Mobilize: bringing participatory sensing into the Los Angeles Unified School District

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Three Steps toward Project Success

• Step 1: Developing the Technological Tools
  We are developing a flexible participatory sensing software infrastructure for use with mobile phones so that teachers and students can get started quickly on their research projects while receiving scaffolding and support.

• Step 2: Creating the Mobilize Curriculum
  – The Mobilize curriculum will be created for Exploring Computer Science (ECS) classrooms. ECS is a one-year high school course, appropriate for 10th-12th graders, that was created to increase and enhance computer science learning opportunities while broadening participation in computing for African American, Latina/o, and female students in LAUSD.
  – The Mobilize curriculum will incorporate high school math and science content standards while offering a multidisciplinary approach to learning computational thinking in ECS. Key curricular units will cover topics such as spatial analysis, temporal analysis, text interpretation, and more.

• Step 3: Teacher Support
  Teachers will be prepared to deploy Mobilize in LAUSD high schools through a professional development that will organize teachers into multidisciplinary teams and learning communities that will engage hands-on, inquiry-based teaching methods.

Learning from Pilot Experience

• Piloting Participatory Sensing with High School Students
  – Mobilize was piloted in seven, Exploring Computer Science, LAUSD, high school classrooms through a project called “Pre-Mobilize.” Students used the “Stress-Chill” application in order to document, map, and analyze the things they found stressful or relaxing in their communities every day.
  – During the past two summers, CENS High School Scholars Program interns created their own participatory sensing projects and applications.

Data & Technology = Fabric of our Lives

• Data are Everywhere
  In our daily lives, we are constantly generating and analyzing information through our decisions, actions, and words.

• Mobile Phones & Computer Technology are Ubiquitous
  Today’s high school students—who cannot remember a time without the Internet–use mobile phones and computer technology on a daily basis for communicating, social networking, etc.

Inquiry-Based Learning for Computational Thinking

• High School Education & Inquiry-Based Learning
  Inquiry-based learning (a student-centered, active learning approach focusing on questioning, critical thinking, and problem solving) is an ideal way to teach computational thinking in high school.

• Student Inquiry-Based Research Projects Using Mobile Phones
  Participatory sensing offers an engaging, inquiry-based method for introducing students to both computational thinking and data collection/analysis/representation practices around issues that teens find important in their home communities.

Problem Description: How can we prepare students to be engaged, literate, & numerate participants of democracy?

Challenges with STEM Education in the Los Angeles Unified School District

• Equity and Access in LAUSD Schools
  Only the most privileged students receive quality science, technology, engineering, and math (STEM) education. Most public high school students—especially students of color—do not have access to the opportunities to learn the computational and critical thinking skills necessary to be our future STEM leaders.

• Technology in Schools
  Teenagers love mobile phone, internet, and social media technology but do not get to use such technology in meaningful ways in school.

Proposed Solution: Support high school students’ computational thinking through participatory sensing

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