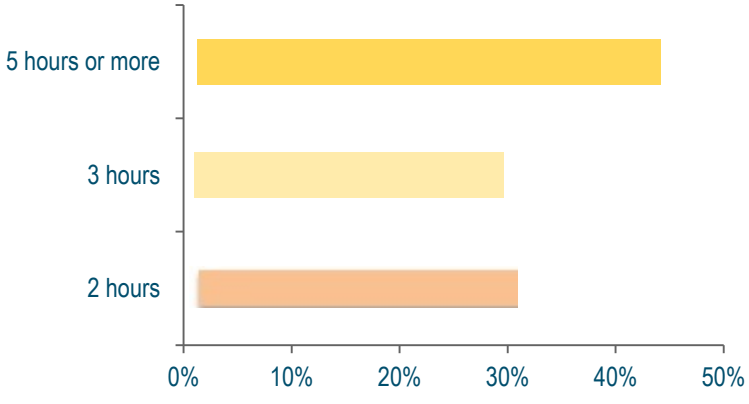
Graph 8. Mentor performance self-assessment



Accessibility

Additionally, mentors evaluated how accessible they were to meet with the NeuroID student to provide recommendations for the research project. All of the mentors (100.0%) reported they were *'very accessible'* to meet with the students (data not shown). Moreover, mentors described how much time weekly they spend mentoring the NeuroID students (see Graph 9). Approximately, half of the mentors (42.9%) spend 5 hour or more (weekly) mentoring the students.

Graph 9. Approximatly, how much time (hours-weekly) did you spend mentoring the NeuroID student?



Comments

Mentors also made general comments about their experience with the students. All of the comments described their satisfaction with the students' performance during the summer research program (see comments below).

"I am very impressed… as a student and person. It has been a pleasure working with her and seeing work and interact with my research group…"

"..after the summer the student improved in most of aspect... I know, he will continue improving..."

Evaluation Team Recommendations

The summer research program is intended to provide NeuroID students with the knowledge, experience and appreciation for a scientific career in neuroscience. Therefore, these questionnaires were utilized to evaluate the NeuroID students and mentor summer experience and collect information for the improvement of this activity. Overall, students and mentors were very satisfied with the summer research program. Moreover, students reported an increase in their scientific research skills at the end of the summer internship. In order to continue improving the summer research program the following recommendation are made:

- **Explore potential collaborations among mentors and students-** The summer research experience is also an opportunity to establish collaborations among on-site and offsite mentors. It is important to track these collaborations. As a strategy to document collaborations we suggest to include a collaboration section in the student and mentor evaluation questionnaire. A follow up survey can also be implemented to follow up the collaborations established.

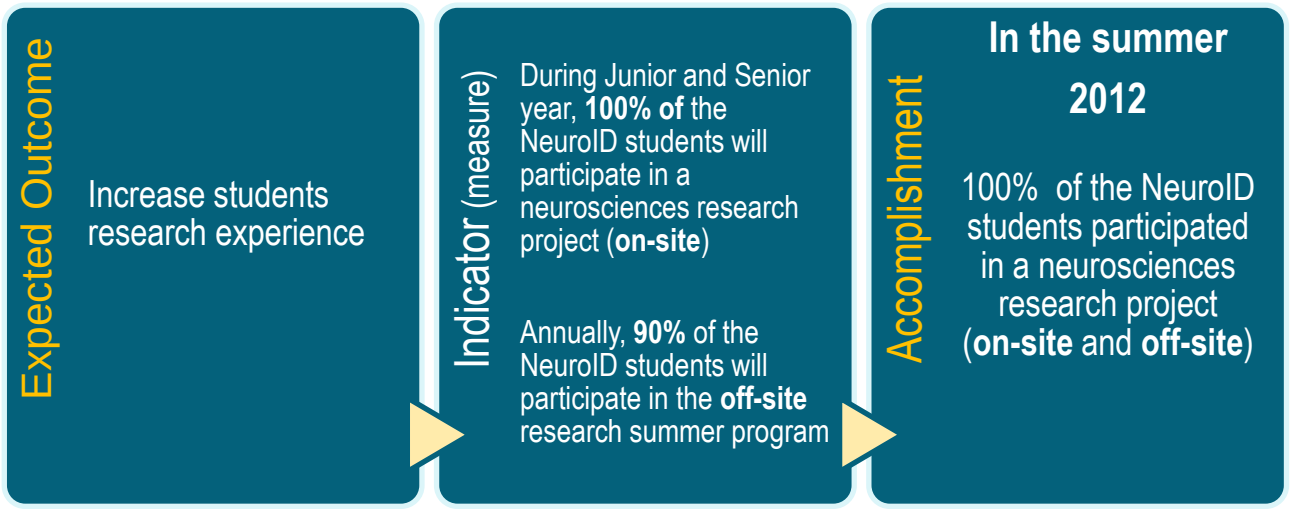
- **Increase mentor participation-** More than half of the mentors (77.7%-Class 2012; 71.5%-Class 2011) completed the evaluation survey. The rate of participation could be improved by contacting the mentor from the beginning of the summer internship and to let them know that they will receive a survey at the close of the program.

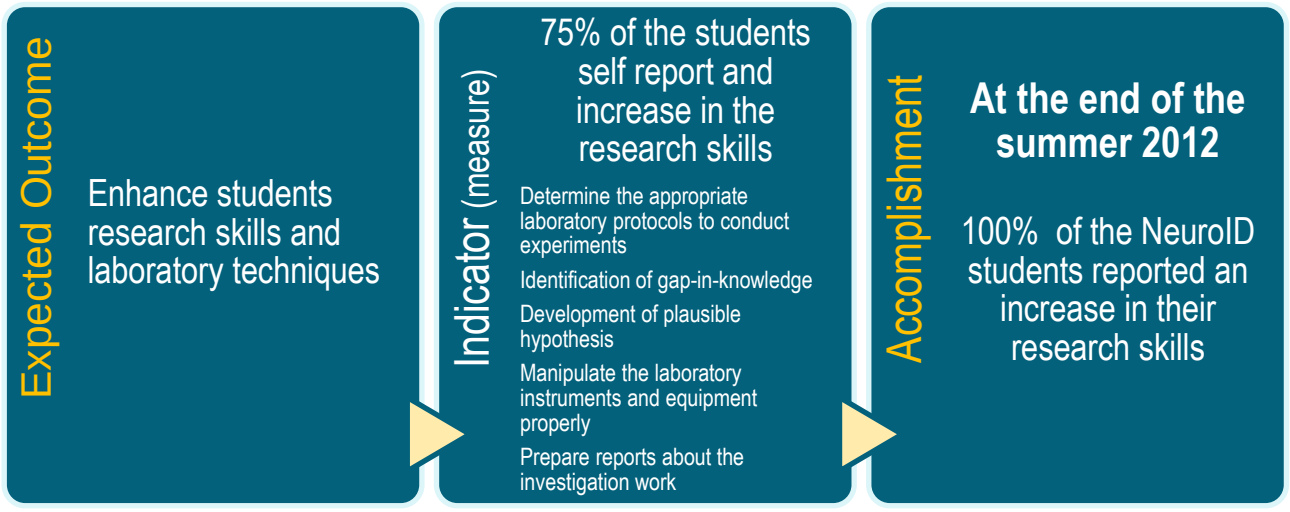
- **Improve students' satisfaction with the summer research program-** Students in the NeuroID cohort 2012, reported some level of dissatisfaction with the summer experience, the accessibility and support provided by the mentor. It is recommended to explore in more depth the mentors potential

accessibility and students' expectations about the length and quality of the mentoring time they will receive through the internship.

Program Accomplishments

The following figures illustrate the NeuroID Evaluation Plan expected outcome, indicator (measure) and accomplishment for the Summer Research Program.





NeuroID Tips

Content

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NeuroID Tips

SUMMER UNDERGRADUATE RESEARCH PROGRAM
(CLASS 2011)

Before Applying for an Internship...

Students of Class 2011

✓ Identify the Mentor or University of Interest

- Start by searching in universities where you see yourself continuing graduate studies.
- Another option is to first identify your areas of research interest. Then, look for the most distinguished universities with the greatest number of professors working in that field. This would also increase your possibilities of being selected!
- Be aware that the university where you apply is located in a different environment which can make it difficult to adapt. Take this into consideration when deciding where to apply.

✓ Establish Contact (Networking)

- When you participate in activities such as *Neuroscience Conference,* take advantage of the opportunities presented and identify possible future mentors. Introduce yourself and exchange contact information with them.
- Visit orientation booths that provide guidance about summer internship program and where to contact for more details.
- Send an email to professor or coordinator of the program of interest as a strategy to start a relationship with them and expressing your interest in that program.

Completing the Application

- ✓ **Complete a general application or apply directly to the program**
- ✓ **Be responsible with deadlines**
- ✓ **Be honest in your personal statement in order to reflect your genuine interest**
- ✓ **When you finish and send your application, make contact with program coordinators and professors to let them know you applied to their program**

During the Internship...

- ✓ **Make sure you understand your work**
- ✓ **Show initiative**
- ✓ **Give the extra mile**
- ✓ **Express your ideas and opinions**

- ✓ **Take full advantage of the Internship Program**
  - Contact program coordinators and professors for interviews.
  - Explore other opportunities. For example, the university where you are interested to continue graduate studies could be hosting activities and programs such as "Pre-Weekend", which invites students to get to know the campus and faculty of the university and they pay for travel and housing throughout this experience.

- ✓ **¡Do not limit your possibilities!**

INTELLIGENT INVESTMENT:
Scientific Growth + Personal Growth

"This internship is an experience of scientific growth while also being an opportunity to explore aspects of personal life and environment of a potential site where you will continue your graduate studies"

NeuroID Focus Groups Executive Summary

Neuro ID Focus Groups

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 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 and outcome evaluation.

As part of the process evaluation, a series of focus groups were conducted. The main objective of the focus groups was to identify strengths and areas for improvement in the NeuroID academic, research, and outreach components. The focus groups also explored NeuroID students' experiences and satisfaction with the program activities and resources.

Methodology

Students from the NeuroID class 2011 and class 2012 were invited to participate in the focus groups. A total of 13 students participated in the focus groups. Two focus groups sessions were held at the CIES conference room. A facilitator guide was created in collaboration with NeuroID program director. This guide was the basis for the focus groups discussion. The focus group guide comprised 34 questions and was subdivided in six thematic areas: *preparation for graduate school, summer research experience, academic training, outreach activities, satisfaction and emotional intelligence*. The collected information was classified by category (e.g., motivation, experience and interest) on recurrent themes and issues relevant to the evaluation questions.

Results

Academic Program- In general, most of the students agreed they had a good experience with the program required courses (i.e., general psychology, scientific writing, neurobiology and introduction to research). The course with the lowest level of satisfaction was scientific writing (ENGL 3236). Students commented the ENGL 3236 did not meet their expectations because it did not enhance their scientific writing skills. However, students highlighted that the course advanced their skills to write for the community. Most of the students recommended changing the course speaker or revising the course content.

Research Experience-The majority of the students were extremely satisfied with their research experience. Students described their positives experiences and the challenges confronted. The major challenges identified were the feeling of independence, working by themselves, and the experiment failures. Students also highlighted the different mentoring styles they have experienced (i.e. structured, less structured, independent vs' supervised). The mentor feedback, accessibility and communication were the main aspects emphasized by the students. Some students reported lower levels of satisfaction with the mentors' communication. Students also agreed that the experience in the laboratory has been

very valuable for the advancement of their scientific skills. The skills with the greatest improvement included: *experiment design, data analysis, writing and oral communication*.

Career and Professional Development Activities-The majority of the senior students (class 2011) self-evaluated as *"well prepared"* for graduate school. Moreover, students highlighted the importance and usefulness of the graduate school fairs they have participated in locally and in the mainland USA. Several of the senior's students described how comfortable they felt in the most recent fairs. Furthermore, students explained they were more strategic, assertive in their communication, and were able to network better in the recent fairs. Nevertheless, student from class 2012 recommended that information for the summer internships opportunities should be available in the fairs and the Neuropizza night. Students commented that the participants' universities usually do not bring this information to the fairs.

The experience in the annual *Puerto Rico Neuroscience Conference* and the annual *Society for Neuroscience* meeting was also explored. All of the students were very satisfied with their experience in the Society for Neuroscience meeting. The poster presentation and the opportunity to networking were the two aspects students' emphasized from this experience. The support of the program directors in the preparation of the poster was also mentioned by the students. Several students from class 2012 agreed this meeting was a special moment for them to connect as a group. The students from class 2011 were also asked to describe their experience with the individual development plan (IDP). The IDP is an online career planning tool tailored for students in sciences. At the moment of the focus groups, the majority of the students were not familiarized with the IDP. However, students highlighted the usefulness of this tool for their career development. All of the students recommend the implementation of the IDP and one-one session with the program director to discuss their IDP.

Community Outreach Activities-In general, students were very satisfied with the activities related to the community. Students described their recent experience in an assisted living facility for seniors with Alzheimers disease. The interaction with the seniors was the major strength of this activity. The time-frame and the activity location were the two major areas for improvement mentioned by the students.

Administrative Staff Support-Students recognized the extraordinary labor of the administrative staff. Students also highlighted the program directors' support, guidance and reminders. The program web page and Facebook page was also evaluated by the students. The majority of the students recognized the utility of both pages. Moreover, they agreed the Facebook page is the most utilized tool for communication. Students also recognized the importance and value of the monthly stipend.

Conclusions and Recommendations

Overall, students were satisfied with the program activities and resources. Moreover, students agreed their experience in the NeuroID program has been very significant for their academic and professional development. The following recommendations are made in order to continue improving students experience in the NeuroID program:

- Review the content of the scientific writing course (ENGL 3236), or identify another speaker/professor
- Implement the Individual Development Plan(IDP) as a requisite for program participation

- Increase outreach activities time-frame and identify other locations for the activity
- Provide summer internship information during the Neuropizza night activity
- Enhance students' mentoring relationships
- Promote peer-mentoring relationships among NeuroID senior and junior classes
- Update the program web page (i.e., academic course and mentor list)
- Provide a GRE preparation seminar
- Provide trainings in fellowships applications and ethical issues
- Prepare and implement a short-training (review) of poster preparation close to the annual conference
- Maintain the follows up and reminders for deadlines
- Increase program dissemination
- Develop and implement an emotional intelligence evaluation instrument

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