University of Colorado is a leader in STEM education. Chancellor Phil DiStefano has recently briefed President Obama on STEM education.

challenge
Participation in IT education is dwindling at all levels (K-12, CC, 4 year colleges) and especially low with women and minorities.

Support for STEM does not include IT education.

Computer Science is considered by K-12 students "hard AND boring."

IT is not part of policy discussions.

Most states do not have IT training requirements for teachers or IT standards.

project
Mission: Reinventing computer science and STEM education in public schools by motivating & educating all students including women and underrepresented communities through game design & computational science starting at the middle school level.

This ITEST project is one of the few models integrated with K-12 IT education.

Scope: tech hub, inner city, remote rural and Native American communities in Colorado and South Dakota.

strategy
Integration into required courses to broaden participation through the inclusion of women and minorities.

Support of teachers by community/tribal college students.

Start with game design for motivation then transfer computational thinking skills to science.

results
Real need: planned for 1200 students in 3 years, already instructed over 1300 students in first semester.

Not the usual suspects: in many K-12 computer science courses participation of girls in computer science courses is less than 10%. This project’s average is 52.3% girls.

Some of the participating middle schools instruct over 900 students per year.

Students want to participate in more game design courses: 78% girls/68% boys, 74% minority/76% white.

investigators
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background
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funding
NSF ITEST (Innovative Technology Experiences for Students and Teachers) program: > $100M total, $1.5M this project.

Not tax payer but H1B visa funds.

partners
NCWIT, Community Colleges, Tribal Colleges, AgentSheets Inc., Colorado Association of Black Professional Engineers and Scientists, CSTA.

http://scalablegamedesign.cs.colorado.edu