Students Helping Hands
USA
Clark University
Project leader: Jonathan Tamen, USA, Clark University; David Tamen, USA, Boston University; Paola Cedeño, Venezuela, Valencia Honors College

**Project Summary**

Students Helping Hands aims to address disparities in education in Miami Beach, FL, by supporting immigrant and underprivileged students with community-oriented, experiential STEAM (Science, Technology, Engineering, Art, and Math) programming. The goals are to teach STEAM concepts, introduce STEAM careers, and address the summer slide of critical math, science, and comprehension skills - exacerbated by the pandemic and identified in declining test scores in the city’s Title 1 elementary and K-8 schools. (NPR, 2022) This program works to close the achievement gap between disadvantaged students and their peers, helping them to find success in the classroom and confidence in their ideas to create a better world. In partnership with the City of Miami Beach, our program will reach 300 students, predominantly from ethnic minority and economically disadvantaged groups, through 4 weeks of educational camps.

I attended Miami Beach public schools from K-12, witnessing first-hand the disparities in educational opportunities. In lower grades, the separation begins with “gifted” vs. “regular” students. In middle school, an educational path of high-school level math and science continues this inequity, lasting through high school Advanced Placement (AP) courses and International Baccalaureate (IB) curriculum. Most middle-class, primarily white, parents know how to advocate for their children, while many less-privileged families, conversely, cannot advocate for those opportunities because of language barriers, socioeconomic challenges, or immigration status fears. This project will instill students with new skills that will make positive changes in their lives and those of others.

“Boom Town, USA” will introduce STEAM to children in 4th and 5th grade as they build their own smart city, collaborating in neighborhood design that advances disabled accessibility and creating a peaceful community. They will learn about environmental science (climate change, sustainability), art and mathematics (architectural design), and engineering (electricity, construction). With Archi-TECH Electronic Smart House kits, students will work in small groups to create solutions for sea level rise, inaccessibility, and unsustainable development in constructing their homes, and then pool these ideas together in developing their new neighborhood.

“World of 3D Printing” will instruct 6th-8th grade students in assembling prosthetics for children around the world through the network of e-NABLE, an online group of doctors and engineers who design 3D printable prosthetic hands. Students will draw on lessons from mathematics (geometry, scale), science (anatomy, chemistry), and art (sketching, design) into a culminating project of engineering e-NABLE’s prosthetic to be child-sized. We hope to motivate students into pursuing advanced education and instill using STEAM education to change lives and create a more equitable and accessible world.

**Background: Meet the Team**

At 14, Jonathan Tamen helped launched a FIRST Robotics team at his high school. As founding team captain, he asked the mayor to fund the fledgling robotics team. In return, Jonathan proposed weekly mentoring at a Title 1 elementary school (Biscayne Beach Elementary) to be taught by robotics team members. The project was successful, with students and teachers eager to see the project continue, and Jonathan went on to be the only high school student leading two additional mentoring partnerships with the city. Over the course of three years, Jonathan has led over 45 high school volunteers to mentor over 130 elementary and middle school students.

Now, Jonathan, studying the intersection of economics, community development, and public education, has developed this new initiative, Students Helping Hands. He has met with City of Miami Beach Commissioner David Richardson and Parks and Recreation Assistant Director Cynthia Casanova to design the project in a way that targets students who need it most and maximizes the impact they gain.

David Tamen, an engineering major, is the 3D printing expert. He taught 3D printing to classmates and Scouts for his Eagle Scout project of making prosthetics for child patients in Haiti.

Paola Cedeño, an education major, brings to the project bilingual skills and her story of arriving in the USA eight years ago not knowing a word of English. She shares commonality with our students and expertise to best design and implement our lesson plans.
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We all are passionate about addressing inequities facing immigrant, undocumented, and English as a second language (ESL) students in our public schools and believe STEAM can become a great equalizer through increased access to educational programs.

Implementation  
The City of Miami Beach will partner with Students Helping Hands to offer STEAM enrichment programming during its 12-week summer day camps that run at four of its Parks and Recreation centers. These camp locations draw students from the city’s three Title 1 elementary schools and one K-8 center where 83 to 91 percent of the students are minority (predominantly Hispanic) and 89 to 91 percent are economically disadvantaged. Students who qualify for federal free school lunch attend at no cost. Jonathan will train 10 to 12 high school and college students who will be project assistants. “Boom Town, USA” sessions will be led by Jonathan and Paola. “World of 3D Printing” will be led by David and Jonathan. We envision workshops of about 30 students with a camper-to-assistant ratio of 3:1.

Grant funds will be used to purchase Archi-Tech Electronic Smart House kits for Boom Town participants, a 3D printer, filament, and supplies for teaching workshops. To encourage participation, we would like to provide stipends for college students and community service for high school students.

Smart House kits, with easy-to-reuse parts, make our lessons hands-on and sustainable in future iterations of the project. Staff with the City of Miami Beach will be involved with the Students Helping Hands project by assisting our team and being trained in the process, allowing the project to continue in future summer programming. Outreach and making lesson plans publicly available will enable the project to grow into other communities, to equalize educational opportunities for more students.

Anticipated Results
• Students will learn how architects, city planners, and engineers collaborate to create community.
• Students will learn foundational skills in science, mathematics, and art.
• Students will learn strategies to overcome barriers to learning, such as working together and asking a teacher for extra help.
• We will practice peacemaking: showing students what it means to exist peacefully with others, to work as a team, to be kind and to promote peace through their actions.
• We will encourage creativity, helping each other, and working to make our community and the world a better place for everyone.
• We will empower our participants – both campers and volunteers – to see themselves as a unique asset in our community by being positive role models and/or creative thinkers.
• High school students will want to continue volunteering with the Students Helping Hands project and college students will want to replicate this project in their community.
• City of Miami Beach will implement and budget the project in future summer camp programming.

Success will be measured through group discussion and written surveys with students before and after participation in the Students Helping Hands project. We want to gauge changes in confidence in science, mathematics, and art skills, educational aspirations, and awareness of STEAM careers.

Defining Peace
We believe peace is the unification of communities in solving problems and supporting one another. Children struggling in school require communities – city, school, and volunteer groups – working together against educational disparities. Creating a Students Helping Hands project for peace starts with an awareness of inequities in our public schools, empathizing with others, and empowering students.

In “Boom Town, USA” there will be considerations of all present and future residents: principles of universal design, lessons on sustainable practices, and eco-friendly solutions to protect Earth. “World of 3D Printing” will create relationships between students across the globe as they support another whose struggle might otherwise be unknown to them, for example, the child missing a limb.
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**Peace Education**

Joseph de Rivera, Psychology Professor at Clark University, explains that peace education should begin in early childhood with experiential learning that is relevant and community oriented. (De Rivera, 2010) Silva Diazgranados Ferráns, a director for the International Rescue Committee in Washington, D.C, recommends several ways to incorporate peace education into the classroom setting to teach students how to be empathetic, responsible, active learners and leaders. She is also a strong proponent of experiential learning – students learning by doing activities such as science experiments and hands-on projects that promote creativity and critical thinking (Shafer, 2015). The Students Helping Hands approach, with community-oriented, experiential learning for students, is necessary to uniting students of all socioeconomic backgrounds in creating a better community through access to educational programming and the tools to improve community design for all.

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