

Bridging Math Literacy and Digital Media Creation: Students as Learners, Teachers, and Leaders of STEM Content

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TERC is researching how middle school, high school and college students experience learning, teaching, leading, and organizing within a math-based computer programming curriculum developed with the Young People's Project (YPP). YPP is an out-of school math literacy organization that employs a near-peer mentoring model in which college students teach and mentor high school students who are in turn responsible for teaching/mentoring middle school and elementary school students—mostly through playing math games.

In this project, YPP and TERC are engaging college and high school student mentors in Greater Boston, MA; Chicago, IL; Jackson, MS; and Eldorado, IL in learning object-oriented programming languages for two purposes: to create video games based on the math games students already play in the YPP curriculum; and to conduct social science research in their communities and program simulations based on that research.

At the same time, high school students will plan curricula and teach programming languages and math to younger students. Project researchers will examine

1. student understanding of mathematical and computational literacies;
2. how the structure of near-peer mentoring (learning/teaching/leading/organizing) contributes to participants' literacies; and
3. the development of 'Environments of Demand' among participants (i.e., when members of school communities demand more high quality math and computational educational experiences.)