Community Issues Project

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Host Organization: Meta

ETP Type: Classroom

Subject/Grade: AP Psychology/9-12

Abstract (~150 words)

Within the field of psychology, there are different approaches. This project is based on two psychological approaches, research psychology and social psychology. Students will be placed in groups. Groups will design and develop an invention to help their local community. Groups will have one week to conduct research on community needs. Based on their research they will have one week to develop a proposed solution to their project topic, one week for testing and data collection, and one week for presentations. At Meta, we used the scientific method to solve a problem. We started with a question of durability, we researched, experimented, analyzed, and reported our results. My students will be graded on how organized they are, their depth of research, their identified goals, the cohesiveness of the group, and the quality of their presentation. Grades will be based on a project checklist that will be provided to them complete with due dates and item descriptions.

Focal Content & Supporting Practices

The scientific method and its application to problem solving.

21st Century Skills and Applications (1 - 2 bullets)

- Creativity and Innovation: 1.B.2 Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work.

- Communication and Collaboration: 3.A.1 Articulate thoughts and ideas effectively using oral, written, and nonverbal communication skills in a variety of forms and contexts.

Measurable Objective(s)

Design a solution to a real-world problem based on prioritized criteria that account for social and environmental impacts.

Formative Assessment(s)

"Do Now" activities, exit tickets and group performance surveys.

Summative Assessment(s)

Project presentations and project summaries.

Fellowship Description (300-500 words)

The fellowship took place in the product integrity department at Meta in Redmond, Washington. I was working closely with the reliability and test engineering teams on the evaluation of the materials against chemical exposure and abrasion scenarios that could be experienced during the lifetime of a consumer electronics product. Upon the observation of failures during the tests, I also engaged with the failure analysis and material's teams to better understand the root-cause of the failures and see how we can improve the performance in the next development cycle of our products.

Reliability and test engineers work closely with product development teams and failure analysis teams to bring reliable products to the market and ship products that delight the customers. Reliability engineers need skills in engineering, statistics, probability, critical thinking, problem-solving and strong communication skill sets. These skills are necessary for my psychology students, especially during our research unit.

Part of my fellowship took place in the reliability lab. The lab is equipped with instruments and machines necessary for testing. My students will need some instruments to test their products but will rely heavily on market testing. They can use surveys or observations to evaluate the viability of their designs.

Reliability departments anticipate product issues, or failures and propose modifications to designs before production. This work is important to the company and consumers. The company can save money by catching design flaws early in the process of product development and the customer purchases a reliable product.

As an educator in the 21st century, being part of the technological advances taking place has been a valuable learning opportunity. Working for a school district has some similarities to working for a technology company in the sense that teachers do have some autonomy about the structure of their classrooms, their approach to teaching and types of assessments used. Teachers do meet in groups or professional learning communities, just as the technology teams meet often with team members and other departments. A big difference would be the education standards that define what a teacher will teach. Technology companies follow standard operating procedures (SOP), but they have more opportunity for creativity and out-of-the-box thinking.

Fellowship Connection to School/Classroom (300-500 words)

This Community Issues Project will be my AP psychology students first group project of the year. Through working on this project, students will practice skills found in effective reliability engineers, experience with statistical methods and probability tools. Students will utilize their problem-solving skills and learn how to work collaboratively to achieve a desired outcome. At the end of this unit, students will be able to describe the characteristics of experimentation that make it possible to isolate cause and effect. Students will be able to explain the value of simplified laboratory conditions in illuminating everyday life.

By working in groups, students will be able to refine understanding through discussion and explanation. They will be able to give feedback on their group members performance and receive feedback on their own performance in the group. The feedback will directly affect their individual grade. Through collaborating with group members and testing their product in the market, students will develop

stronger communication skills, which are necessary for today's workforce.

Designing a product for the benefit of the community will help students think creatively, but also locally. I teach a diverse population of students with a high minority concentration. Enlisting students to solve community problems is an effective way to make learning practical and relevant. This project is an opportunity for students to practice good citizenship. They can make a positive change in their community by being proactive and spending time understanding the needs of their neighbors.

The scientific method is an approach that many people use without labeling it. At the end of my course, my students should know the steps in the scientific method and be able to apply the method in their everyday lives. Approaching life's problems in a logical way, can make the process more effective and make my students more productive.

Instructional Plan

Unit Title: Research Methods: Thinking Critically with Psychological Science	**Lesson Title / Number: Community Issues Project**
UNDERSTANDING(S) in lesson: **Students will evaluate a solution to a real-world problem based on criteria and trade-offs that account for safety, reliability, and aesthetics as well as possible social, and environmental impacts.**	**ESSENTIAL QUESTION(S) in lesson:** **What is the difference between correlation and causation?** **What are the needs in my community?** **How does my performance in a group affect the group dynamics?**
KNOWLEDGE in lesson: **Students will learn and use key terms like, hindsight bias, correlation, placebo, and variable.** **Students will gain perspective on group dynamics.** **Students will learn what it means to be a good citizen.**	**SKILLS in lesson:** **Students will develop problem solving skills.** **Students will develop communication skills.** **Students will develop leadership skills.**
ASSESSMENT: **Project presentations and project summaries will be used to determine if groups fulfilled the goals of the project. Students will receive explicit instructions at the start of the project as well as a project checklist to be sure to stay on target with the project timeline.**	**ASSESSMENT:** **The History of Research in Psychology Exit Ticket** **Do-Now journal activities, such as, students responding to the essential questions, or writing a reflection post about yesterday's assignment/homework.** **Exit tickets based on the daily lesson.**

	Group performance surveys for students to provide feedback on group members' efforts.

HOOK for lesson:

Design 101: For the very first lesson, students will be in groups. On their tables, they will find plastic boxes filled with spaghetti noodles, marshmallows, glue, and scissors. I will introduce the challenge of designing the tallest tower in 20 minutes. After the challenge, I will debrief the students about obstacles each group faced, and what went well during the activity.

Lesson Segment 1 **Activities:**	**Week 1- Research** **What is Research? Lecture on research in psychology. [The History of Research in Psychology PPT](#)** **Student notes and discussion.** **Assignments:** **Monday- Research community needs. Utilize the internet and ask friends and family.** **Wednesday- Brainstorm ideas to address needs. [Brainstorming Worksheet](#)** **Friday- Commit to address a specific community need.**
Process / Movement	**Notes/Collaboration/Research**
Lesson Segment 2 **Activities:**	**Week 2- Design** **Teacher will show an engineering design video and provide engineering design handouts to students. [Engineering Design Handout](#); [Engineering Design Video](#); [Community Issues Project PPT.](#)** **Assignments:** **Monday- Design a product to address a need in the community.** **Wednesday- Review/Edit design and create a materials list.** **Friday- Start building.**

Process / Movement	Product Designing
Lesson Segment 3 **Activities:**	**Week 3- Testing** Teacher will introduce chapter vocabulary and delve further into the design process. [**Engineering Design Process PPT.**](#) **Assignments:** **Monday-** Students will finish and test their product prototypes. **Wednesday-** Students should continue to finish and test their product prototypes and apply appropriate modifications. **Friday-** Complete the project checklist, and work on PowerPoint presentations.
Process / Movement	**Product Application**
Lesson Segment 4 **Activities:**	**Week 4- Presentations** **Assignments:** **Monday-** Students will have time to complete their project checklist and work on their PowerPoint presentations. **Tuesday-** Students will complete the project performance surveys and finish presentations. **Wednesday-Friday-** Student groups will present their product and research to the class.
Closure:	**Students will add a journal reflection about the design process.**
Materials/Resources:	**7 plastic boxes; packs of spaghetti noodles; 1 bag of marshmallows; white glue; scissors, tape, string and handouts. [Community Issues Project Grade Sheet](#) (Summative Assessment).**
Homework/estimate time to complete:	**2hrs.**

Additional Supports
Tools to meet the needs of all learners (SEL, distance learning, ELL, SPED)

- Students will be randomly placed in groups.
- Visual aids and project examples will be provided.
- Some handouts will be available in Spanish.
- Parents will be informed of the project timeline and purpose.
- Project will be listed as an assignment on Schoology.

Materials
Include links to all files within this ETP

[Engineering Design Process Video](#)
[Designing an Invention Brainstorming Worksheet](#)
[The History of Research Exit Ticket](#)
[Community Issues Project Rubric/Grade Sheet](#)
[The History of Research in Psychology PPT](#)
[AP Psychology Engineering Design Process PPT](#)
[Community Issues Project PPT](#)

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Keywords (2-4)

Community, Engineering Design, Scientific Method