

What's going on in my classroom

Problem Statement: My students do not see the overall value in learning math and are therefore unmotivated in the classroom.

Purpose Statement: The purpose of my project was to help my students see the value in learning math by using career-centered contextual problem solving and projects. In seeking to answer my research questions, I developed strategies to motivate my students to learn math.

What I did



How this connects to my industry experience

During my three summers at Arizona Public Service (APS), I have observed and interacted with groups working together to solve problems. By assigning collaborative projects that involve 21st century skills like those they will eventually interact with in the workplace, students are more likely to see the value in what they are doing in the classroom. I have had the opportunity to work with many different departments at APS. I was able to tour new solar plants, attend and help create trainings based on employee data, forecast customer service calling trends, and survey land around Arizona. Highlighting careers that I have interacted with at APS helps students understand the wide array of jobs available to them in the future which helps them see value in what they are doing today.

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the funders or partners.

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What I found

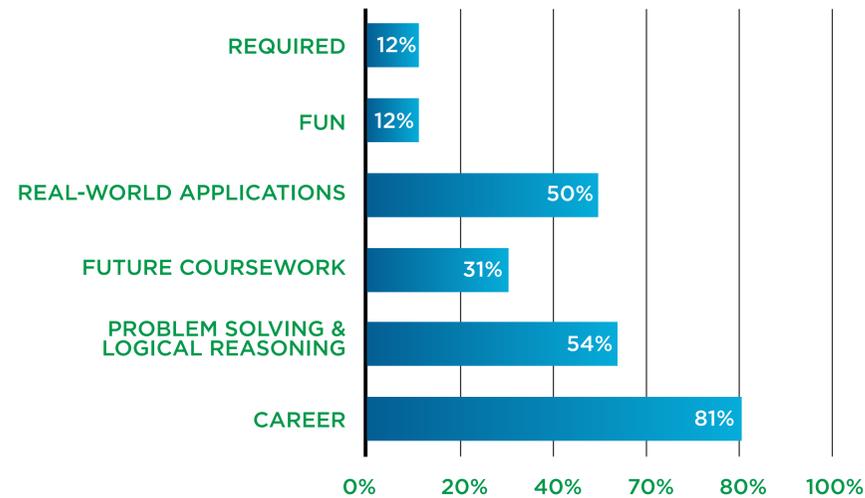
Q1: What are my students' reasons for engaging in mathematics learning?

Finding: Students reported that a major reason to engage in mathematics learning is to help them be successful in their potential careers. Other reasons included future coursework, and the development of problem solving & logical reasoning skills.

Evidence:

- When asked to write a brief paragraph about why you learn math in school, over 80% of my students indicated their future career as a reason.

Survey Responses: Why do you learn math in school?



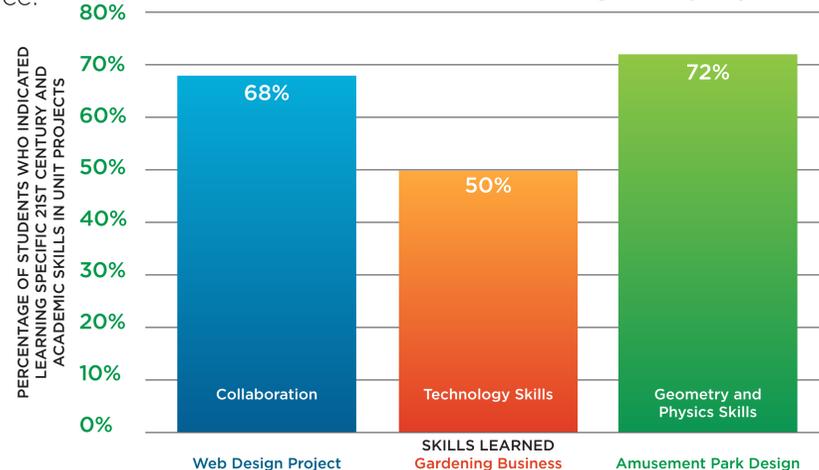
- At the end of the year, my students gave a score of 4.3 on a five point Likert scale for the question "I will be able to apply what I do in this classroom to my job someday."
- At the end of the year, 81% of students agreed that math class helped them become a better thinker and a better problem solver.

Q2: How did engaging students in year-long career-centered projects increase their knowledge of 21st century skills and their perception of math to their future career?

Finding: Engaging students in three career-centered unit projects increased their knowledge of 21st century skills, specifically in the areas of the use of technology and collaboration. They were also able to relate their mathematical learning to a potential career.

Evidence:

Skills students learned during unit projects

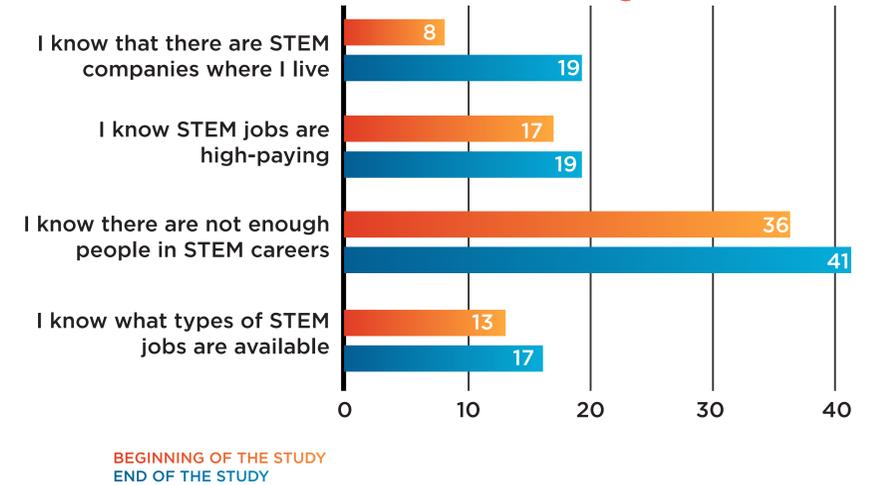


Q3: How did my students' knowledge of careers grow throughout the intervention of learning about careers in the mathematics classroom?

Finding: Overall, my students learned more about the STEM careers that are available to them at the end of the intervention than they knew prior to the intervention.

Evidence:

Growth in Career Knowledge



Value of Career Project

Engaging students in career-centered projects and career context problem solving increased their knowledge of 21st century skills, how those skills relate to their future careers, and their knowledge of specifically STEM related careers. Overall, students learned to find more value in learning mathematics because they understood math class would help them with their career someday.

What's next

Since less than 20% of students nationally are choosing a path in STEM ("STEM Education & Workforce," 2014), in the future I want to do more to highlight different STEM careers that are available to my students. My research showed that students value their learning more when they can relate it to the future. I have met with employees from many departments at APS to create documents which can be shared with students to describe the employee's typical day and what they enjoyed doing during middle school. This will hopefully create a meaningful connection for the future for my students.

References

STEM Education & Workforce. (2014, January 13). Retrieved from <https://www.nms.org/Portals/0/Docs/STEM%20Crisis%20Page%20Stats%20and%20References.pdf>.
Framework for 21st Century Learning. (2015, May). Retrieved from <http://www.p21.org/our-work/p21-framework>.