

2012-2013 NOII Case Study



**Pacific Coast School
#52 Prince Rupert**

Inquiry Team Members:

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Question/Focus:

How could culturally inclusive, cross curricular hands-on 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?

Scanning:

One of the greatest issues we struggle with at Pacific Coast School 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 day to day basis.

Our students seem to gravitate towards any hands-on, practical activities that we offer them. Many seem to enjoy the comradery 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 (80%) 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.

Focus:

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.

Our Initial Hunch:

When we run whole school events, we see spikes in attendance.

Genome BC geneskool came in October and the two Masters Students from UBC hosted a number of genetics sessions for us during the day. We attended the sessions as a school. We had a big group of students and they were engaged for the duration. Students who have been known to attend only a few classes a day remained engaged, excited, and motivated to learn for the duration of the event. The sessions were very hands on and the students were able to work together.

Our first project based learning experience was built around a role model teaching the students how to make an Aboriginal drum using cedar and elk hide. The students were very engaged and we saw an increase in our numbers.

New professional learning:

The cohesiveness of education is lost at the secondary level. We wanted to find a way to implement that 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 done so often. 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

Genome British Columbia'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 very hands on and the students were able to conduct their work co-operatively.

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 PLO's 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 story-telling 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 inspiration 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 in order to participate. They also 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 days in February. The project was composed of humanities, art, and math components. It began with some story telling from a local elder (Alex Campbell) 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. Then 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. The Currency Project required three mornings of school from start to finish.

The humanities portion of the project focused on listening and writing. Our Elder and Sm'algayax teacher told the story of the purpose for drums long ago and today. The students wrote a reflection piece after listening to Mr. Campbell.

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 paper maché 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. The project took place at North Pacific Cannery. The project spanned 4 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 manager 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.

Checking:

We used the following engagement rubrics to compare the level of engagement we observed on regular instructional days to the level of engagement we observed on project based learning days.

~1 hour block on a regular instructional day~			
<i>Engagement Indicators</i>	<i>Observed</i>	<i>Lack of Engagement Indicators</i>	<i>Observed</i>
Listening	never-rarely-sometimes-often-always	Signs of boredom, exasperation, frustration	never-rarely-sometimes-often-always
Eye contact	never-rarely-sometimes-often-always	Signs of distraction	never-rarely-sometimes-often-always A number of students seemed distracted, 1 student in particular seemed to endure a personal struggle to get on task for just over 10 min at one point part way through the class. I reminded some other students to refocus but because the particularly distracted student was not detracting from the learning of others in any way or actively engaged in an activity other than his school work, I allowed him to practice his self-regulation in hopes that he would eventually refocus on his own and thankfully, he eventually did. Had any more time passed, I would definitely have intervened.
Signs of listening other than eye contact	never-rarely-sometimes-often-always A few students stare straight ahead but due to what I've observed in the past, I believe that they would have a response or at least be thinking about them if I questioned them.	Listening to music rather than engaging in activity	never-rarely-sometimes-often-always When I taught at a traditional high school, I did not allow students to listen to personal music devices at any point during any class. In my current teaching environment, I've always allowed students to listen to personal music devices while they are working independently (I believe it is important to pick one's battles carefully). Of course, students are not allowed to listen to their personal music devices during instructional time. Unfortunately, I worry that many students use this privilege as an excuse to avoid their work and ultimately, it detracts from their focus. I think it would be acceptable to have a play list, put it on random, and have it playing for the duration of independent work time. Unfortunately, it seems that many students are taking the time to carefully select a new song after each song ends. In reality their searches take perhaps only a minute or two, and for some, much less time than that. Still though, with songs being only a few minutes long each, I worry that some may be spending almost as much time working as they are looking for songs. I believe that every moment in class is of great value. Some students need to have music in their ears in order to tune out their peers and even the visual distractions of the classroom. I am continually reflecting upon ways that I can rectify this problem.

Readily volunteer answers to questions when the whole class is asked	<p>never-rarely-sometimes-often-always</p> <p>While there is always a student ready, willing, and eager to answer each of my questions, it seems to always be the same one or two students. This tends to be the trend on regular instructional days - there are significantly more students who are reluctant to answer questions or participate in whole class conversations than there are students than there are students who are readily willing to answer questions or participate in whole class conversations.</p>	Students asking if they can go to the bathroom, their locker, the office, or provide any other excuse for needing to leave the classroom or current learning environment	<p>never-rarely-sometimes-often-always</p> <p>While only two students ask to go to the washroom over the duration of this class, I tend to have 1 - 2 people ask if they can leave class for some reason almost every block on every single regular instructional day.</p>
When an individual is asked a question, the individual makes an honest effort to respond	<p>never-rarely-sometimes-often-always</p> <p>If I ask anyone for a response other than a few select students who are generally more invested than their peers, I tend to receive initial responses such as, "I don't know" or "I have no idea." With significant prompting I am able to glean the answers that I know were hiding but the students who I attempt to engage do not willingly offer answers on their own accord."</p>	Students, perhaps feigning, or honestly struggling with physical exhaustion, push their work materials aside, and place their heads on their desk in some manner of subjugation	<p>never-rarely-sometimes-often-always</p> <p>I observe 2 students do this at different points over the course of the class and each of them do it more than once. While this may not seem extremely prevalent, the fact that it tends to happens on a daily basis during at least one of the day's classes is of significance.</p>
Students asking on-task questions	<p>never-rarely-sometimes-often-always</p> <p>A few on-task questions (with respect to course content) were asked. More questions were asked in regards to classroom procedures or something completely off the wall such as. "Mrs. Stovel, have you ever heard of the illuminati?"</p>	Students staring at the ceiling or the walls during class	<p>never-rarely-sometimes-often-always</p> <p>Two instances of this behavior were observed over the course of the 1 hour block.</p>
Peer-peer conversation on-task	<p>never-rarely-sometimes-often-always</p> <p>Two students engaged in on task conversations throughout class. Some other minimalistic conversation occurred between a few students at different points throughout the block. They did not reference course work. The general topics of mention tended to be the previous night's and/or previous weekend's activities.</p>		
Students actively working with whatever manipulatives or tools are required	<p>never-rarely-sometimes-often-always</p> <p>Manipulatives were not used during this block. Due to the nature of the student's coursework, manipulatives can rarely be used during regular instructional time although whenever they can be utilized, most students tend to make use of them to some degree of meaningfulness.</p>		
Primary focus is on the activity at hand	<p>never-rarely-sometimes-often-always</p> <p>It would seem that for many students, the primary focus is split between coursework, and music arrangement.</p>		
Attempts made to engage in external research	<p>never-rarely-sometimes-often-always</p> <p>While one student regularly engages in self-motivated external research, everyone else requires significant prompting in order to engage in this task.</p>		
Willing to take risks (step outside of comfort zone) in regards to the activity at hand	<p>never-rarely-sometimes-often-always</p> <p>Only one student demonstrates any willingness to take any risks with coursework. The other students are extremely reluctant and some are even out rightly defiant when it comes to making any sort of predications about the material at hand.</p>		
Students engaging in constructive self-assessment	<p>never-rarely-sometimes-often-always</p> <p>Only two students are willing to openly reflect on their progress or how they are doing. Some other students show signs of checking in (review progress reports available to them online) but demonstrate a reluctance to speak openly with me (quietly, while their peers work) about how they think they are doing and</p>		

	what type of supports they might require or could potentially make use of in order to make further positive progress.		
Students set personal goals in regards to the activity at hand	<p>never-rarely-sometimes-often-always</p> <p>Many students struggle with setting realistic goals for themselves in regards to time management in particular. 2 students, completely on their own accord, stay in at lunch in order to complete the modules that they are working on so that when they return to class the following day they can move on (they both tell me this when I inquire about their constructive choice). Students work in online modules, each consisting of a tutorial, one or more applications, 1-3 mastery tests, and a printable offline activity. I continually encourage most of my students to complete a module a day (the students I encourage are definitely capable). To most of them this is a daunting task and while many manage to do it on a daily basis, most feel it is less daunting to just worry about finishing whatever component of the module they are currently working on before they even begin thinking about trying to conquer whatever comes next.</p>		

~ 1 hour block on a project based learning day~			
Engagement Indicators	<i>Observed</i>	Lack of Engagement Indicators	<i>Observed</i>
Listening	<p>never-rarely-sometimes-often-always</p> <p>While I cannot say always here because no one has a flawless attention span, I can confidently say that students were almost always listening.</p>	Signs of boredom, exasperation, frustration	<p>never-rarely-sometimes-often-always</p> <p>Two students demonstrate in these behaviors.</p>
Eye contact / looking at the teacher	<p>never-rarely-sometimes-often-always</p> <p>Some students made eye contact or looked at me when I spoke. Those who did not were not necessarily not listening.</p>	Signs of distraction	never-rarely-sometimes-often-always
Signs of listening other than eye contact	<p>never-rarely-sometimes-often-always</p> <p>A few students stare straight ahead but due to what I've observed in the past, I believe that they would have a response or at least be thinking about them if I questioned them</p>	Listening to music rather than engaging in activity	never-rarely-sometimes-often-always
Readily volunteer answers to questions when the whole class is asked	<p>never-rarely-sometimes-often-always</p> <p>There is always someone ready and willing to answer all of my questions although the willingness does come from a small core of students.</p>	Students asking if they can go to the bathroom, their locker, the office, or provide any other excuse for needing to leave the classroom or current learning environment	<p>never-rarely-sometimes-often-always</p> <p>One instance of this behavior is observed.</p>
When an individual is asked a question, the individual makes an honest effort to respond	never-rarely-sometimes-often-always	Students, perhaps feigning, or honestly struggling with physical exhaustion, push their work materials aside, and place their heads on their desk in some manner of subjugation	<p>never-rarely-sometimes-often-always</p> <p>One instance of this behavior is observed.</p>

Students asking on-task questions	never-rarely-sometimes-often-always The only off task questions asked are asked by students who are being cheerful or trying to be funny in a way that does not detract from their own learning or the learning of the other students involved.	Students staring at the ceiling or the walls during class	never-rarely-sometimes-often-always
Peer-peer conversation on-task	never-rarely-sometimes-often-always Most conversation is on task, although the small amount of off task conversation that I pinpoint is, the vast majority of the time, engaged in by students who manage to continue working (most tend to be engaging in data collection at the time).		
Students actively working with whatever manipulatives or tools are required	never-rarely-sometimes-often-always Except when recording data, or discussing their observations, most students are actively working with manipulatives as directed, in a constructive manner.		
Primary focus is on the activity at hand	never-rarely-sometimes-often-always		
Attempts made to engage in external research	never-rarely-sometimes-often-always A few students took the initiative to get some information off the internet which helped them to be successful at the assignment at hand.		
Willing to take risks (step outside of comfort zone) in regards to the activity at hand	never-rarely-sometimes-often-always When asked to engage in conversation about somewhat uncharted territory or conduct a new activity in regards to the activity at hand, most students were ready and willing to push their boundaries.		
Students engaging in constructive self-assessment	never-rarely-sometimes-often-always About half of the students were quite good at discussing their understanding with their peers in order to determine how they were doing.		
Students set personal goals in regards to the activity at hand	never-rarely-sometimes-often-always Most students were very self-sufficient at managing their time wisely enough that they were able to successful complete the given assignment in the allotted amount of time.		

The following shows a comparison of indicators of engagement and disengagement observed on a day of project based learning versus a regular instructional day.

Engagement and Disengagement on Regular Instructional Days vs. Project Based Learning Days					
Engagement Indicators	Observed:		Lack of Engagement Indicators	Observed:	
	during a 1 hour block on a regular instructional day	during a 1 hour block on a project based learning day		during a 1 hour block on a regular instructional day	during a 1 hour block on a project based learning day
Listening	often	often	Signs of boredom, exasperation, frustration	often	rarely
Eye contact	sometimes	sometimes	Signs of distraction	often	rarely

Signs of listening other than eye contact	sometimes	sometimes	Listening to music rather than engaging in activity	often	never
Readily volunteer answers to questions when the whole class is asked	sometimes	always	Students asking if they can go to the bathroom, their locker, the office, or provide any other excuse for needing to leave the classroom or current learning environment	rarely	rarely
When an individual is asked a question, the individual makes an honest effort to respond	rarely	always	Students, perhaps feigning, or honestly struggling with physical exhaustion, push their work materials aside, and place their heads on their desk in some manner of subjugation	rarely	rarely
Students asking on-task questions	rarely	often	Students staring at the ceiling or the walls during class	rarely	never
Peer-peer conversation on-task	rarely	often			
Students actively working with whatever manipulatives or tools are required	never	often			
Primary focus is on the activity at hand	sometimes	often			
Attempts made to engage in external research	rarely	sometimes			
Willing to take risks (step outside of comfort zone) in regards to the activity at hand	rarely	often			
Students engaging in constructive self -assessment	rarely	sometimes			
Students set personal goals in regards to the activity at hand	rarely	often			

On project based learning days, the 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 very 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 clearly 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 very 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 clearly 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 in order 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 try having a community celebration during which the students present the artifacts that they have produced to local experts.

EVERY learner crossing the stage with dignity, purpose and options.