Subramaniam, M. & Edwards, A. (2013). Solving for X: Using Technology to Enhance Math Teacher Collaboration in the Era of Common Core Standards. Paper to be presented at the *American Association of School Librarians 16th National Conference*, Hartford, Connecticut.

Program Description for Promotional Purpose.
The *Common Core State Standards for Mathematics* (CCSS-M) value inquiry, interdisciplinary connections, and integrating technology—positioning school librarians as critical collaborators for mathematics teachers. However, such collaborations are rare and challenging. By triangulating the CCSS-M, *AASL Standards for the 21st Century Learner* and *National Technology Standards for Students (NETS.S)*, we offer concrete examples of using technology to enhance students' mathematical learning and of how librarians can collaborate with middle school mathematics teachers to integrate technology.

Program description program reviewers.
The outline should address the main points of the program, its relevance to attendees, and how at least one active learning element will be incorporated into the session.

Many mathematics teachers (MT) have been resistant towards using technology due to inadequate professional development, inexperience, and skepticism about the relevance of technology to mathematics learning. Similarly, collaboration with MT and working with mathematics content has been taboo for librarians due to their perceptions of their mathematics knowledge, misconceptions about the mathematics curriculum, and unfamiliarity with mathematics-related technologies.

Drawing upon the *Common Core State Standards for Mathematics* (CCSS-M), the *AASL Crosswalk for the CCSS-M*, the *AASL Standards for the 21st Century Learner* and *National Technology Standards for Students (NETS.S),* we will provide resources for librarians to begin collaborations with MT on technology integration supporting mathematics learning. We will identify key CCSS-M standards and mathematical practices in the middle grades, discuss their alignment with the *AASL Standards* and the *NETS.S*, and demonstrate technologies used to support the learning of those specific mathematical concepts and practices. The session will involve a hands-on collaborative planning task in which attendees will work in small groups with pre-service MT via Skype/Google Hangout. They will brainstorm ideas for how the technologies that we have demonstrated can be used to enhance learning of a specific content and/or practice from the CCSS-M, share their ideas with the pre-service MT and collaboratively sketch a lesson based on those suggestions. Attendees will then summarize their lesson using a simplified template that we will have available via Google Docs, which later will be available to all conference attendees.

With the CCSS-M's focus on technology and emphasis on communicative and representational practices, the current push for effective implementation of the CCSS-M nationwide is a crucial opportunity for librarians to break into a subject that has long been perceived as an impossible domain for collaboration. It is vital that librarians play significant role in realizing the new visions of mathematics learning.

Program Outline

1. Introduce *Common Core State Standards for Mathematics, AASL Crosswalks for the CCSS-M*, and *National Technology Standards for Students (NETS.S)*.
2. Triangulating all three sets of standards, present via PowerPoint and video clips concrete examples of collaborative projects that librarians can facilitate and technologies that they can integrate in the learning of specific mathematical concepts and practices.
3. In small groups, attendees will identify a specific standard of CCSS-M to focus on, and provide suggestions on how technologies that we have demonstrated can be used to enhance learning of the concepts related to the specific standards.
4. Attendees will Skype/Google hangout with pre-service mathematics teachers from the University of Maryland to sketch a collaborative lesson.
5. Attendees will summarize their lesson using a simplified template via Google Docs.
6. Conclude by highlighting some promising uses of technology that emerged from the discussions between the mathematics pre-service teachers and attendees.

Program Learning Objectives 1

At the end of the session, attendees will be able to facilitate the innovative use of technology in mathematics learning that enhances the mastery of elements of the *Common Core State Standards for Mathematics* and *AASL Standards for the 21st Century Learner* for middle school students.

Program Learning Objectives 2

At the end of the session, attendees will be aware of the various opportunities to function as an instructional partner *(as indicated in the Empowering Learners: Guidelines for School Library Programs)* to mathematics teachers.

Program Learning Objectives 3

At the end of the session, attendees will be able to share their knowledge on the crosswalks between *Common Core State Standards for Mathematics* and *AASL Standards for the 21st Century Learner* with mathematics teachers and be confident in assisting mathematics teachers at their schools (aligned with the AASL Strategic Plan goal area: Guidelines and Standards).