UDL IN ACTION

Including ALL Students

Principles of UDL

Universal Design for Learning is a set of principles for curriculum development that give all individuals equal opportunities to learn. *(cast.org)*

The Reason

UDL provides a blueprint for creating instructional goals, methods, materials, and assessments that work for everyone--**not a single, one-size-fits-all solution** but rather flexible approaches that can be customized and adjusted for individual needs.

Highlights of UDL

Offer representation information in varying ways to meet the skill sets and needs of all learners.

Offer multiple means of expression so students can truly show what they know

Offer engaging, motivating and meaningful learning experiences

UDL: many ways to "Represent Information"

Project Outline

Seven teachers from Hebbville Academy participated in this project to implement UDL strategies with the intent of developing a process of effective implementation, identifying what worked and what didn't work and planning for the future to build on noted successes. With support from the staff of the Assistive Technology Centre and Student Services of SSRSB teachers were introduced to the concept of UDL, provided Assistive Technology and mobile device training opportunities, provided appropriate devices and let loose to implement UDL in their classrooms from late Fall to June of 2014.

Teacher Highlights

Teachers were asked pre and post project what their views on UDL incorporating use of appropriate assistive technologies, iPad mini technology and various other medium were….

"UDL pushed me to think outside the box and give my students options and present information in different ways".

"UDL got me away from using textbooks and using apps to create their own learning environment. Every student could engage, access the information and express their knowledge".

"UDL increased independence to manage own learning any time anywhere".

"UDL offers the ability of students with challenges to demonstrate understanding in all subjects".

"When students are given choice of representing knowledge (how to) the outcomes are amazing and far surpass what you would ask of them".

"When they can self select they self adapt. Kids who don't have formal adaptations are more engaged overall and they produce more at a higher quality".

"UDL empowered my kids in a creative way.   All students performed well being able to show what they know".

"We have offered students learning opportunities that reflect 21st century skills (technology skills, critical thinking, problem solving, collaboration, digital citizenship etc.) and the uptake was dramatic!"

"Student engagement & productivity increased dramatically with UDL"

Results from both teachers and students were remarkable with all teachers noting their enthusiasm for UDL, increased engagement of students, inclusion of all students in various activities from math to science to language arts.   The increase knowledge base of the iPad and what this powerful tool can do for learning was also significant. UDL was embraced enthusiastically with teachers demonstrating creative ways to represent information; students demonstrated dynamic ways to show what they know in many different formats and mediums; students with disabilities (ASD, LD, ADHD, physical disabilities etc) were able to participate in class activities utilizing various technologies and strategies that were a part of the everyday class design; students indicated increased motivation and engagement…including math class!

This project was designed to:

1. Introduce Universal Design for Learning Frameworks to 2 junior high classrooms in the South Shore Regional School Board focusing on Math and Language Arts Curriculum

2. Identify and Embed appropriate Assistive Technology to meet various student's needs to ensure access for ALL in the designated UDL Classrooms

3. Effectively utilize various UDL mobile tools to enhance:

1) Representation of information in various ways by the teacher;

2) Modes of Expression of knowledge by students

3) Opportunities for multiple means of Engagement

The Action Plan to implement this project involved bringing together teachers and the resource teacher by the Student Services support staff including the Assistive Technology Specialist of the SSRSB on the UDL Framework and brainstorming with the team on what UDL is and potential implementation processes that might work in their classrooms. Appropriate Assistive Technology (in this case iPads and specialized

Settings and Apps) were identified by previous AT Assessments to meet the needs of all students in the designated classes.

Hands-on training on use and application of Universally Designed mobile devices (iPad minis) to meet diverse needs was approached as a team event.   UDL designed curriculum and the range of potential students (including appropriate Apps) were reviewed and strategies were proposed, low tech, mid tech and high tech options were discussed along with ideas on what UDL designed curriculum would look like within these grade levels.

We completed FluidSurveys of teacher's perspectives and classroom experiences before and

after the project. We did the same with students.   Teacher and student interviews were captured on video and various UDL class products have been displayed in the school.

This project indicated that employing and implementing UDL strategies in classrooms results in a significant increase in engagement of all students; an increase in learning by all students and teachers; a change in teacher mindsets on how to engage all learners through UDL framework and appropriate technology. As noted by the teachers, UDL leads to a long term change in teacher practice that consequently results in an increase in student achievement.

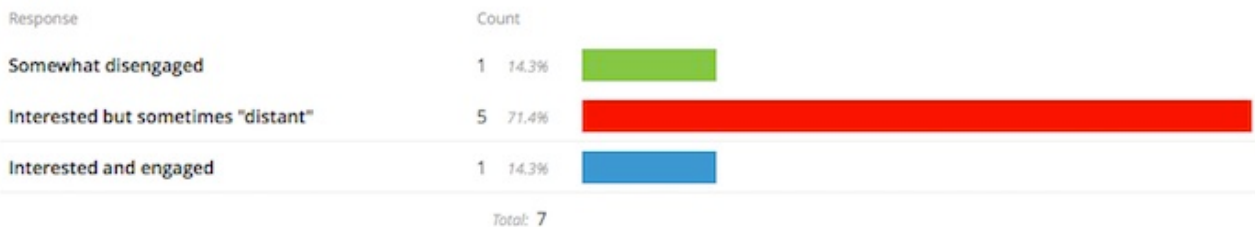UDL: many ways to "Show What they Know"

Results

Teacher identification of the range of students in their classrooms.

☐ LD, autistic

☐ There are to be 4 LD students, 2 slow learners, and perhaps a gifted student. In addition there are 2-3 behavior and medical plans that may effect learning. Overall, the skills in the group are on the low end of average.

☐ I my grade 6 math class, I have 4 IPP students, a handful of LD kids, about 6 with documented adaptations, a few major behaviour problems and a few average students. There are not many kids in my class who are strong/confident in math. Overall this is a weaker group. In the grade 7 classes, there are 2-3 IPP students, a handful of students with documented adaptations, a couple of behaviour issues and a couple of gifted students. There are more average students in this grade.

☐ I have LD students, I also have IA students and a gifted student

☐ Multiple ld's, 2 individualized programs, 6 documented adaptations, 1 gifted

☐ LD, autistic, IPP, DA, gifted, average.

☐ IPP, LD, ASD, DA, ADHD, Lots of kids with 'average' to 'good' cognitive ability. A few kids with high cognitive ability and a few with weak cognitive ability.

PRE UDL

Prior to this project... and thinking about all students in your class please gauge the rate of engagement of your students in various activities.

Response	Count	
Somewhat disengaged	1 14.3%	
Interested but sometimes "distant"	5 71.4%	
Interested and engaged	1 14.3%	

Total: 7

POST UDL

Thinking about all students in your class please gauge the rate of engagement of your students in various activities.
With UDL practices in play in your classroom do you feel that student engagement has increased?

Response	Count	
Yes	6 100.0%	

Total: 6

How has this UDL project affected your perspective on teaching?

TEACHER Response

1.

I feel that this project has affected how I approach my planning and my assessment. In particular, I tried to be more aware of the options that I offered to students when it came time for assessment. I have tried to focus on the literacy outcome that I'm trying to assess with the task, choose several different ways could a person represent this and offer those as options to the students. Basically, I don't assign a one-size-fits-all poster, to evaluate whether my students can do character analysis. Instead, I offer them several different possible projects and adjust my rubric so that I can evaluate the character analysis no matter what type of project has been selected. The way that they choose to approach the task is often surprising!

2.

I feel the ability to successfully be inclusive using one lesson so that all students feel they are doing the same work within a classroom is no longer the biggest challenge, and has given a lot of confidence to students that are on individualized programs, or who have an LD diagnosis.

3.

I have become more aware of giving my students different options to represent their learning and have made a greater effort to make my in class activities more technology based. My students are certainly more engaged when they are using technology versus just pencil paper work and are excited when they see that we are doing certain activities. This project is helping me to see that my students can all be successful and more engaged but that it might look different for different students. I need to continue to provide opportunities for them to work in ways that are accessible for them to help build their confidence and engagement.
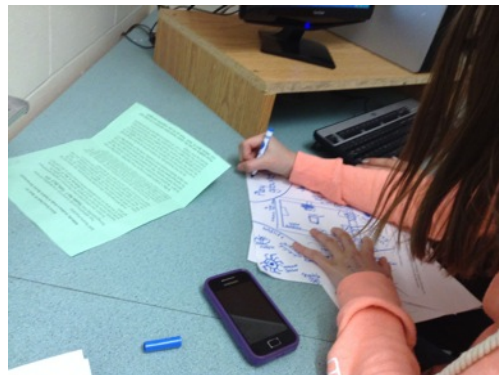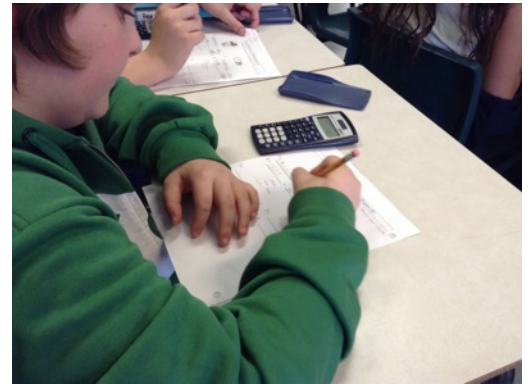
4.

Yes, I think the UDL's value has really been apparent with students who have various academic challenges. I think most students enjoy it when choices are given for ways to present / complete tasks, but the students who can seem to benefit the most are the the students with challenges in their learning.
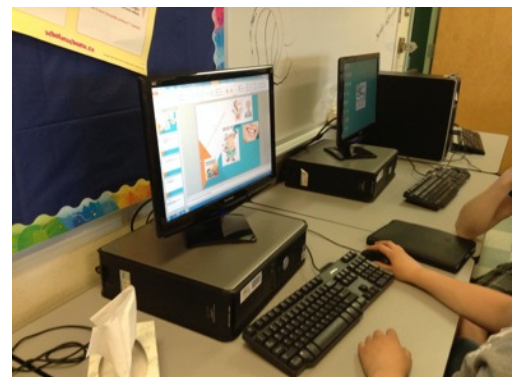
5.

UDL has affected my perspective on teaching by encouraging me to think 'outside the box" and encouraging students to do the same. For example, before I may have given students a choice of maybe 3 formats to represent their knowledge. Now, by incorporating UDL, I give students all of the choice and freedom to represent their ideas and have been incredibly impressed and surprised by what they've produced.   Their ingenuity and originality has come forth.   Also, by having various formats of the same text available to all learners, I've further realized how learners are different in the ways they want to experience the same text. Many learners will take in the same text in all of the ways available (ie. written, audio, video, visuals) and gain a deeper understanding than through one or two formats, as I would have presented before.   I think UDL has enabled me to reach more students, at all levels and abilities. For example, gifted students will augment their learning by delving further into projects through such things as self-directed research. LD students are better able to represent their understanding when using tools that enable them to side-step or minimize their disability and enhance and exemplify their abilities. Students with medical conditions who have extended absences are better able to stay on track with their learning by digitally communicating with their teachers, and being able to access the learning resources via Moodle or Edmodo. Also students who have social/emotional challenges, are in my opinion more willing to communicate via technology. One student in particular comes to mind, she rarely speaks to anyone. In an effort to connect with her, we started communicating via email and on the message system in Moodle, thereby, I have a greater understanding of her knowledge,her personality, strengths, and challenges which I would never have achieved if I'd stuck to verbal communication only. Now, she will come talk to me if she has a question. Once in awhile, she'll even drop by to chat at lunch or recess.   Also, through UDL, we pursue learning together. Learning and instruction has moved further from the teacher as 'knower' to all of us collaborating, exploring, and trouble shooting together.   I, personally, have learned a lot from my students this year through our pursuits to engage in learning in so many ways. I know I can throw a question or problem out there, and we'll trouble shoot it until we find a solution.
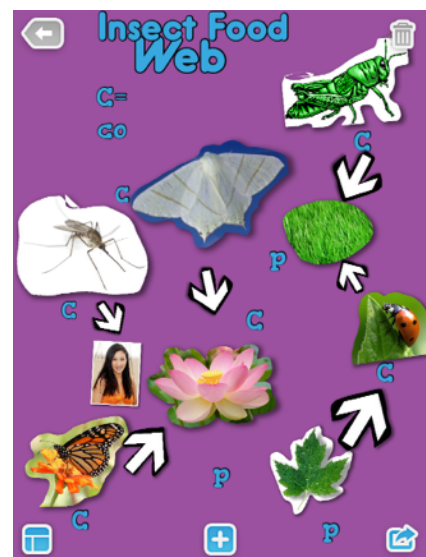
6.

I've learned to think more outside the box and change from a much more teacher centred approach. Units have diverged within the curriculum into creative applications I would not have attempted before, because of the input of my students into their learning. I see much more collaboration and other social skills being demonstrated. Higher level thinking activities have increased. I can offer daily examples of why and how the nature of what students are learning is relevant to their future, and skills/knowledge as a learner and citizen.

Please share ONE or TWO good news stories of implementing UDL in your classrooms and use of mobile devices to include all learners.

Response

1.

1) There is a boy in my class this year who transferred in from another school. We were told that he was a behavior problem. We were told that he would be sullen, distracted and difficult to get work out of. I noticed the bemused expression on his face whenever students pulled out iPads to work on. He seemed interested but also confused. I also noticed that any task had to do with writing was extremely difficult and he would put on all sorts of avoidance behaviours. I started handing him my personal iPad whenever we had writing tasks. He plugged along but didn't show any real engagement with the device for a while.   One day, we were doing an activity which required students to do some writing fairly quickly and keep up with the class as we went through a series of exercises. He did his best, but after about six he started falling behind. By the time we hit number 10 he was well behind and frustrated. At this point, he pushed the iPad out in front of him, folded his arms and prepared to sit back in his chair. I pounced! "What's wrong?" I asked. "I can't do it." "Really?! You answered one of these correctly a couple of minutes ago," I responded.   "I know how to do it. I can't keep up! I'm stupid!" "Oh! Is that all? Well, I can fix that problem." I picked up the iPad, hit the dictation button and dictated in the sentences he needed to catch up. Then I turned to him and asked him to tell me the next answer. He did so easily. I put the iPad down in front of him and pointed to the dictation button and said, "Press that and say it again." He did so and looked up at me completely thunderstruck. "You just need to know which tools to use when you are in a jam," I said with a smile. "So, what are you going to do the next time you fall behind?"   That was the beginning of many changes for him. He is not my best student. He is not my highest needs student. He occasionally doesn't do homework and doesn't always put forth his best effort. However, he tackles every task I ask him to and he has never again told me that he is stupid. In my opinion, the device is a huge part of making him feel capable, competent and confident.   2) I had a girl this year who is perhaps the most severely affected LD student I have ever worked with.

She cannot spell her last name. She cannot recognize the difference between the subject labels on her binders and schedule (eg. Math, Science, Art). We had to colour code her schedule and match her binders to those colours in order to get her to class with the correct materials. I was told to use grade 1 level literacy activities with her. She was generally tuned out and drifting during class time. She wasn't rude or disruptive, but it was obvious that she felt very little connection to school. She had very little understanding of how to use the iPad that had been issued to her by the school.   We began training immediately. We began by scanning and learning to complete worksheets and readings at the level I had been told to expect using ReadIris and ClaroPDF (She later decided that she prefers TypeOn PDF because it's simpler). She needed frequent reminders as memory issues are a significant part of her LD but she was interested and willing to try.   It quickly became obvious that she needed more challenge. I started giving her extra tasks and then higher level tasks. By November she was asking to take the iPad home so she could do homework and reading....for fun! She began taking out audiobooks from the public library system using my account because she didn't have one of her own. She received an IPad of her own for Christmas and quickly switched over to using it daily rather than the school-issued one. By March, she was cruising the free section of the iBook store and devouring everything that interested her. She learned to use the triple click button to turn on VoiceOver, allowing her to read graphic novels and websites. She has created progressively more complex writing using dictation. She has even begun to do some revision. Memory continues to create challenges when reading longer novels but she is trying out the KidsJournal and SimpleMinds apps to see if they could provide a solution.   I could go on and on about her accomplishments this year. Her confidence, her level of engagement and social interaction with peers that have all increased. If this level of improvement continues, she may not need an IPP in another year. She is not fully independent yet but I believe it is only a matter of time. I will not pretend that this year has been easy, for either of us. It has, however, been a joy.   Would all this have been possible without the iPad? Without the choices UDL brings? Without the structure and ease of use that Edmodo provides? Maybe......but I doubt it.

2.

A particular student that is currently undergoing many educational assessments, has been struggling with organization, communication and overall academic progress. With the implementation of the UDL project,

he has gone from being non-verbal, to being able to communicate (iMovie - video productions) within group settings, and has demonstrated he has grade level comprehension in many of his subject areas. It has been incredibly positive for him and his classroom teachers!

3.

My students actually cheer when they come in my room and see Kahoot written on the agenda for the class. I have used this online game in place of mental math since I discovered it and they all look forward to mental math now. All students use a device to answer the questions on the board and their answers are displayed in a bar graph. Their favorite part is that there is a leader board after each question and they love to see their names there. I get to set the time limit for each question so I can set it long enough for all students to have a chance to figure out their answer. One of my IPP students who is very reluctant to participate in anything in math class worked with one of his friends on a video explaining how to add and subtract integers. By working collaboratively they figured out how to explain the sample question and he spoke clearly and contributed in the video. In class, he never wants to give his answers, rarely speaks to myself or his classmates and is very disengaged in group discussions or work. Allowing him to record his ideas in a comfortable setting gave me an opportunity to see what he actually understands about the topic.
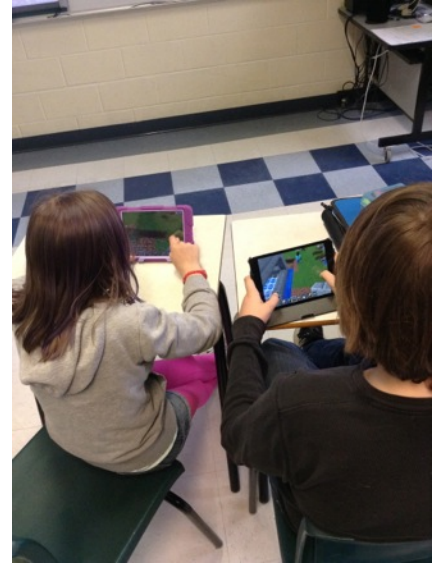
4.

I recently used Stop Motion to show continental drift in my IBL. I told the students they should take at least 25-30 pictures to make their finished product 'smooth'. I had a group that took well over a hundred pictures! And, to make their finished product smooth, they designed a way to support the camera (device) so that it wouldn't have to be moved between pictures. I asked them if they'd ever used Stop Motion before; they hadn't. I used their method(s) as a suggestion for other classes.

5.

One of my students who has autism, finds it particularly stressful to use pencil and paper to represent his understanding or copy notes. Through regularly using technology to take pictures of notes, using type on PDF, using the notes apps to create, or such things as keynote, pic collage, iMovie to represent, he has had fewer anxious moments. The simple fact that I can always reiterate that he, like everyone else, has lots of choice when accessing or representing information, calms him. He has been able to complete all assignments this year, and had fewer emotional moments through the integration of UDL.   In my classroom, students always have the choice of how to access information. For example, something as simple as

note taking: they have the choice to copy it by hand, take a picture of it, type the notes on their device using any app they want, to downloading the word document or PDF from the Moodle.   They can also download the PDF, and have the notes read aloud to them. Students are taking greater ownership of their learning by having the freedom to do what works best for them. Also, students will take the 'risk' and use different ways to represent their knowledge when given the choice, especially when they see their classmates and teacher doing so.

6.

Each year some students go away on vacations for a week or more in the spring and get behind with missed work. WIth the blending learning of the NSVS moodle, this year 3 students voluntarily followed what we did in class while they were away and completed a fair portion of their missed work digitally. At one point I was an international teacher to my student visiting England. On their return there was much less ground to make up.
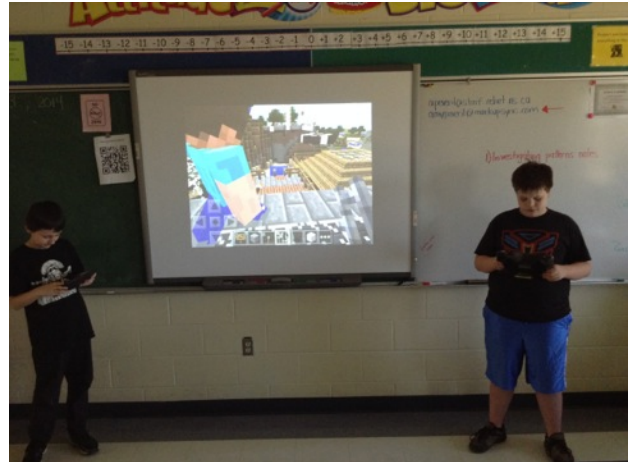
Project Debrief Day

May 20, 2014

UDL teacher lead team at Hebbville Academy was brought together on this date to debrief, identify highlights of the project and Universally Designed Curriculum experiences, develop a model of UDL implementation processes and plan for what might be next. In addition to highlights (page 2) their brainstorming included:

What worked:

- Team work, team support, networking (ATC just down the hall), problem solving, sharing solutions, sharing ideas and resources

- Multiple apps for similar purposes were available to provide broader choices and greater accessibility for all

- Access to guest network (open) few restricted firewalls

- Integrated digital citizenship into UDL designed classes

- TELP (availability of technology for every student)

- IBL, UDL coinciding and use of iPads

- Access and use of Edmodo, moodle, iTunesU, for teacher providing access to information and also students submitting various assignments (text documents, movies, presentations, ibooks etc.)

- Funding for Apps, devices was available throughout the course of the project

- Training on UDL / AT was readily available through the Assistive Technology Centre

- Time to plan was provided

- Support of Administration (Principal, Student Services, Technology, IT guys, Assistive Technology) to experiment was invaluable and inspired creativity

- All teachers came in with an open mind and willing to try

- All teachers came in to the project committed to making changed and implementing UDL in the future

- Engaged all learners

- Pre project workshop on UDL for all staff was a benefit

What presented barriers to UDL implementation

- comfort and technology skill levels of some students & teachers & teacher assistants (need more training)

- unstable wifi access (drops etc)

- Airserver drops when presenting/sharing from iPads

- iPad updates iOS and apps are time consuming

- Front load time to learn, time to implement UDL materials and strategies (but quickly UDL is a time saver to meet the needs of all kids)

- Potential issues (outside this project) availability of a cart, tech etc.

Student Responses

Prior to the project we interviewed through Fluid Survey 28 students who were in grade 5 last year and who had access to traditional teaching styles and only some technology. Responses to questions are in the appendix however of significance is when asked what they enjoyed most about school that year they noted gym; lunch; basketball; group projects and powerpoint, Halifax Explosion Project; art etc. What is noteworthy is response to the same question (albeit there are 128 students responding in the post project survey) listing iPad use, various math activities performed on the iPads (Kahoot and Sumdog); using Edmodo, making iMovies, Khan academy, Symbolism project in English, making posters, IBL etc.

Of particular interest are comments like:

I liked learning about Math the best. We had a fun math site. We could do any math on it. We could even computer programming. It was called Khan Academy

English: book cover which I used pic collage. Sumdog, ph scale: pic collage

I really love Khan academy because you get to learn all kinds of math. (My favorate subject)   It is very injoyable and fun to play.

My minecraft project my iMovie project are scittles project

Making posters on pic collage for science and social studies

Art projects, because it's something I enjoy. Other students prefer working on iPads, so the teachers give us a choice.

Tell us different ways you have expressed your knowledge in your classes (i.e. iPad using iMovie or Book creator..other apps, writing, drawing, etc)

Responses from students to this question were varied but include a high interest and engagement with using mobile technology to express knowledge.

Response

*A sampling of student responses include:*

- iPad, iMovie, writing, drawing, sumdog, kahoot
- It makes me work better because we're working on the iPads and I like doing that better then working wit pencil and paper
- I made a stop motion movie
- We make a iMovie to show how to explan the questions
- Picture, iMovie, iPads, computers,
- Posters,iPad,iPod,phone,iMovie,pages,keynote,qafter,PowerPoint,word
- I used explained everything to make a torial about something in math. - I used IMovie to make a movie about intergers. - I used pic collage to make a food web.
- Keynote, iMovie, stop motion, explain everything
- iPad,ipod,writing,drawing
- iPads, MacBooks, desktops, iPods, iPhones (our personal ones), laptops and for apps we use iMovie, pic collage, pages, keynote, simple minds, duolingo, etc..
- iPad, pages, notes, writing
- Apps drawing writing
- i us ipad to show my work most of the time
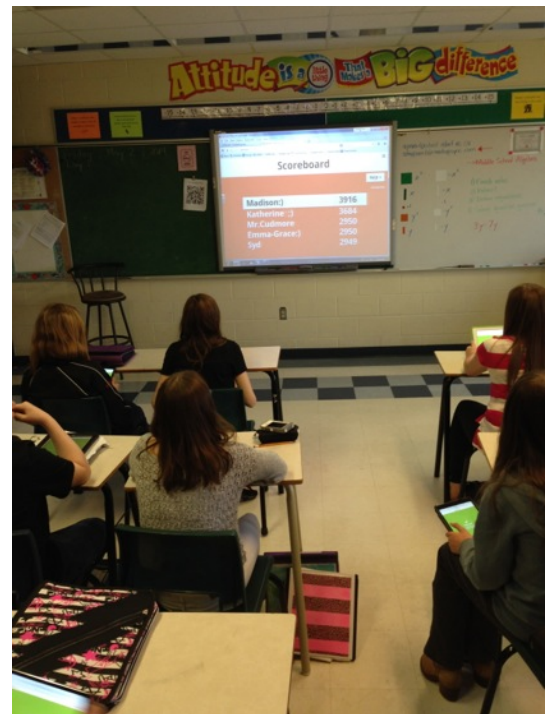
- Pages posters pencil and paper simple minds type on PDF PowerPoint

- pages for different formats of writing, making masks and instruments for culture, designing a town map for science, duo lingo for French, simple mind for planning/brainstorming, moodle for completing work while away from school or at school on ipads/computers, explain everything to explain how we did math questions, ibooks to read books to you in reading classes,

- We used iMovie to show how to stay healthy We wrote books in English on book creator We made masks out of paper mâché to express Africa We made posters on how to keep safe on the internet We used numbers to graph what activities our class does outside of school We used keynote to use for flash cards

Share with us what learning activities you enjoyed most in school this year.

- Videos, Making the I movies and stuff in all classes , Sumdog, Most everything, Ww1, Projects that we have done on technology , The informal documentaries , Sumdog, Science, scocal study and health projects and gym and kahoot and mental math and sum dog and iPad games, Using the ipad, Sumdog,kahoots,mental math, Kahoot Sumdog , Sum dog, iMovie, kahoot, Art projects, because it's something I enjoy. Other students prefer working on iPads, so the teachers give us a choice., Imovie….

- Sum dog,kahoot ,making videos with iMovie

- All cuz I like laering

- Digital pH scale

- Grammar Wonderland

- I loved hands on and computer based projects
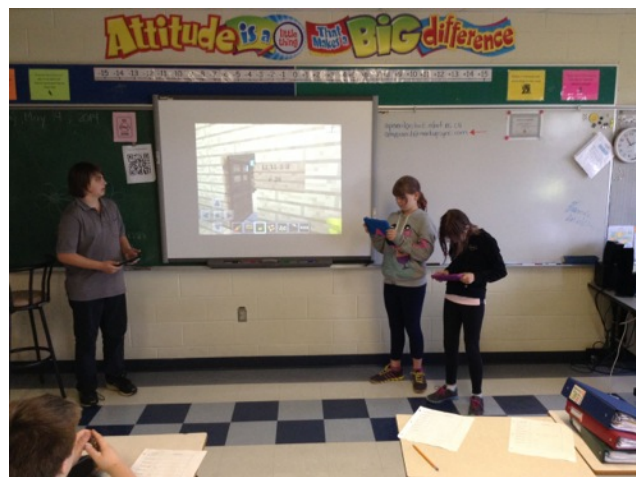
- Keynote,pages,word,PowerPoint,posters,iPad,iPod,phone.

- Food web on pic collage keynote sports ingury project

- Designing my food web Playing Kohoot   Makeing IMovies   Sumdog

- when i did the pH scale, when i did the Food Wed, when i designed my home front poster

- I really like all the posters that we do with mr. Sutherland   I like everything in math   French projects are fun

- I have enjoyed using pic collage and iMovie, it is a more enjoyable way to complete work, than going "old school" with my projects, using technology in the classroom is exponentially more enjoyable (and doesn't make my hand cramp!) I think that when I use technology on a regular bases, I learn more about what the current era is (I.e. Technology). Honestly, when I use technology, I get more work done, and I am more engaged in my work. (Than if I were using pencil and paper) The biggest thing that I like about pencil is that you can really express yourself in a fun and artistic way.

- I really love Khan academy because you get to learn all kinds of math. (My favorate subject)   It is very injoyable and fun to play.

- I liked learning about Math the best. We had a fun math site. We could do any math on it. We could even computer programming. It was called Khan Academy

- My minecraft project my iMovie project are scittles project

- making graphs with skittles, making imovies , using ibooks to read, making stories with book creator, creating masks in social studies to learn about the African culture

- Using Khan Academy in math to practice and review the units me studied. Using skittles in math to represent fractions. Using iMovie to make skits about aviators. Throwing paper airplanes to test how the flaps on them would effect how they would fly.
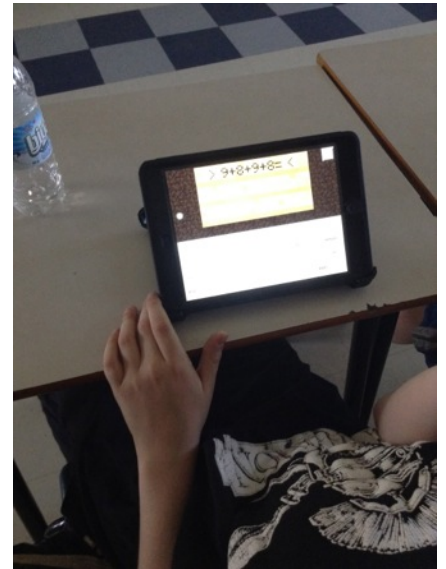
UDL Team Members:

GREG

AMY

MENA

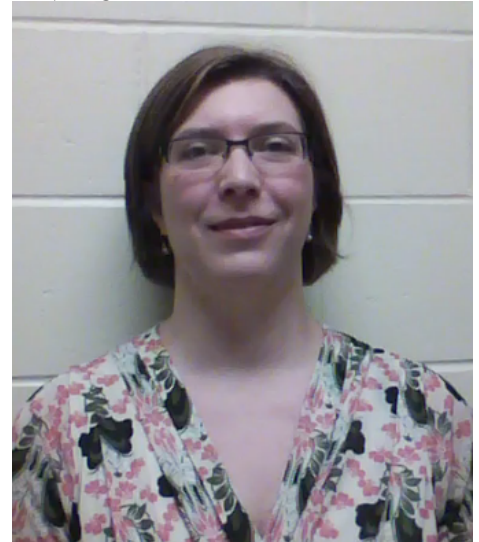TANYA   SARA   AMY S

Other UDL Team Members:

Corrine Eisnor (HA teacher)

Andrea Conrad (former Resource Teacher HA, LD Facilitator 2014/2015)

Barbara Welsford, Assistive Technology Specialist SSRSB

Conclusions:

It is clear that implementing UDL in the K-12 system is a critical step for effective access to curriculum, engagement of all students and ability to express their knowledge in many different ways. The UDL project at Hebbville Academy demonstrated UDL concepts and strategies resulted in high impacts on both students and teachers. Many teachers stated that their teaching styles had changed and students noted that they enjoyed the projects, using the technology to engage in math and being offered creative opportunities to show what they know.

Thanks to ALL students for your participation and contribution to this project.