Preparing Our Students for the 21st Century

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Introduction

The new millennium has brought about a change in the way we live and interact with one another. It is now a global community that is increasingly diverse, complex and technologically advanced. The kindergarten students we have today will be entering the workforce in about 20 years. With the current global climate, we have no idea what the world will look like in 5 years, leave alone in 20 years. Yet as educators in York Region District School Board (YRDSB), we embrace the mission of 'uniting in our purpose to inspire and prepare learners for life in our changing world community.' (YRDSB retrieved 2009). Will we be successful in preparing our current kindergarten students to be 'learners for life in a changing community?' The answer to that will depend on how willing school districts are in adopting a paradigm that is different from the 19th Century. This paradigm would depart from the factory-model education of the past being textbook driven, teacher-centered and focused on paper-pencil tasks. The 21st Century paradigm calls for a focus on skills such as critical thinking and problem solving. This paradigm aspires to engage students such that they are not only learning the content and facts, as defined in the curriculum, but also learning how to apply that knowledge in their current lives. It is believed that with such a focus on applications, students are better able to make sense of the world they live in, thereby being prepared to be active members of society.

In this paper, I plan to address the conditions necessary in preparing our 21st Century learner. I begin with outlining the overall equity problem that sets the urgency for the paradigm shift. Next, I will draw upon the extensive research that has been conducted within this area. The research will span from looking at; the Ontario curriculum documents, the 21st Century skills, student engagement and digital literacy. Next, I will address the hope and promises that the current policies have in meeting the needs of the 21st Century learner. Subsequent to that, I will discuss the implications for leadership and change theory, as we plan to bring the promises into reality. Finally, I will

conclude with some barriers and tensions that need to be overcome to move schools forward.

Equity Problem Defined

"We live in a flat world, to cite the widely used metaphor Thomas Friedman (2007) created to explain the global economic, educational, and technological forces that are equalizing opportunities worldwide by empowering people to 'compete, connect, and collaborate" (cited in Hersh, 2009, p.51). This flat world as coined by Friedman (2007) is already being realized in the current global market of 2010. In the corporate world, many jobs are being lost due to the credit crisis being experienced in North America. Many of these jobs are being shipped to developing countries such as India and China. This causes us a problem, since the jobs being taken away could be rightly claimed for born Canadians.

With such nasty circumstances 'out there', we ask the question, "Are we preparing our students for the jobs and conditions that we don't even know about?" From the recent research done by the International Education Advisory Board, it is evident that today's students need to be prepared with the skill sets that will be transferable globally (IEAB, 2009). Skills such as critical thinking, problem solving, collaboration, to name a few, are skills that will enable students to sift through the large volumes of information available today. The skills will also help them to collaborate in diverse societies effectively.

In a You Tube video on 'The 21st Century Learner', creator B. Nesbitt captures the essence of the problem in engaging students today. In the video, students share the conditions of the world they live in by making statements such as; "I game 3 ½ hours a week, 5 ½ hours on the computer, we expect to be able to create, Consume, Remix, My parents use email, I text, instant message, blog, wikis, podcasts, etc." Once the condition of 'their' world is shared in the video, the 21st Century Learner then states the conditions of their learning environment in their schools. The students talk about how only '14% of their teachers let [them] create something new with technology, while 63% never do'. Finally, the video ends with the students challenging the school systems to change

pedagogy where tools such as a camera, an iPod, a laptop, are all used to help them develop skills in thinking, creating, analyzing, evaluating and applying.

These paramount skills that are of importance for the 21st Century learner are even more critical for the most at-risk students in our schools. The average student will probably acquire these skills naturally by the schooling system or by their parental background or by their economic advantages. The most at-risk students lack the cultural capital that the average student takes advantage of. These students could be disadvantaged by their race, ethnicity, socio-economic status, gender, to name a few. Their conditions inherently put them at the lower end of the totem pole. If nothing is done in the school setting to improve their condition, then the achievement gap that already exists will be widening even more so as we enter further into the 21st Century.

"If we want to truly aspire towards equity of outcomes for all, then the skills that have been the repertoire of the few implicitly must become universal by intentionally and explicitly teaching each student" (Rotherham & Willingham, 2009, p.16). We will need to become more deliberate about teaching critical thinking, collaboration, and problem solving to all students. One way to be able to do that will be to look at the curriculum documents and see what teachers are being asked to teach. Are there any specific expectations to be covered in the area of critical thinking and problem solving?

Literature Review

The Ontario Curriculum:

In the above section, we got a deeper understanding about who the 21st Century Learner is and the disconnect they experience between how they live and how they are taught. An investigation on 'how they are taught' would naturally begin with the curriculum documents outlined by the province of Ontario. A starting point for all teachers begins with looking at the curriculum expectations and then 'teaching to' them. Teachers are responsible for meeting the expectations as outlined in the documents. However, 'how' they teach the expectations are not necessarily explicitly outlined in the curriculum documents. Some suggestions are offered, but the pedagogy is left up to the teacher and the classroom dynamics that he/she works in.

FizPatrick and Schult (2009) took a closer look into the Ontario Social Studies and Science curriculum documents. They set off to examine what level of thinking and assessing was explicitly mentioned in the text. The first part of their study involved matching each curriculum expectation to a specific category of thinking as specified in two taxonomies; the Revised Blooms Taxonomy and Marzano's New Taxonomy of Educational Objectives. In this first part of the study, the authors found that Ontario had more expectations at the lower level using both taxonomies in Social Studies and Science.

In the 2nd part of their study, FizPatrick and Schult (2009) looked at what kind of assessment activities were being suggested to teachers to undertake in the classroom. When analyzing their results, they found that Ontario was suggesting more assessment activities that were deemed to be at the higher thinking levels in both taxonomies. This research finding then posed a different kind of question – what was happening in the classroom? It seemed that teachers were being left on their own to decide what level of thinking to use to engage students in the classroom. The assessment activities that were at the higher level were only being 'suggested' to the teachers, and thus we are left up to speculation to wonder what is actually happening in the classroom. Similarly, Reeves and Schmoker (2006) (cited by Freedman, TPS 1025) conducted a review of 1500 classrooms to see the pedagogy being applied there. They found that most of teaching was teacher talk. The researchers found that only 0.2 – 5% of classrooms used high-yield strategies such as higher order thinking skills (synthesizing and evaluating).

Furthermore, Case (2005) looked at the distinction between applied and academic level course in high school. He found that both courses covered the same content, but were distinctively different with the level of thinking expected from the students. The "applied curriculum writers used 'lower order verbs', changing student expectations from 'interpret' to 'describe' or from 'explore' to 'record', which presumes that applied students cannot think…and are therefore, relegated to simple tasks like reading and repeating." (p. 1). Case (2005) concludes that in Ontario, teaching of thinking remains more wish than practice.

We also know from the learning pyramid that when students are passively receiving information such as in the form of a lecture, they are less likely to understand and retain it. However, when they are challenged to work with the information, connect it to their experiences, discuss it, interpret it, apply it and even test it with their peers, their retention rates rise up to 90% (Learning Pyramid). Unfortunately, as far as the Ontario curriculum goes, this focus on the skills takes a secondary focus from the teaching of passive content in the form of fact and information. In a recent Toronto Star article, Educational Minister Kathleen Wynne realizes the disconnection experienced by the 21st Century learner and has a plan in place for the near future. She promises that by the Fall of 2011, the Ontario curriculum will be revamped, such that the current 3400 expectations will be condensed and the focus will be on learning the skills 'within' the content areas, such that the 21st Century learner is better engaged and subsequently prepared for the world today (Toronto Star, 2009).

21st Century Partnership Skills:

Striking a balance between content and skills is recognized by the 21st Century Partnership Skills. The framework outlines four key components that need to be addressed if we are to prepare students for the 21st Century. The first component is the teaching of core subjects. Of course, we have always been teaching the core subjects, but the framework emphasizes that the academic content needs to be at a higher level such that 21st Century interdisciplinary themes can be woven into easily. The framework outlines themes such as global awareness, financial/business literacy, civic literacy, health literacy and environmental literacy as the interdisciplinary themes. The second component is the learning and innovation skills which comprise of creativity, problem solving, communication and collaboration. The third component is the teaching of information, media and technology skills such as information, media and ICT literacy. Finally, the last component is the emphasis on career and life skills. According to the framework, the teaching of these four components will ensure that each child is exposed to the skills, knowledge and expertise needed for success in work and life in the 21st Century.

Therefore, the framework components outlined above leads one to believe that the debate is not necessarily between content OR skills, but rather a balance. Similarly, Hersh (2009), states that since teaching time is so finite, we will never really be able to prepare the learner for the world in which they will live (p. 52). However with a parallel focus on building their skill level will allow them to be able to continue learning, to apply that learning in their lives, and to make judgements about the meaning of life. Lincoln (2009) also concurs by saying that 'when we focus on higher order thinking skills, students are able to manipulate information and ideas in ways which transform their meaning and application. This transformation occurs when students combine facts and ideas in order to synthesize, generalize, explain, hypothesize or arrive at some conclusion or interpretation. When students manipulate information and ideas through these processes they solve problems and discover new meanings and understandings' (p. 18).

Student Engagement:

Parallel to the research on the 21st Century skills is the research on the disengagement of students. In a U.S. study conducted by Yazzie-Mintz in 2008 to 400,000 students in 32 states from grades 6-12, found that 10% of students are highly engaged, 15% are disengaged, 66% are bored in class everyday, and 17% are bored in every class, everyday. Similarly, in a Canadian 'Let Them Tell Me' survey conducted to 100,000 students over 3 years, found that 96% of teachers say that they are excited by the work they do, while only 56% of students believe that teachers enjoy working with them (cited by Freedman,TPS 1025).

These two studies among many more indicate the alarming statistics pertaining to the 'disconnect' being experienced by the students. The statistics are not only alarming in and of themselves, but they also indicate an equity issue. Dunleavy & Milton (2008) urge that "disengagement from secondary school – whether a student leaves or struggles through – is a significant source of inequity in Canadian society, not only because it places a large number of students at a disadvantage as they make the transition to adult roles, but because disengagement is disproportionately experienced by students living in poverty, youth with disabilities, and adolescents from visible minorities and aboriginal communities" (p. 5).

Obviously something needs to be done to address the equity problem that threatens to widen the achievement gap. When reflecting on the disengagement problem, it seems that teachers see themselves as 'teaching effectively', but the students do not see the same reciprocally. This becomes an issue that begs to be addressed locally in schools. It becomes a question of pedagogy, such that teachers are forced to close the gap between the way they teach and the way the 21st Century student learns.

Digital Literacy:

One way to close the gap and engage the 21st Century learner is through the use of digital technology. As addressed in the You Tube video earlier, students are living in a world where they are networking with others around the world. They are on sites such as Twitter and Facebook and totally engaged with their iPods, cameras and iPhones. The challenge in pedagogy is to seek for ways to bring the students' world into the classroom. There was an Australian case study done in 2008 that explored just this. Teachers in a particular school tried to incorporate Web 2.0 technologies in an experiment to promote higher order thinking skills such as creating, evaluating and analyzing. Web 2.0 technologies are defined as applications that allow for the user to interact with someone else. Some examples of Web 2.0 technologies are wikis and blogs; information centers that are compiled through input from the users themselves. The people who access the wikis and the blogs create the information together. Web 1.0 is a term that describes how the World Wide Web was first originally used. It was a place where information was stored, and users accessed that information passively. With Web 2.0, the users are not just passive recipients; they are creators of that knowledge. Obviously when putting the teachers' hat on, one can see great applications of Web 2.0 applications in the classroom. This particular case study done in Australia had teachers create a classroom website where challenges, practical lessons and homework were posted. However, the difference was the incorporation of a classroom blog. The teachers in this school said that the site was left unstructured, making students be more self-directed in their learning. There was also an accountability structure built into the classroom work. One teacher mentioned that, "I feel that I never achieved 100% learning purely and simply for the sake of learning. To help my students love learning and want to learn, I set up another site which

is my blog of interesting things going on around the world. I have given the site to the 80 kids I teach this year and in 8 weeks this term, it has got about 1500 hits. So I feel it is successful at helping kids want to learn as such I plan on keeping it going" (Chittleborough et al, 2008, p.6).

As a teacher of a grade 8 classroom in York Region District School Board, I can relate to the experiences of the teacher above. Recently, I implemented a class Moodle, an electronic forum where students can access information (classroom notes, PowerPoint's, etc.), hand in assignments (through Turnitin) and participate in general classroom activities and discussions. In one recent classroom activity, students had to write a creative piece on the 'Need for Rules'. The students were expected to post their writing onto our class website for others to read and critique. Each student was expected to critique the writing of two classmates and received an evaluation on how they did as a peer editor. The students had to then receive their constructive feedback and improve on their work for submission and final grade. The assignment, while very simple resulted in the most amazing products. I noticed that the quality of the work that the students submitted improved during the course of the assignment. While that could have happened even if done in the traditional classroom, the use of an electronic forum created additional transparency and accountability.

While these success stories can be found everywhere, they are more an exception than the norm. This begs the question to look deeply at the policy intersections that are already in place to help schools prepare students for the 21st Century.

Policy Intersections

Ontario's Equity and Inclusive Education Strategy released in 2009 describes a government that is committed to raising the bar for student achievement and to reduce the achievement gap. More importantly, the policy articulates clearly that 'Recent immigrants, children from low-income families, Aboriginal students, boys, and students with special education are just some of the groups that may be at risk of lower achievement' (p. 5). The policy urges all partners in education to work towards improving outcomes for all by removing barriers and creating conditions needed for

student success. One area specifically addressed in this policy is to ensure that all students are engaged, included and respected in their learning environment.

Similarly, the school effectiveness framework released in 2007, outlines the key pillars that need to be in place to ensure that schools are running effectively and that conditions are put in place to ensure success for all. The framework outlines that "the need to teach the important elements of democracy, to model what it looks like in action and to provide opportunities for involvement in a manner that engages young minds and unleashes their idealism and enthusiasm is an essential element of an effective school. School engagement involves the active participation, a strong student voice in decision making and involvement in school and community in meaningful ways. Student engagement affects achievement and motivation. When students learn the habit of being involved and the essence of good leadership, by observing and practicing leadership in action in their schools, they will be able to become leaders in their community" (p.54).

From the above two Ontario policies, one can see that the vision and groundwork is already in place to direct the work for school boards and schools in particular. In YRDSB, work is underway to build the supports necessary to engage students for the 21st Century. It realizes that for engagement to happen, the gap between how students live and how they are being taught needs to be closed in. This closing in is to come via the Digital Literacy Framework. The framework's vision is as follows; "In YRDSB students will engage in their learning through the interaction with the people and tools that will be of greatest benefit to their learning. Individual needs will be met for all students with greater personalization and precision as the learning environment shifts to a leader centered focus" (p. 5).

Change Theory

Using the Tri-level model of capacity building, it is apparent that provincial and district policies are in place to help create the conditions that will prepare our students for the 21st Century. However, the next step will be to take a closer look at individual schools and see how much of the policy is being put into practice.

As seen in the sections above, student engagement comes with a change in pedagogy. The change is from teaching in a teacher-centered classroom to a student centered-classroom. Recent data shows that most instructional time is composed of seatwork and whole class instruction led by the teacher (Early Child Care Research Network, 2005). However, advocates of the 21st Century skills favour student-centered methods – for example, problem-based learning and project based learning – that allow students to collaborate, work on authentic problems, and engage with the community.

When we restructure the classroom to be student centered, then we are able to raise discussion topics such that the students can actively analyze and discover the multiple perspectives. The discussion allows for students to wrestle respectfully with competing values and then come to their own considered judgement on the issue. Students will definitely rise to the occasion when given the opportunity to engage in serious discussions in which their views take centre stage. It is in this environment that civic learning takes place. Such an environment comes with teachers' core beliefs and understandings to include 'all students can learn, given the right time and support'. When teachers have high expectations for their students, and set the conditions up for success, then students can meet them, given the support.

Some people view that critical thinking, public speaking and problem solving are all skills that are in the domain of high achieving student. However, Dunleavy & Milton (2008) say that engagement in student-centered discussion of complex public issues need not be limited to our top students. Students with a wide range of abilities and learning styles can participate in discussions of controversial issues, if the resources and teaching approaches are appropriately scaffolded. The kind of learning that is needed for the 21st Century learner is the learning that stimulates the imagination and teaches students how to construct meaning and make disparate information coherent. It involves the ability to think critically, and solve problems and to judge what is relevant, what is accurate, and what is right.

What is even more important for the 21st Century learner is to possess the so called 'soft skills'. Hersh (2009) describes these skills as those like valuing and embracing diverse ideas and people, working cooperatively with others, tolerating ambiguity, and possessing the resilience to bounce back after setbacks.

So, why is such student-centered engagement more of an exception than the norm? Why is more seat work taking precedence over discussions and problem solving? Why is change coming about so slowly? The answer is complex, giving rise to many factors. Some of these barriers and tensions will be briefly discussed in the following sections. However, before that discussion, we need to look at the leadership intersections within the realm of school improvement. It is a well known fact that leadership comes only second to classroom instruction in bringing about school improvement. In the next section, we will look at what kind of leadership is necessary in order to help create conditions in school that are conducive to preparing students for the 21st Century.

Leadership Intersections

Earlier in this paper, there was a discussion about the difference between Web 1.0 and Web.2.0 applications. It was found that Web. 2.0 are made up of applications where end users were able to manipulate the information, collaborate and co-create the knowledge. The Web 2.0 applications came about out of the evolution and advancement of technologies. It was a response to the need of the 21st Century. Similarly, researchers have made a distinction between leadership 1.0 and 2.0 that has also come about out of the need of advancement in society. It is believed that society is evolving from industrialisation to information. During the 19th Century, a leadership model that commanded and controlled production was suited for the time, since it was meant for machines and factories. Today, we are not producing products as much as information. The structure is no longer about operating machines and factories, but rather working with people of diverse backgrounds and dealing with innovation around the world. Leadership 2.0 is then about conversation, not control. It is a style where trust wins over power and transparency wins over regulation. There are four components that make up Leadership 2.0. They are:

- Be clear on the vision
- Accept that you don't control the outcome, you only control the boundaries
- Stop the blame game – spend your energy on empowerment
- Allow communication to include tension…quality of communication drives quality of result

In leading schools, there is a lot to learn and apply from the research done with leadership 2.0. In fact the four components above match quite similarly with Fullan (2008)'s six secrets. In his book 'six secrets of change', Michael Fullan talks about the first change secret being 'love your employees'. This secret matches with 'stop the blame game – spend your energy on empowerment. His second secret is 'connect peers with purpose' – this matches with the 'be clear on the vision'. When employees are clear on the vision and purpose, they can understand the path and actions taken to reach the end goal. Thirdly, Fullan's 3rd and 4th secret on 'capacity building' and 'learning is the work', matches with 'accept that you don't control the outcome, you only control the boundaries'. As leaders, we can only control what structures, supports and knowledge we put in place to develop our teachers. However, the final action in the classroom remains in the control of our employees. Finally, Fullan's 5th secret is about 'transparency'. This matches with 'quality of communication'. When we keep the communication lines open and have things transparent, we begin to build trust with our employees, who then are willing to go the extra yard with us and our goals. Therefore, upon closer examination, leadership 2.0 is no different from what we have learned from our education guru, Michael Fullan!

In the sections above, we have taken a look at change theory and the leadership intersections that provide the recipe to bring about meaningful change. However, the road is still rocky with many barriers along the way. In the next section, I will discuss just barriers that I have experienced in my school settings.

Barriers and Tensions

While there are many barriers and tensions that may occur in different school settings to inhibit the progress towards student achievement, I will highlight just three core barriers within my limited experiences. One of the foremost barriers is the beliefs and understandings that teachers have about their role. If teachers truly believe that all students can achieve given the right time and support, then they are automatically open to the idea of excellence and equity of outcomes for all. However, many teachers still fall short by easily blaming students backgrounds, abilities, SES, etc. as 'reasons' for why a student cannot achieve. If leaders and teachers are truly able to embrace a belief that all

students can learn and all teachers can teach, then we will make great strides towards student achievement. Of course, with the belief comes action. One will need to stop the blame game and look internally at what one can do themselves to better the situation. This I believe is the core barrier towards student achievement. That is teachers not being confident enough to believe that they can make a difference and that they have the ability to save lives.

A second core barrier towards why change is so slow is the need for time. The scarcity of time makes this 'angel' work take even longer. Many schools are finding creative ways to build time within the working day for teachers to collaborate and discuss about ways to move schools forward. Finding this time is the only way forward, since running schools is no longer a thing about power and mandates, but rather about developing and motivating people. It is a shift from teaching to learning. This essentially is the framework of leadership 2.0 and the premise behind the six secrets of change.

Finally, a third core barrier towards why change is so slow is the number of initiatives being implemented at any given time. Teachers are sometimes feeling overwhelmed with so many new initiatives, such that they are being overworked. A caution for leadership would be to be weary of the initiatives and to take things slowly so that teachers are not getting over worked. Of course, true success is when something is implemented authentically and willingly by teachers' own motivation, rather than a 'must-do' handed down by administration.

Conclusion

Preparing our students for the 21st Century is a task that needs to be addressed by all schools. The task begins with taking a deeper look at the skills needed for the 21st Century graduate and ends with looking at the clientele sitting before us. In between these two end points, lies the notion of equity, student engagement and digital literacy. Equity of outcomes can be achieved only through the collective efforts of all in the building. It would have to begin with adopting a belief and understanding that all students can achieve excellence. Within that belief will also be the collective efforts of leaders in the building that adopt a distributed/ transformative/ leadership 2.0 style of motivating and empowering the teaching staff by building upon their strengths. When

the adults in the building can coexist with mutual trust between the leaders and the employees, then they can transpose those values onto the students that they face everyday. Our future citizens will need the skills to learn and work collaboratively with individuals representing diverse cultures, religions and lifestyles in a spirit of mutual respect and open dialogue in personal, professional, and community contexts. Today's technologies make authentic international connections both necessary and possible for any student in an Internet-connected classroom.

Technologies are not only a must, but also a necessary investment in helping to engage students. Through technologies, classrooms can be transformed into student-centered rooms where the tool is used to communicate their thinking. To prepare students for the 21st Century, we need to help them develop their creativity, problem solving and collaboration. Technologies offer a means to that end. Teachers and students are already using the Web to create lessons, communicate and share with others across the globe. Many teachers are no longer managing their classes through the rigid enforcement of rote learning but learning alongside their students, creatively adapting curriculum to their students needs. This indeed is the road towards 21st Century teaching and learning.

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