

A Conversation about 21st Century Learning

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Introduction

Rocky View School Division is a medium-sized division with about 16,000 students, in Alberta, Canada. Over the past year, we have aggressively embarked upon a voyage *towards* 21st Century teaching in a 21st Century Learning environment. The impetus for this direction comes from multiple fronts – stakeholder feedback, current theory and practice, the introduction of new technologies in the schools, and a belief that in order to best serve our students, this direction is absolutely necessary.

However, upon embarking, we found that there were, and are, many questions that need to be answered. For example:

- How can an entire school division move along the path to 21st Century Learning?
- What are 21st Century Skills?
- How should these skills be taught? What teaching approaches and methodologies are consistent with 21st Century learning?
- What does a 21st Century Classroom look like?

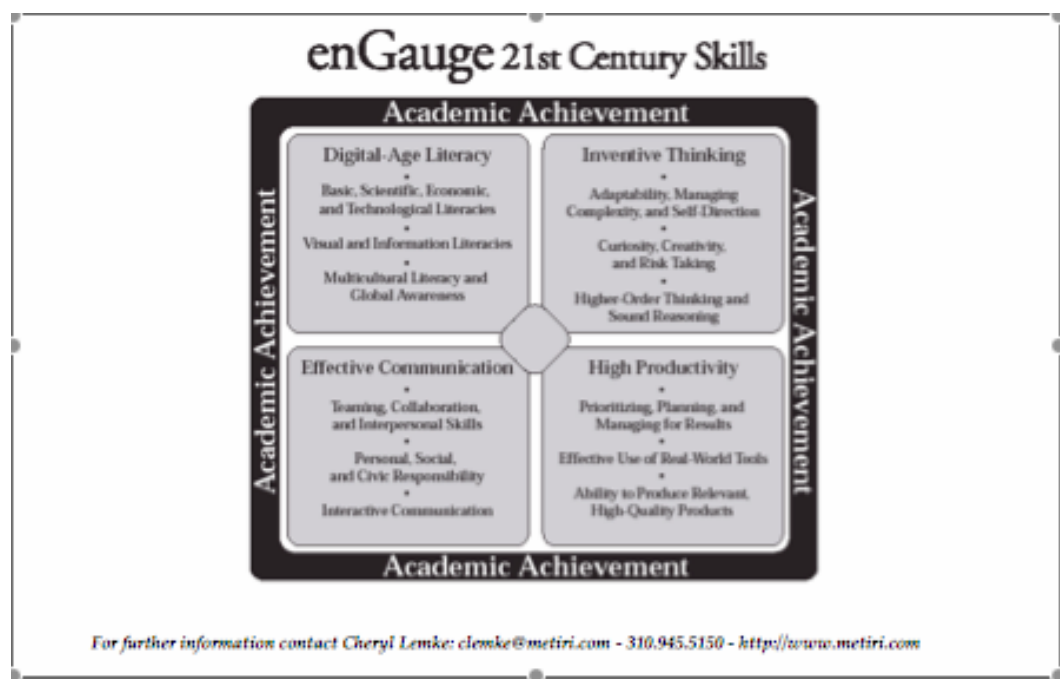
This chapter is a ‘snap-shot’ view of only some aspects of this journey. The picture is incomplete; it is simply a current summary of a complex process, with the hope that you learn something from what we have, and are, going through. The chapter offers a somewhat unique perspective by combining the views of myself, a Senior Executive, and Barry Allen, our field-based resident expert. He is one who, through ‘embedded coaching,’ facilitates classroom teachers’ expansion of their instructional repertoire to effectively unleash the power of technology. We’ll take a ‘big-picture’ view first, then, in order to communicate the process of supporting teachers in their classrooms, we move to a conversational mode.

Divisional Planning Process

Rocky View School Division is mandated by the government to produce a ‘rolling’ 3-year Educational Plan. The ‘norm’ for these plans is the production of a document stating divisional goals and outcomes, generated from priorities derived from Alberta Education’s standardized assessment measures. Last year a decision was made to develop our 3-year Education Plan based upon, in addition to Alberta Education’s assessments, stakeholder and staff perspectives about what they view as the ideal educational system for the 21st Century. This decision resulted in a year-long, extensive process of seeking stakeholder input through a series of structured focus groups.

All the stakeholders' focus groups clearly identified the need for preparing students for the 21st Century, and spoke about the need for students to be technologically literate. This led to the development of a *Three Year Educational Plan, 2008-2011* (RVSD, 2008) containing Goals, Outcomes and Outcome Measures clearly related to this identified need. It was also decided that if the goals and outcomes were to be met, it was necessary to include all staff and students as learners, with the goals applying equally to everyone. Many of the goals, outcomes and strategies refer specifically to “21st Century Learners” (RVSD, 2008).

It is difficult to design outcomes and strategies around goals that are ill defined. It is apparent that a concrete, explicit conceptualization of the 21st Century skills needs to be articulated throughout the division. To guide this process at this point, we find that the most comprehensive source of information about 21st Century Skills is provided by the Metiri Group (Lemke *et al*, 2008), through work commissioned by the North Central Regional Educational Laboratory (NCREL). The information provided is ideal for our purposes; it provides a common understanding of what *enGauge 21st Century Skills* and acts “as a platform for the shifts in school policy and practices necessary to give our students the education they require in a knowledge-based, global society (preface, Lemke *et al*, 2008)”. Not only are 21st Century Skills clearly articulated based upon an integration of research, but a Continua of Progress characterizes what each skill would look like in practice and provides teachers with clear criteria by which to gauge students' progress. An overview of the framework presented in their work is shown below.

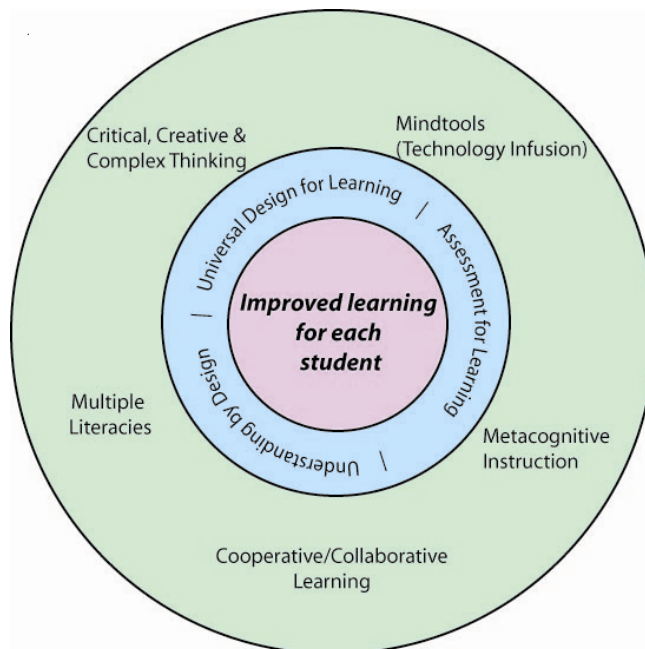


Waters & Marzano’s paper, *School District Leadership that Works* (2006), speaks of a significant positive relationship between district leadership and student achievement when there is collaborative goal setting with all relevant stakeholders leading to non-negotiable goals for achievement and instruction, and when these goals are then aligned throughout a district. In line with this thinking, RVSD’s *The Three-Year Educational Plan* will be implemented at all levels throughout the division, with strategies to support the implementation of each goal generated by all divisional departments, with school staff’s discussing, then infusing strategies for implementing the 3-yr. plan within their own School Education Plan, and finally with teachers aligning their personal professional development goals to the plan.

21st Century Learners & Classrooms

In order to move schools and classrooms towards an education system preparing students for the 21st century, more is needed than just an understanding of the skills necessary for both students and teachers. This knowledge needs to be coupled with an understanding of what 21st Century Learners are and a vision of what 21st Century Classrooms should look coupled with targeted, on-going teacher professional development. A conversation between Barry and myself addressing these issues and recorded as a pod-cast, is summarized in the next section. The process of “embedded coaching” used by Barry and the team is *one* of the means used to support teachers as they move their instruction into the 21st Century.

21st Century Learning in Rocky View School Division



Describe the 21st Century Learning Model? Why was it developed?

Improved learning for each pupil is the central point. In the initial planning day with teachers, a goal is established for the day, keeping in mind this central focus. The blue ring is important, since it shows the three main educational approaches for planning - Understanding by Design (Wiggins & McTighe, 2005), accommodation - Universal Design for Learning; (Rose & Meyer, 2002, Tomlinson & McTighe, 2006), and, enhancing assessment - Assessment *for* Learning (Davies, 2007; www.annedavies.com). These three approaches interact with one another; *Understanding by Design* guides the planning process; *Universal Design for Learning* ensures that accommodations are planned for and put into place to allow for **all** learners, and *Assessment for Learning* is how teachers check that understanding is in place and that learning is enhanced through continuous feedback.

The outer ring is an ‘informing ring’ for the three key approaches of the blue inner ring. The factors shown are current, strong, research-based pedagogical approaches. All of the informing factors help to reinforce that what is *most* important is the teaching methodology; technology is used to support and enhance the teaching. A good example of this perspective is *Mindtools* (Jonassen, D. 2000) – engaging pupils in critical, creative and complex thinking while using technology, rather than technology being an activity on the side. The same applies to Assessment. When technologies are used in assessment processes, we want them to be used to produce a ‘photo-album’ for assessment- multiple pieces- a portfolio, rather than a snapshot. The depth of knowledge and experience concerning the methodologies of the outer ring enhances the use of the approaches of the inner ring.

One of the reasons that this diagram was developed goes back at least 10 years. Over that time, teachers have voiced a concern that every year a new topic is tackled in professional development; one year it is multiple intelligences, next year metacognitive instruction-- now we’re doing collaborative learning, next cooperative learning, now it is the critical thinking era. There seems to be neither rhyme nor reason to the various topics chosen, nor time for in-depth application before the next topic is introduced. Therefore, in generating the model, it became really important to show how the various topics fit together. The outer ring informs the three key approaches, with the focus being improved learning for each student.

This model accounts for the need of teachers to apply new knowledge on a long-term basis. It allows the teachers to continuous use the knowledge learned as they improve learning for each student. It is a model

for internalizing; if you don't use it, you lose it. It is important that not only teachers but also administrators internalize new knowledge through its application; the model should guide the way administrators work with their staff in designing professional development at the school level.

Divisional Perspective

If schools and teachers are expected to improve their instructional practice in order to support 21st. Century Learning, they need a clear model of what this looks like. It is important that the model be one that can be consistently implemented throughout the division. Certain schools can be emphasizing in their Professional Development differing aspects of the outer ring, but the efforts of all schools is towards improving learning for each student. Their individual school emphasis reinforces the middle blue ring, which is the on-going work taking place in the classroom. This year, in RVSD, through the One-on-one Mobile Computing project, this has been pivotal, because the project's focus is on improving learning for all students. The 'embedded coaching team' has members from 3 central office branches – Technology, Support Services and Instruction; this models for the schools and teachers that all the resources of the division are working jointly towards improving learning for all students.

Describe the process used in the classroom with teachers to facilitate their becoming adept in the skills required for 21st Century Teaching.

The first step is establishing 'key understandings' about the teacher's subject area. The process begins by talking to teachers about *Understanding by Design*, the fact that we need to begin with the end in mind. I ask them, "What is it that you really want the students to understand?" Tied in with this is the notion of 'clear targets'; in order to help them see what it means to begin with the end in mind, they are shown some samples of previously built units of study that incorporate all of the features being talked about. Then we start the planning process by identifying 'key understandings' --"What is it that students *really* need to understand from the Programmes of Study? What matters most?" This does two things -- It makes the teachers think, in depth, about their subject matter, and also refers them back to their Programme of Studies that the school system is mandated to 'uncover'. I prefer the term 'uncover', referring to the 'inquiry stance' that this process is meant to facilitate, rather than 'cover', which is a more static and content-driven perspective. This process takes a long time, at least 1/2 a day.

Part of the process involves modeling 21st Century learning by setting up an LCD projector connected to a laptop, and working with a small team, no more than six at a time, preferably four. It must be a 'collaborative team' that will continue the conversation, with life, afterwards. The school team members are

ideally teachers who are working on a common topic (e.g., all grade 4 Social Studies teachers and the Resource Room Teacher). Those from the division also work as a team -- as well as myself from the Technology Branch, there is a person with a strong knowledge base in assistive technology and students with special needs from the Student Support Branch and one curriculum specialist, from the Instruction Branch. The role of this divisional team is to bring the process to the table, *not* impose subject matter.

We project the Programme of Studies on the screen, provide the participants with a planning framework, explicitly called, 'key understandings' to begin the discussion. I act as the recorder; I capture their sayings. It's like 'brainstorming' – nothing is wrong – we put it all down, then edit together. What is a 'key understanding' for this subject matter? Most of the time it is the teachers that are throwing ideas out; they begin to see the difference between content information *versus* understanding about what matters in the subject area. Once the 'key understandings' are established, we move on to the second step, generating 'essential questions'. Throughout this process, the teachers are honoured -- it is their unit of study, they are the subject experts – the divisional team acts to support and guide the process.

Essential questions are those that will drive the exploration, this enquiry of the subject matter. Are there questions of debate in the field that the experts are arguing about? Are there issues in the news, the world press related to the subject matter? In order to discuss these issues, are there understandings of the content necessary in order to discuss these issues? The 'Essential Questions' are then mapped out (e.g., discussed and shown on the wall with the LCD projector) with the 'Key Understandings'. Guiding questions for the teachers are, "Are these essential questions targeting the key understandings? Are there essential questions for each of the key understandings?" This process guides the teachers to see that the student investigations or enquiries based around essential questions lead to the students' arriving at key understandings. The questions are posted on the wall, as well. They are global, open-ended, and are arguable (e.g., What about this?).

This process of arriving at key understandings and essential questions about the subject matter is a major task and takes about half-a-day. At the end of the process, there is a base set of about 3 key understandings and about 3 or 4 essential questions. Remember that the students will use these essential questions to drive their classroom enquiry. They will edit or pose other essential questions as they work through their own enquiries. One of the key student goals is that the students themselves will be able to develop questions in the classroom.

As you do this, how do you take into account the developmental level of the students?

The understandings are written in ‘kid friendly’ language and posted in the room. It will be a ‘kid friendly’ version of the understandings, but in order for the students to actually develop an understanding, it will involve their engaging in discussions, projects, research and so on. In other words, the understandings are pegged at a level above the student’s current understanding; if not, why would we engage in this process? At this point, there isn’t a lot of concern about accommodating a range of learners; the emphasis is on the subject matter. Later in the process, working with the students, our expectations of the students related to the understandings are tailored to a range of learners – using *Universal Design*.

It seems that key understandings should go across multiple curriculums. How do you take this into account?

It is not very long that units of inquiry move across subject areas. Teachers begin to see that in order for students to arrive at key understandings, content from other subject areas needs to be woven into their units. Once we’ve mapped out the lists of questions and understandings, there is a check concerning whether or not they are consistent with outcomes in the Programme of Studies. Often we find end up looking at multiple Programmes of Studies and map in the outcomes that we are ‘uncovering’ in our unit of study.

The next step is looking at how we are going to assess students. How will students show or demonstrate their knowledge of the key understandings? Assessment evidence is tied to a learning plan. The Learning Plan is an overall guide to the unit, identifying milestones along the way. This is when *Universal Design for Learning* and *Assessment for Learning* practices are explicitly brought to the forefront of the conversations. This is where we start taking a look at multiple ways of learning and multiple forms of representation. How do we give every student a fair chance at showing that they understand? Multiple literacies are considered; as we build assessment evidence, multiple forms of representation are encouraged (e.g., oral literacies, written literacies, visual literacies). The perspective emphasized is that everyone – all students - should be given the opportunity to display success.

Further triangulation is needed for assessment; not just products are taken into account; as well, evidence of learning is also gathered during multiple conversations and observations. Conversations, providing the student with descriptive feedback, are a major component of this inquiry approach. These conversations, in terms of the standard of the work, the quality, can be provided by the teacher, but are also encouraged to

take place peer-to-peer. Students engaging in these day-by-day, moment-by-moment conversations leads to an exponential increase in the feedback received by them about their understandings (Davies, 2004).

Observations are also crucial to classroom assessment. It is important that teachers take the time to observe what is happening in the classroom, to write down their anecdotes, to see the evidence in another light, not just the product mode. Observations add richness and depth to information gathered through conversations and products.

This conversation with the teachers about acceptable assessment evidence is also a rather lengthy one. Teachers begin to see that assessment is a process of building evidence over a period of time; it is a process of checkpoints along the way of the inquiry process. We want to ensure that they students have success by providing constant feedback along the way, not just waiting to the end for the product submission or the test result. Assessing their understandings through the development of a series of authentic tasks is now discussed. Critical, creative and complex thinking is embedded in these tasks; they are designed so that they will necessitate the students addressing the key understandings and essential questions. Technology provides the tools used in this enquiry process.

What would you envision the 21st Century Classroom to look like in terms of its organization, the way it operates and current technology in order to support 21st Century Learning?

There is a major issue emerging – students are more and more experiencing ‘a disconnect’ between what they are learning informally outside the classroom as compared to the formal learning taking place in school. “For younger people, there is a danger that they will increasingly see school as a turn-off, irrelevant to their identities and to their lives (Attwell, 2007).”

We need to move our schools away from a teacher-centric model to a learner-centric model, where students are contributors to a process that guides their learning within the context of the Programme of Studies. This process can be facilitated through some of the strategies detailed by Anne Davies (2004; Davies, A. & Busick, K, 2007), for example, teachers’ observations, records, interactions and reflections, the co-creation of rubrics* and standards, the use of peer assessment, and multiple ways of presenting learning artifacts.

* Rubric – a set of criteria or standards that the students have a conversation around, with the teacher showing ‘what is excellence’; a description of what it looks like when it is done well; a standard to reach; placed in website for self-evaluation.

The 21st Century classroom should be a context that is ‘enquiry stacked’ and project-based - where teams of people are working together, then coming apart to work individually. Teams work collaboratively on-line and face-to face, the environment is rich in technology, with access on a ‘24/7’ basis. The classroom on-line workspace mirrors the tools of social networks out ‘in the world’, yet is secure. There is the provision of on-going opportunities for students to have conversations and debates, with intense access to multiple sources of information. There are tools to support sharing images and posting presentations on-line; the audiences to whom these products are shared is broad. In short, students are engaged in meaningful conversations that add knowledge to their fields of enquiry.

In Rocky View School Division we have begun to use multiple, yet linked *plone* sites which allow the creation of blogs, wikis, on-line conversations, the co-creation of position papers, photo sharing with discussions, teachers posting images with questions and video clips that are current, relevant and connected to topics of curriculum. This allows curricula to be ‘continuously current’. Students can go home and reflect on these images, continue debates or conversations that began in school, on-line. Providing these tools enriches classrooms, increases conversations, access and sharing. In other words, students are provided with ‘publishing environments’, where the power of learning is given back to the students and the students themselves add to the subject knowledge base.

Foundational to student’s accessing the curriculum in a 21st Century classroom is the ability to read. There are some students, due to either a disability and/or a lack of opportunity to learn, who do not read at a level commensurate with their peers, at a level where they are able to access grade-level textual material.

Describe how a 21st Century Learning Environment allows a wider range of involvement for those students who have learning difficulties.

Through classroom accessing of *plone*, spaces on-line allow the placement of Podcasts for students’ listening. As well, tools are in the hands of teachers so that they can easily transform written documents to oral versions. Both of these approaches make it easy for students with literacy difficulties to access information. As well, tools are placed in the hands of students that allow them to easily listen to and manipulate digital text (Accessibility Suite, 2008). Classrooms that we are gradually developing have technology infused into them with students having access to laptops or studio spaces. They move in or out of these spaces, listening to documents, or downloading audio or video versions to be loaded onto their

iPods or other media devices for continuous access. Classrooms are structured with major tasks that students are working through; these tasks include knowledge gathering through the internet, knowledge building under the guidance of a teacher, for example through a ‘mini-lesson’ about a particularly difficult concept that the student needs to learn. Classrooms are ‘blended environments’ where teachers provide lessons on topics, where students explore and gather information through viewing and/or listening to devices, then take the time to reflect and analyze information, finally coming to the stage where they have discussion and debate around their positions. There are multiple means to access information and multiple ways to present it back – be it in oral, written or visual format.

Summary

Moving School Divisions, Schools and Classrooms towards policies and practices that support 21st Century Learning and Skills is no small feat; it is a challenge for educators likely to last most of this century! It is hoped that some of the information and perspectives from this chapter will be beneficial as we all journey together, striving to prepare our students for an uncertain and complex future.

References

- Accessibility Suite (2008). Premier Assistive Technology. Retrieved February 23, 2008 from <http://www.readingmadeeasy.ca/education/AccessibilitySuite.html>
- Attwell, G. (2007). Personal Learning Environments – the future of eLearning? *eLearning Papers*, 2, no.1. 9 pages. Retrieved February 12, 2008 from <http://www.elearningpapers.eu>
- Davies, A. (2007). *Making Classroom Assessment Work*. Courtenay, BC: Connections Publishing.
- Davies, A. (2004). *Finding Proof of Learning in a One-to-One Computing Classroom*. Courtenay, BC: Connections Publishing.
- Davies, A. & Busick, K. (2007). *Classroom Assessment -What's Working in High Schools: Book Two*. Courtenay, BC: Connections Publishing.
- Jonassen, D.H. (2000). *Computers as Mindtools for Schools: Engaging Critical Thinking*. Columbus, OH: Prentice-Hall.
- Lemke, C., Coughlin, E., Thadan, V. & Maratin, C. (2008). *EnGauge 21st. Century Skills: Literacy in the Digital Age*. Los Angeles, CA: Metiri Group. Retrieved January, 2008 from <http://www.metiri.com>.
- Rocky View School Division (2008). *Three-Year Educational Plan (2008-2011)*. <http://rockyview.ab.ca>.
- Rose, D. & Meyer, A. (2002). *Teaching Every Student in the Digital Age, Universal Design for Learning*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Tomlinson, C. & McTighe, J. (2006). *Integrating Differentiated Instruction + Understanding by Design: Connecting Content and Kids*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Waters, J. & Marzano, R. (2006). *School District Leadership that Works: The Effect of Superintendent Leadership on Student Achievement – A Working Paper*. Denver, CO. Mid-continent Research for Education and Learning (McREL).
- Wiggins, G. & McTighe, J. (2005). *Understanding by Design* (2nd Ed.). Alexandria, VA: Association for Supervision and Curriculum Development.
- Wiggins, G. & McTighe, J. (2007). *Schooling by Design: Mission, actions and achievement*. Alexandria, VA: Association for Supervision and Curriculum Development.

Websites

- <http://www.annedavies.com>
- <http://www.elearningpapers.eu>
- <http://www.metiri.com>
- <http://www.readingmadeeasy.ca/education/AccessibilitySuite.html>
- <http://www.rockyview.ab.ca>