Assessment and Evaluation

Project 3

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Description

The NAEP, National Association for Educational Progress uses a scenario based assessment called the Technology and Engineering Literacy Assessment (TEL) to examine students' ability to apply technology and engineering skills to real life situations. The results of these tests indicate that students nationally do not meet the progress indicators for applying the technology and engineering concepts to real-life problems. Girls who code has provided a national template for clubs of school age girls to learn and apply coding concepts as a means to close the STEM gender gap. This includes application of solving problems with code based solutions. Girls who code has a mission of closing the gender gap in STEM related fields. This qualitative study will examine the girls' perception of themselves, how participation in the club influences career choices and the impact club activities have on the girls' ability to solve real life problems.

Participants

The participants will be sampled from the Plainsboro Free Public Library Girls Who Code Club. The club includes coders in grades 6 - 12. The club will be be contacted to request permission to do a study that will forward the knowledgebase of the impact girls who code clubs have on the girls regarding self-efficacy, future career and aptitude for solving real-life problems. Permission will be requested to attend a club meeting to share information with parents regarding the research and to distribute and collect permission slips and answer any questions or concerns. The sample will be created from the students whose parents return the permission slips. The request will include time after the club meets to collect data (administer questionnaire, survey, interview) or determine an appropriate time and place.

Research Questions

How does girls' perception of themselves and what they are capable of shit from participation in GWC? How has participation in the club influenced possible career options? Does problem solving abilities and persistence increase with self confidence?

Need for the Study

The study is needed to discover what is missing that if put in would make a difference in students performing greater than 50% when it comes to real world problem solving skills. The TEL study found girls within 3 percentage points of the boys which reinforces the thoughts that is not ability that separates girls and boys. The factors that lead to the gender disparity are elsewhere. The push toward girls clubs stems from the realization that many young women who are strong problem solvers and have strong mathematical abilities choose non STEM careers or downplay their capabilities. The intent of the student is to uncover girls self perception as problem solvers and how club participation has shaped that perception. The study may identify factors including learning styles that may be able to inform how a positive impact can be made to increase the learning and development of students who participate in programs that forward 21st century problem solving skills.

Questionnaire, Survey, Interview Questions

Survey and questionnaire data will be adapted from the NAEP (National Association for Educational Progress) and TEL (Technology and Engineering Literacy and LSI (Learning Styles Inventory). The NAEP makes online tools available to educators for classroom use. Access to restricted data is not necessary for this study, therefore a request for license is not applicable. Interview questions will be asked gather students self perceptions before participating with the club and after. This will include comfort level working on teams and how well they create solutions. Questions will include how to solve a design process and evaluate trade-offs among different solutions; reasoning behind a design

solution and consequences; predicting outcomes of and explaining design changes;the ability to use digital technology to communicate and collaborate. Question types on the LSI will seek responses to identify how club members learn best to determine if there is commonality among the girls that participate in girls who code and if there is anything that can be added to facilitate personal growth for club members. Students will identify characteristics that are most like them: involved, thinking, risk-taker active...ranking each characteristic in a category to identify the characteristics that match how they learn best. Interview questions will be asked to gather students self perceptions before participating with the club and after. This will included comfort level working on teams, how well they think critically to create solutions.

References

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