21st Century Learning Environments: Building a Better School

Springbank Community High School
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May 2011

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Note: The picture on the front cover retrieved from irishautismaction.blogspot.com April 25, 2011

Background

As we move further into the 21st century, the call for reform is once again upon us. For those of us who have pursued a career in teaching and have some experience, we often think, "Here we go again." Often, the conversation turns to, "If I just hang on, this too shall pass," and in most cases, this has been correct. I caution using the term "reform." If we look into the etymology of the word *reform* it means, "bringing back to the original condition."[1] Twenty-first century learning and schools is not about going back. It's about moving forward. It is imagining a future.

So then, why should we care about changing our teaching and the structures of schools, when what has happened in the past seems to have worked just fine? Ultimately, change is necessary because students have changed. Our world is changing dramatically even exponentially and as educators, it is not enough to have the students do the "skill and drill". The students have access to more information in a day than their counterparts did in lifetime when the education system was first constructed. Building 21st century skills and subsequently the schools that support the learning, is necessary. Rockyview Schools has supported this through defining the characteristics of a 21st century learner. "Today's students are acquiring 21st Century skills and what surprises teachers most is that they are not the ones teaching them. 21st century learners have taught themselves to network and find solutions. Because of this, they expect to have this same experience at school."[2] Figure 1 illustrates these characteristics of 21st century learners including: critical thinking, problem solving, innovating, communicating, collaborating, globally aware, critically engaged, self-directed, information and media literate and financially and economically literate.

Through the work of various Alberta School Initiative Projects (AISI) throughout Rockyview Schools, these characteristics are being developed in classrooms through ideas like Understanding by Design, Universal Design, and Schooling by Design models. We have created Communities of Practice exploring varying facets of 21st century learning and teaching. We have implemented in our design and practice instructional strategies that support and enhance 21st century learning and teaching. We have begun the task of transforming our classrooms. Beyond this however, is the need to transform the very structure of schools as well. This brief synopsis will outline the characteristics of 21st century schools and what is imagined for Springbank Community High School.

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[1] Chantrell, G., (Ed.) 2002, *Oxford Dictionary of Word Histories*, Oxford University Press, p. 423
[2] McCoog, I.J., (September 2008), *21st Century Teaching and Learning*, n.p.

Figure 1: Portrait of a 21st Century Learner [3]

Foundations for 21st Century Schools

There is a distinction between 21st century learning and teaching and 21st century learning environments. 21st century learning and teaching focus on the competencies for students and teachers as we move into the future. 21st century learning environments are about the designs, time, tools, communities, and policies that support 21st century learning and teaching. "Perhaps a better way to think of 21st century learning environments is as the support systems that organize the condition in which humans learn best – systems that accommodate the unique learning needs of every learner and support the positive human relationships needed for effective learning."[4] It is about creating the structures that seamlessly promote and enhance *both,* support for 21st century learning and teaching *and* building the positive relationships that are inherent in the education endeavor.

The research on the building of 21st century learning environments is rather exhaustive. People have been talking about changing the structures of schools since the early-1970s and many models in whole or in part, still exist today. There are now a number of excellent websites all dedicated to the transformation of schools. One such website is sponsored by the *Partnership for*

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[3] Figure retrieved April 14, 2011 from
http://www.rockyview.ab.ca/assets/images/portraitlearner.jpg/image_view_fullscreen
[4] *Le white paper*, retrieved from http://www.p21.org/ November 2010 p. 3

the 21st Century Skills,[5] offers teachers and administrators a comprehensive look at research and innovation in American schools developing a 21st century model. Another excellent website that has condensed and coordinated research is the *Linking for Learning* [6] website founded in Australia. The 21st century learning environments model is being adapted and administered globally. As such, the use of the Internet has given us the opportunity to view what is going on in the world and provided us with models and examples that we too can adapt and model to our own circumstances. Appendix B organizes some of the newest developments in building 21st century learning environments.

As well, Alberta Education is exploring some of these initiatives, which could transform education in the province. As the main policy body, participation and leadership by Alberta Education is necessary in changing the face of education as we move into the future. Exploring alternatives to transform education has been a continuous process. The *High School Flexibility Enhancement* [7] project was initiated in response to education stakeholders' concerns about the time requirement attached to senior high credits. In March 2009, a Literature Review was published exploring the variety of options in high school redesign. In late 2009 and early 2010, a steering committee struck to create a conversation with a variety of stakeholders talking about the future of education. The steering committee created a report, *Inspiring Education: A Dialogue with Albertans*,[8] published in April 2010. This is Albertans' vision for education to 2030. "Albertans articulated their vision for education through specific outcomes which have been summarized as "the Three E's" of education for the 21st Century."[9] These characteristics include an engaged thinker, an ethical citizen and an entrepreneurial spirit. Each of these characteristics is in line with the research for the development of 21st century learning. Additionally, the Government of Alberta published a paper, *Inspiring Action on Education* [10] in June 2010, outlining why the transformation of the education system is necessary. This document also provides some of the policy directives establishing a roadmap to the future for education in Alberta.

As well, the Alberta Teachers' Association, published a document, *Changing Landscapes of the Next Alberta: 2009-2029,* [11] after consulting with a variety of education stakeholders addressing the questions, "In advancing public education, what kind of teachers do we want to become?" and "What kind of ATA do we need to support this work?" As well, the ATA and the Faculty of Education at the University of Calgary sponsored a literature review for the future of teaching in Alberta. This unpublished document also offers some insight into the

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[5] Retrieved from http://www.p21.org/ November 2010

[6] Retrieved from http://www.linkingforlearning.com/schools_future/index.html January 2011

[7] Alberta Education, March 2009, *High school flexibility enhancement: literature review*, Edmonton Alberta: Crown in Right of the Province of Alberta

[8] The Steering Committee Report, *Inspiring Education: A Dialogue with Albertans*, April 2010, Government of Alberta

[9] Ibid., p. 6

[10] Government of Alberta, *Inspiring Action on Education*, June 2010

[11] Alberta Teachers Association, *Changing Landscapes of the Next Alberta*, Retrieved from http://www.teachers.ab.ca, October, 2010

potential future Alberta Education has in store for the citizens of Alberta and Alberta's future learners.

The concept of building the capacity for schools and the education system into a flexible model of delivery that is individual learner focused and responsive is a topic that has been greatly studied and consulted. As we move further into the 21st century, it is now necessary to find the appropriate models to construct these dynamic places. No longer do we need convincing that this is a "good" idea, we need to figure out how to put all of this into place.

A model that seems to be quite comprehensive and focused on building and supporting a 21st century learning environment is a model suggested in part by the *Partnership for 21st Century Skills*. According to the *Partnership for 21st Century Skills* [12], and *Le white paper* [13], there are five pillars that provide the foundation for 21st century learning environments. Each of these structures provides the support necessary for 21st century learning and teaching to occur and each pillar needs to work in concert with the others for a true transformation to occur. Figure 2 illustrates the foundational model of 21st century school structures. These pillars support the advancements already taking place in 21st Century learning and teaching.
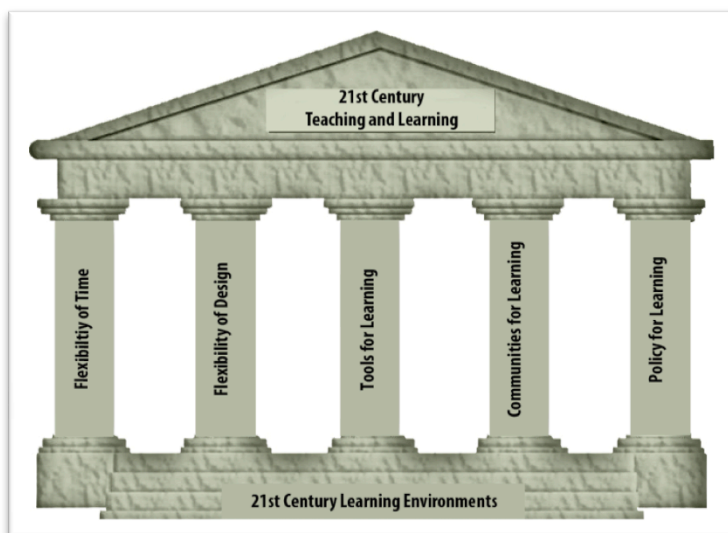

Figure 2: Pillars for 21st Century Learning Environments

The pillars for 21st century learning environments provide a way to conceptualize this movement into a new model. Rather than looking at one particular aspect of 21st century learning and teaching, this model can help to construct an overall view of what is necessary to build 21st century learning environments. For every new initiative and policy change, the model should provide the foundation for decision-making. The questions that should be asked

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[12] Retrieved from http://www.p21.org/ , November, 2010
[13] Retrieved from http://www.p21.org/route21/index.php?option=com_content&view=article&id=192&Itemid=271, November, 2010

are: Are these new concepts, ideas, timetable or policy changes really supporting 21st century learning and teaching? If so, how does it fit into this model and if not, should we really go forward with something that doesn't support our initial and/or most important goals?

So what are the pillars of 21st century learning environments? They are: Flexibility of Time, Flexibility of Design, Tools for Learning, Communities for Learning, and Policy for Learning. In taking a 21st century approach to the *Flexibility of Time* we cannot continue with the rigid 19th century calendar. When we look at some of the constructs of 21st century teaching and learning, where students' work may be project-based or interdisciplinary, the set blocks of time scheduled for each class becomes limiting to the work being achieved. This rigid schedule hampers the openness and flexibility 21st century learning and teaching tries to achieve. Schools must also move away from the notion of *seat time*. Rather than assessing a student based on how many hours they sit in a class, a 21st century environment assesses a student on what was learned. "It is not about how much, but how time is used that matters."[14] Opening the schedule and providing for more flexibility also establishes time during the day for teachers to engage in collaborative planning or professional development. It may also provide a time when students too can work collaboratively. Achieving flexibility in the time students are engaged in learning reinforces the idea that learning never really stops. It promotes the idea of being a life-long learner and that learning does not happen just at school but takes place in many different places and at many different times.

In designing schools for 21st century learning and teaching, flexibility in the use of space must also occur. In the *Flexibility of Design*, the physical structure of the school must also be flexible enough to meet the different demands of 21st century learning and teaching. Our schools have typically been built within the industrial and factory models. There are set classrooms for set instructional practices. Within the new 21st century learning environments model however, those classrooms need to be reconfigured or even reengineered for a new purpose. This does not mean however, tearing down walls and starting over. What it may require though, is a new vision of what different spaces in the existing school could or could not be. Beyond the actual use of space though is the aesthetics component. Many schools are tired and worn out places as much of the funding available has gone to support learning and teaching. This is not necessarily bad but the atmosphere of a place has a significant impact. The feel of the place in which the students and the teachers work all day should be a comfortable, appealing place. This sets the general tone and atmosphere of the school. Again, this is not necessarily about tearing down walls but it may be something as simple as painting them. It may require some artwork being displayed on the walls or opening the blinds and letting some natural light shine in. It may also include tables and chairs that can be configured in a variety of ways to provide flexibility within the classrooms themselves. Students, teachers and the community itself can contribute to what this space will be.

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[14] *Le white paper*, retrieved from http://www.p21.org/ November 2010 p. 14

Tools for Learning not only addresses the need for computers and software in the classroom that support 21st century learning and teaching but also access to any tool that is needed in the world today. It's not just about technology. It's about using whatever tools available to enhance and advance 21st century learning and teaching. Educators need access to these tools to share resources, knowledge, and practice to connect with each other and the community as a whole. Administrators need to access these tools to manage the school itself including managing student records, facility operations, and communication. As *Le white paper* suggests, "Students today need access to digital tools and media-rich resources that will help them explore, understand, and express themselves in the world they will inherit tomorrow."[15] Access to these tools is imperative in the education enterprise. They allow us to connect with each other and the wider community. "The essential goal of technology, as it is with all systems for learning, is to support people's relationships to each other."[16] Technology planning however, must be addressed systemically. For true cohesiveness to occur within a school or division, technology must be seamless in its development and implementation. This is where the one-to-one platform fits into place. One-to-one access allows students and teachers immediate and constant access to some of these technology tools. In Springbank Community High School, the one-to-one platform has dramatically changed student learning along with fundamental changes to pedagogy and practice.

The *Communities for Learning* put all of the aspects of design, time, and tools and places a 21st century learning organization squarely into the larger community and world. One of the most important endeavors we do in education is developing human connections. Often though, schools have been an isolated island within the community. *Communities for Learning* invites the community into the school. The school becomes a resource for the community and the community becomes a resource for the school. As the Partnership for 21st century learning suggests, "Positive and productive relationships within and outside an organization enable it to carry out its mission more effectively. When people are connected through technology and/or collaborative arrangements, their effect is multiplied."[17] When everyone in the school community shows a commitment to life-long learning, the importance of education and learning is reinforced throughout a child's life. Again, the Partnership for 21st century learning group points out,

> Today's 21st century learners view learning less as the imposition of rules and procedures from some outside source, and more as a self-directed process with increasingly greater levels of responsibility and commitment. Thus, accountability within a 21st century educational system is understood to be an internally motivated and

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[15] Ibid., p. 15

[16] Ibid., p. 15

[17] Ibid., p. 22

organizationally aligned sense of commitment to the student body, to the community, and to the education profession.[18]

These partnerships with the community may take a variety of forms. It may be providing spaces for students in Work Experience or Registered Apprenticeship Programs. It may be a space for students to complete an internship or co-op program with a law or engineering firm or dentist office. It may be providing community experts to assess and evaluate student's work and projects. It may even expand beyond the local community. "Potential partners abound in the connected world, and they can be accessed from anywhere at any time over the Internet."[19] The benefits of creating a greater link between the school and the community are mutual indeed.

The final pillar that creates the condition to support 21st century learning and teaching is the *Policy for Learning*. Policy is the organizing structure that sustains and builds 21st century learning and teaching. It is the fundamental body that allows 21st century learning and teaching to occur. If the policy is inflexible and antiquated, so too will be the pedagogy and practice. As *Le white paper* suggests, "Policy is the guidance system that regulates the activities, distributes the resources, and sets the priorities that determine, in large measure, the role of education within society."[20] *Policy for learning* will not only be apparent at the school level but also at the school division or district level as well as at the Provincial level. Since the 1960s more and more constraints have been placed on schools. What all this regulation has achieved is a stifling effect on the schools themselves. Individual schools and School Boards are unable to adapt to the local instructional needs of the students in the schools. What could potentially be an adaptable and creative situation is limited by the regulations imposed. All of these administrational bodies must be able to work in concert with one another to provide the most flexible and dynamic learning environments that meet the varying needs of each individual learner within each unique community. As Paul Hill notes, "students, not the system, must become the primary organizing principle for educational policies."[21]

In 2010-2011 we asked the stakeholders in the Springbank Community School what was possible for the school as we move into the future. The following offers some insight into our discussions and potentially a way to move forward.

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[18] Ibid., p. 24

[19] Christen, A., (June 2009) *Collaborative Learning in the 21st Century*, techniques, p. 30 retrieved from www.acteonline.org in January 2011

[20] Ibid., p. 26

[21] Hill, P.T. (February 2006), *Put Learning First: A Portfolio approach to public schools: A Policy Report*, progressive policy institute, p. 1-19

Data Collection and Analysis Procedures

Each of the phases of data collection used the same basic framework for the development of 21st century learning environments. This document is attached in Appendix A: *Survey distributed to all stakeholders.* However, although the questions were the same, the format in which the responses were given was unique to each group of stakeholders.

In the case of the students, the Social Studies department was asked to distribute the survey. Some classes used the Google Docs application and shared their responses not only in their groups but also as a reflection of the larger discussion. Some classes completed the survey individually as each student was given a copy of the survey to fill out. In total half (approximately 350) students were surveyed for their responses and ideas on how we could transform Springbank Community High School into a 21st century learning organization.

The teachers were also asked to respond to the same document as the students. The format for the teacher responses however, was part of a Professional Development day at the school. The teachers were given a brief overview of 21st century learning Environments research. The teachers (approximately 35) divided themselves into groups and did so quite randomly. They gathered along cross-curricular and cross-graded lines. One member of each teacher group acted as a recorder for the group and like some of the students, compiled their results on the Google Docs application. Once the teachers compiled their results on the pillars of 21st century learning environments, we gathered again to hear some of the highlights of their conversations.

As well, the School Council parents were asked to give their input into 21st century learning environments and what that meant to Springbank Community High School. On February 16, 2011 the parents met for their regular School Council meeting. However, the meeting began with a brief overview of the 21st Century Learning Environments research. As well, the parents were asked to read *Le White Paper* [22] as a backgrounder to the research. There were 16 parents in attendance. We broke into two groups each led by a staff member. The staff member recorded the parent's responses to the survey on the Google Docs application as well.

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[22] Retrieved from
http://www.p21.org/route21/index.php?option=com_content&view=article&id=192&Itemid=271, November, 2010

Compilation of Data

Part 1: Committee Results

As the nine member committee struck to look into the research for 21st century learning environments, visits to a variety of school sites and websites, a detailed list was created to provide information to begin our development as a 21st century school. Taken in consultation with Administration and the Curriculum Leaders at Springbank Community High as well as the academic research and models of a variety of different schools with alternative timetables including: High Tech High, San Diego, CA; New Tech, Anderson, CA; Wyndam High School, Wyndam, NH; The Met, NYC; Bishop McNally High School, Calgary; St Joseph's High School, Edmonton; Bishop Carroll High School, Calgary; Centre High School, Edmonton; and Urban Academy, NYC; this comprehensive list outlines strategies that some schools employ to enable flexibility and progressive learning environments.

- **Advisory groups**
  - Learning Strategies Course
  - Personalized scheduling for independent courses (PSDL- Personalized self-directed learning)
  - Students create their own four-year plan in Grade 9 (UbD)
  - Regular review of student progress
  - Grade 9 begin their Gateway/Capstone project and the rest of the students in the cross-graded advisory work on their project
  - In some schools, advisory is a mandatory two hours per week
- **Three semesters in a year**
- **College/University/Registered Apprenticeship Programs and partnerships** (First year college level classes taught at SCHS, RAP programs, IB, AP)
- **Hybrid** model where some classes are run independently and some in a regular timetable so students could fast track if they so choose or go slower
- **Personalized Self-Directed Learning (PDSL)** - students must have a minimum of 80% in grade 8 or 9 subjects and approval from a teacher and parent, although this varies from school to school. Characteristics of a PSDL student (strong reading skills, strong organizational skills, strong communication skills, and goal setting skills)
- **Departments create timetables** for their particular subjects (include what and who to teach, when)
- **Timetable Tumbling** - Rotate the blocks throughout the day and week
- *Academies of Learning* designations for option classes (Languages, Performance and Visual Arts, Construction, Culinary Arts/Hospitality, Fashion Design/Cosmetology, Information Technology) Students can choose which one(s) they would like to concentrate on (more in depth learning for a particular interest) The potential for *Academies of Learning* in afternoons and core subjects in the morning.

- Larger chunk of time for some option classes (Physical Education, Drama, Art, or Music for a whole afternoon)
- Use room 242 (formerly a computer lab) as DL centre or PDSL centre, may be used as a test centre)
- **Learning Commons** - Establish a quiet place where students can work independently but also have spaces for group/collaborative work.
- Create a "Math Lab", "Writing Lab" where students can go for help and provides a quiet place to work.
- Make better utilization of "J" Block
- Create spaces for alternative classes (Humanities, or AP)
- Open school up 24/7 for library/facility use by community groups (tutoring, post-secondary partners, continuing education courses, high school courses etc)
- **Academic mentoring** from people in the community (lawyers, doctors, engineers, etc.)
- **Internships** for all grade 12s (prerequisite to graduate - minimum 30 hours – students find their own internships) and/or Senior project where the grade 12 class does something in the community (gives back)
- No bells
- Same teachers for grade 9 and 10 and another for 11 and 12
- **Yearbook classes** (students get credit for putting together yearbook – scheduled as a class time)
- Narrative assessments rather than report cards

The committee looked at each of these ideas and responded to how and what they thought would be a viable solution to developing the 21st century learning environment model at Springbank Community High School. Each of the committee members was asked to list their "top three" priorities for the school in the immediate future. Table 1 is a compilation of the results of the committee.

Table 1: Committee Responses

21st Century Learning Environments characteristics	Number of Responses	Comments
Advisory Groups	7	Must be purposeful
Three Credit Options	1	
Timetable Tumbling	5	Rotation throughout day
Designated DL Room	2	
Narrative Student Reporting	1	
Timetable Flexibility	6	J blocks, evening classes
Connections with Community	1	
Academies of Learning	2	options, am core/pm
Project Based Courses	2	include PDSL or Humanities
Departments decide timetable	1	

As a result of the committee's work, the "top three" characteristics of 21st century learning environments were providing the students with an Advisory group, tumbling the timetable, and providing flexibility both within and outside the regular school day. As a school we are intimately connected with other schools in Rockyview Schools, and therefore recognize there are significant limitations to what can actually be achieved with regards to scheduling and timetabling. However, the committee felt that the option for tumbling the timetable was still a viable one and would hope that in the future this option could be considered.

Part 2: Student Results

As there were over 350 responses from the students for the Pillars of 21st century learning environments survey, the data was analyzed using a text analysis tool on-line. [23] The following are some of the highlights outlined in student responses.

Flexibility of Time:

Student's responses to the *Flexibility of Time* option expressed a willingness to achieve greater independence and responsibility in their choices of when to get work done. They were supportive of a "flex day" or even "flex periods" that allowed them time to catch up on school work or meet

> "If we are trusted to leave our house to go to school, let us leave on spare. Maybe we have an appointment, maybe we want to do some homework in our own living space, or maybe we would like to eat or catch up on some sleep. Leave it up to me."

individually with their teachers for additional help or if they had questions. They really stressed the idea that they would like more "personal" time with their teachers.

As well, they generally found it hard to have the same classes every day. Part of this is a collective memory of the timetable from the previous year in which their classes rotated throughout the day and in some cases, the students were not in the same classes every day. In the old timetable, they felt they had the opportunity for more variety in their schedule. Again, some of this reaction could be attributed to nostalgia however; they do mention that some students are getting stressed out with the amount of homework assigned. They expressed that when they have the same classes every day, particularly a semester of all core courses, they have no opportunity to spread their homework out over time.

They also thought that the new schedule and particularly the increased length of class time was too long. They believed that it was too hard to concentrate for 87 minutes. One student even commented that they felt that

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[23] Retrieved from http://www.online-utility.org/text/analyzer.jsp January 30, 2011

some teachers too, found it hard to concentrate for that length of time. On the contrary however, the students also wished that if they were writing an essay in class, that the 87-minute period is insufficient.

One additional comment that many students made was in regards to the exam week. This was of particular concern with the Grade 12 students. Their concern surrounded the idea that in class exams and some Diploma Exams are still written within the regular school day schedule. Both the English 30-1, 30-2 and Social Studies 30-1, 30-2 written exams (Part A of the Diploma Exam) are written as the rest of the student body is still in classes. The students expressly wished that more time could be given for exam week, so they had the opportunity to concentrate and study for their final exams rather than being distracted by having to attend non-Diploma classes and respond to the rest of the student body.

Flexibility of Design:

With regards to *Flexibility of Design*, students responded more often than not that the school was a rather sterile environment and that some practical changes could be made to enhance student learning in the 21st century. The first comment students made was in regard to making the classrooms and the school more inviting. They thought the use of posters, more colourful paint, and nicer floors would be beneficial. Also they responded they would like more artwork up on the walls whether that was in individual classrooms or in the hallways. As well, the students recommended that each teacher open their blinds when appropriate. They miss not having natural light. In addition to the classroom, they thought the use of tables and comfortable chairs was a necessity to the 21st century classroom. The students also commented that some areas of the school are either too cold and others too hot. In particular, the portables attached to the school have these fluctuations in temperature.

> "Some areas of the school are cold. It's hard to learn when you are cold."

The students commented on creating a student gathering area where they can gather to work collaboratively or individually. One student commented that the library could be used for this purpose. They also observed that these areas, although not necessarily the library could be used during breaks or lunch as many complained they didn't like sitting on the floor to eat lunch. The students regularly commented that the hallways were very crowded not only at lunch but also between classes as well. The expressed some concern that it was difficult for them to get from one end of the school to the other in the time allotted between classes.

The students also thought that the installation of water fountains that accommodated reusable water bottles was not only more practical but also environmentally conscious.

Tools for Learning:

In response to the *Tools for Learning* pillar, there was generally a mixed review for the one-to-one platform in the school. In some cases, students commented that the computers were too distracting from their learning and in some cases, the students recognized a distinct drop in their work ethic. They also mentioned that the teachers also needed to develop their skills in the one-to-one platform. One of the other complaints about the one-to-one platform was the frustration with the web filters. They found when they are doing research for their classes that many sites, informative for their research, were blocked causing the students to either wait until they got home or bypass the filter at school.

The students also commented that in some of their classes they use their computers rarely where in some cases, they used their computers regularly. They were also concerned that paper copies of their textbooks would become obsolete. They wanted to make sure that not only digital, but also paper copies of their texts would remain. One student suggested however, that the use of the computers was all well and good but reminded staff that hands-on learning was also beneficial.

On the more positive side, the students found that the use of one-to-one and the ability to access materials from home through Moodle in particular, was of great benefit. The students suggested that there should be more courses, assignments, and resources offered on-line. One student also commented that it would be beneficial to put practice exams on-line as well.

Overall, although the students recognized the inherent difficulties with beginning the one-to-one platform, they also acknowledged the benefits and have begun to use the tools in the manner that enhances their learning.

Communities for Learning:

When responding to the *Communities for Learning* pillar, some of the students expressed a genuine interest in developing this particular pillar. They thought it was necessary to build stronger connections with post-secondary institutions. Whether that was in the form of general information as well as offering some introductory university level classes, the students thought that this might provide a more seamless transition to the post-secondary level.

As well, they expressed a wish for more field trips where they had greater opportunity to gain real life experience. Also, they thought the idea of a partnership or internship with a business in the community may also provide that real life experience. The students thought that rather than just offering the "Take a Kid to Work Day" in grade 9, those same kinds of opportunities could be offered and expanded for students throughout their high school career.

Some students also expressed a desire to become increasingly involved in the community offering volunteer services to a wide range of organizations. This too, they felt would give them the opportunity to learn in the real world.

Policy for Learning:

The students responded to the *Policy for Learning* pillar many of their comments came back to the notion of time. They felt they needed more time to study. They wished for a longer exam break. They also expressed a desire for longer breaks between classes. In many cases they felt rushed to complete assignments or to study for exams. All of this added pressure on time has added stress and anxiety to the students.

Above it all, the students expressed a desire for someone to advocate for the reduction of the weighting for the Diploma exams. The students recognize that their performance on the Diploma Exam could very well determine their post-secondary academic placement. They want to succeed but feel the 50% weighting of the Diploma Exam creates unfair results when the competition for university placements goes beyond Alberta students. Ultimately, the grade 12 students wanted someone to stand up to Alberta Education and say enough is enough.

> "Let students have more flexibility in how and when they work."

Overall, students are generally pleased with the overall structure of the school but they do have their suggestions as to how to make it better. They were thoughtful in their responses and seemed genuine in wanting to make their schooling experience a good one. Students seem much more ready to move into flexible environments that we have been discussing. Many would like the increased responsibility to work at their own pace and their own time.

Part 3: Teacher Results

On February 28, 2011, 35 teachers at Springbank High School met for a Professional Development day. The focus of the day surrounded the notion of building a 21st century learning environment at the school. Figure 3 shows the results of the teacher's responses using the Wordle application. The words that appear larger in the Figure show the frequency each word appeared in the teacher's responses.

The primary focus for the teachers in developing Springbank into a 21st Century school was the students. As we move forward, student needs must be paramount in whatever policy or structural change occurs. As well, providing time to work collaboratively with their colleagues and the students proved important. The following outlines the highlights of the teacher's responses.

Figure 3: Teacher responses in Wordle

Flexibility of Time:

As the teachers responded to the *Flexibility of Time* option, many thought that the concept of choice was very important. In choice, they suggested that the students are provided the opportunity for a variety of options when dealing with how classes are structured. This may include some traditional classes, some blended classes where the students have the option of taking a class partially on-line and partially face-to-face, and some classes in a complete on-line format. The teachers thought that expanding the courses offered through WeConnect and Distance Learning could provide the flexibility some students require. They also cautioned however, that there needed to be a dedicated teacher to supervise and advise the students in these types of programs.

Also teachers thought that the timetable should be flexible enough that the students don't have the same classes every day. They thought that this would be potentially reflected in providing times for independent study. The teachers also recognized that with providing this flexibility to students that their own teaching practice and the structure of their own jobs would likely change as well. One group commented, "We need to be open to teaching in alternate hours such as after school." There was some great discussion and enthusiasm surrounding the idea of a *Flex Friday*. In accordance with the High school flexibility project where sixteen high schools throughout Alberta are experimenting with all sorts of alternatives to traditional timetables, the idea of the Flex Friday would provide some of the flexibility students are requesting. One Friday a month there would be no set class times. Students would check with teachers for help, finish missed assignments, or work on enrichment projects. Students that are on track and have all assignments handed in can get signed off by teachers and could have the opportunity to leave early.

The teachers also thought that an alternative schedule could provide them with the opportunity to collaborate within their departments. They also

recommended that teachers who teach the same class have the same prep time so they could work more closely in developing common lessons and assessments. One group commented, "We would like to work more closely together".

To combat the overcrowding issue the students alluded to as well, one teacher group suggested that the time allotted for lunch should be staggered. They offered that this might open up classroom space and potentially solve the overcrowding issues.

Flexibility of Design:

As teachers discussed the *Flexibility of Design*, a few teachers saw no need to enhance the learning space for the students. However, the vast majority thought that the students and teachers deserved a more open and inviting space for learning to occur. The first thing that teachers recognized as being important in design was getting the students off the floor when they are eating lunch and providing some sort of area where they could eat comfortably on a chair or at a table.

They also recognized the need to improve the aesthetics of the school by decorating the school with students' work. One teacher group suggested bringing life into the hallways and the classroom including decorating bulletin boards, and posting artwork throughout the school. Teachers thought that this might also provide a sense of pride and ownership if the students' work is displayed. Another suggestion was purchasing flat screen televisions and mount them throughout the school to not only display students' digital work but also to provide information and announcements.

Teachers too commented on the use of attached desks and suggested moving forward to only purchasing individual desks and chairs. They like the idea of being able to configure their classroom in a variety of ways given whatever is going on in their classes at the time.

Another suggestion made by a group of teachers was the idea of the creation of a multipurpose room in Physical Education where students can work out when they are on a spare or in their free time. The benefit this group suggested was that the students could get regular activity even if they are not registered in a physical education class. One concern however, was that this room would need to be supervised.

One more suggestion that resounded with the teachers was the idea of implementing spaces dedicated to department office space. They felt that this way it might free up classroom spaces and it may offer some more flexibility in the use of space and time.

Tools for Learning:

As this was the inaugural year for the one-to-one project, teachers recognized a variety of strengths and weaknesses inherent in the use of computers in the classroom. One of the generalizations however suggested that

changes in perspectives of both teachers and students are needed if the one-to-one learning environment is truly effective. Teachers need to believe that students really can and will learn without being lectured. This is a fundamental shift in thinking for many teachers. The students' perspective also has to change in that these new flexible environments will require a greater level of student independence and responsibility.

The teachers suggested that the implementation of one-to-one platform has been inconsistent throughout the year. Some teachers found the access to computers excellent in offering students ready access to all kinds of tools and information. They comment however, that they need to be given the time and the resources to search for and learn to use technology that will help in the various areas. Teachers feel that they need more support to learn computer skills as well as having student support. As much as the students are "digital" kids, they still require the support to learn many new functions on the computer. One group suggested that expanding our definition of technology to include more than just computers might be more practical and pragmatic. Another group commented that there are various tools such as styluses for teachers to write on students' digital work or tablets that may provide a better platform for students working in science, math, or art. As well, a suggestion was made that the use of some technology tools may help in the way space is used and potentially more efficient use of space. One suggestion was creating a virtual physical education lab. One of the resounding comments that teachers made is that the use of technology can and should be limited in some classrooms and that there is always the need to recognize students need hands-on experiences as well. They need to be able to "do" what it is they are learning about.

Communities for Learning:

As the teachers looked into the *Communities for Learning* pillar many practical suggestions were made to strengthen Springbank Community High School into a 21st century learning environment. As a "community" school there was some recognition for a broader and deeper connection to the community. Although there was great support for this program, it was recognized in the conversations that there should be someone with community ties that could coordinate these activities.

One of the groups commented that since the school has not capacity for woodshop or mechanics facilities that this opportunity of real life learning for the students could be made through community partnerships. This partnership could also be in conjunction with the Registered Apprenticeship Program (RAP) but may not. There are many citizens of the community that have businesses such as builders, mechanics, cosmetologists, and chefs that could provide a worthwhile and productive partnership for both the businesses and the student. Many teachers also suggested that although we have a high percentage of students planning on attending universities, we also have a responsibility to provide these other kinds of partnerships or experiences for those who are not.

These kinds of programs need to be recognized as a viable alternative to a university education.

Comments also suggested that if these partnerships could be expanded, so could our course offerings such as journalism or travel services. As well, having the right communities involved could help us offer the kind of professional and meaningful programs that might also help us with student retention such as a Fine Arts Certificate. As well, providing the students with internship opportunities in engineering or law firms or others could give the students a broader understanding of engineering or law before they embark on a four-year degree.

Each of the teachers' groups commented positively about creating meaningful partnerships within the community and how beneficial they thought it would be for the students of Springbank.

Policy for Learning:

In responding to the *Policy for Learning* one comment reverberated throughout the teachers' comments. The overwhelming response was that the policy would need to reflect the increasing flexibility within the school structure. In some cases, although the teachers were not specific, some of the rules would need to be relaxed to allow the flexibility to occur. They also thought that students should be able to accelerate through classes based not on age but on their ability. With the emphasis of 21st century school environments focusing on flexibility whether that is in design, time, tools, or community engagement, the policies that drive the system must also be flexible to reflect the changing time.

Part 4: Parent Results

As the parents met to consult staff around the idea of 21st century learning environments, many were highly enthusiastic about the potential for change in meeting the learning needs of their son or daughter. Some however, thought that moving too quickly or radical change might provide some inconsistencies for their child's transition between the school and university. Overall however, they provided some additional and valuable insights into the effectiveness of 21st century learning environments and how that could be achieved at Springbank High School.

Flexibility of Time:

Parents agreed, like the teachers and students, that creating opportunities for a flexible timetable is a valuable idea. They liked the idea that students could access courses at other times, in other places and at the students' own pace. Parents were in support however, of the school offering classes both in the traditional model and a regular schedule along with providing on-line access. This parallel structure offering a combination of regular classes, blended classes where part of the course is taught on-line and part face-to-face, and on-line

courses offers students and parents a wide variety of choice surrounding a student's own learning. Another concern raised was that even though we are providing high school courses at a variety of times with a variety of delivery messages that there still needs to be a set time for work to be done on-line or messages sent. The parents concern for their children was that we potentially could be setting them up to work all the time. The parents recognized that ensuring students have down time as well, we are teaching the students the importance of balance in their work and leisure time.

Parents also agreed with the teachers and students that providing a flexible tutorial day would be beneficial to their children. They agreed that this day may provide the students with the option to meet with teachers individually to get extra help or provide them with a time to catch up on homework or work on collaborative projects.

Flexibility of Design:

As parents contemplated the validity of the *Flexibility of Design*, most agreed that it was imperative that the design of spaces needed to match the learning styles of the students. They thought that providing a variety of different spaces where students would feel comfortable was important. Each of those spaces could provide flexibility on where, when and how students work. They also commented that the students needed the flexibility to move around. In Springbank Community High School's space, they thought work stations in the hallways may not only provide a place for the students to complete work, but also will get them off the floor when eating lunch. Parents too commented that the students should have some flexibility in when they eat lunch or at least provide a little greater time between classes so they can eat if they need to. Also, parents suggested that the school might want to look into purchasing water fountains that can fill reusable water bottles, a sentiment echoed by the students as well.

In talking specifically about the classroom space, they thought it was time to move away from the traditional structure of having desks in rows. Certainly, getting rid of the solid desks in favor of tables and chairs seemed to be a reasonable idea.

The parents also commented about the use of the library. It was proposed that this space be transformed into something more functional and in line with 21st century learning and teaching and learning environments, although no specific suggestions were made.

Tools for Learning:

The one-to-one platform implementation at Springbank Community High School has been a topic of interest throughout this past school year. As this is its inaugural year, parents too had comments surrounding its implementation and use. Many parents were supportive of the one-to-one platform but as with the implementation of any new idea or program there were some concerns as well.

The parents wanted to ensure that the technology was being used more meaningfully in classes as some of their children commented at home that they use their computers in some classes but not all. The parents stressed that these tools for learning need not only be defined as technology use. It is important to remember that there are other tools students need like tactile and interpersonal tools that are just as necessary to a child's development.

As well, a lengthy discussion ensued regarding the individual purchase of a computing device prior to the beginning of the school year. One parent commented that not all families are wealthy in the community and that if the family had more than one child in the community the purchase of individual computers could be rather daunting on a family's budget. As a suggestion, the parent recommended that there should be an option for the computers to be rented rather than owned. If a school is considering implementing the one-to-one platform it will be important to consider all of these concerns. The idea of the one-to-one platform is a sound one for 21st century learning and teaching along with 21st century learning environments but the financial commitment to families must be considered.

Communities for Learning:

In discussing the *Communities for Learning* pillar parents were generally enthusiastic about a greater connection between the school and the larger community. They thought that Co-op and/or Internship programs set up by the school could provide their children with valuable real-world experience and a link between what they are doing in the classroom and what they will encounter in the world. Along with Co-op programs, the parents thought it was an excellent idea to get industry involved in teaching, leading and evaluating student projects. Also too, they liked the idea of expanding the Grade 9 Take a Kid to Work day into other grades as well providing a foundation of experience for the student. They also commented about the RAP program in that there should be a dedicated coordinator to set up placements. This idea of having a coordinator to oversee all of these programs was seen as a necessity for the parents and teachers alike.

Policy for Learning:

Parents commented that the Policy for Learning also needs to follow the same adaptable structure for 21st century learning environments as does the rest of the pillars. Policy must reflect the flexibility of the time and the space. One parent questioned whether it was necessary to have blanket policies for all schools or would it be possible to have different policies for different schools and different situations. Also, parents suggested Alberta Education policy also needs to reflect the growing flexibility of 21st century learning environments and value input from parents and the community.

As well, many of the parents recognized the need for assessment practices that met individual learning needs. Part of this conversation surrounded

classroom assessment practice but much of the topic of conversation surrounded the Diploma and Achievement exams.

At the end of it all, parents had some very positive comments about the move to 21st century learning environments and the pillars that support 21st century learning and teaching. They wanted to stress however, that above all, it was important to provide an environment where there was equality in education for all.

Conclusions

As a result of this lengthy consultation process, there are a number of ideas that emerge as important as Springbank Community High School moves into a 21st century learning environment. Overall, each of the groups of stakeholders was enthusiastic about the possibility of creating an environment where each student's learning needs were met.

Generally, the commitment to learning any time, any place, and any space was supported by the stakeholders. The idea of giving students a choice and the responsibility for their own learning certainly supports 21st century learning and teaching. As well, both the students and teachers supported the idea of a 'flex day' offering a time in the schedule to consult with students and teachers or to collaborate on a project or assessment.

The Springbank school community also agreed on the need for additional workspaces within the school that offered a flexible function. This need for flexible workspaces is also reflected in the classroom, in that it was universally noted that the solid desks are a relic of the past and the necessity of chairs and tables could provide a much more flexible option. Also, on a more practical note, all thought it was necessary to find a way to get the students off the floor while eating lunch. Providing those additional workspaces could also alleviate this problem. Also, it was generally agreed that the water fountains should be changed to offer the option for reusable water bottles. As the school and society becomes more environmentally conscious this is a reasonable request. This issue is also being addressed at the school already with the Environmental section of the One Village leadership group looking into the alternatives. Each group also made comments about the use of the library. This is being addressed already as Rockyview Schools is implementing a change into the Learning Commons model where the Commons will provide a flexible learning space for students, staff and the community at large.

The one-to-one platform implementation has generally been well received by the Springbank High School community. There are still some issues with its implementation but having access to courses and course materials on-line and using the various tools that technology offers has added a new dimension into the quest for 21st century teaching and learning. One strong consideration though is to be aware that tools for learning are not always about technology use. It is important we recognize that learning happens in a variety of ways and using a computer is not always the best way to learn a new skill.

Almost all of the stakeholders were enthusiastic about making a greater connection with the larger community. Whether that was through offering Co-op or Internship programs or encouraging and support students in the RAP program, all thought that one of the best ways to support 21st century learning and teaching was to provide the opportunities for the students to have real life experiences. It was often suggested though there needs to be a person that coordinates all of these placements and makes the connections with the community.

As far as policy is concerned the groups overwhelmingly agreed that to create a true 21st century learning environment policy must reflect the growing need for flexibility. Policy too must be flexible enough to allow for the development of 21st century structures. Policy must also reflect the individual needs of students and the individual needs of schools. A one-size-fits-all policy does not reflect 21st century learning environments principles.

Ultimately we must put students first in our decision-making. What is best for their individual learning needs and the flexibility to achieve learning is key. It is not necessarily about content, it is their acquisition of the 21st century skills that will eventually lead to our success. When we watch the graduates walk across the stage at the end of their time with us, we need to be able to confidently say, that they have achieved the skills and attitudes necessary to move into the world. It is also about creating the learning environment that best supports the individual learning needs. It is implementing timetables, designs, tools and policies that support 21st century learning and teaching.

And what about us, those of us that have dedicated our lives to the education of youth? We too, need to build the skills and attitudes that will transform our practice. Working within a structure that is designed for 21st century outcomes should alleviate some of the anxiety and frustration in developing 21st century teaching skills.

We do have to remember though this is a long process. Just as it takes time to turn a ship, it will take time to build 21st century learning environments. As Taubman suggested in his presentation at the *Curriculum at the Edges Conference* at the University of Alberta, "What does it mean to live in the space between what is no longer and what is not yet?" [24] We are in that space right now. We have moved forward with exciting initiatives and we can imagine the space that is not yet.

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[24] Taubman, A., (2010), Presentation at the Curriculum at the Edges Conference, University of Alberta.

Appendix A: Survey Template

Pillars to 21st Century Schools – Conversation with students

There are five pillars that provide the foundation for 21st century learning environments. Each pillar needs to work in concert with the others for a true transformation to occur. For each of the following pillars, please provide some feedback. What can we do at Springbank Community High School to make your learning more effective?

- *Flexibility of Design* **(For example: use of building spaces, individual and collaborative learning spaces, library, aesthetics, classrooms)**

- *Flexibility of Time* **(For example: length/scheduling of classes, collaborative time built into schedule for students/staff to work together, scheduling classes outside the regular school day, independent study in core classes)**

- *Tools for Learning* **(For example: use of technology and one-to-one computers, other tools you need)**

- *Communities for Learning* **(For example: involvement with community at large, partnerships with post secondary institutions and businesses, professional partnerships between teachers/students and other professionals in community etc.)**

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- *Policy* **(For example: what rules and regulations would you change to enhance your learning?)**

Use this space to provide any additional comments.

Appendix B: Additional Resources

Creating a learning environment for the twenty-first century: Resource list

Philosophy

"The "Principles for Connecting High School Reform and 21st Century Skills" are:
• Advocates of high school redesign and 21st century learning should work together to support each other's efforts.
• High schools should prepare all students with 21st century knowledge and skills.
• High schools students should demonstrate achievement of 21st century knowledge and skills.
• High school designs should fully and strategically integrate 21st century knowledge, skills and assessments.
• Professional development of 21st century skills is critical for success.
• Advocates of high school redesign and 21st century learning should partner with the business community and community-based organizations."
(http://www.p21.org/index.php?option=com_content&task=view&id=205&Itemid=185
P21.org)

Overall development of 21st century learning environments

- Results that matter (p21.org)
- White paper (p21.org)
- MILE guide (organizational assessment for readiness – p21.org)
- Small schools (less than 600 in high school – no bells – great site!!!) http://whatkidscando.org/specialcollections/student_learning/portfoliohome.html
- http://wvdeskills21.wetpaint.com/page/Introduction+to+Creating+a+21st+Century+School+System (Introduction to Creating a 21st Century School System- includes presentations, webinars etc)

The building

- http://www.teachernet.gov.uk/teachingandlearning/library/learningenvironment/ (UK website about characteristics of "good" building design)
- *Learning Spaces* (ebook from Educause http://www.educause.edu/LearningSpaces)

Technology

- setting up networks and IT use in a rural school division (Giddings Texas and Cisco corporation

- Apple classrooms for today http://ali.apple.com/acot2/

- *Laptops for Learning* (Task force results on laptop use – variety of American School Divisions and Universities)

Libraries

- http://www.ala.org/ala/mgrps/divs/acrl/events/Learning_Environments.cfm (Conference on creating 21st century libraries- University of Tennessee at Chatanooga)
- http://www.macfound.org/site/c.lkLXJ8MQKrH/b.5852863/k.2D95/ReImagining_Learning__YouMedia.htm

Curriculum and Instruction

- *Curriculum and Instruction Implementation Guide* (p21.org)

Professional Development

- *Cultivating Careers* (ebook from educause regarding professional development and IT http://www.educause.edu/cultivatingcareers)
- *First Ask, then Listen* (This short manual offers a starting place for those interested in finding out what students have to say. Teachers can begin for themselves the honest dialogue from which both students and adults so richly benefit. These responses will begin to build a base of mutual confidence that students have something valuable to contribute to their own education. http://wvdeskills21.wetpaint.com/page/Introduction+to+Creating+a+21st+Century+School+System

Policy

- *Put learning first* policy report from Paul Hill (Progressive Policy Institute http://www.ppionline.org/ppi_ci.cfm?knlgAreaID=110&subsecid=181&contentid=253740

Schools implementing One-to-One and 21C Learning Environments

- Windham High School, Windham NH http://www.windhamsd.org/whs/techplanning.cfm
- Amphi Middle School, Amphitheatre Schools, Tucson, AZ http://www.amphi.com/schools/ams/library/21stcentury.html
- New Tech High School, Anderson, CA http://www.anths.org/
- Minnesota New Country School, Henderson, MN

http://whatkidscando.org/specialcollections/student_learning/MNCS.html
- The Met, Providence, RI
  http://whatkidscando.org/specialcollections/student_learning/MET/METintro.html
- Urban Academy, New York, NY
  http://whatkidscando.org/specialcollections/student_learning/Urban/Urbanintro.html
- High Tech High, San Diego, CA
  http://whatkidscando.org/specialcollections/student_learning/HTH/HTHintro.html
  http://www.hightechhigh.org/
- Bath Central School Division, Bath, England
  Policy paper
  http://www.bathcsd.org/staff_directory.cfm

Videos
- http://vimeo.com/10035733 21st Century governance for Independent schools (19 min. Canadian)
- http://www.youtube.com/watch?v=eueIr7fOYGQ 21st Century learning environments - digital worlds with digital tools
- Imagine schools: Sierra Vista, AZ (advertisement)
  http://video.google.com/videoplay?docid=100105821573207425#