Kenyatta University Project

High school chemistry lesson

Kenyatta University was awarded a grant from the HP Catalyst Initiative (http://www8.hp.com/us/en/hp-information/social-innovation/catalyst.html). Working through the *HP Catalyst Initiative Consortium Pedagogy 3.0*, the mathematics and science educators from the Department of Educational Communication and Technology at Kenyatta University are collaborating with:

- colleagues from the Departments of Biology, Chemistry, Mathematics and Physics at Kenyatta University,
- mathematics and science education colleagues from Syracuse University, California State University-Fullerton, and California State University-San Marcos, and
- the National ICT Innovation and Integration Centre (NI3C), Ministry of Education in Kenya.

Teachers examining a SMART Board at NI3C

Using Technology to Support Conceptual STEM Teaching and Learning

Our project objectives are to:

- support mathematics and science teachers in Kenya in integrating technology as a teaching and learning tool into their classrooms,
- support mathematics and science teachers in Kenya in developing deep and connected content and pedagogical content knowledge, and
- build connections in Kenya between preservice teachers' preparation and teachers' work in schools allowing for coordinated monitoring of unpacking of STEM content for learners.

Implementation takes place at three levels: STEM content and preservice teacher level at university, and inservice teacher level.

Workshop with inservice teachers

Capacity-building Activities

Planning

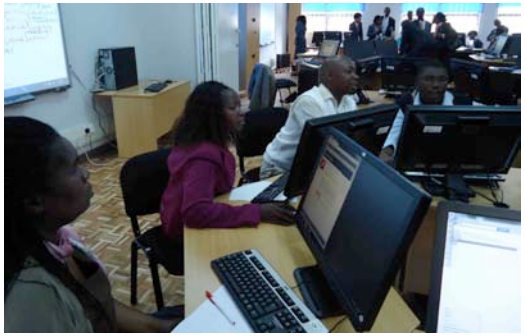
- Project team meetings to (a) recruit inservice teachers, (b) recruit preservice teachers, (c) prepare for workshops, (d) prepare for classroom observations
- Workshops with Kenyatta University faculty members from STEM department to introduce HP equipment and familiarize them with how this equipment can be used in their content courses
- Workshops with STEM inservice teachers from two high schools (1 girls' school, 1 boys' school) to introduce technology and integration strategies in their lessons
- Workshops with STEM preservice teachers to introduce technology and support them in exploring, planning for and using technology during their teaching practice

Implementing

- Support inservice and preservice teachers in integrating technology into their teaching practice

Monitoring

- Observe inservice and preservice teachers using technology in their teaching
- Provide support and constructive feedback
- Gain teachers' perspectives on their use of technology
- Disseminate our experiences and knowledge gained



Technology workshop with inservice teachers

Through the HP Catalyst Initiative, we are working with more than 300 preservice mathematics and science teachers, as well as approximately eight inservice mathematics and science teachers at two nearby high schools, through a series of workshops to teach them how to use computer technology in their instructional planning and how to integrate HP MCL Science Probe Kits and HP Graphing Calculators technology into their teaching. During the two years of the project, these teachers will use technology-rich tasks with approximately 960 secondary students.

Workshop with preservice teachers

Contacts & More Information

Dr. Marguerite Miheso-O'Connor
Mathematics Education, Kenyatta University
khakasaconnor@gmail.com

Other Members of Lead Team
Dr. Patrick Kimani — Mathematics Education
Dr. David Khatete — Biology Education
Prof. Joanna Masingila — Mathematics Education
Dr. John Maundu — Biology Education
Dr. Moses Ochanji — Science Education (physics)
Dr. Jeffrey Rozelle — Science Education (chemistry)
Dr. Nicholas Twoli — Chemistry Education

Websites:

- http://soeweb.syr.edu/centers_institutes/Kenya_partnership_projects/hpinitiative.aspx
- http://cuseinkenya.syr.edu/

HP Lead Team members during a planning meeting

HP Catalyst Initiative

Using Technology to Support Conceptual STEM Teaching and Learning

KENYATTA UNIVERSITY
ELIMU NI NGUVU