

Title: Partnership to provide technology and cyber-security experiences to Alabama Black Belt through mobile application development

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Project type:​ Developing and Testing Innovation (DTI)

Project URL: <https://itestalabama.weebly.com/>

Project Overview: The program aims to promote interest and awareness of STEM careers among minority students and teachers in Alabama’s Black Belt schools in order to build a stronger future STEM workforce. The program provides high school students with hands-on and project-based learning experiences through a one-month Summer Academy followed by a semester-long online group project. The Summer Academy offers both technical training and career exploration opportunities, and students also have many chances to meet with minority mentors. The project is expected to provide this opportunity to 120 high school students and 30 teachers.

There are many minority students from low-income families who are interested in learning more about computer science (CS), but they often do not have an opportunity to learn CS in their school. Providing a school-level CS is important to reduce diversity gaps in CS.

**Lessons Learned & Insights Gained**

* Our qualitative data analysis results informed that early exposure to CS was one of the most important factors influencing minority students’ interest in CS.
* Students reported hands-on learning with MIT App Inventor, meeting with guest speakers, and group activities were most valuable.
* Parents’ support and encouragement are critical to promote the sustainability of students’ CS interest.
* Students need more specific instructions on user needs analysis methods.

**New Challenges & Next Steps**

* Recruiting teachers has been difficult due to teacher burnout and teacher shortage problems. To tackle this issue, we are reducing teachers’ workload during the fall semester and encouraging them to support students’ group work more actively over the summer.
* While almost 100 students signed up for the program, many of them did not follow through with the instructions that we provided and could not participate in the summer academy. We plan to work with school counselors and science teachers more closely this coming year to help students sign-up early and complete the necessary paperwork on time.

**Equity**

* A total of 31 minority students participated in the program in 2022. There were two Hispanic students, three Asian, and 26 Black students. All four teachers were Black female teachers.
* We also invited Black male and female mentors who are working in a computing industry (e.g., Microsoft) or education field (e.g., female computer science professor).
* All four teaching assistants are minority undergraduate or graduate students at Tuskegee University.

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