

Pacific Library Partnership: Innovation and Technology Opportunity Grant Program

PROJECT TITLE: SCPL Mobile 3D Learning Lab

Santa Cruz Public Libraries

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1. One paragraph project summary: SCPL Mobile 3D Learning Lab

The Santa Cruz Public Libraries (SCPL) has partnered with a local business, MakersFactory: 3D Learning Solutions, to provide two game-based learning environments using Minecraft World of Humanities and Minecraft Creative Play systems. Teachers in over 40 countries use MinecraftEdu in STEM, language, history, and art with the GBL Cube, a server that delivers content-rich, hands-on Game Based Learning (GBL) education. Each portable pre-configured servers support up to 10 students via its own broadcast LAN, creating a totally safe environment for kids. Travelling among its 10 branches, the SCPL project will provide students with laptops and headphones onsite and a “teacher” server laptop that will control the game and monitor student activity. Program staff/community partners will offer free lessons in a wide range of subjects that meet targeted Common Core standards. In these immersive worlds, learners create their avatar, play out roles, solve authentic problems, fail safely, and see the impact of their individual decisions and trajectories, while gaining experience and fluency in these theories-in-action. For example, the Wonderful World of Humanities is a vast, virtual environment that simulates exploration of ancient history that engages students with the discovery of ancient history and geography. Students can discover areas themed to ancient civilizations, go on quests, meet characters from history, and collaborate to build themed projects from history. SCPL anticipates partnerships with MakersFactory, the University of California at Santa Cruz (UCSC) Digital Arts Research Center, and local schools.

2. Explain how this projects fits with the Library's strategic directions

The purpose of the Santa Cruz Public Libraries is to connect, inspire, and inform. It has identified these two pertinent strategic directions:

Lifelong Learning: "Library users will have access to innovative and successful programming which reflects the cultural, educational and informational needs of the diverse communities served by SCPL and which will help learners of all ages to achieve their goals. *People will have access to innovative technology and the tools necessary to find, evaluate and use information and resources to meet their learning needs.*"

Community Connections: "*The community will engage and collaborate with the Library through a variety of dynamic platforms which are responsive to the changing needs of the community and utilize up to date technology.*"

With the support of its community partners, The SCPL Mobile 3D Learning Lab will use Minecraft technology and community talent to support the learning goals of students in Santa Cruz County.

3. A description of the proposed project including the population served and the demographics of that population

The Santa Cruz Public Libraries (SCPL) proposes the creation of a game-based SCPL Mobile 3D Learning Lab to support the learning goals of K-12 students and teachers in Santa Cruz County.

SCPL's service area covers most of Santa Cruz County with the exception of the City of Watsonville and Freedom, adjacent to Watsonville. In 2013-14, there were 23,826 K-12 students in the SCPL service area, 7114 of them identified as hispanic or latino. 7584 were identified as socioeconomically disadvantaged. Within the City of Santa Cruz and in the unincorporated area of Live Oak, half of the student population was designated as both latino and socioeconomically disadvantaged. (Santa Cruz County Office of Education) To meet the needs of a very diverse segmented population, then, we are proposing a mobile project that can move from branch to branch (or even, branch to school) to serve each community.

Teachers, schools, and academic researchers worldwide are embracing the power of games for learning and social impact. The game environment is a powerful educational tool:

“Yes, they are fun, but [games] also allow players a chance to take on new roles and experience worlds in which they learn and problem solve. [The best] games offer something new to students -- entire worlds in which learners are central, important participants - worlds where what they know is directly related to what they are able to do and, ultimately, who they become” -Barab et al, 2009

With MakersFactory and UCSC’s Digital Arts Research Center as partners, the Library can offer these innovative learning experiences to local students.

SCPL proposes to establish a portable learning lab that can travel to library branches, local schools, and other gathering places. The Lab would be administered onsite by two trained members of the Library Program Team and would be able to accommodate 20 students at one time. (10 students per server). The Library is prepared to begin with Minecraft’s Creative Play and World of Humanities modules and can work with teachers on specific curricular goals.

Playing Minecraft teaches kids useful skills. They learn how to manipulate objects in space in a way that helps them create dynamic structures. Visuospatial reasoning is the basis for more abstract forms of knowledge like the ability to evaluate whether a conclusion logically follows from its premise. Minecraft, when played in a team or classroom environment, also helps youth learn how to collaborate to solve problems, and collaborative learning improves critical thinking skills that support motivation for learning.

The Santa Cruz Public Libraries has made a commitment to the Minecraft learning experience. MakersFactory served as a vendor for the Library’s purchase of two portable Cube servers and software. Their staff trained an SCPL staff person to be Minecraft Systems Administrator and the Library purchased two laptops to test the mobile learning lab framework. Three children, ages 5-9, were very excited to carry out the beta tests.

SCPL seeks PLP funding to complete preparations so the Mobile 3D Learning Lab can hit the road. We will need two “roadie” boxes to transport the laptops and equipment safely from place to place. We also need to purchase 20 more laptops, and we need to

arrange for two Program Team Library staff to be trained by MakersFactory to run the Lab. We hope to establish a coaching system with UCSC students for both Library staff and children.

What will the students be experiencing in the Lab? They will be able to observe the way geography influences societal development, create an irrigation system in Mesopotamia, follow trade routes in Africa, explore an Incan temple, wander through a forest of fairy tales, or climb Mt. Everest. They can even visit the Coral Island of Creativity to practice their 3D design skills and sense of spatial awareness.

Not only does the open-world nature of Minecraft give children the opportunity to be more creative, it allows them to feel like they have a sense of control over themselves and their environment.

It's an implicit way for students to develop self-regulation skills that then transfer to offline spaces. Through having this freedom to create on Minecraft, they learn how to identify and work towards offline goals like finishing class assignments or graduating from college. It will help prepare all students for the world of work in which they will be required to function.

4. Goals and Objectives of the Project

The goal of the SCPL Mobile 3D Learning Lab is to provide K-12 students with opportunities to use game-based learning environments to learn curricular content while strengthening skills in problem solving. Our objectives are to provide experience and training in Minecraft technology in a local setting, to work with parents and teachers to support collaborative learning strategies, and to offer all students practice in 3D design.

5. Project Timeline

The Library has purchased two Minecraft GL Cube servers, the "teacher" laptop and one "student" laptop. We have completed the initial systems administrator training, and that person has configured the servers and laptops. We have beta-tested the servers.

If we are successful in winning this grant, the project timeline will continue as follows:

- Within 60 days of funding, we will purchase and clone the additional laptops and purchase the roadie boxes that the servers and laptops will be transported in

- Within 120 days of funding, two Library employees from the Programming team will receive their Minecraft training, and the Programs team will promote the program and partner with local schools to begin
- Within 180 days of funding, the program will have its first on-site visit and/or its first class at the Library

6. The Evaluation of the Project

In the first six months of operation, the Mobile 3D Lab will visit at least three separate locations. There will be a log in which each visit is documented with a description of the group, community partners involved, and module used. The physical space for each visit will also be described. SCPL staff will record their notes and impressions for each session. We will want to know what the students learned and if the learning environment was engaging. Written user surveys will be administered to students, teachers, and parents after each session, and whenever possible, we will engage students in one-to-one and small group discussions of their experiences.

7. Project Budget

SCPL has made a financial commitment to the Mobile 3D Learning Lab. The Library has spent \$4000 on servers and software, \$5000 for the training and work of a Minecraft Systems Administrator, and \$800 for two laptops to test the concept.

To complete preparations for the Lab, the Library requests

\$3000 for 2 “roadie boxes” to transport the servers and laptops
\$8000 for 20 HP Pavillion laptops (1.9GHz, 4GB RAM, 17.3” Screen)
\$4000 for Minecraft training for 2 Programming Staff at Makers Factory