

# NITARP: Effects on Student Participants



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## Abstract

NITARP (NASA/IPAC Teacher Archive Research Program) is a program designed to give educators experiences in authentic astronomy research. While the main focus of the program is aimed at giving educators experience working with and presenting scientific research, teachers are encouraged to involve students with the experience. (See Poster 246.13 for an overview of NITARP.) NITARP funds up to 2 students to travel with the educator; an additional 2 students may travel but with no additional financial assistance. (Teachers are welcome to have more student participants but no more than 4 may travel with the teacher.) Given that the focus of the NITARP program is on the educators, little is known about the effects of the program on the student participants other than anecdotal evidence. In order to better understand the impact on the students, we surveyed past student participants. The survey's **goal was to determine if the NITARP experience had an impact on students' views of science and influenced their educational paths.** While the NITARP project has assembled some evidence of the impact on students, this is the first formal attempt to capture that impact. This poster presents the results of that survey. There were 48 respondents, representing students from 10 years of NITARP (and its predecessor).

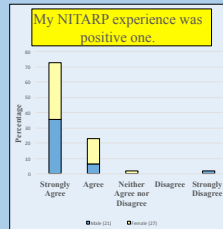
## A NITARP TEAM VISITING CALTECH/JPL



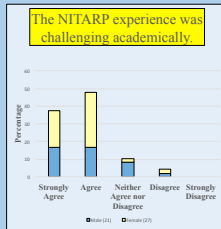
"NITARP really opened me up to a career in research. It wasn't something that I had considered before the program, and it has really grown into a passion of mine."



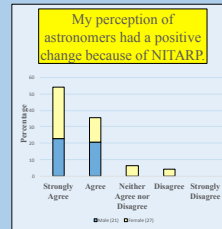
## NITARP Student Participant Survey



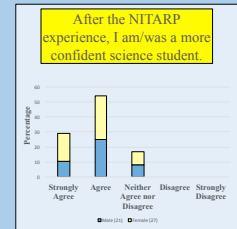
96% of the respondents agreed the NITARP experience was positive. The 2 students who did not agree with this statement also stated if given a chance, they would participate in NITARP again.



85% of the students (93% of the females and 76% of the males) said the program was academically challenging.



90% of the students (81% of the females and all the males) said they had a positive perceptual change of astronomers.

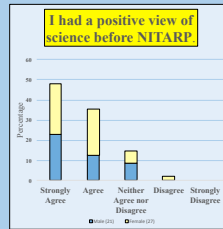


83% of the students (74% of the females and 95% of the males) agreed their science interests increased after participating in NITARP.

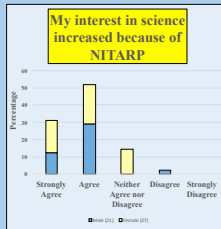


NITARP participants at the 2015 AAS: 2014 class finishing up, 2015 class getting started, and alumni who raised their own money to attend.

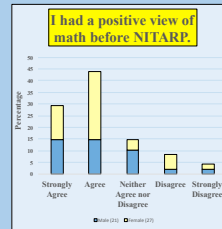
"...the world is full of smart people trying to answer difficult questions. The NITARP program propelled me into that world."



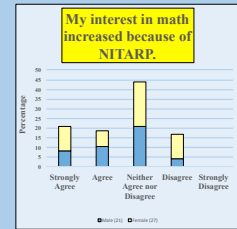
83% of the respondents (85% of females and 81% of males) stated having a positive view of science. Of those that did not, all but one female stated their interest increased because of NITARP.



83% of the students (74% females and 95% males) stated science interests increased because of NITARP. All but 1 of those who disagreed or were neutral already had a positive view of science.



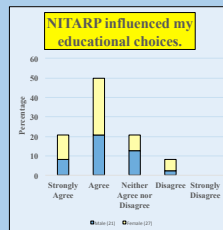
73% (78% of females and 66% of males) had a positive view of math prior to NITARP.



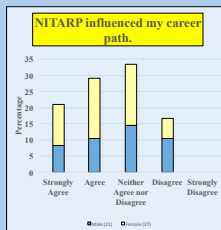
42% of the students (48% males and 21% females) had an increased interest in math after NITARP. 50% of students who did not have a positive view of math did so after NITARP.



Representation of words used by count from the respondents to the question: "How did the NITARP program impact your thoughts on or plans for your next educational experience?"



71% of students (74% of females and 67% of males) stated NITARP influenced their educational choices. (19% of males and 22% of females strongly agreed)



50% of the participants (56% of the females and 43% of the males) stated NITARP influenced their career path.

## Discussion

Aside from anecdotal evidence, little was known about the effects of NITARP on the student participants. Our findings indicate NITARP not only influences students' academic choices (71%) but also increases their interest in science and (although not as significantly) their math interests as well. 50% of the respondents stated their career paths were also influenced and while astronomy and related fields were mentioned as possible avenues of interest, research, engineering, teaching, mathematics, physics, and computers were also mentioned. A couple of students also had changes in interest from astronomy to other areas.

As educators in the STEM (Science, Technology, Engineering, and Math) fields, an area of concern is the differences between males and females in their educational interests and achievement in STEM given that these fields tend to be dominated by males. We separated our results into genders to see if there were any significant differences. Interestingly, the female students found the program more challenging and more of them had their career paths influenced, but the males had higher perceptual changes of astronomers and increased interest in math and science as well as more confidence in science.

## Questions needing to be answered:

Are there any measurable differences between students of NITARP Alumni and students of non-NITARP teachers who teach similar subjects? Are there measurable impacts on students of NITARP educators who did not go on trips with NITARP?



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