One Friday morning in March, I walked into a fifth grade classroom to a buzz of activity. Small groups of students were gathered around an iPad practicing beginning Spanish words. Others were working feverishly with students from the local high school to customize and practice Spanish phrases. One student was showing the teacher a video he had recently received from his Nicaraguan teammate. Throughout the room, the excited chatter of students filled the air.

I was delighted to see so much focused activity. This group was a completely different Global Studies class than the one I had seen two months before. But what had caused this transformation?

Welcoming the Fifth C
A few months before, our superintendent introduced a fifth C to the already well-established four “C’s” of 21st century learning: creativity, critical thinking, collaboration, and creativity. This newly added “C” was citizenship.

For years, our district had been encouraging teachers to include the four C’s in classrooms and providing professional development to support this goal. When the fifth C was announced, my colleagues and I considered how to help teachers best incorporate it with their students. We decided to focus on the concept in two ways: digital citizenship and global citizenship. After revising and updating the existing teacher training for the digital citizenship component, we soon narrowed the focus to global citizenship.

We knew that persuading teachers to integrate global citizenship in their instruction in a meaningful way would be a challenge. In the past, we had convinced teachers to try a few global projects. But even when the project was a success, we found teachers would not repeat it the following year. It was just too much work handling the logistics of working with people who do not speak the same language or who are in different time zones.
Students working in TinkerCad with their global partners
STEAM and Global Citizenship Unite

A former colleague introduced me to a company that was able to provide our district a great solution. Level Up Village offers global STEAM classes for grades K-9. Their courses include everything from Global Web Designers to Global Storybook Engineers. For each course, classrooms in the United States are partnered with classrooms in developing countries. Together, they complete a STEAM project while also getting to know about a different country in a very personal way. Level Up Village takes care of all the logistics, including pairing students with individual global partners, providing fully developed curriculum and teacher training, and facilitating global communication and collaboration via a safe and secure portal.

After conferring with our central office staff, our district began piloting a Level Up Village Course called Global Inventors, which focuses on 3D printing. Up to this point, Global Studies was usually taught in fifth grade along with writing and was mainly focused on textbooks and internet research. We planned on capitalizing on the Global Inventor course’s cross-curricular components to integrate lessons that met science and math standards alongside Global Studies.

We approached a teacher at Oak Grove Elementary who was enthusiastic about piloting the eight-week program. All students in fifth grade at Oak Grove were able to participate, and each one was paired with a child from Argentina, Nicaragua, or Honduras.

Video Powering Connections

As part of the course, each student sent video messages back and forth to his or her partner. Often the video topics were prompted by a few suggested questions, but students were free to come up with their own as well. This exchange of videos soon fostered a friendship across countries that made the project real and meaningful.

To help promote another district initiative (to introduce elementary students to Spanish), I invited high school students from the district to plan and teach Spanish lessons to the fifth graders. These lessons focused on phrases that corresponded with the planned video topics. This was not a mandated part of the Level Up Village course (the company provides translation as part of their service), but it provided another level of collaboration and interaction for all the students involved. It was amazing how engaged our students were in learning the language simply because they were being taught by high school students. Many students were inspired to practice Spanish at home and during their free time so they could communicate even better with their partners in the next video message.

Sharing video messages brought global citizenship to the forefront of the project. The students quickly realized how much they had in common with their partners, and at the same time, recognized the differences between their cultures. One student reflected on similarities he saw between himself and his partner: “My partner’s name is Deybin and he is from Nicaragua….We both like vanilla ice cream, we are both boys, and our houses are both made of rock.” “We live in different countries and speak separate languages,” wrote another student. “But that didn’t stop us from becoming such good friends.”

Electricity and Nonrenewable and Renewable Resources

Level Up Village provided a series of videos that challenged students to look beyond simple similarities and differences and delve into complex problems. One issue they looked at centered on electricity production, usage, and accessibility. The students learned surprising facts, such as that Nicaragua has a lot of untapped potential for geothermal energy production thanks to its nearby volcanoes. They also learned that not everyone has easy and cheap access to electricity. This knowledge helped set the framework for the purpose behind the 3D design project.

Students began to understand how access to electricity made their daily lives different from their partners’. For example, one student considered telling a story about accidentally dropping her iPhone in water in one of her video messages. She realized this story might be insensitive to tell to someone with limited access to electricity and technology.
Her realization and others fostered class discussions about global sensitivity that could never have just been “taught” by a teacher. Students cared about their partners and what they thought, and this created the perfect way to cultivate compassion and empathy.

Let There Be Light
To create their global inventions, students used a computer-aided design (CAD) software called Tinkercad to design a casing for a solar flashlight, which was then printed on the 3D printer. Solar flashlights were novel gadgets for our students, but for their partners in developing countries, these flashlights could be used when electricity was not available.

Students had to call on their understanding of circuits, measurement, and 3D calculation to design the flashlights. They had to make sure the case they designed could both contain the required electrical components and fit on the class 3D printer. Using Tinkercad was by far the hardest part of the course for many of these students. However, knowing they had a partner that was counting on them helped them persevere.

One student wrote, “... it took time and effort to finally finish it. It was hard to make all the measurements perfect so all the components would fit. I hope it helps my partner to study at night and during power-outs.” As a teacher, pushing students to work through something difficult while still maintaining engagement is the educational sweet spot. It is the point at which we know real learning is taking place.

Our students learned to take their partners’ perspectives into account while working together on the design. Both partners could add some creative flair, but they needed to respect each other’s ideas and be willing to compromise in order to make a finished product that reflected both students’ work.

Learning to Fail
When designing anything on the 3D printer, there is inevitably some trial and error. About halfway through the project, a few flashlight cases were printed and analyzed. Some cases had parts that fell off, others were too small, and some would not fit on the 3D printer. All of these mistakes provided valuable information for students to be able to go back and revise their designs.

In the end, students on both sides of the globe printed and wired their solar flashlights. They also recorded their last video to their partner. In her final video message, one student said, “Hi there, Brian. I was so happy to work with you as a team and it was fun learning about you and your country. It’s kinda sad saying goodbye, but thank you for working with me.”

Connecting Live
After the project ended, Level Up Village arranged a Skype call between the American students and their partners. While this does not always happen with Level Up Village courses, the company was able to arrange a live exchange because all the schools we were working with were in time zones similar to ours.

It was amazing to see how invested students were in meeting their partners and working with them. Two classes voluntarily gave up free time at lunch and recess to Skype with their partners from Nicaragua. They talked for almost an hour, even singing songs to each other and making jokes.

Creating Global Citizens
Throughout the Global Inventors course, the students’ growth as global citizens was evident. They could not only name basic facts about the countries they studied, but understood so much more. The project cultivated greater empathy, understanding, and curiosity. The students’ writing on their class blogs reflected their growth as citizens of the modern world.

One student wrote “This project was very different from what I’m used to. It was nice to learn about and send messages to people from across the world. I’ve learned that a 3D printer isn’t just to make cool looking things. Those things can change someone’s life.”

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If you are interested in trying the Global Inventors course in your school, the in School Price is $55 per student. However, some district-wide variations apply. Level Up Village also says that a number of schools have successfully applied for grants from community organizations to run their courses.