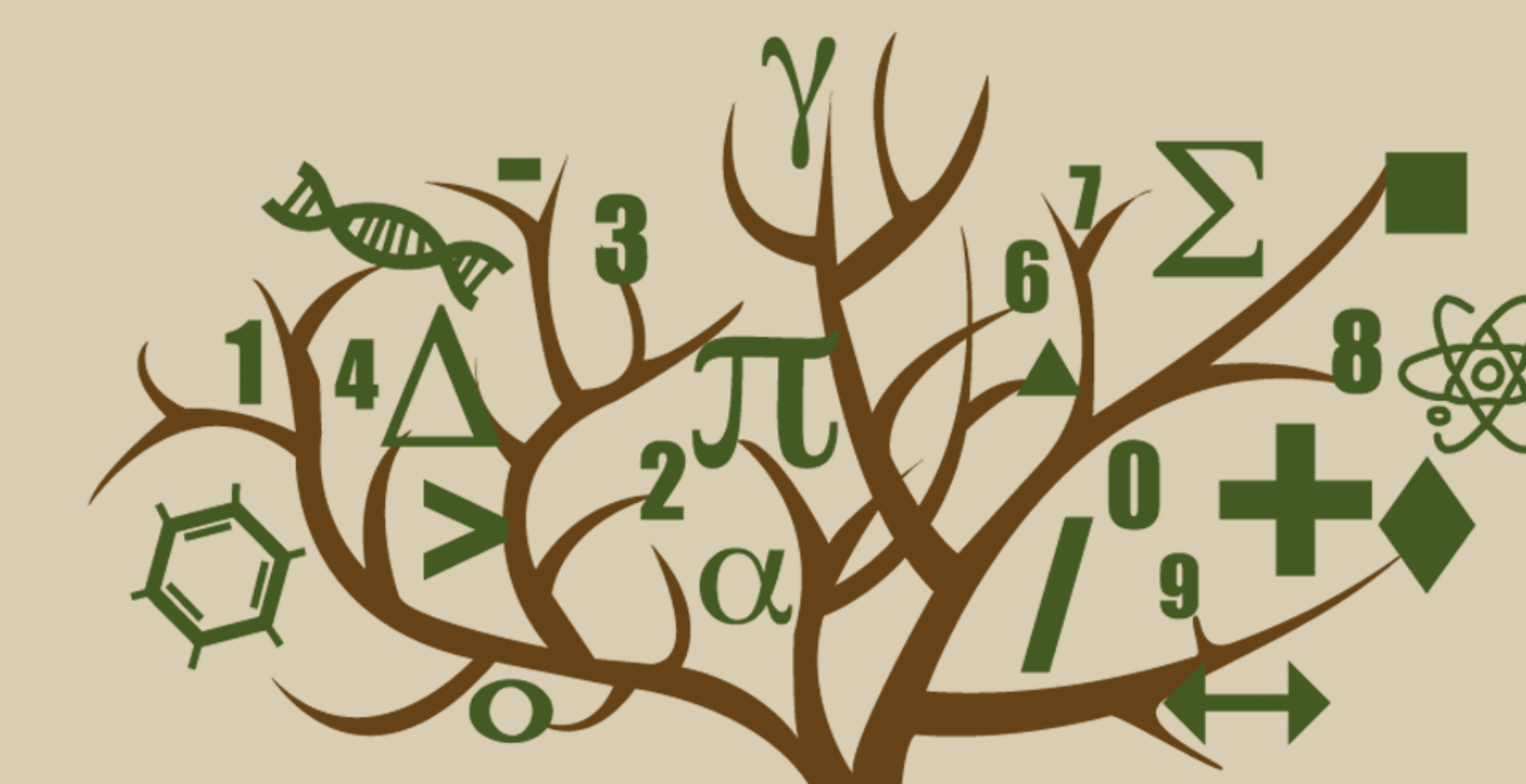




# Authentic Research Experiences for Public High School Teachers and Students in Puerto Rico: University-High School Partnership



**CSMER**  
CENTER FOR SCIENCE AND MATH EDUCATION RESEARCH

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## INTRODUCTION

In Puerto Rico there have been efforts to implement authentic research experiences at the secondary level, yet there is no empirical evidence to support it. This collaboration integrated theoretical concepts and experimentation in the areas of neuroscience, development, pharmacology and education. These students were able to learn complex scientific content and deliver it to diverse audiences. In addition, both students graduated and entered science programs at the University of Puerto Rico. The students were able to learn complex scientific content and deliver it to diverse audiences. The success of this collaboration was demonstrated with the awards received by the students in the different forums and their performance at a university-level meeting.

### What is authentic research in our investigation?

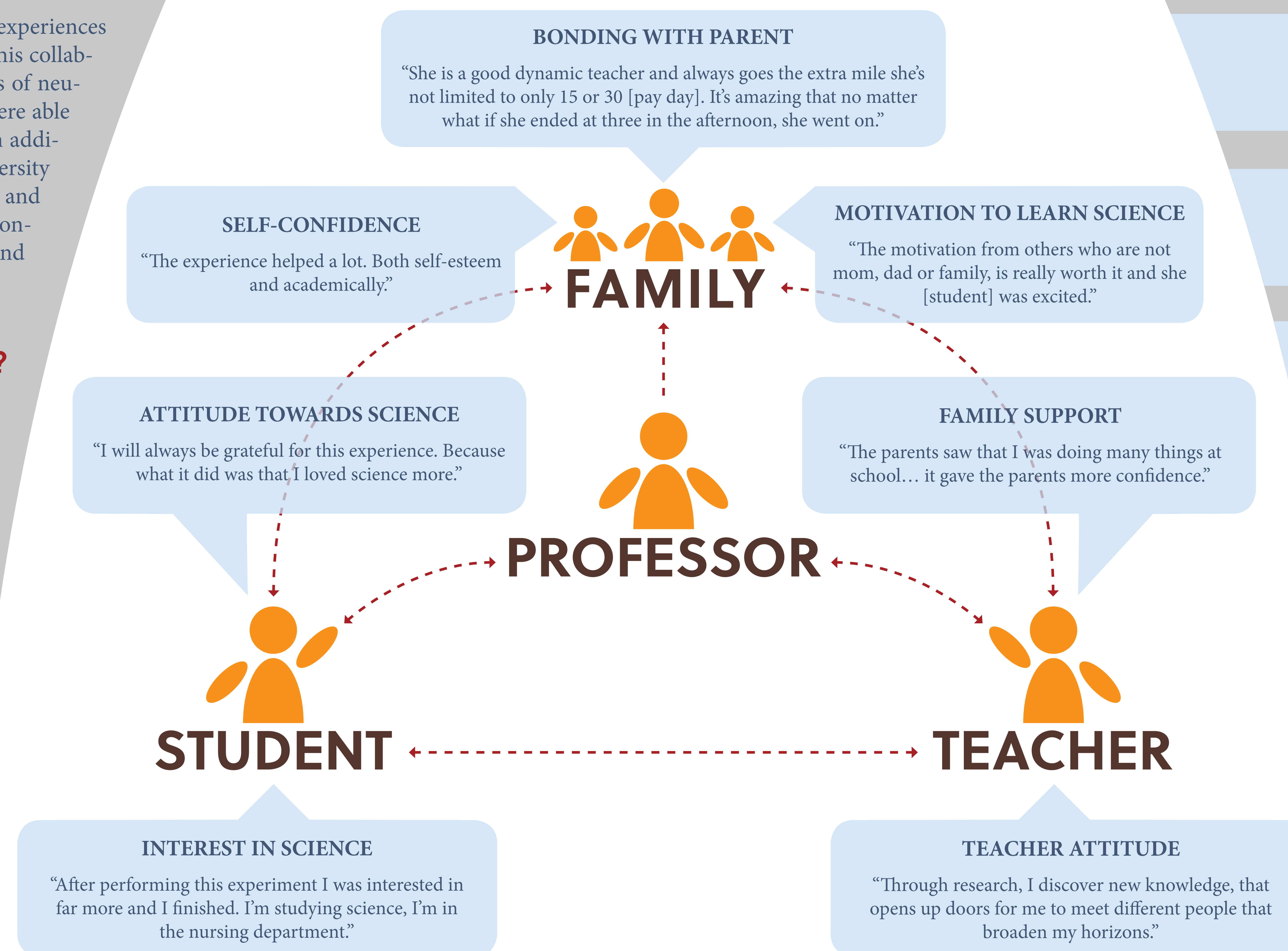
**Definition:** Authentic research is conceptualized as high school teachers, students and university professors integrating hands-on experiences in a research laboratory.

**Benefits:** Authentic research experiences help students to develop scientific skills, master science content, use creativity, and fine-tune critical thinking and communication skills.

## METHOD

To document the authentic research experience of the participants, we used content analysis with a descriptive design. This strategy allowed us to understand and analyze the whole research collaboration from three different perspectives (Maxwell, 2007). According to Maxwell (2007), qualitative studies allow flexibility to researchers, particularly regarding data collection, analysis and validity threats that might arise during the process.

## RESULTS



## DISCUSSION

### PERSONAL DEVELOPMENT

Feeling of independence • Self confidence • Bonding with parents • Creativity • Critical thinking • Public communication skills • Family support

### PROFESSIONAL DEVELOPMENT

Scientific literacy • Laboratory skills • Problem solving • Networking • Understanding • Perception of professional development • Exposure to equipment

### ATTITUDE TOWARD SCIENCE

Continue science career • Interest in science • Motivation to learn science • Motivation to continue studies • Student perception of experience

## CONCLUSION

High school students not only were able to learn complex scientific content, but they were also able to deliver it to different audiences ranging from other high school students and family members to graduate students and university professors. The success of this collaboration was demonstrated with the awards received by the students in the different forums and their performance at the UPR meeting, as evidenced with comments made by attending faculty members. We believe that the most important lesson learned from this experience is that high school students and teachers can engage in authentic university-level research in collaboration with university professors in spite of limited resources.