

UC San Diego-based Playpower Project Receives \$180K MacArthur Digital Media and Learning Grant

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An effort to use radically affordable computing to improve educational access in the developing world has received a one-year, \$180,000 grant from the John D. and Catherine T. MacArthur Foundation.

Known as Playpower and based at the University of California, San Diego, the project was founded to promote computer-aided learning through the use of \$12 TV-computers (TVC), which incorporate a TV monitor, keyboard and 25-year-old video game processor technology. Although primitive, the 8-bit TVCs are popular and widely available in marketplaces in Nicaragua, Brazil, China and other emerging economies, and can be used as open-source platforms for a variety of learning games.

"We're incredibly honored to receive this award, and it's heartening to see that the MacArthur Foundation believes in our vision," said Jeremy Douglass, co-principal investigator for the project and a postdoctoral researcher with UC San Diego's Software Studies Initiative, which is based at the UCSD division of the California Institute for Telecommunications and Information Technology (Calit2).

"With this type of cheap, accessible technology, a child will be able to boot up a system and start learning how to program," added Douglass. "It gives them access to an entirely new realm, not only in terms of computer literacy and career skills, but also a sense of the way the modern world works."

Addressing the winners at an event showcasing projects from last year's competition, MacArthur President Jonathan Fanton called the competition "an important contribution to the emerging field of digital media and learning."

"The competition demonstrates that pioneering work often takes place at the edges and sometimes between the most unlikely of collaborators," he remarked. "These projects are true exemplars of how digital media are transforming the way we think and learn, and perhaps even how we participate in our democracy."

The MacArthur Foundation received 700 entries to this year's competition and awarded 19 awards ranging from \$9,000 to \$211,000. Fifteen winners came from the United States, and the remaining four are from Canada, India, Mexico and South Africa.

Playpower's Digital Media and Learning grant will fund research and development in three areas: 1) Software and hardware development kits 2) an online development community and 3) a series of international workshops designed to educate user communities about the machines and how to use them as a teaching tool.

Derek Lomas, co-PI of the project and graduate student in the Master of Fine Arts program at UCSD, said the team will spend the next few months communicating with game design companies, neuroscientists and user communities to prototype and test learning games that can be used in a variety of cultural contexts.

"A lot of people have the assumption that we're manufacturing computers, that we're a take-off on OLPC," Lomas said, referring to the One Laptop Per Child Association, a U.S. non-profit organization set up to oversee the creation of an affordable educational device for use in the developing world. "But that's not what we're doing at all. We're taking advantage of an existing manufacturing ecosystem and making sure that it has good content."

Added Douglass: "The difference between a \$100 device and a \$12 device is that an exponential number of households can have access to computation. But the platform is also important because of the content it enables. Think about how much eloquent information we're able to fit onto an iPhone - if we can get people to use a television screen they already own, there's no limitation to what can be communicated." Lomas, Douglass and their collaborator, Southern California-based artist and designer Daniel Rehn, see learning games as a rapidly salable way of addressing core problems in education around the world.

"That's why we need to be sure we create low-cost platforms that can be accessed by local developers," noted Lomas. "Our software kit will lower the technical barrier enough for people to create code frameworks that can be modified, but we also want to make sure there's good learning game design that can transfer around the world."

A community in Ghana, for example, might use a simple program - the equivalent of Microsoft PowerPoint - to create an open-source English spelling game for the TVC. That game could later be adapted for use by Portuguese-speaking Brazilians simply by adding a different set of vocabulary words and different graphic representation.

Alternatively, a community in India could use a "choose-your-own-adventure" type program based on simple text files to create a computerized narrative structure for the TVC that could be used to prepare for job interviews. A group in China might modify that same program to create a platform for health education outreach.

"What we're doing is creating an easy path and a huge amount of support for communities to create their own games," remarked Douglass. "We're hoping people will surprise us with what they come up with."

The MacArthur Digital Media and Learning Competition The \$2 million MacArthur Digital Media and Learning Competition is funded by a MacArthur grant to the University of California, Irvine (home of a second Calit2 division), and to Duke University. Administered by the Humanities, Arts, Science and Technology Advanced Collaboratory (HASTAC), a virtual network of learning institutions, the competition is part of MacArthur's \$50 million digital media and learning initiative, which is designed to help determine how digital technologies are changing the way young people learn, play, socialize and participate in civic life.

Other winners of the 2009 Digital Media and Learning Competition include:

Tecno.Tzotil, a project that leverages low-cost laptops to help indigenous children in Chiapas, Mexico learn by producing and sharing their own media creations;

Digital Ocean, an online platform for 200 classrooms around the world that allows young people to monitor, analyze, and share information about the declining global fish population;

Voces Móviles (Mobile Voices), a low-cost, mobile, multimedia platform that lets low-wage immigrant day laborers in Los Angeles share, create, and publish multimedia stories to become citizen journalists; and

M-Ubuntu ("I am because we are" in Zulu), a project that uses inexpensive mobile phone technologies to connect teachers in South Africa to each other and to teachers in the United States.

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