

# Building engagement and achievement, one project at a time

At Pacific Coast School in Prince Rupert, a team of educators address student achievement by asking two questions:

How could culturally inclusive, cross-curricular, hands-on, and project-based learning founded in the principles of Assessment for Learning (AFL) and LUCID (Imaginative Education) be implemented to increase student engagement and attendance?

Will this implementation improve achievement for our Aboriginal students?

by Janilee Stovel and Sandra Pond

One of the greatest issues we struggle with at Pacific Coast School (Prince Rupert) is seeing each of our students attend daily. Because this is an issue, we have compensated by personalizing the education that we offer each of our students. Students can be away for two weeks, return to school, and pick up where they left off. Making our courses self-paced has enabled many students to be successful, students for whom the rigorous time constraints of the traditional model was simply not a fit.

Many students are attending school but the group tends to be slightly different from day to day. We would love to see *all* of our students here on a daily basis.

Our students seem to gravitate towards any hands-on, practical activ-

ities that we offer them. Many seem to enjoy the camaraderie which comes with working on activities with their peers.

Some of our more introverted students demonstrate a tendency to gravitate towards more traditional reading and writing activities that they can work on independently.

We are always cognizant of the multitude of learning preferences that make up our student body. As a teaching team, we are working together to implement regular, meaningful educational opportunities that will accommodate the needs of all of our students.

The majority of our students (87%) are of Aboriginal descent. We work hard to connect our students to their language and culture so they gain an understanding of who they

are and where they come from.

**Hunch and focus:** Our initial hunch was that we see spikes in attendance when we hold whole school events. Taking that as a guide post, we asked ourselves: will hands-on project based learning built on the principles of *Assessment for Learning* (AFL) and LUCID (Imaginative Education) increase student engagement and attendance? Will project based learning improve achievement for our aboriginal students? This question matters because we have so many students who are struggling to succeed in school. We want to find a way to meet their needs so that they may realize their potential and achieve the successes that they have been capable of all along.

During the math portion of the drum project, students made use of rulers, pliable measuring tapes, and calculators. They explored shape concepts in two and three dimensions related to surface area and volume. Together, we examined the precision of different types of measuring tools, how formulas can ensure precision, and how to minimize sources of error.

**Cohesion and relevance:** The cohesiveness of education is sometimes lost at the secondary level. We wanted to find a way to implement cohesion at the high school level. We thought if we could do that, we might be able to make the curricular material more relevant to the students because it would be easier to teach it *in*, rather than *out* of context, as is often done. We are always looking to provide our students with the appropriate tools and environment that they will need to be successful and we predicted that the project-based learning framework (which we had not used in the past) might provide us with a means by which to achieve that.

### Taking Action

We implemented the following projects to test our initial projections.

**DNA day:** We asked Genome BC's Geneskool North to come and spend the day with us. Two graduate students from UBC who were studying genetics hosted a number of genetics sessions for us during the day. Students participated in the sessions as an entire school. The sessions were hands on and the students were able to conduct their work cooperatively. (For more information see <http://www.genomebc.ca/>)

**Drum project:** The drum project required two full days of school from start to completion. The first day of the project would be spent making the drums. We arranged to have a role model come in and spend the day engaging the students in the aboriginal ways of drum making using cedar and elk hide. The role model would have some stories (which had been passed down through the generations in his family) to tell and would also discuss the spiritual relevance of the drums.

The second day of the project would see the students rotate through math, humanities, and art activities which would cover PLOs across grades 9 through 12. The drum would be the focal point of each of the activities.

The humanities portion of the project would offer further storytelling from a local elder related to the significance of the drum and engage the students in some creative writing.

The art portion of the project would give the students the opportunity to practice their First Nation's art skills by painting their crests on their drums. They began this activity by exploring inspirational pieces online. Over the course of the project, some beautiful, admirable work was produced.

During the math portion of the

project, students were required to have their drums to participate. They made use of rulers, pliable measuring tapes, and their calculators. In pairs, the students explored shape concepts in two and three dimensions related to surface area and volume. Together, we examined the precision of different types of measuring tools, how formulas can ensure precision, and how to minimize sources of error.

**Currency project:** The currency project extended over three school mornings in February. The project was composed of humanities, art, and math components. It began with some story telling from Alex Campbell, a local elder, in regards to what there was before currency came to Canada, how trade began, when currency was introduced, and the impact that it had on the First Nations people. We examined how currency had changed over the years in Canada. Our journey of exploration expanded to include international currencies and their variations. Then students rotated through subject specific activities.

In the math portion of the project, we would first explore the physical properties of both Canadian money, and those of the currencies of various other countries. Samples of each type of currency involved were made available to the students while they engaged in their study. This exploration stemmed off into an exploration of spending, borrowing, and budgeting.

During the art portion of the project students chose to make a *papier mâché* piggy bank or to design their own currency.

**Cannery project:** The cannery project had a significant focus on culture, place, and restoration. This



was an optional project for which students were required to sign up ahead of time for. The project took place at North Pacific Cannery (a National Historic Site of Canada visit: [www.northpacificcannery.ca](http://www.northpacificcannery.ca)). The project spanned four days.

Each morning the students who participated were taken to the cannery where they took part in the scraping and repainting of one of the historic buildings. The students also helped remove a large Sitka Spruce tree that was felled, helped set up for a wedding and helped prepare the restaurant for opening.

Over the course of the project, various speakers came to share stories with the students. Alex Campbell and Frank Leighton-Stephens both lived and worked at the cannery during its prime operational time. They shared from the perspective of growing up in the First Nations Housing at the Cannery. Gladys Blythe was the wife of the last manager of the operating cannery and was part of the group who fought to create the museum that stands today. Herb Pond managed the Cannery Museum in the years it was made a national historic site. The cannery played a pivotal role in the lives of each of the guests.

The students participated in an assignment that required them to map the site after the current man-

ager took

them on an extensive tour. At the end of the day, each student was required to write a reflection piece for the day.

Over the course of the project, there was a significant focus on community and team building. One night was spent at the cannery in the bunk houses.

The cannery project 2013 book is in the process of production. This book will include photos, quotes from the guest speakers and the reflections of the students. Each student and guest will receive a copy as a memento of the project.

**House front project:** Students were invited to participate in the beginning stages of this project. We procured an Artists in Residence Grant which enabled us to work with the artist, Russell Mather on the design and installation of a traditional house front. The project was blessed by our Elder and Sm'algayax teacher, Alex Campbell.

Students transferred a design using measurement and scale skills from 1" to 1' onto tracing paper. Another group of students planed the wood from a freshly felled cedar tree that was brought over from Lax Kw'alaams and produced the boards for the house front. The design was then transferred onto the cedar boards.

The house front frame was built in our display case and then the boards were slid into place in the traditional

fashion.

Students have begun the process of painting the form lines of the design. This will be a project that continues into the next school year.

On project-based learning days, students demonstrated signs of engagement that they did not exhibit on regular instructional days. A number of students struggle significantly to attain and maintain focus on regular instructional days. They often dawdle as they get set up to work – spending more time than necessary setting up their personal music device, or sharpening pencils and gathering paper. Because they are aware of the challenges that their work presents, many will go to great lengths to avoid tackling those challenges. Even once they do get down to work, it is not uncommon for students' focus to wane after short periods of time. Students are distracted by objects on the walls of the classroom, or by the need to adjust their play lists.

Project-based learning days brought a refreshing change of pace. Students listened respectfully with quite obvious interest to the various guest speakers, elders, and local role models who were brought in over the course of the various projects throughout the year. Students who are often reluctant to go to class stayed and participated not only willingly but often enthusiastically for the duration of the projects. When an activity was orchestrated for the students to engage in, they jumped right in and got down to work. Students who often ask for permission to go to the washroom on regular instructional days forgot about such needs on project based learning days. Students who are often clearly distracted by everything other than the task at hand did not display such signs on project based


learning days. No one used their personal music devices on these days. Significant changes in behavior indicated that the students' engagement was much higher on project based learning days.

We took samples of work that students had to complete on project-based learning days. Names were removed from samples so that an analysis could later be conducted with minimal bias. We found that all students were successful when it came to mastering the required material on project-based learning days. It was impossible to determine which work samples belonged to the weak students and which work samples belonged to the stronger students because there was literally no discernible difference in achievement from one sample to the next. Analysis of these samples combined with observations conducted during formative assessment indicated that the academic achievements of students were greater on project-based learning days than on regular instructional days.

### Reflections/Advice

Our work has taught us about the value of the students collaborating with one another and with their teachers. They need this opportunity to clarify their understandings and subsequently ascend to a higher level of cognition. The project-based learning framework facilitated this opportunity.

We also learned that projects which are highly linked to the community and involve community members will get the students interested, therefore increasing their engagement and consequently leading to positive increases in academic achievement. With the right tools and educational environment, all students are capable of success, regardless of their designations or prior academic history. The project-based learning framework provides a means by which to meet the needs of students whose needs are not being met through more traditional course work. While we found value in cross-curricular project-based learning, we would also recommend subject specific project-based learning if cross-curricular project-based learning is unachievable with your school's current timetable or structure. Remember to always keep relevancy at the forefront, link curricular work to the community and local culture, and involve local community members, especially experts in the field being studied, as often as possible.

In future projects, we think we could do a better job of making the overarching question of the project clear to the students and relating everything the students do over the course of the project back to that question. We would also like to have a culminating celebration where students could present the work they have produced in the community. 

Sandra Pond is Principal, Charles Hays Secondary, Prince Rupert and Janilee Stovell is a teacher. Sandra can be reached by email at [SPond@sd52.bc.ca](mailto:SPond@sd52.bc.ca)

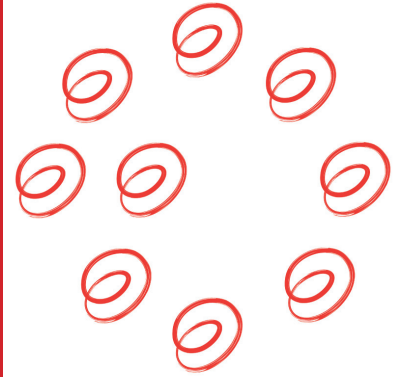
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