

Project in Progress

Project in Progress is a program that teachers can implement in their classrooms in an effort to give students a way to demonstrate what they are working on outside of class that they take pride in. It also presents an opportunity for teachers to foster a collaborative relationship with their students in approaching their education. Inspired by experience working with young people in extracurricular activities (primarily STEAMLabs, a Toronto makerspace) and show and tell. We envision Project in Progress taking the form of show and tell for the 21st century. With the spread of computers and the internet students today have access to information and tools like never before, and are using that to do very incredible things.

So, what's the Big Idea?

Students are doing amazing things with technology. The spread and availability of the internet has meant that people have access to information unlike ever before. We have seen and talked to young people doing incredible things, and will share a number of examples later on. We think that providing the opportunity for students to bring what they are working on into the classroom and share it with their peers and teachers can facilitate a learning environment that students feel invested in and have some ownership over, as well as providing a way for teachers to get an idea of what their students are working on and make connections between that and the curriculum expectations they need to cover. Which we think can only make for a better classroom experience for everyone involved.

As an added bonus.

In recent years there has been an ongoing discussion in society regarding what role technology has to play in education, and to what extent school should be adopting new tools in order to better teach their students. Unfortunately there seems to be one largely underrepresented voice in this discussion, students. We hope that Project in Progress will help remedy this.

Sounds nice but what does it look like?

While how Project in Progress is implemented in classrooms could take on any number of different forms, we envision it as being similar to an informal conference for the class (and maybe even guests). Taking place during half a day students would have an opportunity to present their projects to their peers, explaining how and why they made them, what they learned in the process, and what challenges they had to overcome. We think in this that it is valuable to include the idea of prototyping and iterations in the discussion. Asking students about things that may have not worked perfectly the first time round and how they figure out how to get them working, or whether the design of their project the same as it was when they first started.

Project in Progress would likely be initiated by the teacher the first time it takes place in the classroom. This would require the teacher to set aside time. In addition teachers would need

to get students signed up (making sure they have the time to accommodate all the presenters). Presentations can be grouped together if it makes sense, such as in the event that there are multiple students wanting to present something they have built in Minecraft, having them present in a chunk (so that computers or projectors aren't getting put away and taken out repeatedly). It is important to keep in mind that this should be a case in which students should feel free to present anything that they have been working on or making an attempt to master, as part of the goal is to have the teacher take away an understanding of what students are engaged in outside the classroom.

Once the students have been introduced to Project in Progress, and if it is going to become a regular thing in the classroom, the teacher should try to get the student involved in planning and organizing it, if not taking it over entirely, giving them an opportunity to be responsible for some of the learning in the class and having some ownership over their education.

Sample Projects.

One of the projects we've encountered, for example, has been a robotic hand that responds to muscle contractions that was done by a 12-year old. He started working on the project out of an desire to study biology and construct robots that respond to functions of the human body. This resulted in a robot hand that uses electromyography (EMG) sensors, 3D printing, and an Arduino microcontroller that reacts based on muscle contractions. He is now in the process of adapting this technology as an active prosthetic for a 7-year old who has a missing arm. This would severely cut the cost of the child's prosthetic from approx. \$20,000 to under \$500.

Another community project has been the creation of a large Minecraft world designed by children between the ages of 7 to 16. The collaborative effort and level of engagement in constructing this world resulted in a world full of expansive narratives and intricate structures that rival commercial video games. They created missions that other players can interact with and designs that exhibited strong planning skills. This project showed the creators what is possible when a concerted effort is placed in constructing one cohesive project.

Take away message.

If you have a class of 20-30 kids chances are at least a few of them are doing some pretty cool stuff outside the classroom. Above, we have given two examples of projects that we think are really incredible, but there are endless examples available of young people accomplishing and teaching themselves amazing things. We think that providing the opportunity for students to bring this learning into the classroom will help teachers get a better understanding of what their students are capable of, and develop a closer relationship with them. We think this will also make it easier for students to see the value in what they are learning in the class, if it can be related to the things that they are doing on their own, and give them the opportunity to be recognized for things that are important to them. While it may be

easy to keep home and school separate, we believe Project in Progress can help create a classroom that is more fun and engaging for everyone involved.