THE BOARD OF EDUCATION OF SCHOOL DISTRICT 68
EDUCATION COMMITTEE MEETING
TO BE HELD WEDNESDAY, MAY 11, 2011 – 6:00 PM
BOARD ROOM

A G E N D A

1. CALL TO ORDER
   The Chair will call the meeting to order and recognizes that tonight’s meeting is being held on the traditional territory of the Snuneymuxw people.

2. ADDITIONS TO THE AGENDA

3. DELETIONS TO THE AGENDA

4. CHANGE IN ORDER

5. APPROVAL OF THE AGENDA

6. APPROVAL OF THE MINUTES
   6.1 Minutes March 2, 2011
       That the Minutes of the March 2, 2011 Education Committee Meeting be approved.

7. PRESENTATIONS
   7.1 Link Crew - Wellington Secondary

8. EDUCATIONAL UPDATE - Report from Ms. Frisson and Ms. Southwick
   8.1 Ms. S. Beleznay - Process for Selecting Resources
9. CORRESPONDENCE REFERRED FROM THE REGULAR BOARD MEETING

10. UNFINISHED BUSINESS

10.1 Student Achievement

Change in Participation Rates for Secondary Exams for Aboriginal Students

10.2 Personalized Learning

Reflection on Windows on Opportunity Workshop

From your perspective what do you think is personalized learning?

What are some of the ways you think we use to define personalized learning?

What do you think we can do to define personalized learning?

What are some of the next steps as a committee or as a district that we can do to further clarify what are the most effective personalized learning methods that would support learning in SD68

11. NEW BUSINESS

12. QUESTION PERIOD

Questions from the audience must be submitted in writing and given to the Board's Executive Assistant (Cathy Kelt) for submission to the Chair. The question period is intended to enable the public to obtain clarifying information regarding a current agenda item.

Forms are available in the information rack near the entrance of the Board Room

13. ADJOURNMENT
THE BOARD OF SCHOOL TRUSTEES OF SCHOOL DISTRICT 68
MINUTES OF EDUCATION COMMITTEE
HELD MARCH 2, 2011

PRESENT:
Trustees - Voting
J. Brennan, Chair
R. Dale
S. Welch

Staff
M. Munro, Superintendent/CEO
F. Frisson, Assistant Superintendent
C. Southwick, Assistant Superintendent
D. Reimer, Director of Communications
C. Kelt, Executive Assistant

NOT VOTING

ABSENT

IN ATTENDANCE
J. Green, NDTA Rep
R. Farino, CUPE Rep
C. Lintott, NSAA Rep

Meeting No. E7

CALL TO ORDER
The Chair called the meeting to order at 6:03 pm and recognized that tonight's meeting is being held on the traditional territory of the Snuneymuxw people.

ADDITIONS TO THE AGENDA
There were no additions to the Agenda this evening.

DELETIONS TO THE AGENDA
There were no deletions to the Agenda this evening.

CHANGE IN ORDER
There was no change in order to the Agenda this evening.

APPROVAL OF THE AGENDA
IT WAS MOVED BY Trustee Dale
That the Agenda be approved.
CARRIED UNANIMOUSLY

APPROVAL OF THE MINUTES
IT WAS MOVED BY Trustee Dale
That the minutes of the Education Committee Meeting held February 9, 2011 be approved.
CARRIED UNANIMOUSLY
PRESENTATIONS

Mr. Gordon Graham, Teacher, Dover Bay Eco Club

The Dover Bay Eco Club made a presentation about their school's environmental initiatives.

The students showed committee members the video that the club produced to showcase recycling and other environmental projects at Dover Bay. The video was part of the school's entry for a contest sponsored by Staples Canada – a contest in which the Dover Bay Eco Club took first place in Canada, winning $50,000 in computer equipment for the school.

EDUCATIONAL UPDATE - Report from Ms. Frisson and Ms. Southwick

Fine Arts Programs

The Education Committee received an update on performing arts programs in the district from Ms. Frisson.

• The Woodlands Secondary choir performed several musical selections for the committee.
• Of the 31 elementary schools in the district, 18 schools have a band program with almost 1,000 Grades 5, 6 and 7 students enrolled. Eleven schools have a music program.
• In secondary schools, there are 30 blocks of dance, 39 blocks of drama, 36 blocks of band, 3 blocks of choir and 2 blocks of musical theatre.
• Dover Bay has 125 students registered in the Performing Arts Academy.
• Wellington has 183 students registered in the Jazz Academy.
• Secondary schools throughout the district scheduled almost 150 performing arts special events in the past 12 months. These include concerts, competitions, theatre productions, festivals and performances for feeder schools.

Ms. Shelley Beleznay, District Coordinator Literacy, Learning and Instructional Support

RE: Student Achievement Graduation Rates

Ms. Beleznay, District Coordinator of Literacy, Learning and Instructional Support, gave a presentation to the Committee about some promising new initiatives in schools. She said that in order to make a difference for today’s students, teachers and schools need time to learn, build teams and find ways to use
technology to bring people together to share knowledge. She said we have what we need to improve student achievement, but we just have to find a way to connect the parts.

CORRESPONDENCE
REFERRED FROM THE
REGULAR BOARD MEETING

There was no correspondence referred to the Education Committee from the February Board Meeting.

UNFINISHED BUSINESS

Strategies for Registrations and Transfers

The following motion was referred to the Education Committee from the Board of Education.

Folio SB10/10/13-02 That the Board of Education of School District 68 (Nanaimo-Ladysmith) asks the Education Committee to have discussions that could look at strategies to ensure registrations and transfers at schools are done within acceptable time lines.

The Committee reviewed the district’s current policies and practices for the registration of students for the new school year. Committee members made suggestions about ways to enhance the information communicated to parents. As well, there was a discussion about French Immersion registration, which is a topic that is likely to be addressed in the current French Immersion review process.

NEW BUSINESS

VISTA

At the VISTA meeting, held February 5, 2011, the following motion was passed.

“That VISTA request member boards to forward to VISTA their district's definition & vision for 21st Century/Personalized learning to inform discussion at the next VISTA meeting.”

Ms. Parker, VISTA President, requests that each district send their definition and vision for 21st century/personalized learning to her by March 31 so the VISTA executive can plan for discussion at the next VISTA meeting. Trustees at the meeting believed it was important for boards to have this discussion, if they have not already.
“That BCSTA advise the Minister of Education that change in public education for the 21st century will be enthusiastically embraced if that change:

1. has at its foundation the importance of positive relationships, particularly for students, and also among individuals and groups at all levels;

2. is based on a vision developed through a collaborative process;

3. recognizes and builds on the existing strengths and successes of BC's public schools;

4. is purposeful in enhancing the public system and deepening the democratic governance of public education;

5. is adequately resourced.”

IT WAS MOVED BY Trustee Welch

The Education Committee recommends to the Board of Education of School District 68 (Nanaimo-Ladysmith) endorses VISTA's five points and requests that the deadline be extended.

CARRIED UNANIMOUSLY

QUESTION PERIOD

There were no questions this evening.

ADJOURNMENT

IT WAS MOVED BY Trustee Dale

That the meeting be adjourned.

CARRIED UNANIMOUSLY

The meeting adjourned at 7:55 pm.
Introduction

Link Crew is social, it's academic and more and more it is proving essential to the success of Wellington Secondary's Grade 8 students.

Link Crew is a high school transition program that welcomes Grade 8s and allows them to feel comfortable throughout the first year of their high school experience. Built on the belief that students can help students succeed, Link Crew trains members of the junior and senior classes to be Link Leaders.

As positive role models, Link Leaders are motivators, leaders and teachers who guide the Grade 8 students to discover what it takes to be successful during this transitional year of high school and help facilitate Grade 8 success.

Link Crew is a way to connect the new Grade 8 students to the rest of our school. The program is designed to help Grade 8 students feel welcome and appreciated — a way to relate what the Grade 8 students learn in school to society and their world around them.

What is a Link Crew Leader?

A Link Crew Leader is a mentor, a friend and a teacher. A Link Crew Leader is available to help their crew (group of Grade 8 students) adjust to life in high school. They are there to help them be respectful, responsible and confident individuals, while showing them that it is okay to be themselves.

A Link Crew Leader is or will become a good role model who is reliable and approachable to their peers. Most of all, a Link Crew leader is flexible, adaptable and committed to the overwhelming spirit of their school, community and themselves.

1 The paragraph above was paraphrased from content presented on the official website of the originators of Link Crew, the Boomerang Project, on October 3, 2006. http://www.boomerangproject.com/
The first responsibility of every Link Leader is to mentor a group of Grade 8 students throughout the school year, including structured contact on a monthly basis as well as attending the Grade 8 Orientation Day and training sessions. As a leader, this support and participation will help them understand their student group’s basic needs and will assist Grade 8 students with their most critical year at high school.

**How does it all work?**

The Link Crew program is set up to involve many groups of people, and like the gears of a clock, if the Link Crew leaders aren’t moving in the right direction, neither will the gear representing our Grade 8 students.

Each group within the program – the Grade 8 students, Academic Link Crew Leaders, Social Link Crew Leaders and Commissioner Link Crew Leaders – interact with each other in a positive way. If any gear were removed, these teams would lose contact with one another, and the other teams may have to work harder in order to sustain the program. Not pictured in this diagram are the countless teachers and staff who contribute to the organizing success of the program.

It is important that each Link Crew Leader understand just how the Link Crew program at Wellington is structured, as it is a collaboration of hundreds of people.

**Link Crew is both Academic and Social**

When you choose to become a Link Crew Leader, you may apply under one of two groups: Academic or Social. Simply speaking, the Academic Link Crew Leaders are responsible for presentations and learning exercises within the classroom, while the Social Link Crew Leaders are responsible for the events and special functions that
occur throughout the year (Movie Night, Cram Coffee House etc).

The Social and Academic Crews both have two designated Link Crew Commissioners and two designated teachers who help organize and coordinate either group. As such, the Link Crew Leaders are evenly divided into both groups for the entirety of the year.

On top of a Link Crew Leader’s responsibility with Academic or Social activities, all Link Crew Leaders are accountable to their group of Grade 8 students\(^2\) who will become their peers and friends throughout the program. For example, while the Social Link Crew Leaders may organize the social events throughout the year — all Link Crew leaders (including Academic) are required to attend and support these functions.

When we speak about high school, we are usually talking about two things: the social and academic aspects of the journey at Wellington. Socially, we mean meeting and making new friends, communicating thoughts or expressions in a respectful manner, acting responsibly and keeping out of trouble. Academically speaking, however, we are talking about time management, scholarly success, skill learning and achievement. These two subjects are vital in every Grade 8 student’s year, so we need both Academic and Social Link Crew Leaders at Wellington.

**What groups make up the “Links”?**

Link Crew is designed to involve every leader in the decision making process. This means Link Leaders will support their student crew throughout the year and during Academic and Social events, and they will plan, organize and lead these events. Each leader will have the opportunity to direct groups of other leaders while their experience and skills grow.

- **Academic Link Crew Leaders** – Academic Link Leader’s responsibilities extend beyond the hallways and into the classrooms. Receiving training on how to organize and teach presentations in a classroom, this Link Leader will give lessons to Grade 8 students on everything from time management to cooperation within a group of peers. Academic Leaders share the awesome opportunity of being able to evoke understanding in the classroom through a powerful peer-to-peer relationship.

- **Social Link Crew Leaders** – A Social Link Leader is responsible for helping coordinate social events such as a Movie Afternoon, an Amazing Race scavenger hunt, skating and more. A Social Link Crew Leader is responsible for creating, coordinating and running games and activities that are appropriate for Grade 8 students — literally creating a fun, caring and understanding environment for their young peers. In doing this, the Social Link Leader will learn hands-on leadership, communication and organization skills.

\(^2\) Each group of Grade 8 students will be approximately 8-12 students in size, and will be mentored throughout the year by no more than two Link Crew Leaders.
Commissioner Link Crew Leaders — A Commissioner Link Crew Leader's responsibilities revolve around the careful coordination of everything "Link" — Commissioners are the student administrators of Link Crew. Only a handful of Commissioner Link Crew Leaders (4 to 5) are needed every year, yet they are key in the decision making process of Link Crew. Social events, Academic Lessons and public relations are all important issues for this team as they must coordinate all the Academic and Social Link Crew Leaders to perform at an optimum level. Commissioners work closely with teachers to make decisions and to plan events. Being a Commissioner provides a lot of hands-on learning in leadership, teamwork, event planning and communication. These leaders will be handpicked in the interview process.

Teacher Link Crew Co-ordinators— There is a handful of extremely dedicated and helpful teacher co-ordinators who belong to both the Social and Academic sides of Link Crew. Their invaluable commitment is necessary for the promotion, maintenance, and evolution of the program.

What can the Link Crew program offer me?

Short Answer: Lots.

First of all, it's fun! We're not lying; the program is extremely exciting and of course valuable for you and your crew. One of the biggest benefits that most seniors tell us about the program is the fact that the words, "Link Crew" look really good on college applications and resumes. Honestly, everyone needs the volunteer hours! The program also develops your social and leadership skill set and you get to reconnect again with the young people that make our school great and keep it feeling new.

Other than that, more and more studies show that if students have a positive experience their first year in high school their chance for success increases dramatically. Some schools have reported that in just one year of the Link Crew program being implemented there was a 50% reduction in suspensions, 45% reduction in referrals, and 78% reduction in male alcohol use and 45% reduction in cigarette use in Grade 8s. These numbers seem at least a little bit worth it, don’t they?

You remember that first year and how different and strange everything felt. A number of grade eights will have problems, either socially or academically, but they will quickly resolve them. Some Grade Eight students do not. Issues that arise during this crucial timeframe can damage their confidence and hurt them in many ways. We all know what it’s like to be thrown into the circular hall at Wellington for the first time; the Link Crew is here to make it less of a collision course.

Application Package
3135 Mexicana Road
Nanaimo, British Columbia,
Canada V9T 2W8
(1) 250-758-9191

1 Contact Information

Please fill out this form neatly after you have read the preceding pages of this booklet.

Name: ____________________________________________

Mailing Address: _____________________________ Postal Code: ________

Phone Number: ____________________________ Email Address: ____________________________

What Grade are you in? ________ T-Shirt Size: XS S M L XL
(As of completing this form) (Circle one)

Please list your current schedule for this semester below:

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Below are some major dates and events you are required to attend as a Link Leader:

May Development Day: Wednesday, May 25th, 2011, 3:15pm-5:15pm

Link Leader Training: Tuesday and Wednesday, August 30th and 31st 8:30am-12:30pm

Grade 8 Orientation: Tuesday, September 6th 8:00am-3:00pm in the Gym/School

First Day of School: Wednesday, September 7th – (Mandatory – wear your shirts)

Meetings: Regular meetings will be held throughout the year.

Follow-Up Activities: A variety of social and academic activities will be planned by our leaders from September to June. All leaders must be prepared to participate in follow-up activities with their Grade 8 groups.

Please acknowledge that by applying for a Link Crew Leader commitment you will be required to attend all the necessary training and events.
2 Commitment
I am applying for: (Please check off ✓ applicable boxes, refer to page 3 for more information)

☐ Social Link Crew: (Grades 9, 10 & 11 only)

☐ Academic Link Crew: (Grades 9, 10 & 11 only)

3 Essay
On the back of this application or on an additional sheet of paper; please write a half to full page essay on the subject of commitment.

You may consider starting your essay with one of the following sentences:
➢ “Commitment is important because...”
➢ “Commitment to a team is essential because......”
➢ “I learned about the value of commitment .....”

Additionally, you may want to include some of the following information in your essay:
➢ What activities are you involved in and outside of school?
➢ What challenges do you see students face in high school?
➢ What do you think it means to be a Link Crew Leader?
➢ And why do you think you should become a Link Crew Leader?
➢ What prepares me for a role in either the Social or Academic Link Crew?
➢ Where could we find you during lunchtime?

This application is due to Mrs. Sansoucy-Jones by 3:00pm, Wednesday May 4th, 2011 in the library.

All applicants will be notified by mail.
Dear members of the Education Committee – Hollie Tarasewich, Ron Farino, Justin Green, Michelle Sokoloski, Trustees Brennan, Dale, Welch and Bonkowski, Chad Lintott:

As related some time ago, the Education Committee is not meeting during the month of April, but will continue its work at the regularly scheduled meeting of May 11th.

The Committee Chair, Trustee Brennan has requested that, in advance of that meeting and in order to provide an informed discussion, I provide some advance material related to 21st Century/Personalized Learning.

To that end, I am providing the following for you:

- The Information Sheet I presented to the Board of Education on Wednesday, September 29, 2010 on this subject, including recommended web sites for Trustees to visit. (some of these sites were shared on-line at the Board Meeting,
- An additional site recently brought to my attention,
- Other sites as listed by Janet Steffenhagen on her Web Site that relate to these issues (please note that some are repeats of information I have already provided.

As well, I wished to confirm that we have arranged for each Committee member to receive a ticket to the Windows of Opportunity learning event (WO2.3) scheduled for Monday, May 9th at the Port Theatre. The tickets will be delivered to my office at a future date and will be distributed at that time.

Regards,

Michael J. Munro

Superintendent/CEO
SD 68 (Nanaimo-Ladysmith)
(250) 741-5231
mmunro@sd68.bc.ca

Attached items described above:

1) I am providing a scan of the handouts from that meeting:
This is found in the attached file above.

2) Secondly, here are the web links to the videos shared at the meeting:
   • Web Links:
     http://www.youtube.com/watch?v=6ILQrUrEWe8
     http://www.youtube.com/watch?v=Elq9NftXos&feature=player_embedded
     http://www.cd-cca.ca/CCL/Newsroom/MultimediaCentre/AudioVideoArchive/EvolvingEducation1Part1.html

3) Here is an additional, new link for your consideration:
   born-to-learn.org

4) Here is a further link to Janet S’s site that you may have to cut and paste into your search engine, and that includes a number of items related to this topic:
Personalized Learning

A Vision for the 21st Century
Imagine an education system......

✓ Recognizes and responds to the uniqueness of every single learner
✓ Flexibility in where, when, and how learning takes place
✓ Parents are effectively engaged in their child’s learning
✓ Teachers are facilitators of learning
✓ Supported by technology
✓ Focused on student outcomes rather than system inputs
Personalized learning

From Wikipedia, the free encyclopedia

**Personalized Learning** is the tailoring of pedagogy, curriculum and learning support to meet the needs and aspirations of individual learners.

Personalized learning is a highly contested topic within the field of education. The debate is ongoing in both the UK (2006 to present) and Alberta, Canada (2010) where the education systems are undergoing transformations through new School Act legislation. Professor David Hargreaves, former chairman of the British Educational Communications and Technology Agency BECTA, has been instrumental in trying to claim and define this space by establishing nine gateways to personalizing learning. Drs. Andy Hargreaves and Dennis Shirley (2009) have critiqued Dr. David Hargreaves approach to personalization as being a new way to manage and market learning in their book entitled The Fourth Way. Charles Leadbeater is also a key architect of the notion with his work, and advice to Tony Blair, on the personalization of public services in the U.K..

Personalized learning is not a pedagogic theory nor a coherent set of teaching approaches, but an idea that is struggling for an identity. As Dr. Michael Fullan (2009) would suggest, the concept is most commonly associated in the United States with differentiated instruction. While Dr. David Hargreaves (2006), a key architect of the idea, refers to ‘personalizing’ learning rather than ‘personalized’ learning, in order to emphasize that it is a process not a product. Given that language is the fundamental medium for the social construction of meaning, the term is itself currently under construction and being (re) defined in many quarters. To give it a new flavour from differentiated instruction and assessment for learning, the terminology is often positioned as uniquely in step with the 21st century.

Historically, the term was coined in a September 2003 speech in Britain by the Hon. David Miliband, Minister of State for School Standards for the United Kingdom (U.K.), who pronounced that, “personalised learning demands that every aspect of teaching and support is designed around a pupil’s needs” (Hargreaves, 2004). This speech was driven by a more general desire of the government of the day (Tony Blair’s Labour Party) to reorganize the way services were delivered given a concern that public institutions and government were lacking legitimacy in the eyes of the public. Over time this reorganization has entailed moving away from the universal provision of services by government, towards a much more personalized approach hinged on the individual citizen’s actions. Estelle Morris was the first minister for education in England to enact a personalized learning agenda.

Personalization may differ from differentiation in that it affords the learner a degree of choice about what is learned, when it is learned and how it is learned. The rhetoric is often phrased in terms of learning ‘any time, any place or any pace’. This may not indicate unlimited choice, since learners will still have targets to be met. However, it may provide learners the opportunity to learn in ways that suit their individual learning styles and multiple intelligences.

Dialogue is a central element to personalization, as it is with all social constructivism in learning spaces. One example of this style of learning is demonstrated by learning logs which support development of thinking and learning skills in students.

Also central is the process of assessment, i.e. sharing with learners the overall aims of the learning and giving learners clear criteria by which success in learning may be judged. Learners embarking on a

http://en.wikipedia.org/wiki/Personalized_learning

9/27/2010
learning journey need a clear map and some obvious signposts! This also forms part of the dialogue with the learner.

Whilst personalized learning may happen in traditional learning contexts such as schools and colleges, it embraces learning that happens anywhere, for example in the home, in the community - anywhere. Personalized learning can happen in partnership with other learners, for example learners working together in a group to study a particular topic. This 'anywhere, anytime, anyplace' learning can be seen in light of the forces of globalization that are influencing this latest trend in education, where time, space and place are experienced as compressed; a death of distance.

ICT and Communications technology can be a powerful tool for personalized learning as it allows learners access to research and information, and provides a mechanism for communication, debate, and recording learning achievements. However, personalized is not exclusive to digital technologies or environments. In the rhetoric around 21st century skills, personalized learning is often equated with 'customization' (as found in the business world), with digital personalization used to frame the learning experience as highly efficient. Problematic in this is the discounting of the highly relational and socially constructed space well defined in the research on learning. Digital personalization also raises the concern of the Echo chamber (media) effect emerging in (hyper)personalized online experiences.

It is also a buzzword used by Education Reformers (http://edreformer.com/2010/07/personalized-learning-object-lesson-course-school/comment-page-1/#comment-1186) to push new software/hardware into public schools.

See also

- Adaptive learning

References


Categories: Pedagogy

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21st Century Learning Initiative (Canada)

About the initiative

CCL launched a pan-Canadian program to advance the work of the 21st Century Learning Initiative within Canada in September 2005. The purpose of this program was to engage Canadians in dialogue about new ways of thinking about learning systems, based on the research synthesis provided by the 21st Century Learning Initiative.

Established in 1995, the Initiative, led by John Abbott, is a network of academics, researchers, policy-makers and practitioners from numerous countries. Their goal is to facilitate the development of new approaches to learning that draw upon the most current insights into the human brain, the functioning of human societies, and learning as a community-wide activity. The initiative brings together research from cognitive science, neurology, evolutionary biology/psychology, cultural anthropology, as well as pedagogy, conventional psychology and systems theory to encourage people to rethink current education systems and institutions.

Since the launch of the 21st Century Learning Initiative (Canada) in September 2005, John Abbott has delivered keynote addresses, led workshops and participated in planning sessions across Canada.

An interactive website has been launched at www.changelearning.ca, which is a virtual community centre to share information and host discussions about meaningful educational change.

This online resource contains reference papers and presentations in English and French, as well as a catalogue of where key references used by John Abbott are available in libraries across Canada.

Video Series: Evolving Education

Evolving Education: Learning in the 21st Century is a three-part series that presents viewers with compelling questions about the way we educate students and offers successful, if provocative, answers. The series celebrates three case studies that reflect the ideas of John Abbott, an advocate of cognitive apprenticeship.

Find out more »
“Schools” in the Future: What has to change, and why

THE 21ST CENTURY LEARNING INITIATIVE

An explanation of why, in the light of recent research on the nature of human learning, the present Western, essentially Anglo, system of schooling is both upside down in terms of its distribution of resources, and inside out in terms of its excessive dependence on school-as-place; on formal as opposed to informal learning, and on the teacher as instructor rather than as facilitator. Once the entire system is redesigned on the basis of constructivist and enquiry-based practice, then student dependence on teacher and school will begin to decrease with age. This will allow a growth in student choice and responsibility so escaping from the present dilemma of squeezing out-dated systems to perform in ways which truly release human potential at hitherto unprecedented levels.

HOW HUMANS LEARN — and consequently how children should be brought up — has concerned the elders of society for longer than records have existed. It is referred to as the nature/nurture issue — how much of what we are is a result of what we have been born with and to what extent is this (or can this be) enhanced by the way we are brought up? That there is no easy answer to this question concerned the Greeks as much as it did our Victoria ancestors, and is as lively an issue today for the proponents of “outcome-based education” as it is for those who argue for teaching children how to think for themselves. Given what we now know from research into how children learn is there an alternative way of doing things and would this benefit children and society alike?

Current thinking about the nurture/nature issue polarizes around three beliefs, each of which was articulated at least 2,500 years ago:

1. Plato taught that the effectiveness of the human brain was all to do with inheritance — those born to be leaders had gold in their blood, those to be administrators, with silver, while the common man (the vast majority) had only iron. To Plato destiny was fixed at the moment of conception.

2. Not so, said the ancient Hebrews, it’s all far more dynamic than that, so "do not confine your children to your own learning, for they were born in another time". Learning — to those ancient seers from the desert — was dependent on taking the wisdom accumulated by your ancestors and (and this was critical to the Jews) adapting it to ever-changing circumstances.

3. Half a world away in China, Confucius noted that "man’s natures are alike, it is their habits that carry them far apart." Confucius reminded all those who would listen that "tell a child and he will forget; show him and he will remember; but let him do, and he will understand". While any observant parent will readily agree with such an observation, some politicians will dismiss this simply as "failed child-centred or progressive dogma".

In today’s world, do these issues have any value? Are they conflicting explanations or can contemporary scientific research show how each actually expresses one aspect of what shapes human learning ... and what might this mean for pupils at Ilton College, a comprehensive school, a bush school in Tanzania, or in the school districts of British Columbia?

It was only 150 years ago that Darwin proposed in The Origin of Species that all life is a "work in progress" and subject to continuous, long-term adaptations. Only in the last half century (and essentially in the last 25 years) has biomedical technology, linked up with genetics, evolutionary studies, systems thinking and anthropology, to help explain how the human brain has been shaped by the way our ancestors adapted to their environment. It was only in 1962 that Crick and Watson unravelled the double-helix of the DNA molecule, so enabling scientists subsequently to understand how intellectual processes, developed by our ancestors hundreds of thousands of generations before, still shape the structure of the brain of a baby born within the past five minutes.
Equipped with such technologies, cognitive scientists now see the human brain as being like a veritable archaeological paradise with varying mental predispositions, reflecting adaptations made thousands of generations ago, and subsequently laid one upon another like strata in a geological sequence and — and this is the essence of so much recent research — transmitted genetically to subsequent generations. For instance, the neural networks we use for language ride piggy-back on those much older networks earlier developed for vision, meaning that today we find it much easier to think in terms of pictures and stories, rather than abstract theory, while our ability to "read faces" owes more to the development of empathy a million and more years ago, than to the much more recent development of using language to describe features.

Steadily, scientists are coming to appreciate that humans, together with all their likes and dislikes, reflect those deep-seated adaptations made by their early ancestors as they adjusted to ancient environmental problems. These ancient adaptations still shape the way we think and act today, and explain our preferred way of doing things. It is this variety of adaptations that account for the complex twists, turns and convolutions in the grain of our brain.

As of now, cognitive scientists see the brain as having all the texture and resilience of a piece of ancient oak, rather than the uni-dimensional nature of a piece of pre-formed chipboard — you can do almost anything with the oak but only one thing with the chipboard. Our brains are so special just because, in comparison with any other species, they bear the deep imprint of the history of our species and it is that which makes the baby's brain of today eventually highly adaptable and open to learning. We are enormously empowered by ancestral experience but we consistently under-perform when driven to live in ways that are utterly uncongenial to such inherited traits and predispositions.

From this perspective, most of the schools that today's children attend were designed when prevailing cultures assumed that children were born to be taught rather than to learn. Which is why, for so many children, the wonder of learning has been replaced by the tedium of trying to remember what they were told by somebody else about something that really didn't interest them very much in the first place.

"Schoools" in the future: what has to change, and why
So what of the cultural factors that have shaped the way schools currently do things?

Two thousand years ago the Greeks invented the modern school to supplement and regulate young people's innate desire to reason things out for themselves. They defined a school as a place of pleasurable activity where children between the ages of 7-14 spent one-third of their time learning the arts of the grammarian (writing, mathematics and the art of oratory), one-third on drama and music, and one-third on gymnastics. Such a balanced education, the Greek believed passionately, would fit a man for the responsibility of being a citizen in a democracy.

Conquered by the more methodical and mundane Romans, the Latin version of school became something very different. Replacing the philosophic concerns of the Greeks with the need to ensure compliance with laws, the schools of the Roman Empire became preoccupied with rote learning. Describing his time in a school in Rome, circa 350 AD, the young man one day to be known as St Augustine wrote in his diary "Oh my God, how I suffered. What torments and humilations I experienced. I was told that because I was a mere boy, I had to obey my teachers in everything. I was sent to school. I did not understand what I was taught. I was beaten for my ignorance. I never found out what use school was supposed to be."

Because the Romans had little sympathy with Aristotle's humanistic belief that "all men by nature desire knowledge" they treated their children somewhat as they treated their slaves — they frightened them into learning because of the fear of being beaten. That was to become the practice of European schools for more than 1,000 years. Learning was forced into children. School became a place of social control where Shakespeare's "whining schoolboy with his satchel and shining morning face crept like a snail unwillingly to school."

The first book ever written in English about education was "The Scholemaster" by Roger Ascham in 1570, which set the pattern for post-Reformation (i.e. non-church delivered) schooling — e.g. the Boston Latin School of 1643. Ascham argued against the excessive use of fear as a motivation for learning; he encouraged the development of "hard wits" not "quick wits", but then added a most curious third injunction: "more is learned in one hour of theoretical study than in 20 hours of learning through experience". To the English Protestant teachers it was their responsibility to censor what a child learned for fear, wrote Ascham, that pupils might rush off to Rome and while studying classical literature be corrupted by the sexually-explicit statues and mosaics then being rescued by the archaeologists. In so doing, Ascham set the schoolteacher and the classroom apart from the experience of ordinary men who had to adjust their lives to the requirements of everyday experience.

It was only in the mid 16th Century that the word "education" entered the English language. The word is based on the Latin "educare" meaning to "lead out" in the sense of a general leading his troops out from the security of the defended camp on to the problematic field of battle. The Roman armies owed their success to the maintenance perfect discipline and the insistence that every soldier only do what he was ordered to do. Transmitted into the world of education, such a literal definition saw learning as doing what you were told. This narrow definition of education isolated the world of the school from the workaday experience of ordinary people who, through the rigorous development of apprenticeship and learning-on-the-job propelled England into leading the world into the Industrial Revolution on the broad backs and the skillful hands of numerous, reflective, self-aware craftsmen.

Few academics, and certainly no schoolteachers at the time speculated on why it was that some Englishmen from the most obscure backgrounds with little or no formal schooling - like John Harrison who invented the marine chronometer, or Thomas Newcombe who made a steam pump to lift water in 1712, or William Smith the self-taught surveyor, who made the world's first geological map in 1795 -- achieved more from direct experience than they could from theory.

Attempting to bridge that divide between the classical version of education and the apprenticeship model of learning in 1746 the Earl of Chesterfield wrote to his son "do not imagine that the knowledge which I so much recommend to you, is confined to books, pleasing, useful and necessary as that knowledge is for the knowledge of the world is only to be acquired in the world, and not in a closet. Books alone will never teach it to you; but they will suggest many things to your observation which might otherwise escape you". The Industrial Revolution, while destroying earlier social cohesion that had created the genius of
the applied craftsmen. Eventually a form of elementary schooling was established early in the 19th century as a means of social control of the poor, and the old local town grammar schools were replaced by elite secondary boarding schools available only to those who could afford them.

Then in 1859, the publication of *The Origin of Species* shook Western thinking - science, religion and philosophy - to its roots by arguing that all species, humans included, were simply "works in progress", prototypes in the process of being refined by experience. The medical profession leapt at such a theory and subsequently used it as the basis for modern medicine so giving humanity a "user guide" to the operation of the body. Darwin was initially nervous about extending his theory to the operation of the human brain, but concluded his book with a challenge to the newly-established subject of psychology by claiming that "this will be based on a new foundation, that of the necessary acquisition of each mental process by gradation (evolution). Light will then be thrown on the origins of man and his history."

Psychology just did not know how to deal with the principles of evolution. As a formal discipline, psychology had only been established two years earlier as a hybrid of philosophy (a much-respected ancient discipline) and physiology (a new white-coat laboratory-based subject that concentrated on the functioning of animal muscles) - so creating a most uncomfortable partnership. Lacking any technology able to understand, at a molecular level, how the brain might work, psychology turned its back on Darwin, claiming the brain to be the same now as it had been in the past and would be in the future. To psychologists, the brain was simply a mysterious "blank box", there was nothing in it that had not been put there by external agencies during the individual's own life.

For just over a hundred years (up to the 1970s when the oldest of today's teachers were being trained) psychology ignored any suggestion that the brain might be a product of evolutionary processes. While medical science used evolutionary theory to, in practice, double people's life expectancy, psychology allowed itself to be shaped by the Behaviourists who regarded the brain as simply an input/output system.

The Behaviourists claimed that nothing which could not be studied and measured ever existed. This provided the basis for two theories which have done enormous damage to many generations of children. The first was the Behaviourists' belief that they could define the exact nature of every input which, if properly delivered, could produce the perfect child as defined by them in advance. The management of external motivation, and the construction of a closed environment, was the essence of behaviourism - the child's progress was totally dependent on the brilliance of the teacher, and had absolutely nothing to do with its inheritance or personal experiences. There was one exception, and that was the expectation running very strongly in the 1930s that a way could be found of developing tests that could assess the natural "quality" of the individual child's brain that they could predict a child's innate intelligence as young as the age of 11.

These two ideas were largely contradictory but, lacking the technologies to study the brain objectively and they convinced themselves that the brain was born without any structural preferences to learn in particular ways. Consequently, educational policy makers in England and several other places persuaded themselves in the mid-1940s that psychologists had perfected tests which were of such diagnostic accuracy that they could detect the 25% of children deemed (following the teaching of Plato) to be capable of receiving a classical education; the next 75% fitted for technical skills, while the remainder should go for a limited number of years to a Modern school as a precursor to manual employment.

One further theory has to be understood. The almost total collapse of apprenticeship in the late nineteenth century left young adolescents bereft of any useful work to do. Gilbert S Hall, President of the American Psychological Association, claimed in 1904 that adolescence was a dangerous aberration (something which should not be happening) from which children needed to be protected for their own good - that protection, he argued strongly, should involve keeping adolescents in school for ever longer and giving them so much work to do that this adolescent urge to do their own thing could be bypassed.

In all this lies the origin of today's Western, especially Anglo, model of schooling: age-related classes assumed to be progressing at a uniform rate; skills and knowledge delivered via subject-specific disciplines; a custodial role for social development confused with a degree of willingness with which a child accepted the ethos of the school; more funds allocated to the education of older pupils leaving the youngest children to be taught in the largest classes;
the increased marginalisation of home and community as an integral component of learning; the retention of teenagers in school to "save" them from the turmoil of adolescence, and the training of teachers being more concerned with the preparation of subject specific instruction than with the development of pedagogic strategies informed by philosophy and the research into the nature of human learning.

This basic model has not changed in more than half a century and largely reflects the thinking of the Behaviourists, and the belief in the unchanging nature of human intelligence. No amount of tinkering around the edges will change this – hence today's frustrations amongst those who understand the importance of this research and how, without significant structural change, pupils will continue to under-perform.

There is one social, economic imperative to be added. Over the past 30 years the aim of education has progressively shifted away from the creation of the all-round child to satisfying the "new economic imperative of supply-side investment for national prosperity". A dangerous confusion has entered the public mind: although most people would deny this in terms of their own personal experience, the public have been convinced by the statisticians that the more paper qualifications children can accumulate the better prepared they will be to think for themselves in a world that looks increasingly problematic. Yet the experience of many is that by continuing to over-emphasise the role of the school and outcome-based education, national jurisdictions have allowed themselves to so over-sell their young people that they are effectively under-educating them.

Some people, some provinces, some school districts, and even individual schools have known this for some time but find that despite their best attempts to break clear of this they are totally frustrated by the legalistic arrangements of recent years which are aimed at squeezing still further life out of an out-dated, and increasingly dysfunctional, system. The traditional factory model is incompatible with the idea that students are workers, that learning must be active, and that children learn in different ways and at different rates.

That dysfunction has been given scientific objectivity by the findings of recent research:

- Intelligence is more than just a general capacity to learn; it is shrewdness, cleverness and knowledge all rolled together with emotional intuition, balance and a strong sense of practicality. Essentially it is about cognitive and emotional self-regulation, the ability to apply 'intelligence' in a self-reflective and meaningful way.

- The brain is empowered by the experience of its ancestors with "predispositions" opening up like windows of opportunity at those stages of life which evolution has found are the most appropriate to the individual's development.

- Children's search for meaning starts very young. It is those children who are already anxious to make sense of issues that matter to them in their own private lives, who come to formal schooling anxious to use whatever it can offer them to help their personal objectives. Not the other way around.

- The adolescent brain is a critical evolutionary adaptation that has built up over thousands of generations, and is essential to our species' survival. Adolescence forces young people in every generation to think beyond their own self-imposed limitations, and exceed their parent's aspirations. Adolescence is an opportunity, not a threat.

- The brain works best when it is building on what it already knows; when it is working in complex, situated circumstances, and when it accepts the significance of what it is doing. It is at its best when it is exercised in highly challenging but low-threat environments.

- Given the inherent limitations of schooling it seems essential for a child to have an intellectual life outside school. Thus equipped, the child is in a position to use schooling as a source of learning opportunities without being drawn into short-cut strategies that work well for handling school-based tasks but often lead nowhere in the life-long development of expertise.

- Learning is an immensely complex business, so, to put faith in a highly directive, prescriptive curriculum, is to so go "against the grain of the brain", that it inhibits creativity and enterprise......the very skills needed in the complex, diverse economy and community for which we need to prepare our children.
COGNITIVE SCIENTISTS, working alongside neurobiologists and anthropologists, have become much interested in the processes that make apprenticeship such a successful model of learning. They advocate a CONSTRUCTIVIST approach to learning, with its progressive deepening of earlier understandings, and the joining together of what had earlier been separate, disconnected ideas. It is through experience mixed with reflection that humans weave their own experiences and knowledge of the world into unique patterns. Constructivists see the role of the teacher as "guide on the side" rather than the conventional "sage on the stage".

COGNITIVE APPRENTICESHIP takes constructivism a stage further by showing how our brains, over vast periods of time, have become conditioned to learn through a process of (1) Showing -- the "teacher" or parent, craftsman or artist captures the imagination of a young learner who becomes sufficiently intrigued to want to know how to do it for itself; (2) Coaching -- the "teacher" shows the novice learner how to identify the sub tasks that have first to be completed, each with its own particular form of expertise; (3) Scaffolding -- the "teacher" provides sufficient temporary support as learners go beyond what they had earlier thought were the limits of their skills; (4) Fading -- the "teacher" has to be as proficient at removing the scaffolding when it is more appropriate to the individual to struggle stand on his or her feet, as they had been when putting the scaffolding in place; finally (5) Dialogue -- through the whole of the apprentice/master relationship the novice learner shares ideas with other learners as they try to describe what they are doing and reflect on the outcome. "Learning is not time-out from productive activity; learning is the very heart of productive activity".

Within a cognitive apprenticeship both the task, and the process of achieving it, are made highly visible from the beginning. The student understands where they are going and why. Learners have access to expertise in action. They watch each other, get to understand the incremental stages and establish benchmarks against which to measure their progress. These are the processes that are at the heart of apprenticeship. They have evolved over thousands of generations as parents sought the most effective way of helping their children to understand the world. It is what Confucius understood intuitively when he advocated going from "telling" to "showing" to eventually "understanding".

The definition of success was when the apprentice could demonstrate that Jack was as good as his master, and maybe even better.

Such contemporary research takes us beyond the Roman definition of obeying the rules, to the ultimate aim of modern education as the weaning of the novice of his dependence on someone else. "It is a bad teacher," the philosopher Nietzsche wrote, "whose pupils remain dependent upon him". This is best defined in terms of Subsidiarity, another Hebrew concept recorded in Exodus, and now inscribed within the framework of the European Union constitution as meaning: "It is wrong for a superior to hold the right of making decisions which an inferior is already able to make for himself."

SUBSIDIARY is not the same as delegation where a pre-designed task is assigned to a junior to carry out on your behalf, largely in the way you defined, and then to be answerable to you for completing it to your satisfaction. Subsidiarity could not be more different. Like parents letting go of their children, or a shipbuilder sending his boat into unknown waters, so Subsidiarity is a relationship of trust, not control. Subsidiarity is the exact opposite of Behaviourism.

The problem we all share, as we try to shape a new model of schooling is that we ourselves were often trained as Behaviourists and are now required to lead a revolution about a very different kind of process.

"The method people naturally employ to acquire knowledge is largely unsupported by traditional classroom practice. The human mind is better equipped to gather information about the world by operating within it than by reading about it, hearing lectures on it, or studying abstract models of it. Nearly everyone would agree that experience is the best teacher, but what many fail to realise is that experience may well be the only teacher."

Santa Fe Institute 1994

"SCHOOLS" IN THE FUTURE: WHAT HAS TO CHANGE, AND WHY
Elements of Change Required:
Summary

The weight of this research strongly supports a number of elements that cannot be provided in current systems. Schools and administrators have made many changes, but have largely reached the practical as well as the legislative edge of what we can do alone. The elements of change can very briefly be described as follows:

1. Individualized learning paths versus pre-programmed paths from which students choose their course of study.

2. A much greater emphasis on experiential and situational learning, especially as students get older.

3. A much greater emphasis on constructivist and inquiry-based practices.

4. A much greater use of community members and organizations in the direct delivery of educational programs, and in the support of apprentice-like learning outside the school.

5. The evolution of the teacher from the role of instructor when children are young to a much more complex and professional role of learning facilitator as students get older.

6. A student-teacher ratio that varies greatly depending on age and learning activity (this is NOT about class size as we know it) – see “comparison of current student/teacher ratios with proposed ratios” as drawn up by Jeff Hopkins, added as an appendix, together with “A Day in the life of a Secondary Student”.

7. A de-emphasis of courses from K to 12 and a move toward ensuring deep learning that matches developmental levels, and is naturally interdisciplinary.

8. Rich assessment and reporting based on competencies rather than courses or disciplines, and that uses language and artefacts rather than scores to show achievement.


10. A sliding scale of student dependency on teacher and school-as-place that decreases with age, so allowing growth in student choice and responsibility.

"Schools" in the future: what has to change, and why
Conclusion

Obviously as all this will appear to many, to others the changes are virtually too big to contemplate. "A big challenge, a tall order?" wrote a recent reviewer of *Overschooled but Undereducated* in The Irish Times. "Yes, but this book makes a very convincing argument for the revitalisation of education to save it from trivialising the very young people it claims to be supporting. Education is like a suit, said the proverbial wise tailor, 'it has to fit'. Schooling is not fitting very well now. The longer we have to wait the more the present system approximates to the emperor's new clothes."

It will not be easy to do.

It has to start by ensuring that all those - politicians, legislators, administrators and school and teacher leaders really understand the nature of what is involved - if they are to make the changeover between two very different ways of doing things.

There is a paradox... this is so urgent it must not be rushed.

Secondly, it will require a systematic drip-feeding of these ideas into whichever communities in England or British Columbia wish to be involved. This will require an integrated media campaign through press, radio and television.

Thirdly, it will require finding several well-defined pilot areas in which there is the confidence to spearhead these changes on behalf of the rest of the country or province. It cannot be done everywhere all at once.

In parallel with two and three above, discussions would have to start with those university education faculties whose support and involvement would be critical if new generations of teachers are to be equipped for their new role, and existing teachers retrained.

The native wisdom of British Columbia recognises that today's adults have not inherited the land from their parents, but have been loaned it by their children; consequently in the saga of the ages, if a generation fails, the fault lies squarely with the previous generation for not equipping the young well enough for the changes ahead.

This paper has been prepared by the 21st Century Learning Initiative drawing upon the ideas contained within *Overschooled but Undereducated* and additional research from around the world, to be helpful to those in an English city, and in British Columbia, who are seeking to bring about radical change.

"SCHOOLS" IN THE FUTURE: WHAT HAS TO CHANGE, AND WHY
Agenda Item Number 10.2

Personalized Learning

(see a day in the life of a secondary student for more details)

In schools where both peer support and less teacher support exist, the school and with learners' teachers' peers, etc., and helping them evaluate their learning. Students who need more support could receive teachers' help. The goal is to foster a more collaborative learning environment. Helping students develop learning plans that might meet their needs during much of their learning outside of the classroom. Teachers in high schools must play two very different roles. One role is to deliver the learning to be directed by the teaching. The second role is to provide the learning that students need.

A problem that the course of 13 years specifically focuses on modeling, beginning, and mastery (e.g., collaborative apprenticeship). An ongoing to the program would serve these needs. As students learn more about how to learn and how to operate independently and interdependently with other students, they will be more.

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#### Fewer teachers needed here

#### Proposed

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#### Detailed Table

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Comparison of Current Student:Teacher Ratios with Proposed Ratios
A Day in the Life of A Secondary Student: Scenario #1

I went to a meeting with my Learning Path Facilitator this morning. We discussed my science project on wind energy and how I would need to find some help with my interest in different propeller types as they relate to migratory bird safety and different wind zones. I remember thinking only two weeks ago before deciding to study this that wind energy was so simple!

My facilitator has found a retired navy aeronautic and marine propeller expert in Bethesda, Maryland. I have an online conference with my facilitator on Tuesday at 9:30 am. Amongst my friends their facilitators include a doctor, an insurance agent, an engineer, a plumber, a lawyer, a shopkeeper, a professional pianist and a professional baseball player. As per my suggestion (after talking at our last co-operative learning seminar) another student will be joining me as she is stuck on a physics problem related to the Bernoulli Effect that this same expert can probably help with. I learned about her question during our weekly small-group check-in where each of us shares our status in our learning paths and any wonderful or frustrating things that are going on at that time.

After meeting with my facilitator, during open lecture hour, I went to the second lecture in a series this month on ethical food production. I will be using my notes from this lecture to support my English 11 essay on ethics in science. There were about 40 students in attendance from grade 9 to 12, half of whom came as an entire class with their Scientific Foundations teacher. There was a number of interesting lectures running today, so it was hard to pick. I can see, though, that some of them will be offered again next week and the week after.

Following the lecture hour, I had writing workshop, where I actually begin working on my essay right away. The teacher was very helpful as I struggled with a proper thesis op statement. There were 12 of us in writing workshop at the time, with a few arriving later in the morning and a few leaving shortly afterward. The writing workshop room has the writing performance standards posted for all to see, helping each of us know how to hone our work toward an acceptable standard.

Right now, my cognitive apprenticeship is with a local marine biologist who the Apprenticeship Coordinator and my Learning Path Facilitator recom-
Personalized Learning

- Curriculum Flexibility and Choice
- Partnerships Beyond School
- Responsive Teaching
- Flexible School Organization
- Assessment that Promotes Learning