

Preliminary Proposal: Understanding the Value of Computing and Communications Technologies to Advance Global Learning Experiences at MIT

Extending the BLOSSOMS OER Project to MIT Students and to Collaborative Students Overseas

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We propose to build from our BLOSSOMS OER (Open Educational Resources) project three student teams: one from MIT, one from partnering country Jordan and one from partnering country Pakistan. These teams would work collaboratively using web-based communication tools, including video meetings, to understand the need for additional BLOSSOMS interactive video learning modules in local high schools, especially public high schools. Each team would visit local high schools, sit in on math and science classes, and interview teachers and students. They would also assess currently available OER content, including content from OCW, MIT World and BLOSSOMS, that may be relevant for these schools, and they would demonstrate in the high schools illustrative currently available OER content. Once an assessment of needs in each country is agreed upon, the three teams would collaborate to create three or more new BLOSSOMS learning videos, either stand-alone in each respective country, or jointly via communications technology across international boundaries. The MIT students would receive UROP or G credit for their time on this project during the academic year, and they would be paid UROPs or graduate assistants during the summer. The three teams would meet once face to face at the start of the project in Dubai or Abu Dhabi.

The primary goal of the project is to introduce MIT students, undergraduates and/or graduate students, to varied cultures of the developing world, to understand pre-college educational needs in these countries (and in the USA) for motivating high school students to commit to additional education in math and science, and to foster a climate of international student-to-student collaboration yielding a useful educational ‘product,’ available to the world as a new OER contribution.

As background to this project, here are the major goals of BLOSSOMS:

- To develop a large, free repository of blended-learning video modules, each presentable in one class session, created by gifted volunteer teachers from around the world, with the objective of developing deeper and richer skills in students, enhancing critical-thinking skills, and encouraging science, math and engineering careers.
- To create BLOSSOMS partnerships with colleagues in developing countries that will seek to overcome traditional barriers to Open-Educational-Resource (OER) use and production in those countries.
- To develop from the start a Consortium Model of sustainable funding for BLOSSOMS so the initiative can build on this model as it grows and spreads to additional countries.

What is unique about BLOSSOMS?

- **CO-INVENTION.** It is an OER initiative designed and created by a consortium of educators from developing countries and MIT.
- **BROAD SUPPORT.** Implementation will be achieved through partnerships with universities, high schools and ministries of education in selected developing countries.
- **LOCALLY COMPATIBLE TECHNOLOGIES.** Pursues strategy of technological minimalism by distributing modules via videotapes as well as streaming digital and DVD options, with twin goals of reaching as many high schools worldwide as possible and making module production easier for educators that want to participate.
- **MAGNIFIES ROLE OF IN-CLASS TEACHER.** Follows a blended learning approach to technology-enabled education, allowing teacher to alternate structured video segments with active in-class learning. This pedagogical approach enhances and leverages the role of the classroom teacher while at the same time introducing a less threatening but powerful technological teaching aid.
- **EMPHASIZES CRITICAL THINKING.** Moving away from rote memorization towards problem framing and formulation in a variety of settings.
- **EXCITES STUDENTS TOWARDS MATH AND SCIENCE.** A major goal is to attract more students to careers in engineering, science and math, as well as to create scientific literacy in a larger fraction of the population.
- **ENHANCES BUT DOES NOT REPLACE MANDATED CURRICULA.** The blended learning modules will build from state-mandated curricula, in mind-expanding and exciting exercises, but are not meant to substitute for the required curriculum.
- **TRAINING FOR TEACHERS AND MODULE PRODUCERS.** Program will incorporate training workshops supplemented by on-line training.

Project Plan:

We estimate that the project would start on July 1, 2009 and finish on June 30, 2010. The face-to-face meeting of the student teams, each accompanied by a faculty advisor for the respective country, would occur in Dubai or Abu Dhabi at the time when the BLOSSOMS Initiative is holding training sessions there for participating Jordanian and Pakistani high school teachers. This session abroad would not only give the students an opportunity to meet and develop relationships with student team members from the other two countries, but would also give them a comprehensive introduction to the BLOSSOMS Initiative through their attendance at the teacher training.

Suggested Milestones:

- Selection of three student groups no later than June 1, 2009;
- Summer assignments – Learn about BLOSSOMS prior to meeting abroad through review of written materials and viewing of all 45 learning videos; research current available OER resources for high school math and science classes and write report
- Fall semester UROP (paid by UROP): Visit local high school math and science classes; observe; introduce available OER resources; introduce BLOSSOMS Initiative; interview students and teachers on their reaction to the initiative; collaboratively write up report via computer technology; present findings to BLOSSOMS faculty board;
- Spring semester: In light of research done on available OER resources and in the high school classes, select topics for learning videos; collaboratively create videos.

Budget: \$25,000 for 12-month project. \$5,000 for each: Pakistan and Jordan (for students and professor supervisor). Rest for MIT payment of summer internships and travel for all. Partners in Amman, Jordan and Lahore, Pakistan stand ready to support video production in those two counties. MIT's Larry Gallagher will coordinate video production at MIT.