

Building Confidence and Combating Imposter Syndrome Through Student-Educator Research Projects

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AGNatha Project

Students worked alongside their teachers as co-researchers on the project. In the months leading up to the summer workshop, students helped write the individual proposals that would eventually become the final research proposal. During the summer workshop, students presented on the astronomy knowledge they were gaining as part of the project. Leading up to the AAS conference, students, along with their teachers, each analyzed all 723 images that formed the basis of the project’s findings. Students were expected to play an equal role in the project and were integral to its success.



Changes to Teaching

Curriculum Development:

Include research in Earth Science curriculum, South Dakota

Incorporate into current NASA/SETI AAA learning modules, South Dakota

Currently offers two semesters of high school astronomy for NITARP research participation, South Dakota

Development of an “Introduction to Astronomy” curriculum for 11-12th graders, Philadelphia, PA

Develop more hands-on curriculum incorporating the program into curriculum, Philadelphia, PA

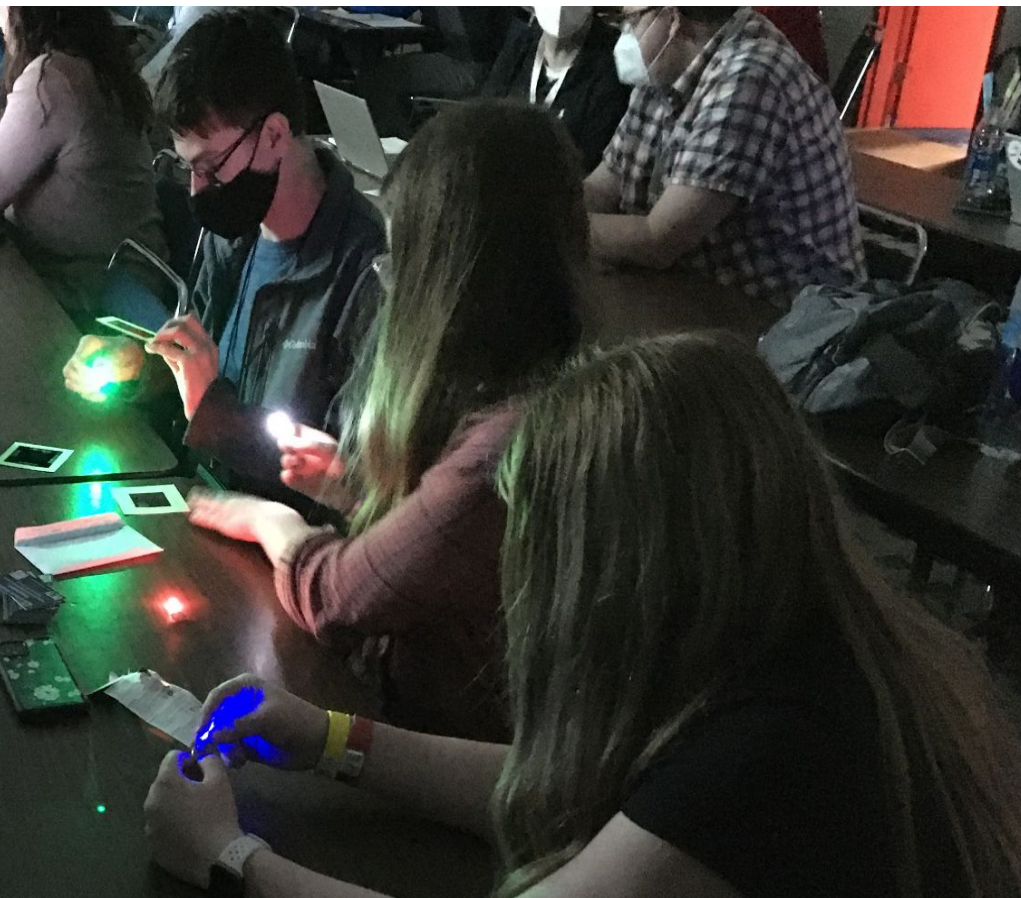
EHS’s Independent Study program development, Houston, Texas

Introduce archival research into one-semester Astro 101-type elective course and EHS, Houston, Texas

Recreate course offerings at The Bay School:

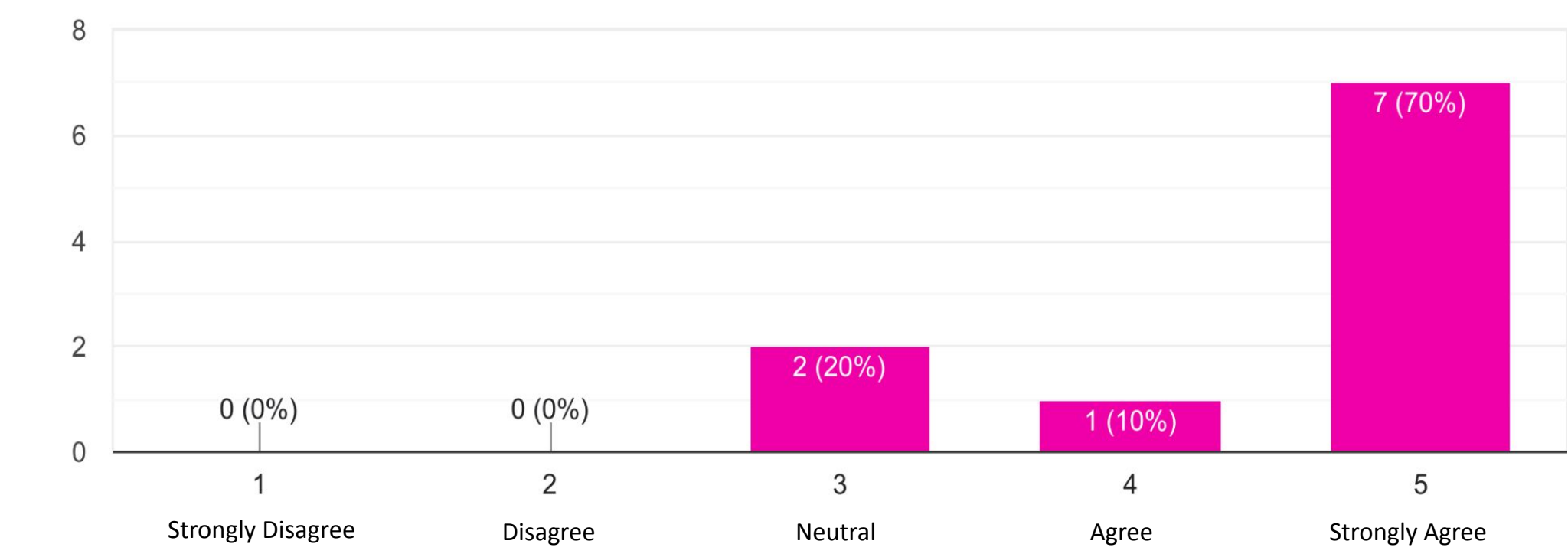
Now research driven and focused rather than research as afterthought or dessert

Bring archival data into more courses than just astronomy, now in Creative Process course as well as physics courses



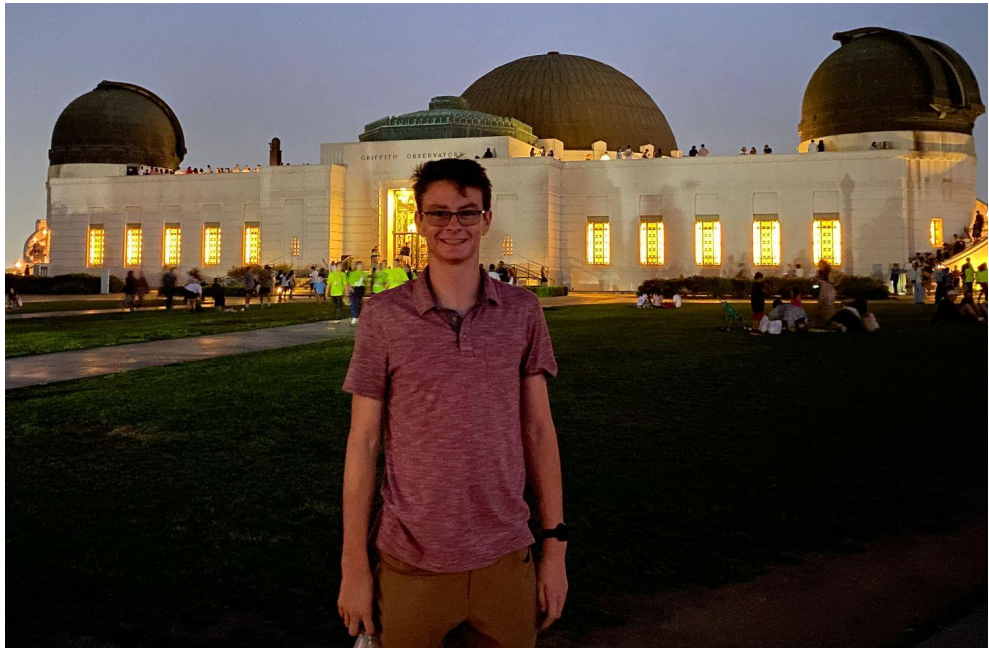
Student Feedback

I feel more confident doing science after participating in the NITARP program.
10 responses



“When first starting NITARP I could not help being nervous, it was a whole new experience and I was worried about whether or not I belonged in the program. By the end of the NITARP program I had lost a lot of the initial nervousness that came with starting the program, I felt more comfortable participating in discussions and providing ideas. The impostor syndrome I had during the beginning of the program faded after I got to meet in person with my peers and began relating to them.” - David

“I think it has been a very informative experience, and I think it will end up being the catalyst for my dive into science!” - Astria



“By working in a large group and collaborating with each other, I feel this greatly benefited me in my abilities in collaborative research as If I didn't have an answer. I then could rely on my group mates for assistance to solve the problem.” – Dakotah

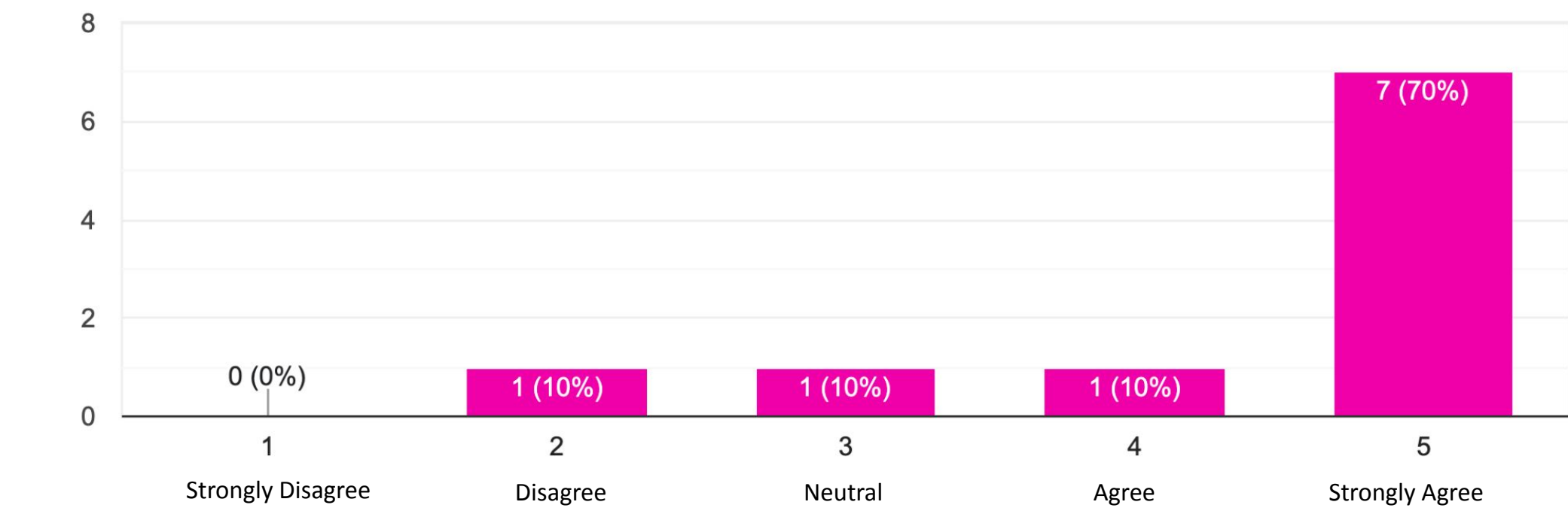


“I feel that all teachers should be involved in research, whether it's science or something like history. Research can help students by showing them the things they learn in a classroom can be applied to the rest of the world. Teacher research can help inspire students to pursue careers in that field.” - Theo



“I felt like I had a better understanding of not only astronomy on a deeper level, but also scientific research. I also felt like I had finally met some other people that I somewhat relate to, which made me feel a bit more comfortable especially on the first day.” - Tyon

I feel more self confident after participating in the NITARP program.
10 responses



Community Engagement

Edmunds Central student & teacher participate in NASA research

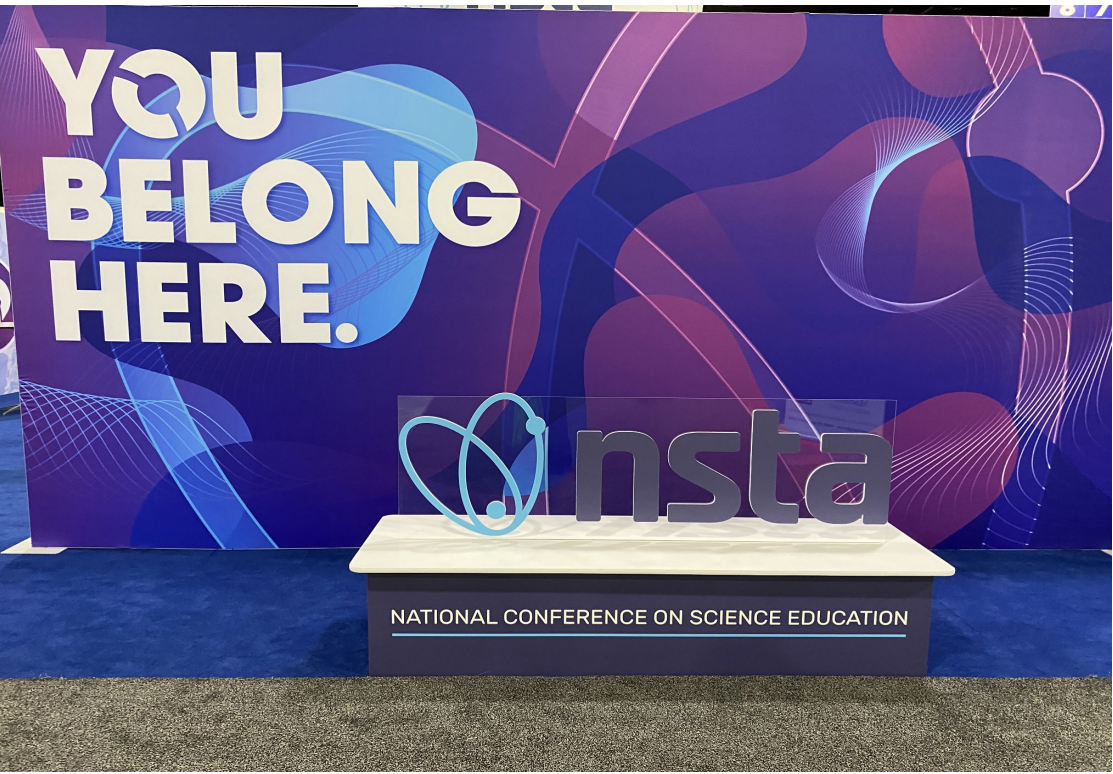


Media and Publications:

TV interview and multiple local newspaper articles on our school's participation, SD

SDDOE science Education Listserv, school's website, and Facebook page, SD

Publications featuring work in EHS Pillars magazine and articles in local community newspaper articles highlighting AAS experience, Houston, Texas



Workshops/PD/Camps/Clubs:

Craven Community College Mad and Jr. Mad Scientist Camps, New Bern, NC

Country Lakes Senior Living Community, Little River, SC

Winterville Public Library summer programming, Winterville, NC

St. James United Methodist Camp, Greenville, NC

Craven Community College Astronomy Club, New Bern, NC

Lead a PD seminar via PhilaSD for High School teachers, Philadelphia, PA

Teaching seminar for non-science teachers on data visualizations, methods of research, and modes of communication, San Francisco, CA

Workshops/PD/Camps/Clubs cont.:

Teaching seminar for science teachers on research methods and data accessibility, San Francisco, CA

Coordinate with astronomy clubs, San Francisco, CA

Coordinate with local astronomy clubs, Houston, TX

Presentations:

NSTA Committee on Post-Secondary Education

Pitt County Schools high school science teachers, Greenville, NC

Craven Community College Honors Program and Faculty Showcases, New Bern, NC

South Dakota STEM Ed Conference, Huron, SD

NSTA National Conference, Atlanta, Georgia, and Kansas City, MO

Present project to professional teaching organization PRISE, Pennsylvania/New Jersey

Presentation to entire school and through student exhibition on program, San Francisco, California

Presentation to CATDC on methods and results, San Francisco, CA

Present at UT EXES Teacher Program Meeting, Austin, TX

Presentations with students on program at EHS Admissions and Fundraising events, Houston, Texas

Acknowledgments

We gratefully acknowledge funding via NASA Astrophysics Data Analysis Program.

Science Poster Found at 201.05
(Tuesday 9am)