Beyond the classroom: Expanding the notion of self-regulated learning

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This is a bit of a success story, something to chew on, and a string of code that we can usefully cut and paste into our thinking.

In December 2013, our IB Spanish teacher sent one of our sophomores a link to an article he thought the student might find interesting. The student, a non-native speaker of English, wrote back to the teacher:

"I am reading the newspaper, and a great thing I noticed was one of the first pages' contents: "Schools sign up for "Hour of Coding".

The student, Besart Copa '16, followed up with an email to administrators the next week. In the message he laid out the need for coding and some potential objections the administration might have. He also wrote reasoned responses for each objection. For example:

Is there a qualified teacher?

There is no need for a teacher who has a degree in computer science, as long as there is a teacher who supervises them, checks their progress, and motivates them, everything is fine.

Is there room in the curriculum?

There is enough space in the curriculum to set Computer Programming as a subject, at least for sophomores, juniors, & seniors in Digital Literacy.

Besart ended his mail like this:

I have sent a requesting email to code.org *team for a preview of the total curriculum plans ...*

A couple of us met with Besart later that week. We weren't in a position to insert coding in a class in the middle of the school year but we decided we could be faculty sponsors of a student run, or more precisely, a Besart run, club. We agreed to start in January after the winter holidays.

ASP was born, as Besart named it: After School Programming. He recruited students, found space in a packed boarding school schedule, and when students arrived, circulated from one student to the next to teach coding. About a dozen students consistently attended all the way through the end of the academic year. They first worked on Hour of Code, and then moved on to Treehouse, Codecademy, Khan Academy, Code School, and others. Since 2013 we have continued offering an annual Hour of Code event for all students.

The following academic year we created an afternoon activity called makerspace. This was a small step forward, since coding - one of the activities of makerspace - now had an official home in the schedule. We purchased quadcopters, robots, a 3D printer, and lots of online accounts to learn coding. The activity met twice a week for 90 minutes each. Following Besart's lead, we created a self-directed space in the Beau Reveil in which to work, alone or together, on whatever one wanted. It's still going strong and is now in it's third year.

Makerspace hasn't only been for students. Biology teacher Dan Patton was interested from the start, asking students to consider working on projects related to his science classes. He worked side by side with students to learn about electronics and eventually Arduino, which he incorporated in a unit in his ninth grade biology class and has now been introduced as a course in the middle school. He also presented the concept of the class, called Robot Gardeners, at an international conference in Copenhagen in November 2016. He continues his work this year as a resident scholar, looking across the curriculum for areas in which to usefully insert coding to enhance teaching and learning.

John Harlin, a vocal and hardworking proponent for citizen science, used makerspace time to work with students to develop temperature poles for a climate change study on our mountain. While the original version of the temperature poles was eventually abandoned, the effort contributed to our annual science field day and annual GLOBE conference day. This is exciting work!

Finally, in Fall 2016 we expanded the original student run ASP-club-turned-makerspace into a course called Coding. As Besart had told us in December 2013: (1) we didn't need teachers trained in computer science and (2) we could find room in the curriculum. These sentiments turned out to be true.

A success story

It took nearly three years to start the first coding class. I don't suppose it will make Besart's resume exactly, but it is something of which he - and we - can be quite proud.

He also contributed indirectly to other projects and thinking, as we've seen above. Makerspace is attributable to Besart's original request for a coding class. In turn, the makerspace contributed

to the survival of a teaching approach we'd already been experimenting with. Essentially, that teaching philosophy is to create a learning space and let students and adults find their way together. We've experienced some internal criticism of the approach, as is to be expected with something new and different, but our experiment in teaching and learning has so far weathered the naysayers. Through it we believe we are building self-regulated learners.

Makerspace also provided a "thinking and doing" space for some projects that may have been less successful without it. Our efforts in citizen science and curriculum development were directly impacted by the ability to play together with new ideas in the afternoon.

A quick recap so far: Besart planted a seed (and did some vigorous gardening early on) that has not only contributed to the introduction of coding, but also to how we think about instruction and develop curriculum. Our developing thinking about how curriculum should be constructed has also been impacted, a subject to which I turn, and close with, next.

Something to chew on

We often worry that our curriculum is not tight enough. Educators talk about vertical and horizontal alignment, writing precise curriculum units, aligning standards within the curriculum so that standards, instruction, and assessment all fit neatly together. There is wisdom in thinking in this way. To a point.

There is also wisdom in leaving significant space in the curriculum. Wiggle room, areas to play with. When Besart proposed the coding class, it was not possible in our structure to introduce a new class quickly. Students and teachers are a bit locked in. Perhaps it is a bit too tight. If we loosen up we can take advantage of moments of self-regulated learning more easily. When we have a student like Besart, who analyzes the current state of things and offers a workable alternative, we can act. We don't want to advocate self-regulation and innovation on the one hand, while on the other find new ideas inconvenient or too much work *because of our own self-imposed structure.*

A string of code we might cut and paste

And that's the string of code I'd like to cut and paste from what I've learned from Besart. As we continue our work on the mission statement, providing a space in which students can learn as much about innovation, compassion, and responsibility as possible here at the high school level, we need to plan for the unplanned. We need to be ready for the new idea. Our internal systems that guide us day to day shouldn't block the big future in front of us.

With that balance in mind we continue to create the makerspace, and a schoolwide learning space, for all our students and teachers.

Besart spent three years at LAS on a full merit scholarship. After graduation, he decided to take a gap year - a year before starting at the university - beginning with his selection to the United Nations Conference on Trade and Development Youth Forum in Nairobi in summer 2016.

Since then, Besart has continued to seek out new learning experiences, including work with three different ministries in his home country, where he is establishing the first Albanian United Nations Youth Delegate Program, serving as youth delegate to Congress of Local and Regional Authorities of the Council of Europe, and serving as the youngest member of the Working Group on Migration for the Cooperation and Development Network (CDN). He attributes his success to his ability to "hack" school - to make school happen around him, to craft his own educational experiences. This is an advanced state of innovation which will not only leave its mark on LAS, but also in the world our students create for us after they leave LAS.