University of Alberta

Student Engagement: What do we know and what should we do?

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Executive Summary and Outline

What do we know about Student Engagement? Student engagement is primarily and historically about increasing achievement, positive behaviors, and a sense of belonging in all students. However, student engagement is primarily focused at students in middle school and high school, where disengagement typically becomes a concern (Willms, Friesen and Milton, 2009). Student engagement was primarily meant to address or re-engage/reclaim a minority of predominantly socio-economically disadvantaged students who were at risk of dropping out of high school. Over time, student engagement strategies were further developed and more broadly implemented as a means of generally managing classroom behaviors.

More recently the construct of student engagement is quite ubiquitously incorporated into district plans with the hopeful intention of enhancing all students' abilities to *learn how to learn* or to become lifelong learners in a knowledge-based society (Gilbert, 2007, p. 1). Student engagement has become both a strategic process for learning and an accountability goal or outcome unto itself.

It is difficult to define student engagement: The literature and research reviewed stated that student engagement is hard to define. There are several types/categories of engagement – academic, cognitive, intellectual, institutional, emotional, behavioral, social, psychological, to name a few. However, the jury is out on whether a learner needs to be functioning in all arenas of engagement for successful learning to take place. For example, do students need to feel they "belong" to achieve high grades and graduate? Do students need to be academically successful to feel positive about attending school; or, is the social element enough, as long as they are behaving and passing? Are students who are high achievers but work instead of participating in extracurricular school events disengaged learners? (Willms, Friesen, & Milton, 2009; Willms, 2003; Harris, 2008). Such questions and debates have stirred up the age-old question: What are schools and our education system *supposed* to do?

There is also a "murkiness" to the *meaning* of categories and themes; for example, Behavioral Engagement can mean anything from behaving in class (sitting quietly but not learning) or having zero absences or lates, to exhibiting personal initiative and intrinsic motivation to improve school culture by mastering your basketball moves so your team wins.

How to measure and what are we measuring? A number of common measures have been used in the research to identify if students are actively engaged in their learning. Historically those measures have predominantly focused on behaviors and on quantitative data – such as attendance, standardized test scores, and truancy or graduation rates. The majority of those measures track levels of achievement (outcomes such as high scores, full attendance for the year) and not levels of student engagement in learning (interest, time on task, enjoyment in learning). More recently, researchers are asking students and teachers how *they* would measure engagement: this refocused question is producing both

interesting qualitative criteria and differing definitions of engagement in learning, which, consequently, has had some impact on how we 'assess' learning. Answers to this refocused question have also surfaced a gap between what teachers consider engagement in learning and what students consider engagement in learning. A move to linking student engagement to learning, as opposed to linking it to achievement, lifts the question of measurement to the forefront because it asks us to measure the process and not simply the content of learning.

What is the promise of Student Engagement? Clearly, student engagement is an important and rich research topic. Educators must continue to seek to understand and apply specific, well considered, if not agreed upon strategies that support student engagement in learning both in and beyond the classroom. The consequences of not engaging students in learning are reportedly dire (Prensky, 2001; Tapscott, 1998; Gilbert, 2007; Willms, 2003, p. 56; Claxton, 2007). "Some educationists consider engaging disengaged pupils to be one of the biggest challenges facing educators, as between 25% (Willms, 2003) and over 66% (Cothran & Ennis, 2000) of students are considered to be disengaged" (as cited in Harris, 2008, p. 57).

Students who are bored, restless, disruptive, and disengaged in the short term have clearly documented negative impacts on students, teachers, schools, and communities. However, the greater issue is that students could be graduating incapable of or unprepared for a productive and healthy life within the "Knowledge Society" in which they will live and lead (Gilbert, 2007). The negative consequences of this deficit of engagement in learning would ripple across industry and society for generations. If we fail to make changes to our pedagogy, curriculum, and assessment strategies, we fail our students and jeopardize our futures (Willms, 2003; Robinson, 2009; Tapscott, 1998; Prensky, 2005, Gilbert, 2007).

We know our students have changed over the last twenty years; perhaps as a result of a technology rich upbringing, they appear to have "different" needs, goals, and learning preferences than students had in the past. We need to better understand these youth and determine how to best engage them in learning; yet, there is a notable lack of "student voice" or student perspectives in the literature on student engagement. That said, some critics, such as those mentioned by Carlson (2005), Young (2006), Carnivale (2006), Bennett, and Maton, & Kervin (2007) do not believe today's students differ or that they require special educational concessions: in fact, they believe we are dumbing down an entire generation through such coddling: As "Professor Baron" is quoted in Carlson (2005):

> It is very common to hear people say, 'Here's the Millennial or the digital generation, and we have to figure out how they learn. Poppycock. We get to mold how they learn.' Administrators push professors to use technology in the classroom because they believe that is what today students want is, says Ms. Baron. And faculty members feel pressured to shorten lectures, increase group-discussion time, and ignore the "multitasking" student who is e-mailing his friends in the back of the room -- all to attract and satisfy a generation that doesn't have the discipline of its predecessors. 'We think that the students will

> come if we teach in a way that meets the expectations we have of what the students want. At some point, what we are doing is killing higher education' (Carlson, 2005, p. 2).

However, as logical as this consideration might seem, the majority of the literature calls for changing education, most authors practically implore change – or transformation – of education and pedagogy in Kindergarten through post-secondary; they strongly feel that we fail to meet the needs of students who have grown up in a digital world and are heading into different cultural and economic futures that are rich in ever-advancing technology and information (Project Tomorrow, 2010). Today's world absolutely requires collaborative critical thinkers, creative and courageous innovators, and true lifelong learners (Prensky, 2005; Tapscott, 1998; Robinson, 2009).

How can we improve student engagement? The themes and ideas that surface most often in the literature are: embedded collaboration, integrated technology, inquiry-based learning, assessment for learning, and making learning interdisciplinary and relevant to real life. "Significant changes in teaching and learning are possible, particularly when interactive technologies are involved. These changes promise to better engage the Net Generation and the adult learner. But what will it take to turn the promise into success?" (Ramaley & Zia, 2005, p. 8.15). The research suggests that successful, student-engaging classrooms often combine these aspects:

1. Learning that is relevant, real, and intentionally interdisciplinary – at times moving learning from the classroom into the community.
2. Technology-rich learning environments – not just computers, but all types of technology, including scientific equipment, multi-media resources, industrial technology, and diverse forms of portable communication technology (Project Tomorrow, 2010).
3. Positive, challenging, and open – sometimes called "transparent" learning climates – that encourage risk-taking and guide learners to reach co-articulated high expectations. Students are involved in assessment for learning and of learning.
4. Collaboration among respectful "peer-to-peer" type relationships between students and teachers (horizontal organization model); Professional Learning Communities working together to plan, research, develop, share, and implement new research, strategies, and materials.
5. A culture of learning – teachers are learning *with* students. Language, activities and resources focus on learning and engagement first, and achievement second.

We need to do more research. Educators interested in student engagement must more deeply analyze assumptions about pedagogy, about the purpose of education, and about the so-called "new students" and the world we are launching them into. The literature repeatedly states the need to re-examine our assumptions about learning and about the learners; there is a common call to revisit traditional teaching pedagogy and, if not change altogether, at least infuse our daily classroom offerings with student engaging pedagogy based on more recent neurological, cognitive,

educational, and demographic science and human development research. Our past (and current) practices and measures have focused almost entirely on academic achievement. There is little definitive research on what enhances students' "capacity to learn" (Claxton, 2007) or engages them in learning.

There is a need for more empirical and action research that includes the voices of teachers and students – those most able to implement and benefit from the research. As we continue to explore this construct, definitions of student engagement seem increasingly complex and diverse and, in some ways, student engagement continues to be a misunderstood and misused concept. Certainly, student engagement is a young, underdeveloped construct, which promises to be open to better clarification and utilization the more research we can do. As a research area, student engagement holds the promise to better help students, teachers, educational stakeholders, and communities. Several educational authors request a halt to the arguing and speculating, and urge educators to get down to the business of implementing a culture of learning and genuine student engagement in our classrooms (Gilbert 2007; Claxton, 2007).

"The test of successful education is not the amount of knowledge that pupils take away from school, but their appetite to know and their *capacity to learn*." Sir Richard Livingstone, 1941.

Student Engagement – Introduction

Student engagement is primarily and historically about increasing achievement, positive behaviors, and a sense of belonging in the classroom (Harris, 2008; Willms, Friesen, & Milton, 2009). As a conceptual idea, student engagement was primarily meant to address or re-engage/reclaim a minority of disadvantaged at risk students who were dropping out of high school and to instill a sense of belonging in all students, but primarily students in middle school and high school.

The majority of research studies reviewed here focused solely on students in Grade 6 and higher because this is when student engagement drops most dramatically (Willms, Friesen & Milton, 2009; Willms, 2003). What was once described as a problem with dropouts in the 1970's or 1980's is today described as a major issue of disengagement among many student populations. As Dunleavy, Milton, & Crawford (2010) report in *The Search for Competence in the 21st Century*:

> Recent data capturing the experience of 64,836 middle and secondary students over three years confirms early findings that a large majority of students begin to disengage from learning in Grade 6 and continue to do so until Grade 9, where levels remain consistently low through to Grade 12 (Willms, Friesen and Milton, 2009, pp. 16-29 as cited by Dunleavy, Milton, & Crawford, 2010, p. 3).

Over time, student engagement strategies were further developed and more broadly implemented as a means of managing classroom behaviors. For example, differentiated

learning became popular in the 1980's and 1990's as a way to make content more accessible to students struggling with traditional text-and-talk pedagogies. However, more recently the construct of student engagement is ubiquitously incorporated into district plans and classrooms with the hopeful intention of enhancing all students' abilities to *learn how to learn* or to become lifelong learners in a "Knowledge-based society" (Gilbert, 2007, p. 1). Today, it is fair to say that student engagement has become both a strategic process for learning and an accountability goal or outcome unto itself.

Across Canada, as well as internationally, student engagement has become one of *the* key concerns and key strategies for educational and social reform particularly in middle and high schools. (For example, see Dunleavy, 2008, p. 23; Dunleavy & Milton, 2009, p. 4; Harris, 2008, p. 57; Willms, Friesen & Milton, 2009, p. 5). School boards, administrators, and teachers seemingly embrace student engagement as the next step to secondary school improvement. There is a sense of hope throughout the literature that educators and teachers can bring about positive change and increase student engagement in learning. The National Research Council (2003) affirms that schools can have a positive and meaningful impact on student engagement and student achievement.

Five core types of student engagement are most frequently noted in current literature: (1) Academic, (2) Cognitive, (3) Behavioral, (4) Psychological, and (5) Social; however, many more categories or variations are added each year. Academic *engagement* is most often measured in levels of academic *achievement*. Canada has historically been quite strong in ratings of academic achievement according to PISA results (Stats Canada, 2003 & 2006). According to Willms' (2003) review of PISA 2000 results on *Student Engagement at School: A Sense of Belonging and Participation*, Canada also showed moderate success in Participation Engagement levels (74%) and fared well in Sense of Belonging (80%) categories in the year 2000.

However, in just over ten years, educators have become alarmed at increasingly "high levels of student disengagement, evidenced by early school leaving, poor student behavior, and low levels of academic achievement" (Harris, 2008, p. 1). More recent research by Willms, Friesen & Milton (2009) suggests that now "less than one-half of Canadian students are deeply engaged in their study of school subjects" (p. 17).

Meanwhile, the Conference Board of Canada is alarmed and concerned that, as Canada faces a demographically induced critical shortage of skilled workers, many graduating students don't seem to have the learning, adaptive, technical, critical thinking, and relational skills they need to "pursue performativity" (Gilbert, 2007). It is evident that more jobs will require post-secondary level skills; however, Gilbert further urges that students today need not only core literacies and foundations of knowledge, but also need to "take elements from one knowledge system and put them together with elements from another, different knowledge system, re-arranging them to do something new and different" (Gilbert, 2007, p. 8).

This interdisciplinary, meta-cognitive, and constructive learning skill set appears to be lacking in our past and perhaps current curriculum and pedagogy. Sir Ken Robinson (2009) agrees but states, "no other period in human history could match the present one

in the sheer scale, speed, and global complexity of the changes and challenges we face" (p. 19). He claims that we continue to educate from an "Industrial Revolution" paradigm that focuses on achievement in a narrow spectrum of subjects, measuring and sorting an increasingly diverse student population against standards and criteria that no longer seem relevant to today's learners.

Traditional pedagogy's focus on the requisite three R's so necessary for success in the Industrial Age is "stifling some of the most important capacities that young people now need to make their way in the increasingly demanding world of the twenty-first century – such as the powers of creative thinking" (Robinson, 2009, p. 14). Traditional pedagogy is based predominantly on passive learning – teachers essentially downloading knowledge into students' waiting minds. As our students head into a fast-paced, technically-driven, innovation-demanding, global work environment, they will need to be fully-engaged, creative, active, and adaptive learners.

Historically, strategies to enhance student engagement were implemented primarily for at-risk students; however, as Dunleavy (2008) states, "No longer seen exclusively as an outcome of risk factors associated with a student's background (e.g. socio-economic status, parents' educational attainment), student engagement is now considered an important provincial, district, and school-level focus in efforts to address persistently high drop out rates, foster active citizenship, and improve student achievement" (p. 23) for all students. In this statement, Dunleavy identifies at least three of the more common categories of student engagement that have developed over the past twenty years and remain prevalent today in the literature: academic, behavioral, and social engagement.

It is interesting to note that the underlying *purposes* or *goals* of increasing student engagement have also changed as our understanding of human development and learning sciences has advanced. Of course, in the meantime, our world has changed drastically as well. In our review of literature on student engagement, this shift in focus and purpose for student engagement became evident, as did the enormous diversity of definitions of student engagement.

"Although assessing proximal goals such as increasing attendance and reducing dropout rates can mark progress that reassures us we are moving in the right direction, ultimately we need to achieve the more ambitious goal of promoting deep cognitive engagement that results in learning (National Research Council, 2003, p. 32).

In this review on student engagement – exploring what we know and what we should do, we review how student engagement has evolved over the last twenty years. We will provide a sample of some of the many current definitions of student engagement and follow with a section on how student engagement is typically measured in the literature. Next, we provide cited reasons why student engagement is an important construct to pursue (in new ways and for new purposes), including the demands of economy/society, changing learning preferences and characteristics of the "new" students we are seeking to engage, and the impact of these changes on teachers' abilities to teach curriculum in traditional ways. Finally, we report suggestions made in the literature regarding how to

increase student engagement in our classrooms and schools, with a particular preference (as is reflected in the research) to preparing our students to become "better learners" as opposed to simply "better students."

A Brief History on the Evolution of Student Engagement

As mentioned in the introduction, an evolution of different ideas of student engagement became evident as we reviewed research and literature from the 1980's through to 2010. There was an apparent shift in purpose, and divergence in definition, as each decade passed and as our understanding and implementation of student engagement developed. The three main categories noted were:

- to help disengaged and disadvantaged students achieve and participate (or to reduce drop outs);
- to assist in classroom management (reduce classroom disruptions and discipline issues);
- and, finally, to engage students in learning about learning (to help them to become skilled life long learners as opposed to well behaved, attentive students).

Perhaps most interesting is the growing shift from utilizing student engagement as a means for improving student achievement and attendance to utilizing student engagement as a means to improve the learners' abilities to learn. Student engagement also has moved from a place of being a reactive response to negative behaviors to being a preferred proactive strategy to enhance positive classroom learning environments. Further findings on this apparent evolution and history of student engagement follow.

Helping disengaged and disadvantaged students to achieve and participate in schooling

According to Harris (2008, p. 58) and the authors she cites in her research, student engagement appears to have emerged "as an academic concept during the 1970's and 1980's, with many early constructs emphasizing time-on-task and participation (McKinney, Mason, Perkerson, & Clifford, 1975; Smyth, 1980)". A research focus on student engagement arose in reaction to problems of student *dis*-engagement, which was thought to be a key reason why a percentage of students were not *achieving* as they should or were "dropping out" both figuratively (present, but not participating) or literally (early school leaving and failing to graduate).

Willms (2003, p. 8) further corroborates this theory when he summarizes his findings: "Most of the research on engagement has been concerned with its relationship with academic achievement and whether or not students are likely to complete secondary school." Shernoff,, Csikszentmihalyi, Schneider, & Shernoff (2003) also recommended student engagement as a possible solution to school psychologists' concerns with "the more stubborn and persistent educational problems facing students today… underachievement as well as learning, behavioral, and emotional difficulties that eventually lead to school dropout for many students" (p. 159).

It's an issue of Equity

"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"(Dunleavy & Milton, 2009, p. 4).

In an effort to further understand the educational context in which student engagement has grown so popular as a concept, Gilbert (2007) described our current educational system as being only 150 years old and built upon Industrial Age concepts of "mass education" created to "ensure *egalitarianism* (the idea that everyone should have an equal chance to succeed in life) and the *economic* need for people with the skills and dispositions necessary for work in the new Industrial Age enterprises" (p. 6). She goes on to say the system aimed to teach everyone the 'basics" of roughly the same content, in the same way, and then evaluated the students according to set standards and norms as a form of "quality control" – "the main instrument of quality control, at high school level, is the traditional academic curriculum" (p. 7). As pragmatic and generally functional as this model appeared to be, many have argued that "it doesn't actually produce equal opportunity. This system produces large gaps between the highest achieving students and the lowest achieving students. Large numbers of students don't measure up to the system's standards" (Gilbert, 2007, p. 7). These students become disenfranchised and disengaged when they don't, for any number of reasons, fit in or achieve.

> The journey towards a fully equitable public education system in Canada has been long and remains incomplete. And as school systems work to resolve issues inherent in a model of schooling designed for the past, the 21st century learning agenda challenges educators to consider new objectives for learning – over and above ways of improving upon existing ones - for all students, in all classrooms and in all schools (Dunleavy, Milton, & Crawford, 2010, p. 1).

Thus, it seems accurate that the construct of student engagement was drawn upon first **to address the issue of academic inequities** for middle and high school students who were not successful finding opportunities for achievement in Industrial Age models of public education, and thus were dropping out.

While this purpose and focus of student engagement (school completion) continues to this day, further research into the needs of at-risk students led to student engagement being used as both a means and a measure of improved participation for disengaged students – or to increase a "sense of belonging." Dunleavy & Milton (2009) speak to this shift – to better meet the needs of disadvantaged students who might or might not have been failing to achieve academically, but were also failing to "fit in" to their school cultures. The notion of "belonging" comes through more strongly in the 1980's.

> When student engagement first emerged in the late 1980's, researchers tended to view its "causes" almost exclusively through the lens of a set of demographic and social risk factors attributed to individual students (e.g. family circumstances, influence of peers). Over time, however, the concept and its measures began to shift in meaning as a result of increased attention to the influence of school context, particularly the relationships between school climate and students' experience of engagement (Dunleavy & Milton, 2009, p. 7).

Research into the impact that levels of participation and senses of belonging have on learning continue, as seen in studies by Dunleavy & Milton (2009) and Willms, Friesen, & Milton (2009), and appears to complement academic engagement or achievement strategies.

To establish better classroom management

Throughout the 1990's, as research on disengagement and disruption in classrooms was on the rise, student engagement also became useful for **gaining compliance** or **control** of an increasingly restless and diverse student population. As an everyday classroom management strategy, teachers could use various teaching strategies (differentiated learning) to engage students in their work – such as group work, PowerPoint or multimedia presentations of topics, and project-based learning. As an aside, research into ways of reaching disengaged students and garnering their interest in focusing on topics instead of classroom misbehavior resulted in a surge of beneficial theories and applications around "differentiated learning."

"Disengagement has been cited as a major cause of deviant behavior at school, truanting, and low academic achievement. (Carrington, 2002; Lamb, Walstab, Tesse, Vickers, & Rumberger, 2004) as cited in Harris, 2008, p. 57).

Although moving away from board and book learning and into more "fun" and interesting activities helped engage students and reduce behavioral problems in classrooms, the purpose of student engagement was still to reactively fix a problem and its goal was still to have all students doing what we wanted them to do, learning what we wanted them to learn, but adding some variations to how they learned it. The curriculum remained roughly the same – in content, process, and form of evaluation. The teacher was still expert in charge, using a few extra new tools, and the students followed along as best they could.

During this time, the research suggests that we started to pay attention to whether students not only passed and participated but also *enjoyed* their learning experiences. Shernoff, Csikszentmihalyi, Schneider, & Shernoff (2003) in their study on optimal states of learning found that many students were achieving academically and perhaps even participating in some activities, but were still disengaged in *learning*. They report, "Even among students who finish the required years of schooling … research has found high rates of boredom, alienation, and disconnection from schooling (Larson & Richards,

1991, as cited by Shernoff et al, 2003). Thus, in efforts to improve student enjoyment as a quality of engagement, the theory of Flow (Csikszentmihalyi, 1990) made its way into educational dialogue. Shernoff, Csikszentmihalyi, Schneider & Shernoff (2003) explored *Student Engagement in High School Classrooms from the Perspective of Flow Theory*, presenting a further "conceptualization of student engagement based on the culmination of **concentration, interest, and enjoyment** (i.e., flow)" (Shernoff, et al, 2003, p. 158).

The "Flow" experience research suggests that, because the flow state is intrinsically rewarding, people seek to replicate flow experiences. The student and teacher must find that niche and help students enjoy their learning – to find ways that help learners become so engrossed in their work that they lose track of time. At this point, questions surface: Should we create classrooms that *feel* good for students, or are we interested in learning because learning is good? Must all learning feel good? In a culture increasingly founded on "pleasure-seeking activities," is it hazardous to ignore this emotional or affective and seemingly personalized aspect of learning?

Concomitantly, *personalized* or *individualized* learning comes into our educational vocabulary. As noted earlier, for the most part, differentiated adjustments and elements of engagement were applied without changing the curriculum, teaching, assessment methods, or the outcomes expected of students. The introduction of engagement concepts such as "flow" and personalized "interest" in the classroom begins to interact with curricular and pedagogical standards. As Bopry and Hedberg (2005) put it, we were still "expert-centered and prescriptive" (p. 92) assuming we know what students need and how they can get it best. But the confidence that education should be hierarchical was about to be challenged and changed by the catalyst of educational thinking and research on student engagement from 2000 onward.

To engage all students in learning about learning (and help them to enjoy it!)

"One of the core functions of twenty-first century education is learning to learn in preparation for a lifetime of learning." (David Miliband, 2003, as cited in Claxton, 2007, p. 1).

From about 2003 onward, studies around student engagement began to shift from student engagement as compliance-focused *teaching* and *classroom management* strategies (making sure students know and are engaged in *what* we want to teach them) toward proactive improvements in *learning pedagogy* (or helping students understand *how* they learn best, regardless of the subject). Articles about student engagement and learning from 2004 on were also more *process* driven and "learning focused," whereas previous work was more about finding ways to *make* students *interested* in prescribed content.

Authors such as Dunleavy & Milton (2009); Harris (2008); Claxton (2006 & 2007); and Meyer & Turner (2006) started looking at engagement as a means to help students both improve in academics and participation, of course, and to **build a genuine disposition**

for self-directed, deep learning. The National Research Council's statement below includes all previous purposes for increasing student engagement – achievement, belonging, equity – but also points to the "new" purpose: to enhance all "*students' motivation to learn.* It hints at what was yet to come – the subtle request for a relinquishing of control over curricular content, or more accurately, to allow students to choose the process and sometimes topics of learning as a way to keep students engaged in their learning.

> The 2004 National Research Council report on fostering high school students' *motivation to learn* argued that motivation is a key factor in the success or failure of education and that "by the time many students enter high school, disengagement from course work and serious study is common." The consequences of this disengagement are often much more serious for young people from disadvantaged backgrounds because they do not usually get a second chance; students from more privileged backgrounds frequently do. The primary ingredients that foster involvement and *motivation to learn* are "competence and control, beliefs about the value of education, and a sense of belonging" (National Research Council, 2004, p. ix) as cited in Ramaley & Zia, 2005, p. 8.2 *(italics are added for emphasis)*

In the literature from 2005 onward, questions arose that challenged the effectiveness of prior pedagogy and curriculum in adequately preparing our youth for their careers and lives. The term "Knowledge Society" or "Information Age" became popular and educators no longer assumed the modernist values of an Industrial Age; instead, they moved towards a new world and a new way of being. Obviously, this movement was encouraged by a massive groundswell of accessible technology and information, which allowed further opportunities to revise learning and education accordingly. As Gilbert (2007) says, the new definition of knowledge differs "from traditional philosophical understandings of knowledge, and because of this, it is a major challenge to our education systems. We cannot address this challenge by adding new ideas to – or tinkering with – existing structures. To address it we need to think differently about schools. We need to go 'back to basics,' to re-think many of our current ideas about schools, their purposes, and the best ways of achieving those purposes" (Gilbert, 2007, p. 4).

Inherent in this discussion is the additional shift in locus of control over learning – from teacher controlled to student controlled. Authors such as Gilbert (2007) and Bopry & Hedberg (2005) asked if our applications of engagement models, as the word *engagement* implies, really allowed students to gain "competence" and a sense of "control" over their own learning? Were they empowered and supported to become more committed to, in love with, and willing to persevere through the challenges of learning for learning's sake? Were students able to critique and create their own knowledge? Did their learning climates and environments support the growth of their innate interest in learning? Or were we just tweaking an old system without actually relinquishing the control and locus of power to the learner?

"The basic assumption is that to be effective the experience will need to engage the learner in an activity which generates phenomena that encourage an active understanding of the way "things work" in the world and are not simply descriptions of them" (Bopry & Hedberg, 2005).

The quote below is an example, richly loaded with hints of the changes to the language, beliefs, and values around student engagement in educational settings.

> Research suggests that student engagement may be influenced by several phenomenological factors, including the **relevance** of instruction and perceived **control**. With respect to instructional relevance, students are more likely to become engaged with authentic academic work that intellectually involves them in a process of **meaningful inquiry** to **solve real life problems** that extend **beyond the classroom** (Newmann, Wehledge, & Lamborn, 1992, as cited in Shernoff, et al, 2003, p. 159). (Bolded for emphasis)

In more recent literature, a new or additional purpose for student engagement seems to be emerging – to enhance and make explicit *all* learners' understandings about their *learning processes*, useful for learning any subject at any time, as needed. The literature suggests a shift from reactive management to proactive leadership in creating "ideal learning environments" that would enhance engagement and instill a personal passion for learning. In 2009 to 2010, no longer are educators focusing only on increasing engagement for behavioral compliance or academic achievement for *some* students; we are talking about increasing enjoyment, interest, scope, and meta-cognitive awareness about the spectrum of *learning* so students become skilled in *learning* in *all* aspects of life as well as core literacy and subject-area content. For example, Dunleavy & Milton (2009) head into the realm of learning as the goal of engagement, when they suggest we focus on "expanding our understanding of student engagement and its potential for transforming classroom practices to enable *all* students to become deeply engaged in powerful learning experiences" (p. 5).

With each passing year, new research adds layers and aspects to the construct of student engagement. Research is not only from educational fields but comes from human development, cognitive sciences, economic and demographic studies, and more. Every contribution both clarifies and renders the concept even more complex, multi-dimensional, and dynamic – thus it seems no one is able to get hold of a coherent or comprehensive definition. One thing we do know; student engagement is being more fully embraced and developed as a concept worthy of expanded research consideration.

Ubiquitous in our school systems, but not yet understood

The term student engagement is now nearly ubiquitous in schools' and districts' mission, vision and values statements, and accountability plans (Dunleavy & Milton, 2009). In some districts, student engagement is an accountability goal unto itself. Yet, the meaning of the concept changes from research to research, from school to school, and even from

classroom to classroom. In fact, "researchers and practitioners are voicing concerns about the growing murkiness of the concept and arguing for the need to synthesize current ways of thinking about student engagement into a more coherent – and multidimensional – framework (Fredericks, 2004; Appleton, 2008; National Research Council, 2003) as cited in Dunleavy & Milton, 2009). Harris (2008) concludes her report by suggesting, "there cannot be any 'assumed' shared knowledge about student engagement among academics or teachers. The variation present within literature reviewed and empirical data examined shows the diverse range of meanings attached to the concept" (p. 75).

However diverse the definitions and underlying purposes of engagement, some common categories or "dimensions" are used to describe the various types of student engagement in the literature. We identify a number of these in the next section of this review.

"Empirical studies over the past twenty years have shaped the emergence of engagement as both a strategy for improving educational achievement and as an independently valuable outcome of schooling. Definitions and ways of measuring student engagement vary a lot depending on different approaches to studying the topic, but the majority of studies focus on one of two key dimensions: Social Engagement – participation in the "life" of school, and Academic Engagement – participation in the requirements of success in school" (Dunleavy & Milton, p. 7).

In brief, the research literature suggested a clustering of common themes for student engagement. Definitions from various sources pointed to four or five similar categories; but, again, the text within each article often hinted at differing purposes or meanings even for the most common themes of student engagement. Harris (2008) suggests a solution: "Synchronizing the ways it is talked about and understood by educational stakeholders would increase its usefulness" (p. 75). Clarity would certainly help us make student engagement a more "useful concept for talking about student experiences and learning" (p. 75).

Dissenting voices or perhaps 'the ghosts of classrooms past'?

Some critics suggest we are not enhancing learning by pursuing student engagement practices by "wooing the restless youth;" instead, we are dumbing down or creating a generation of spoiled, illiterate, or at least lazy writers and readers – with their "grab-and-go" or "cut-and-paste" approaches to research and knowledge building. Are we in fact diluting knowledge and disposing of standard measures of intelligence as we allow students to explore their individual learning styles, goals and interests, as opposed to learning prescribed curriculum or teaching students what we have always taught? Some critics say "Yes!" (Carlson, 2005; Young, 2006; Carnivale, 2006; Bennett, Maton, & Kervin, 2007).

Dunleavy & Milton (2009) also note that some researchers strongly suggest we need to slow down or stop and take a deeper, more critical look at the "assumptions underlying popular ideas about engagement" (p. 9). For example, their report suggests:

> Zyngier (2007), for one, believes current ideas about student engagement are still far too individualistic because most research continues to depict "[engagement] and the academic success that accompanies it, as a function of the individual, ignoring the contribution of gender and socio-cultural, ethnic, and economic status (class) factors" (p. 97). He also argues that the concept is too *interventionist* in nature because of the tendency to talk about engagement as "something students do and that teachers can organize for them and do to them" (Luse, 2002, as cited by Zyngier, 2007, p. 97, as cited in Dunleavy & Milton, 2009, p. 9).

Still most others say, on the contrary, whether or not we are clear on definitions, we need to prepare students to learn any subject at any time with the resources at hand. If we focus on giving them the tools they need to pursue traditional knowledge should they so desire or require, we are not limiting their future; instead, we are helping them create it, as Prensky (2001), Ramaley & Zia (2005), Windam (2005), and Kvavik, Caruso, & Morgan (2004) suggest. It is the innate nature of today's "millenials" and "digital natives" to be creators of knowledge, in a re-mix society. Or, as Claude Levi-Strauss might say, our young people are "bricoleurs" actively engaged in "bricolage," which has to "do with the ability to find something – an object, tool, document, a piece of code – and use it to build something you deem important" (Brown, 2002, ¶18). To ignore this fact is to continue to disengage learners. Students of today are different – they are both active seekers and co-creators of knowledge (Gilbert, 2007). Linear and didactic pedagogy will no longer work for them.

Kvavik, Caruso, & Morgan (2004) indicate that many youth (between 21% and 60%) today are nearly effortlessly and joyfully creating new media, new knowledge, and new culture from the materials and resources at hand using a stupefying array of technology, most of which fits in their pockets and backpacks. Engaging these intellectually and socially hungry "digital natives," as Prensky (2001) refers to our high tech youth in his work *Digital Natives, Digital Immigrants,* or "Net Geners" (Barnes, Marateo, & Ferris, 2007; Tapscott, 1998), is increasingly challenging. Such engagement will require a paradigm shift for resistant educators and educational leaders. In truth, the research literature appears to suggest that we are just beginning to tap into the benefits and challenges of utilizing student engagement as a key learning strategy.

In summary, the key themes we noted in the literature regarding underlying goals or purpose for utilizing student engagement are:

1. Student Engagement with **achievement** or knowledge accumulation, good academic outcomes (grades), and ultimately graduation as the goal.

2. Student Engagement with **compliance** or **control** as the goal. There seem to be two streams of thought on the topic of control:
    a. The (more common) teachers' sense of control over student behavior and the classroom environment. For example, are students *complying* with teacher expectations for student behavior? Are students meeting the stated objectives using prescribed methods for learning and assessment?

b. The students' sense of control over their learning (choices in topic, method, resources, presentation, and assessment) and their learning environment (which possibly falls under the 4th category below)

3. Student Engagement with (experiencing) **emotional/psychological "high**" as a goal – as in Flow experiences (Csikszentmihalyi, 1990).

4. Student Engagement with powerful, "deep" **learning and improved cognitive/meta-cognitive, knowledge building skills** as the goal.

What is Student Engagement?

It is difficult to define "student engagement"

Ambiguous is a word often used in the literature regarding student engagement: "Student engagement had already gained popularity as a lever for secondary school reform across Canada although the meaning of the term 'engagement' in the research literature was fairly ambiguous" (Dunleavy, Milton, & Crawford, 2010, p. 2). Student engagement is not a simple construct. Multiple factors are at play when students fully engage their learning. That student engagement is integral to student achievement is not argued in the literature, but how we measure and define student engagement remains contentious.

> While several lines of inquiry have now converged on the conclusion that these factors play a key role in student learning, findings vary considerably due to differences in definitions and approaches to assessing student engagement levels (Chapman, 2003, p. 1).

This review offers only a sample of definitions provided by authors of the research we reviewed: the search for definitions alone would result in a major paper. As stated above, there are multiple layers and aspects to student engagement; as a result, little agreement or consensus on definitions of student engagement exists. It is noteworthy that ambiguity also exists about whether some constructs of engagement are required to help students to achieve, behave, or learn how to learn. For example, in his report for OECD entitled *Student Engagement at School: A sense of belonging and participation*, Willms (2003) looked at the correlation between levels of engagement and literacy (achievement) and reports rather inconclusive results. These inconclusive results might be partially due to the complexity of how respondents and researchers define student engagement.

Harris' (2008) extensive review of student engagement explains the challenge: "While there is general agreement that student engagement produces positive outcomes, defining the concept is problematic as there is disagreement about what counts as student engagement" (p. 58). To further complicate things, among a variety of categories of student engagement, common elements or terms may be used (*behavioral engagement* for example); however, researchers often assign different *meanings* to each term:

> Many academics now view engagement as a multidimensional construct, although many studies investigate only one dimension. Fredericks, Blumenfeld, and Paris

> (2004) classify 44 engagement studies into behavioural, emotional, and cognitive categories. Behavioural engagement is student participation in academic, social, and extracurricular activities. Emotional engagement is considered to exist when students have positive attitudes and reactions towards school, teachers, learning, and peers. Cognitive engagement is thought to be present when students make personal investment into learning in a focused, strategic, and self-regulating way (p. 58).
>
> Anderson, Christenson, Sinclair, and Lehr (2004, p. 110) divide engagement into four types: behavioural, academic, cognitive, and psychological. While their categories are similar to those described by Fredricks, Blumenfeld, and Paris (2004) above, they use academic engagement to specify time spent doing learning activities as opposed to general behavioural engagement where students may be participating in nonacademic pursuits. In their model, psychological engagement encompasses similar aspects to Fredricks et al.'s (2004) emotional engagement. (Harris, 2008, p. 59).

Harris (2008) also points out that some view the categories of student engagement in a hierarchical manner – wherein some forms of engagement are more important or indicate higher levels of engagement than others. She cited Finn's (1989) work on academic engagement, as an example, in her research: "Finn (1989) puts forward a hierarchical taxonomy based primarily on specific types of behavioral engagement. Students whose behaviors correspond with higher levels in the taxonomy are considered to be 'more' engaged) (Harris, 2008, p. 59). However, others don't assign any levels of importance, but instead feel that each level is "equally important to student engagement (Fredricks, Blumenfeld, and Paris, 2004; Blumenfeld, Modell, Bartko, Secada, Fredricks, Friedel, et al., 2005", as cited in Harris, 2008, p. 58). This begs the question: Must all students be engaged on all aspects to be successful? Willms (2003) work, for one, suggests that they do not.

Nearly all authors note the need for further collaborative research. One area of agreement is the unified call for clearer definitions of engagement. For now, we provide some of the more *recent* definitions and categories for student engagement found in the literature. Chapman (2003), for example, notes a shift in definitions in the past years from a time-on task-based perspective to more compliance-based definitions.

> More recently, at least two distinct definitions have appeared in the literature (Nystrand & Gamoran, 1991). In the first, student engagement has been used to depict students' willingness to participate in routine school activities such as attending classes, submitting required work, and following teachers' directions in class… Defined in this way, school engagement overlaps considerably with compliance, which in its more general form involves meeting expectations explicit in school contexts.
>
> The second definition used focuses on more subtle cognitive, behavioral, and affective indicators of student engagement in specific learning tasks (Chapman, 2003, p. 2).

Chapman's (2003) article "Alternative approaches to assessing student engagement rates" cites Skinner & Belmont's (1993) definitions, which focus more on the affective factors of engagement. (Note: we have bolded key elements for emphasis.)

> Engagement versus disaffection in school refers to the **intensity and emotional quality of children's involvement in initiating and carrying out learning activities**…Children who are engaged show **sustained behavioural involvement in learning activities** accompanied by a **positive emotional tone**. They select tasks at the border of their competencies, **initiate action** when given the opportunity, and **exert intense effort and concentration** in the implementation of learning tasks; they show generally positive emotions during ongoing action, including enthusiasm, optimism, curiosity, and interest (Skinner & Belmont, 1993, p. 572 as cited in Chapman, 2003, p. 2).

Willms (2003) offers a different synthesis in his review on the definition of student engagement (Again, we bolded key words for emphasis):

> Researchers have recently used the term engagement to refer to **the extent to which students identify with and value schooling outcomes, and participate in academic and non-academic school activities.** Its definition usually comprises a ***psychological*** component pertaining to a student's sense of belonging at school and acceptance of school values, and a ***behavioral*** component pertaining to participation in school activities (Finn, 1989, 1993; Finn and Rock, 1997; Goodenow, 1993; Goodenow & Grady, 1993; Voelkl, 1995, 1996, 1997; Wehlage et al., 1989 as cited in Willms, 2003, p. 8).

Dunleavy (2008) defines three combined types of student engagement most commonly reported in her research, adding Academic-Cognitive to the mix:

> **Behavioral** – value of schooling outcomes, participation in extracurricular and non-academic school activities, attendance.
>
> **Academic-Cognitive** – time-on-task, homework completion, response to challenges in learning, effort directed toward learning, cognition and strategic learning.
>
> **Social-Psychological** – sense of belonging, relationships, perception of capacity for success/sense of competence, motivation, interest, need for choice and autonomy (p. 23).

After completing research with Milton, Dunleavy (2008) apparently altered her definition a year later in Dunleavy & Milton's (2009) *What did you do in school today? Exploring the concept of Student Engagement and its implications for Teaching and Learning in Canada.* This report separates academic engagement from cognitive engagement, moving cognitive engagement into its own newly developed term "Intellectual Engagement" (p5). Notably, they do not include psychological or behavioral engagement. Willms, Friesen, Milton (2009, p. 7) repeat this same triad in their research the same year.

Social Engagement – a sense of belonging and participation in school life

Academic Engagement – participation in the formal requirements of schooling

Intellectual Engagement – a serious emotional and cognitive investment in learning, using higher order thinking skills (such as analysis and evaluation), to increase understanding, solve complex problems, or construct new knowledge.

"Academic Engagement" was changed to "**Institutional Engagement**" in 2010 (Dunleavy, Milton, & Crawford, 2010, p. 2). In this same article, the authors further articulate how they perceive their different definitions of *Intellectual Engagement.* "The concept of intellectual engagement allows exploration of what students are doing in *classrooms*, how they feel about their experiences of learning, and whether the work they do contributes to their learning" (Dunleavy, et al, 2010, p. 2).

As mentioned earlier, emotional aspects of student engagement started to emerge into the definitions through the work of authors such as Shernoff, Csikszentmihalyi, Schneider, & Shernoff (2003) who define what they call "aspects" of student engagement as **"high involvement in classrooms, which includes concentrated attention, interest, and enjoyment** as opposed to apathy and a lack of interest in instruction" (p. 3). This definition, of course, stems from Csikszentmihalyi's "Flow theory" and, as a student engagement model, purportedly leads to optimal learning experiences. "An assumption of Flow Theory is that optimal learning experiences are intrinsically motivated and related to positive emotions and enhanced cognitive processing" (Csikszentmihalyi, 1990, as cited by Meyer & Turner, 2006, p. 381).

Meyer and Turner (2006) explored the concept of engagement and also added **emotional engagement** to the equation when they suggest "engaging students in learning requires positive emotional experiences, which contribute to a classroom climate that forms the foundation for teacher-student relationships and interactions necessary for motivation to learn" (p. 377). As above, Fredricks, Blumenfeld and Paris (2004) identified emotional engagement as a category and describe it in much the same way as Meyer and Turner.

Cognitive or meta-cognitive engagement is yet another factor. Again Chapman (2003) shares Pintrich & De Groot's (1990 and Pintrich & Schrauben's (1992) definitions, which hint at a hierarchical nature to engagement:

> (Pintrich) associated engagement levels with students' use of **cognitive, meta-cognitive, and self-regulatory strategies** to monitor and guide their learning processes. In this view, student engagement is viewed as **motivated behavior** that can be *indexed* by the kinds of cognitive strategies students choose to use (e.g., simple or "surface" processing strategies such as rehearsal versus "deeper" processing strategies such as elaboration) and by their **willingness to persist** with difficult tasks by regulating their own learning behavior (Pintrich et al, 1990/1992 as cited in Chapman, 2003, p. 2)

Harris (2008) also reports that Nystrand and Gamoran (1991) defined engagement in two hierarchical categories – **Procedural** and **Substantive**. As Harris explains,

> Procedural engagement loosely correlates to behavioural engagement, occurring when students complete class activities and homework. Substantive engagement describes aspects of psychological and cognitive engagement, happening when students commit to academic study (Nystrand & Gamoran, 1991). In this model, substantive engagement is considered more beneficial for students than procedural engagement as their research correlates it more strongly with student learning (Harris, 2008, p. 59).

As one reads the literature carefully, it becomes clear that, although it is talked about at length, the perspectives, purposes, and measurements for engagement are diverse. Researchers have been striving to clarify a perspective on engagement but, to date, have been unable to find a definitive answer.

Teachers' perspectives on student engagement

Teachers' voices are rarely heard in the research, which is something Harris (2008) set out to rectify. She indicates that perhaps some teachers don't fully understand or agree with the concept of engagement in learning. This belief is, to Harris, evident when teachers suggest students are engaged in learning when they behave, listen, do their work well, follow instructions, or seem to be enjoying themselves as they allow teachers to get on with their work with other students. She illustrates how teachers' perspectives are diverse:

> This study identified six qualitatively different conceptions of engagement in learning:
>
> - participating in classroom activities and following school rules
> - being interested in and enjoying participation in what happens at school
> - being motivated and confident in participation in what happens at school
> - being involved by thinking
> - purposefully learning to reach life goals
> - owning and valuing learning (Harris, 2008, p. 65).

Harris renames these categories as "***Behaving, Enjoying, Being motivated, Thinking, Seeing purpose,* and *Owning***. While the first category contains primarily behavioral understandings of engagement, the second two – enjoying and being motivated – focus more on psychological aspects of engagement. In the final three categories, emphasis is placed on cognitive aspects of student engagement" (Harris, 2008 p. 65). Interestingly, Harris stated, "not all teachers' conceptions of student engagement are focused on engagement in *learning*. Some appear to center instead on participation, or engaging students in *schooling*" (p. 74). This finding may suggest that some teachers still operate on the early 1980's understanding of engagement as a classroom management strategy as opposed to a learning strategy.

Let's ask the kids! Students' perspectives on Student Engagement

Whereas Harris (2008) sought out teacher voice, researchers such as Willms & Flanagan (2007) and Dunleavy & Milton (2009) noticed glaring omissions of student voice in the

research and launched several studies that asked students about student engagement. As Dunleavy & Milton (2009) state, "CEA [Canadian Education Association] believes student voices need to be central in shaping how we think about the modern purpose of schooling and learning environments" (p. 5). Their multi-year, multidimensional action research project collected data from students (and teachers) on many aspects of student engagement in Canadian schools. They asked students to describe the "ideal school" or learning environment and also asked them what would help increase student engagement in learning. Their findings have been both enlightening and foundational to a series of projects across the country.

> *What did you do in school today?* has grown from a network of ten to seventeen Canadian school districts. Administrators, teachers, and students in more than 150 schools are now working with ideas and data generated by CEA's multidimensional framework of student engagement (Dunleavy, Milton, & Crawford, 2010, p. 3).

Willms & Flanagan (2007) also sought the student voice and created an anonymous online survey through which students could express their honest perspectives on engagement and school experiences. The survey instrument is entitled *Tell them from me* and was created in 2004 by Willms and Flanagan and continues to be used by many Canadian school districts to help identify and address issues of student disengagement.

There is further complication when one measures or considers engagement through the lens of "motivation to learn." When seemingly engaged and successful students spoke openly about their learning and levels of engagement, they often described their classrooms as "boring, hectic, stressful, and disconnected from the real world" (Dunleavy & Milton, 2009, p. 9). Some revealed that 'they are merely following the rules or expectations – or "doing school" as Pope (2003) described in *Doing school: How we are creating a generation of stressed-out, materialistic, and miseducated students*. These students are motivated by external factors that have little to do with what or how they are learning (e.g. achieving long term goals or getting good marks) (Dunleavy & Milton, 2009, p. 9).

Although students in the study did not come up with catch-all terms and categories, such as "behavioral," "cognitive," or "academic," they came up with criteria they considered conducive to engagement (see below). These will be elaborated further in the section of the paper titled "How do we improve student engagement?" but for now a brief "student perspective is perhaps insightful" (Dunleavy & Milton, 2009, p. 10). As Dunleavy & Milton (2009) describe,

> Set against all of the challenges that left them feeling frustrated and disengaged in school, however, the students also offered powerful images of what it would take for them to feel fully engaged in learning. In the school they imagined, they would:
> • Solve real problems.
> • Engage with knowledge that matters.
> • Make a difference in the world.

- Be respected.
- See how subjects are interconnected.
- Learn from and with each other and people in their community.
- Connect with experts and expertise.
- Have more opportunities for dialogue and conversation (p. 10).

One could go about sorting the above actions into previously articulated categories – social, cognitive, and intellectual come to mind; however, this categorization would merely add another subjective filter to the sorting process. Students have, instead, given us clues as to what student engagement actually "looks like" and perhaps more research should be focused here. Harris (2008) concludes succinctly by saying, "student engagement must be explicitly defined within academic research and government documents to avoid misunderstandings and misinterpretations" (p. 75). These gaps and disconnects between what we "perceive" to be high engagement and how students actually feel raises questions about how we are *measuring* engagement. How accurate are our measures, and how important is it to measure only academic achievement as a sign of engagement? We explore measurement of engagement in the next section.

What are the measures of student engagement?

"Earlier traditions of measuring engagement through constructs that relied on observation and teacher reports of student behaviors have largely given way to measures that invite students to offer their own assessments of schooling. When provided an opportunity to speak up, students demonstrate a keen ability to articulate the difference between school and classroom factors that draw them in or cause them to tune out"(Dunleavy, 2008, p. 23).

The one area shown as lagging in the research is *how* to assess or measure student engagement. The lack of research in this area might be due to the fact that assessment of student engagement is apparently difficult given that we are dealing with diverse criteria and definitions. In this review, we looked for how student engagement has been measured as it evolved as a construct. Of course, with the complexity of definition comes a corresponding complexity in measuring and evaluating. Accordingly, a range of measures was noted in the literature, depending on the *type* of engagement being assessed or measured.

Chapman (2003) completed an overview of the literature on student engagement and describes "the various methods that have been used to assess engagement levels in empirical research studies" (p. 1). Her focus was to review "approaches to assessing student engagement levels on a classwide basis" (Chapman, 2003, p. 1). She reports the following measures and assessments:

> **Self-Report Measures** have been used by many researchers to assess the behavioral, cognitive, and affective aspects of student engagement. Items relating to cognitive aspects of engagement often ask students to report on factors such as

> attention versus distraction, mental effort expended, task persistence in the face of initial failure, and response levels during class time (p. 3).
>
> Affective engagement questions typically ask students to rate their interest in and emotional reactions to learning tasks on indices such as choice of activities, desire to know more about particular topics, and feelings of stimulation or excitement in beginning new projects (Chapman, 2003, p. 3).

Chapman lists a series of self-report questionnaires, but reiterates the frequently-stated conclusion that "no one instrument is likely to be able to comprehensively assess student engagement on all of the construct dimensions listed" (p. 3). She adds that self-report questionnaires are often useful for asking both "*whether*" students are engaged in their studies and "*why* this is the case" (p. 4). She lists a helpful summary of published scales and questionnaires available. Chapman mentions that, "although self-report scales are widely used, the validity of data yielded by these measure will vary considerably with students' abilities to accurately assess their own cognitions, behaviors, and affective responses (Assor & Connell, 1992)" (Chapman, 2003, p. 5). Thus, the onus of understanding students' self-evaluation is often given to external observers, such as teachers or assessors.

Self-report questionnaires are often confirmed or triangulated with reports from "direct observations" or "checklists and rating scales" and would include observed measures of how students attend to their work or actively seek appropriate learning resources. However, these reports are often momentary snapshots of a student levels of engagement – students are observed for perhaps a total of five minutes – and therefore may not indicate a student's general level of engagement.

> **Checklists and Rating Scales.** A few studies have used summative rating scales to measure student engagement levels. For example, the teacher report scales used by Skinner & Belmont (1993) … asked teachers to assess their students' willingness to participate in school tasks as well as their emotional reactions to these tasks. The Teacher Questionnaire on Student Motivation to Read developed by Sweet, Guthrie, & Ng (1996) also asks teachers to report on factors relating to student engagement rates, such as activities, autonomy, and individual factors (Chapman, 2003, p. 5).

Another method described by Chapman (2003) is "Work Sample Analysis" (p. 6). In other articles, this method comes up as student portfolios or presentations of products created by the students, such as in Barak & Doppelt (2002) and Barrett (2005).

> **Work Sample Analysis.** Some educators have used work samples to assess levels of learning task engagement, focusing again on students' use of higher cognitive or metacognitive strategies in confronting learning tasks. Evidence of higher-order problem-solving and metacognitive learning strategies can be gathered from sources such as student projects, portfolios, performances, exhibitions, and learning journals or logs (Chapman, 2003, p. 6).

These projects are evaluated using various rubrics, which "establish a set of explicit criteria by which a work will be judged" (Chapman, 2003, p. 6). However, the "efficacy of these methods hinges on the use of suitably structured tasks and scoring rubrics" (p. 6), which may or may not include the student's input. When student input is not sought, the process becomes more a summative, objective appraisal and less a process for engaging the learner in further learning.

The assessment methods mentioned by Chapman (2003) highlight a newer line of thinking on the topic of assessing engagement. Historically, and for the majority of the projects reviewed, measures for most categories of engagement have rested solidly on quantitative data such as attendance, truancy, standardized test scores, number of completed assignments, objective reports (numbers and counts of time on task or levels of participation, numbers of incidents reported, and graduation rates [Willms 2003; Harris, 2008; Dunleavy & Milton, 2009; Chapman, 2003]). Furthermore, the bias almost always referred to the *outcome* of *achievement* instead of the *process* of *engaged learning*. That is, reports noted that students "stayed on task until they got the job done;" but neglected to note how students felt about their work or whether they were even aware of or interested in what they did. This bias existed until researchers such as Dunleavy, Milton, Friesen, Willms, and Crawford and projects such as *Speak Up 2009* from Project Tomorrow (2010) began to ask different questions and measure different markers. "Beginning with *Imagine a School* and *Design for Learning,* the Canadian Education Association (CEA) has invited adolescent learners to share their views about schooling and their experiences of learning," say Dunleavy, Milton & Crawford (2010, p. 1).

> The systematic collection of data about students' experiences continues to provide a foundation for school and district inquiries into creating more effective and engaging learning environments. First year results revealed generally low levels of student engagement. While almost 70% of the 32,322 students reported positive experiences of social and institutional engagement, only 37% felt intellectually engaged in learning. (Willms, Friesen & Milton, 2009, pp 16-29, as cited in Dunleavy, Milton, & Crawford, p. 3).

When researchers such as Willms, Friesen, Milton, Dunleavy, and Harris began asking *students* and *teachers* how *they* would measure various types of student engagement, their research produced both interesting qualitative criteria and differing definitions of engagement in learning, which consequently has impacted how we 'assess' learning (i.e. more along the lines of Assessment for learning, as opposed to assessment of learning).

Common Quantitative measures noted in the literature

- Attendance/ participation rates/punctuality/graduation rates
- Achievement/academic levels (standardized test scores and grades)
- Time on task, homework completion
- Checklists/Rubrics of completed works
- Extra curricular participation rates/counts – attendance in sports, arts, after school programs

- Number of behavioral incidents reported (Dunleavy, 2008; Dunleavy & Milton, 2009; Claxton 2006; Harris, 2008; Willms, 2003; Willms, Friesen, & Milton, 2009; Chapman, 2003).

Common Qualitative measures noted in the literature

- Student surveys
- Teacher surveys
- Student written or verbal self-report reflections as evidence of critical thinking about learning and levels of engagement
- Student self-reporting work: Portfolios, products, presentations, student developed projects demonstrating their learning and understanding
- Observed evidence (increased concentration, interest, motivation, enjoyment) and self-reports of "flow" experiences (Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003; Harris, 2008; Barak & Doppelt, 2002; Dunleavy & Milton, 2009; Claxton 2007; Harris, 2008; Willms, 2003; Willms, Friesen, & Milton, 2009; Meyer & Turner, 2006; Chapman, 2003).

It has proven difficult to measure *engagement* in *learning* specifically. Harris (2008) mentions that we often end up measuring "student engagement in schooling instead of in learning" (p. 74). The focus of our behavioral categories remains "primarily on getting students to participate in school and classroom activities" (p. 74). Claxton (2007) says,

> even the decision about what to record and measure is problematic. The TLRP project on Learning How To Learn … could not find a satisfactory instrument, and had to fall back largely on measures of school achievement. The trouble with this …is that many students who get good grades are hardly what one would call robust, broad, rich all-round learners (p. 15).

That is, students might be achieving academically or behaving in classrooms but are not qualitatively recognized or self-reporting to be *engaged* learners. Will they choose to engage in learning outside the classroom once extrinsic motivational factors of "good grades" and "grad" are removed? Are they "getting out on good behavior" without having learned how to learn? Research by Dunleavy & Milton (2009) suggests that this situation is possible. Dunleavy & Milton (2009) also provide findings about measuring different types of engagement. They note, about measuring academic engagement:

> In its early development, academic engagement tended to be measured exclusively through observable student behaviours such as time on task or homework and assignment completion. Over time, researchers have also begun to explore the influence of more individualized measures, such as interest and personal effort, strategies for strategic learning, sense of competence, perceptions of social support for learning, and so on (Dunleavy & Milton, 2009, p. 8).

But, when it comes to measuring social engagement, how does one know when a student

is socially engaged in learning? Dunleavy & Milton (2009) report quantitative standards: "This concept is commonly measured by indicators such as attendance, punctuality, participation in extra-curricular activities, and emotional attachment to school (p. 8). Again, the literature leaned prominently to quantitative measures of counts, numbers, and statistics of attendance, participation in extra-curricular activities, and classroom interactions. However, Willms (2003) PISA 2000 noted that some students are logistically unable to attend regular or extra-curricular school activities but remain emotionally, intellectually, and socially engaged in their learning. Are attendance and other externally observed behaviors true measures of social or other types of engagement? More recently, informal and more formal student and teacher surveys such as *Tell them from me* (Willms) are being used to seek answers, but consistency and agreement among scholars and educational institutes about what constitutes social engagement is still non-existent.

The challenge of measuring social or emotional student engagement in learning is obvious – learning can often be an internalized, private experience – being outspoken in class or activities does not necessarily indicate engagement (and can sometimes indicate the opposite – boredom and behavioral issues). Students have professed to "faking" engagement or skillfully succeeding in academics and sports without really feeling a sense of interest, engagement, or even a sense of belonging. "Even students who, by traditional standards, seem to be highly engaged in learning often reveal that they are going through the motions … motivated by factors that have little to do with what or how they are learning" (Dunleavy & Milton, 2009, p. 9; also Willms, 2003; Pope, 2003). They were doing what they "had to do" to gain good grades or graduate.

Is social or participatory engagement even necessary for achievement in school and beyond? Measuring the interaction between two types of engagement (sense of belonging and participation) and literacy or achievement (in reading, math and science) Willms (2003) explored this question. He explains how student engagement as a concept was measured in the PISA 2000 report:

> The construct of engagement derived from the PISA results for this report has two dimensions. Sense of belonging and school attendance. Sense of belonging was based on students' responses to six items describing their personal feelings about being accepted by their peers and whether or not they felt lonely, "like an outsider" or "out of place". Like literacy performance or virtually any schooling outcome, sense of belonging is affected by students' experiences at home and in their community, as well as by their school experience (p. 18).

Willms further reported several concerns with measuring participatory engagement by frequency of absences because it is nearly impossible to know why a student is away. "Thus, the measure of participation should be viewed as a measure of absenteeism, rather than as a measure of truancy, or participation per se" (p. 18). While some researchers actively collect student data and evidence of engagement in learning, fewer reports are published about exactly *how* they are measuring the more elusive aspects of engagement, with the exception of "surveys" – which are the number one form of qualitative assessment of student engagement (Willms, Friesen, & Milton, 2009; Harris, 2008;

Dunleavy & Milton, 2009; Willms & Flanagan, 2007). As important as increasing student engagement is proving to be, we continue to rely on old measures. Fresh findings about what students and teachers feel demonstrates engagement point us in new directions for pedagogy, curricula, and new definitions of what constitutes learning and knowledge. Only these new measures begin to help us sense what education could be.

More recently, Dunleavy, Milton, & Crawford (2010) note the increased attention given to what learners actually feel and experience in their classrooms and consider the consequences and promises of continuing this line of research and inquiry:

> These concepts (of intellectual engagement) capture the aspirations of both teachers and students for teaching and learning that create enduring knowledge and skill. Renewed attention to the kinds of learning experiences young people need to develop an expanded set of competencies for navigating a 21st century world is a significant consequence of the new measures of intellectual engagement and instructional challenge. Engaging students in the curriculum in this way - through work that creates the conditions for deep emotional and cognitive investment in learning – is the foundation of intellectual engagement, instructional challenge and related core ideas that CEA continues to explore through *What did you do in school today? (Dunleavy, Milton, & Crawford, 2010, p. 6).*

Why is student engagement important? The Promise

What happens today in education profoundly influences the lives of individuals and the health of whole communities for decades to come. (OECD, 2006, p. 11 as cited in Willms, Friesen, Milton 2009, p. 6).

With all the inherent difficulty in defining, facilitating, and measuring student engagement as a leverage point for improving and transforming education, one may wonder: Is defining student engagement really worth the effort? The answer in the literature is a resounding, "Yes!" for these reasons: the purpose for education has changed because the world has changed; and, as the world has changed students have changed with it; however, education has not. An increasing gap exists between what students want and need and what education has provided.

Rethinking the Purpose of Education

Exploring the questions of student engagement has raised new discussions about the purpose of education. This call for rethinking the purpose of education became more prevalent in the literature from 2004 onward (Gilbert, 2007; Harris, 2008; Hargreaves, 2004; Pope, 2003; Whitney-Vernon, 2004). As Dunleavy, et al. (2010) suggest,

> One of the most promising debates to be revived by the still emerging 21st century learning agenda draws our attention to the past, present and future

> purposes of education. The old commitment to equal educational *opportunity* is finally being replaced by a promise of optimal *benefits* for all young people. Can public education provide for the full range of aspirations and passions of young people today? Can it uncover latent talents in students who have come to believe that they can't learn, or who choose not to in school? The promise of optimal benefits poses a complex challenge for school systems in a context where there is currently neither certainty nor agreement about district, school or classroom conditions required to fully realize it (p. 7).

Gilbert (2007) also theorizes that the traditional purpose of education was to best prepare students to serve society's needs – to be productive and effective in the world of work. And, curriculum adopted these purposes. If curriculum followed today, it would work to help create highly adaptive, engaged learners and problem solvers.

> With nearly 49.5 million students enrolled in schools in 2003 (Enrollment Management Report 2005), responding to the specific needs of this generation of learners is becoming increasingly important. The challenge of evolving pedagogy to meet the needs of Net-savvy students is daunting, but educators are assisted by the fact that this generation values education. These students learn in a different way than their predecessors did, but they do want to learn (Barnes, Marateo, & Ferris, 2007, p. 1).

In fact, the literature suggests we are too slow to develop curriculum that improves student engagement. This lack of action negatively influences the quality of students' academic lives and the possibility of their present and future education, their employment prospects, and ultimately their health and well-being – and ours. We are counting on these students to creatively use technology, tools, knowledge, and ways of thinking and engaging ideas and people in ways that we have yet to imagine.

> It might be expected that students who are aligned with the goals of schooling will subsequently be engaged in their work environments, leading to success in the labour market. In the case of extreme levels of student disaffection from school, several studies have suggested that disaffection and truancy in particular are associated with marital problems, violence, adult criminality and incarceration (Baker, Sigmon, & Nugent (2001) as cited in Willms, 2003, p. 56).

It is important to keep in mind (and keep returning our attention to) differences between engagement in achievement and engagement in learning. However, some note that the two are inextricably connected.

> Most recent studies of student engagement treat it as a predictor of academic achievement, inferring that being disengaged, or disaffected from school, *causes* poor academic achievement. However, the theoretical literature argues that it is *low achievement* that causes students to withdraw from school, or that engagement and academic achievement go hand-in-hand (Willms, 2003, p. 9).

The World has changed

It is important to go through the challenge of changing education – and to use student engagement is a key point of leverage to do so. The world has changed. Today's labor market – and perhaps even more so tomorrow's – demands a different set of skills, attributes, and attitudes than even ten years ago (Conference Board of Canada (2000).

> Future careers will require higher levels of education than in the past. That education must enable individuals to *discover* what they need to know rather than just having static knowledge. Society will need college graduates with mental agility and adaptability (Clayton-Pedersen & O'Neill, 2005, p. 9.13).

Indeed, even government seems to be influencing the urgency of improving student engagement. "Some of the initial interest in 'learning to learn' reflected national government's anxieties about economic competitiveness… and too many young people are not coping well with the general challenges of 21st century living" (Claxton, 2006, p. 2). Succeeding in one's livelihood and contributing to an economy requires more than core knowledge and skills in mathematics, English, and sciences. "Employability Skills 2000+ include communication, problem-solving, positive attitudes and behaviors, adaptability, working with others, and science, technology, and mathematics skills" (Conference Board of Canada, 2000). If the Conference Board is correct, young people will be required to create knowledge, adapt to new information, and learn on their feet in full collaboration with others, using tools and technologies they have not developed yet.

The student engagement goals of *achievement, participation,* and *improved learning capacity* assume a new level of urgency and meaning when one looks at the requirements for success in a post-industrial, knowledge-based society (Gilbert, 2007; Clayton-Pedersen & O'Neill, 2005; Willms, 2003; Claxton, 2006). Whether disaffected students will enter post-secondary or not is a key issue; however, the impact of disengagement becomes even more substantial as these students enter the labor market.

> For those who enter the labour market, engagement is also a critical outcome. Many employers are less concerned with their workers' academic credentials than they are with whether they can work well with others, contribute new ideas and align themselves with the goals of the organization (Conference Board of Canada, 1999; OECD, 2001b as cited by Willms, 2003, p. 56).

Memorizing content and passing standardized tests is no longer enough in a world of change. One must be able to seek and create accurate information from quality sources or, as Clayton-Pedersen & O'Neill (2005) reiterate from the "greater expectations.org" site, we need to develop "intentional learners" who are

> developing self-awareness about the reason for study, the learning process itself, and how education is used. Intentional learners are integrative thinkers who can see connections in seemingly disparate information and draw on a wide range of knowledge to make decisions. They adapt the skills learned in one situation to new problems encountered in another — in a classroom, the workplace, their communities, and their personal lives. As a result, intentional learners succeed

> even when instability is the only constant (http://www.greaterexpectations.org/) (as cited in Clayton-Pedersen & O'Neill, 2005, pp. 9.3-9.4).

Claxton (2006) in *Expanding the Capacity to Learn: A new end for education?* also concurs that society has changed and there is now a critical need for revision and transformation of education to better prepare our students for life in the 21st century:

> There is a widespread feeling that twenty-first century life presents everyone, as they grow up, with high levels of challenge, complexity and individual responsibility. It is commonly said that we are in a century of choice, problem-solving and learning. And if young people are lacking the personal resources to thrive in such a context, then it is the job of education to strengthen their ability to be good choosers, skilful problem-solvers and powerful learners. ICT skills have increasingly short shelf lives: some of them are out of date within six months. But the generic ability to learn has no use-by date at all (Claxton, 2006, p. 2).

The Students have changed: Millenials, Net Geners, and High Tech Innovators?

Authors and researchers throughout the literature consistently expressed a belief that young people today are "different!" Contrary to some critics of today's youth and their culture, *different* does not mean lazy, illiterate, unmotivated, or otherwise incapable of learning, it just means they have different preferences for how (and what) they learn (Oblinger & Oblinger, 2005). Students today are quickly bored with text and lecture methods because of their "immersion in technology" and the exciting interaction, engaging visuals, and instant gratification of the multimedia tools they use everyday to communicate, entertain themselves, make plans, and answer questions when they are not in a classroom (Brown, 2000; Oblinger & Oblinger, 2005).

They are interested in education; they are willing to learn; they are highly capable of learning; and they are ready to learn (if not impatiently so). But unlike any cohort of students before them, they clearly and confidently want to learn on their own terms. The pedagogy and technologies of the past are not engaging today's students because these students are "miles ahead of us" before we even begin.

They are high tech and "hardwired" to multitask

As Brown (2000) notes in his article *Growing up Digital,* adult perceive that students who are texting, listening to music, and having online conversations while studying have short attention spans which are deficits to learning and working:

> People my age tend to think that kids who are multiprocessing can't be concentrating. That may not be true. Indeed, one of the things we noticed is that the attention span of the teens at PARC — often between 30 seconds and five minutes — parallels that of top managers, who operate in a world of fast context-switching. So the short attention spans of today's kids may turn out to be far from dysfunctional for future work worlds (Brown, 2000, p. 13).

Today's students fearlessly try new technologies and new methods. They are keen and quick to figure things out. Whereas most adults are reticent to try anything new unless they know a lot about it, today's youth are the opposite – they are highly motivated and "action oriented" (Brown, 2000, p. 15) when it comes to solving problems using technology. There are endless examples of how students as young as five years of age will troubleshoot anything from a cell phone to a complex sound system, and often figure it out in minutes without manuals or tutorials or experts to guide them.

Oblinger & Oblinger (2005) theorize why today's youth have come to be this way: "Having been raised in an age of media saturation and convenient access to digital technologies, Net Geners have distinctive ways of thinking, communicating, and learning." If they have a question, they immediately seek answers through questioning, researching, and "Googling" using a variety of technology.

In a 2004 study of over 4000 students across thirteen institutions, Kvakik, Caruso, and Morgan (2004) discovered that over 70% of students owned personal computers and 82% owned mobile phones (p10). Of 4374 students, 99.5% used word processors for creating documents and emailing; while 97.2% surfed the Internet for pleasure and 96.4% for study purposes. Even at that early stage of user-friendly multimedia tool development, approximately 21% were "engaged in creating their own content and multimedia for the Web" (Bennett, Maton, & Kervin, 2008, p. 778). In the past six years, with the introduction of the likes of iPhones™ or iTouch™ technology, it's easy to assume those numbers have increased. The bottom line is that students today have more technology and research power in their pockets than adults had in an entire university just ten years ago. Obviously, this connection to technology will impact how and where young people find their answers.

Prensky (2001) is perhaps one of the more vocal advocates for re-addressing the educational needs of our digital youth. He emphasizes that education must change, suggesting that, "because of their immersion in technology, young people '*think and process information fundamentally differently* from their predecessors' (Prensky, 2001, p. 1, emphasis in the original as cited in Bennett, Maton, & Kervin, 2008). In fact, several authors note that youth today are constantly "multiprocessing" (Windham, 2005; Prensky, 2001; Brown, 2000). At any hour of the day, students are talking to friends on cell phones and MSN™, monitoring their Facebook™ page, listening to music, and doing homework on their computer – all at the same time (Brown, 2002). As a result of these increasingly common activities, Bennett, et al (2008), quoting Prensky (2001), suggest that young people have become "accustomed to learning at high speed, making random connections and processing visual and dynamic information and learning through game-based activities," which are far cries from typical classroom activities. Instead of traditional, passive teacher-led lectures, youth today have developed a strong preference for "discovery-based learning that allows them to explore and to actively test their ideas and create knowledge (Brown, 2000, as cited in Bennett, Maton, & Kervin, 2008, p. 779).

Bennett, Maton, & Kervin (2008) in "The 'digital natives' debate: A critical view of the evidence" provide a snapshot of claims about today's students:

> The generation born roughly between 1980 and 1994 has been characterized as the 'digital natives' (Prensky, 2001) or the 'Net generation' (Tapscott, 1998) because of their familiarity with and reliance on ICT. They are described as living lives immersed in technology, 'surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age' (Prensky, 2001, p. 1). Social researchers Howe & Strauss (2000, 2003), labeled this generation the 'millenials', ascribing to them distinct characteristics that set them apart from previous generations. They offer a positive view of this new generation as optimistic, team-oriented achievers who are talented with technology, and claim they will be America's next 'great generation' (p. 2).

Students want to be engaged in learning, but on their own terms

"Advances in the learning sciences and insights into human development have provided all the evidence we need to confirm that the vast majority of students are capable of becoming powerful learner." (Dunleavy & Milton, 2009, p. 3).

Barnes, Marateo, & Ferris (2007a) state often in their article *Teaching and Learning with the Net Generation* that, although students might be "wired" to learn differently than previous generations, they do in fact want to learn. "The challenge of evolving pedagogy to meet the needs of net-savvy students is daunting, but educators are assisted by the fact that this generation values education" (Barnes, et al, 2007a, p. 1). In another article, *Learning Independence: New Approaches for Educating the Net Generation*, they add

> Students of the net generation come in fact to the educational system with a strong desire to learn and comprehend. This is a generation of goal-oriented, cautious, pragmatic students who sincerely care about their education in ways we have not seen happen in previous generations (Barnes, et al, 2007b, ¶2).

Learners respond favorably to high expectations – and their expectations of teachers are equally high. Examples from the literature suggest that students seem to increasingly take their own learning into their own hands (Prensky, 2001; Hay, 2000; Carlson, 2005). They take the initiative to find a better means to learn a topic if the current teacher, text, or lesson is not working for them (Carlson, 2005). They seek their own answers online, in the community, and among their "networks;" they don't take "authority's" word for it – instead striking out to find or create answers on their own. In so many ways, they have become the critical thinkers we hoped to teach them to be.

> Tapscott (1998) argues that this more independent learning style has grown out of the ingrained habits of seeking and retrieving information from the Internet, which marks a striking contrast to previous generations of students, who tended to acquire information more passively from authority figures (Barnes, et al, 2007b, ¶24).

This independent learning style is exemplified in a story shared by Hay (2000). "In an elementary school classroom, during a lesson on Australia, one of the children asked,

"*What do kangaroos eat?*" The teacher, admitting that she did not know and assuring her students that she would get back to them later with an answer, was met with one student getting up from his seat and offering to find the answer online, '*real quick*'" (as cited in Barnes, et al, 2007a, p. 2). He was motivated, curious, and was not waiting for an authority to provide an answer when he knew he could find the answer on the Net, "real quick."

Carlson (2005) writes about a librarian who has studied young people to better understand their learning preferences. He illustrates through sharing the findings of "Mr. Sweeney,":

- They have no brand loyalty. They "accept as their right" the ability to make choices and customize.
- They are more educated than their parents and expect to make more money. Many will change majors in school and expect to change jobs and careers.
- They like portability and are frustrated by technology that tethers them to a specific location. Playing with gizmos and digital technology is second nature.
- They don't read as much as previous generations did, preferring video, audio, and interactive media.
- They multitask and are likely to mix work and play, playing a game or chatting while they are doing an assignment.
- They were pushed to collaboration, which explains the popularity of group study. Their collaboration is both in-person and virtual.
- They want to learn, but they want to learn only what they have to learn and they want to learn it in a style that works for them.
- Often they prefer to learn by doing.
- The Millennials, or "digital natives" feel hemmed in by an educational system that continually looks to history, that does not take young people seriously, and that squelches creativity, a key characteristic of Millennials (Carlson, 2005, pp 3-4).

Windham (2005) agrees. However, she also suggests that these students need expert instruction because "the average student has no clue how to navigate or investigate the modern library. Instead, students increasingly rely on Web sites and Internet archives for information – increasing the likelihood that they will stumble across and cite false or incorrect information" (Windham, 2005, p. 5.9). Students need to learn how to critically analyze the sources and quality of their "Google ™ and "Wiki ™ answers. Brown (2002) also speaks about the critical need for the "new literacy" of information navigation:

> The new literacy, beyond text and image, is one of information navigation. The real literacy of tomorrow entails the ability to be your own personal reference librarian – to know how to navigate through confusing, complex information spaces and feel comfortable doing so. Navigation may well be the main form of literacy for the 21st century (p. 5).

The literature agrees that students, their environments, their learning tools, and their preferences have changed dramatically. Some skills have surged to the forefront and

others have ebbed. There is much discussion about the "new literacies" required for these "new learners" to thrive in the world. The good news is the youth of today are ready, willing, and able to learn how to learn; they are interested in tools and in topics – as long as they are relevant to their goals. They have changed and are open to more change.

Education Systems have Not Changed

In the face of the outlined changes in young people, how have education systems responded? Most haven't! Or, more to the truth, education systems and teachers are only beginning to respond. Some suggest that teachers risk burning out or becoming "obsolete" if they try to keep up to changing student demands using outdated teaching, aging pedagogies, non-responsive curricula and assessment standards, all occurring in "un-connected" classrooms. When educational practices and classroom activities fail to engage learners, behavioral issues often follow, which create higher levels of stress for teachers, administrators, and students. "Research has indicated that student misbehavior, often a result of disengagement, is a major predictor of teacher burnout" (Covell, McNeil, & Howe, 2009, p. 282). Yet, "when children are behaving in a socially responsible, rights-respecting way in the classroom, and particularly when they are actively involved in their classroom and school activities, teachers have improved relationships with the students and a greater sense that their teaching is effective" (Covell, et al, 2009, p. 288).

Tapscott (1998) and Prensky (2001) assert that education systems do not align to the needs of these learners, which leads to increasing levels of disengagement reported in more recent studies by Willms, et al. (2003) and others. Early on, Tapscott (1998) suggested that education in developed countries was in crisis and would soon experience even more challenges: "There is growing appreciation that the old approach [of didactic teaching] is ill-suited to the intellectual, social, motivational, and emotional needs of the new generation" (p. 131). Prensky (2001) echoed that: *'Our students have changed radically. Today's students are no longer the people our educational system was designed to teach'* [emphasis in original] (p. 1).

Covell et al (2009) point us to another key aspect of student engagement that students surveyed by Willms and others deem to be important – respectful relationships. Relationships between teachers and students have changed in recent years, as have relationships between students and students, and between the student and the educational facilities and systems in which they learn. Institutions are no longer considered the only place where one can learn, and listening to a teacher is no longer the only way one can gain knowledge. Today's youth challenge their leaders and institutions, and assume their opinions and questions will be respected. In a traditional school, such "challenging" behavior was considered disrespectful. When children are respected and allowed to exercise their rights to learn in more empowering ways, "they are more engaged in school and their teachers demonstrate a greater sense of accomplishment and satisfaction with their teaching" (Covell, et al, 2009, p. 289).

Students today want their learning to be relevant, current, socially engaging, exploratory, and responsible. Expecting students to sit still and be attentive for five hours a day, listening to content they deem unimportant is a recipe for failure for most students,

teachers, and schools. Furthermore, "the rationale for student participation and engagement extends well beyond good educational practice and into social policy, social development, health and wellbeing" (Willms, et al, 2009, p. 7).

To prepare students for a changing world, to meet the needs of a new cohort of innately engaged learners, and to reduce the stresses of classroom management, student engagement seems to be the strategy and outcome of choice. But how to do this? What does it take to provide engaging curriculum and meaningful learning experiences? How do we change to better engage students in learning about learning?

How do we improve Student Engagement?

What are the common elements?

Unlike the murky diffusion noted when defining student engagement, when we reviewed the literature sifting for common strategies to improve student engagement in learning, a rather clear pattern of common practices or criteria emerged. Whether talking to students, teachers, or experts on human development and cognitive science, some repetitions in "best practices" were recommended. For example, Windham (2005) recommends that, to engage learners in learning, new educational curriculum and activity must include the following – "Interaction, Exploration, Relevancy, Multimedia and Instruction" (pp 5.7-5.9). Her themes echo throughout the literature in various forms.

Pedagogy should at its best be about what teachers do that not only help students to learn but actively strengthens their *capacity to learn*" David Hargreaves, *Learning for Life,* 2004.

Windham's (2005) list is shared among the many other lists provided by authors including Willms (2003, 2007, 2009), Claxton (2007), Hay (2000), Barnes, Marateo, & Ferris, 2007, Dunleavy & Milton (2009), and OECD (2003) to name a few. Using these categories of (1) Interaction, (2) Exploration, (3) Relevancy, (4) Multimedia and Technology, (5) Engaging and Challenging Instruction, and (6) Authentic assessment – we elaborate further.

Interaction: As previously mentioned, respectful relationships and interaction – both virtual and personal – are essential to improve student engagement. Students today are intensely social and interactive learners. Those surveyed by Willms, Friesen, and Milton (2009) stated that they want to interact with people both within and beyond the classroom and school environment.

> The results from *Imagine a School*, *Design For Learning*, and *What did you do in school today?* repeatedly show that:
>
> • Students want stronger relationships with their teachers, with each other, and with their communities – locally, provincially, nationally and globally. They want their teachers to know them as people.

> • Students want their teachers to know how they learn. They want their teachers to take into account what they understand and what they misunderstand, and to use this knowledge as a starting place to guide their continued learning.
> • Students want their teachers to establish learning environments that build interdependent relationships and that promote and create a strong culture of learning (p. 36).

Today's learners seem to need to connect and communicate constantly and want their environment to support that preference. Educators from "older" generations might see technical forms of communication such as computer chatting or texting "as the opposite and the antithesis of contact, for the Net Gen it is certainly not seen as such…it allows interaction with a variety of people and material" (Windham, 2005, p. 5.7). As reported earlier, Dunleavy & Milton (2009) asked students what their ideal school would look like and what type of learning environment increases engagement. Students listed three criteria that correlate to the concept of interaction: (1) Learn from and with each other and people in their community, (2) Connect with experts and expertise, and (3) Have more opportunities for dialogue and conversation (p. 10).

These dialogues and conversations extend beyond the classroom. When learners have problems engaging in Physics, they want to talk to engineers in the field. Windham (2005) suggests, "students should be given the opportunity to interact with faculty and researchers outside the confines of the curriculum and to develop meaningful relationships with them (p. 5.8). Facilitating such expanded relationships requires a shift from vertical to horizontal classrooms – no longer the sage on the stage, teachers are learning along side students, helping them actively construct their learning experiences and knowledge. As Friesen notes in Dunleavy & Milton (2009),

> Authentic intellectual engagement requires a deeper reciprocity in the teaching-learning relationship where students' engagement *begins* as they actively construct their learning in partnership with teachers, work toward deep conceptual understanding, and contribute their own ideas to building new knowledge or devising new practices in activities that are "worthy of their time and attention (Friesen, 2008, p. 8, as cited in Dunleavy & Milton, 2009, p. 14).

This model contains more interaction, negotiation, and exploration among learners and teachers, as they explore and discuss the content together, often with the teachers modeling learning as opposed to telling students what the answers, process, or outcomes should be (Claxton, 2007). Open, caring, respectful relationships between learners and their teachers is essential to develop and support social and psychological engagement in learning, but also becomes part of the new curriculum itself, as described by Dunleavy & Milton (2009).

> Effective learning experiences are also shaped by student-teacher relationships that support the development of young peoples' social and emotional competencies. As students progress through middle and secondary schools, they face increasing complexity. Students themselves consistently say that what most

> helped them thrive in spite of these challenges was the quality of relationships they developed with adults in their schools. When students have opportunities to connect with adults who approach these relationships with a spirit of caring, empathy, generosity, respect, reciprocity and a genuine desire to know students personally, they can make a unique contribution to young peoples' emerging adaptive capacity, self-sufficiency, resiliency, confidence, and knowledge of themselves as learners (Dunleavy & Milton, 2009, p. 15).

One might conclude that this "interaction" criteria falls under the Social Engagement spectrum. But, the literature connects social engagement and intellectual engagement. To achieve or to be engaged in learning, today's students need social interaction. Dunleavy & Milton (2009) list strategies for Social Engagement, but these same strategies emerge for other types of engagement:

> In the early development of the concept, measures of social engagement were considered a constructive way of identifying students who were at risk of disengagement and, ultimately, of dropping out. Since then, this dimension of student engagement has also provided schools with *direction* for adopting proactive dropout prevention strategies focused on improving school climate factors that tend to have the most influence in supporting high levels of engagement in the life of school. These include, for example:
>
> • An ethic of caring and supporting relationships.
> • Respect.
> • Fairness, trust and a strong disciplinary climate.
> • Teachers' sense of shared responsibility and efficacy related to learning.
> • A school-wide culture of "academic press" (Lee, Bryk, & Smith, 1993), or high expectations for academic success (Dunleavy & Milton, 2009, p. 8).

It is worth noting that students expect and respect learning environments that are challenging, rigorous, disciplined, positive, and safe. Willms, Friesen, & Milton's (2009) report *Transforming Classrooms through Social, Academic and Intellectual Engagement* suggests one factor of relationship building that stands above others: "the importance of a positive classroom disciplinary climate. Students who describe their classroom disciplinary climate as positive are one and a half times more likely to report high levels of interest, motivation and enjoyment in learning" (p. 35).

Exploration: Classroom practices reported to engage learners are predominantly inquiry-based, problem-based, and exploratory (Willms, Friesen, & Milton, 2009; Brown, 2002; Hay, 2000; Oblinger & Oblinger, 2005; Barnes, et al, 2007). Today's learners ask for the opportunity to explore, to find solutions and answers for themselves as opposed to taking someone else's word for it as stated by Windham (2005):

> Just as we want to learn about the Web by clicking our own path through cyberspace, we want to learn about our subjects through exploration. It's not enough to accept the professor's word. We want to be challenged to reach our

> own conclusions and find our own results. The need to explore is implicit in our desire to learn (p. 5.8).

Hay (2000) reports that "Net Geners want more hands-on, inquiry based approaches to learning and are less willing to simply absorb what is put before them" (as cited in Barnes, Marateo, & Ferris, 2007, ¶23).

> They want to turn the thing on, get in there, muck around, and see what works. Today's kids get on the Web and link, lurk, and watch how other people are doing things, then try it themselves. This tendency toward "action" bring us back into the same loop in which navigation, discovery, and judgment all come into play *in situ* (Brown, 2002, p. 6).

As Brown (2002) says, "Learning becomes situated in action; it becomes as much social as cognitive, it is concrete rather than abstract, and it becomes intertwined with judgment and exploration" (p. 6). If the environment in which learners explore is sterile and lacks context, there is a chance transference of knowledge will not occur beyond the classroom. This criteria for exploration is also tied to the request to "get outside' the classrooms – students often ask to take their research and learning into the larger community and into the fields in which they are studying. Seeing how "a thing works in real life" is more impactful and engaging than reading about it in a classroom.

Relevancy: One of the most common prerequisites for engaging learners is "relevancy." Today's learners ask that their subjects and learning apply to real-life scenarios whenever possible as opposed to being theoretical and text-based. Working with authentic problems or community issues engages students and builds a sense of purpose to the learning experience (Claxton, 2007; Dunleavy & Milton 2009; Willms, Friesen, & Milton, 2009). "The work students undertake also needs to be relevant, meaningful, and authentic – in other words, it needs to be worthy of their time and attention" (Willms, et al, 2009, p. 34). Willms, et al (2009), report that "a number of researchers (Csikszentmihalyi, 1991; Dweck, 2006; Fried, 2001; Jardine, Clifford, & Friesen, 2008; Schlechty, 2002). Students, themselves, are clear that the work they want and need should be intellectually engaging and relevant to their lives.

Effective teaching is characterized by thoughtfully designing learning tasks that have these features:

- The task requires and instills deep thinking.
- The task immerses students in disciplinary inquiry.
- The task is connected to the world outside the classroom.
- The task has intellectual rigor.
- The task involves substantive conversation (Willms, Friesen, & Milton, 2009, p. 34).

Ramaley & Zia (2005), in their chapter in Oblinger & Oblinger's (2005) *Educating the Net Generation*, speak to the need to put learning into context. They point to the set of research-based recommendations produced by the Board on Children, Youth, and Families' 2004 National Research Council report focused on how to keep young people

in school by making high school meaningful and keeping students engaged and motivated. Two key ideas emerged: (1) forming good connections between learners and the social contexts in which they learn and (2) making curriculum and instruction relevant to their experiences, cultures, and long-term goals so they see value in their curriculum.

Claxton (2007) further suggests that all activities and curricula need to have the following factors if they are to engage learners in learning:

- Relevancy: the topic connects with students' interests and concerns
- Responsibility: students have genuine control over what, why, how, and when they organize their learning
- Reality: solving problems or making progress genuinely matters to someone (p. 12).

Sometimes it is simply not possible to get out of the classroom to speak with and learn from experts in the field. However, technology helps students connect to people around the world, watch live video of events and experiments from distant communities, and interact with people globally. Technology not only brings learners accessible and relevant subject matter and experts, it is also a relevant tool for engaged learning.

Multimedia & Technology: Several multimedia and technology components of student engagement were reviewed in the literature. First, students and researchers issued a common call for new tools in the classroom toolbox. These calls sought expansion beyond standard PC stations and overhead projectors to introduce many new forms of multimedia and technology that would help facilitate deep research and learning and build relationships among learners and experts both within and beyond the classroom (Brown, 2002; Parsons, McRae, Taylor, Larson & Servage, 2006; Kvavik, Caruso, & Morgan, 2004; Project Tomorrow, 2010; Barnes, Marateo, & Ferris, 2004). Barnes, Marateo, & Ferris (2007a) synthesized a list of the common multimedia tools reported in the literature. Below are some of the technological multimedia tools and methods used to help students truly engage in their learning and to explore and construct new knowledge.

> WebQuests, blogs, and wikis use the Internet; other multimedia resources can also appeal to NetGeners. The increasingly popular YouTube offers a model to one faculty member who employs digital storytelling as a teaching tool. Melda Yildiz, of William Paterson University, has students … produce video documentaries and showcases video projects as a means to engage her students in considerations of multiculturalism, openness to different views of history, and use of multimedia (Yildiz 2007). These examples demonstrate the ways in which educators can use technology and multimedia in appropriate ways to incorporate **autonomous** learning activities while also ensuring that sufficient classroom time is devoted to fostering information literacy and **higher-order critical thinking** skills (Barnes, et al, 2007a, p. 5).

Project Tomorrow's *Speak Up 2009* (2010) includes other technological tools reported to increase engagement in learning among students. Some technology is quite contentious

and hotly debated by educators; however, having students use cell phones, IPhones™ and Blackberries ™ and other mobile devices for research, collaborative communication, or social-based learning activities has been shown to increase student engagement by as much as 78% (Project Tomorrow, 2010, p. 8).

Multimedia and technology (cameras, video, and video editing, projectors, SmartBoards, sound recording equipment, animation and gaming software, and the ubiquitous PowerPoint™) have proven helpful in engaging students in learning about subjects, in exploring ways to present their learning, and more importantly in helping students control their learning (Dunleavy & Milton, 2009; Barnes, Marateo, & Ferris, 2007; Project Tomorrow, 2010). Kvavik, Caruso, & Morgan (2004) state, "Students recognize a number of benefits of classroom IT. Included are convenience, management of classroom activities, time savings, improved learning, better and more effective communications, and better presentation of their class assignments" (p. 12).

In a recent paper titled "Unleashing the Future: Educators "speak up" about the use of emerging technologies for learning" (2010), teachers report that technology increases factors of student engagement – including cognitive, affective, behavioral, academic, and social engagement. The reported outcomes of increased access to technology in classrooms mirrors the outcomes of increasing student engagement, such as learners taking initiative and responsibility for their learning, using resources wisely, spending time on task, and having interest and desire to pursue information and learning both in and beyond the classroom.

> As a result of using technology in the classroom, students are more motivated to learn (51%), apply their knowledge to practical problems (30%), and take ownership of their learning (23%). Teachers also report that by using technology, students are developing key 21st Century skills including creativity (39%), collaboration (30%) and skills in problem-solving and critical thinking (27%). Furthermore, the learning experience becomes more meaningful for the student as teachers have newfound time to differentiate instruction (31%) to a greater degree, and have more information to how their students are doing academically (29%) (Project Tomorrow, 2010, p. 2).

In *Celebrating School Improvement* (2006), Parsons, McRae, Taylor, Larson & Servage (2006) report that students in K-12 schools used technology to gather information, analyze information, and share information (pp 110-111). The positive outcomes included higher achievement and quality of work but also, and "perhaps more important, student motivations and time spent on task were reported to have increased significantly with the integration of technology into Alberta's classrooms" (p. 112). A second element of "multimedia and technology" for improved learner engagement is to create a "rich learning environment" that allows for cross-curricular, interactive, and exploratory learning.

> The term *rich learning environment* not only includes physical devices, such as experiment kits or computers, but also the teaching technique, the type of activity pupils engage in, and the method of assessment. Associating science and

> technology studies with a rich, flexible, computer-embedded learning environment may enable pupils to attain higher academic achievements and overcome their cognitive and affective difficulties (Barak, Waks, & Doppelt, 2000, as cited in Barak & Doppelt (2002, p. 22).

In a province-wide evaluation of school projects that integrated technology into core curriculum, Parsons, McRae, Taylor, Larson & Servage (2006) found that "Report after report further substantiated current research that ICT-based curricula and problem-based learning combine to engage students as never before in learning and working together" (p. 112). Students were engaged, staying after school and during lunch hours to work on projects together. Similar stories of engagement come from Barak & Doppelt's (2002) study of students given the opportunity to work with LEGO™ robotics technology. These otherwise disengaged and low-achieving students, when provided a "rich, modern, and flexible technological learning environment, … created authentic technological projects, using their own imagination and documented their own work in rich portfolios" (Barak & Doppelt, 2002, p. 28). They also developed a genuine passion for learning and a solid set of learning and research skills: "Findings all indicated improved pupil self-esteem and self confidence. Pupils changed their attitudes towards their everyday learning and their future intentions to continue studying" (Barak & Doppelt, 2002, p. 28).

Brown (2002) calls these rich learning environments *learning ecologies*. "An ecology is basically an open, complex, adaptive system comprising elements that are dynamic and interdependent" (p. 14). He argues that we need to develop "learning ecologies" in our classrooms by having the right tools and environments for learning,

> (There is) an interesting shift that I believe is happening: a shift between using technology to support the individual to using technology to support relationships between individuals. With that shift, we will discover new tools and social protocols that help us help each other, which is the very essence of social learning. It is also the essence of lifelong learning a form of learning that learning ecologies could dramatically facilitate" (Brown, 2002, p. 17).

It is important to note that not everyone agrees that digital technology is the best option for cognitive and affective engagement in children. In one study by OECD (2008), findings suggested that many researchers and educators believe harm can come to learners who are too entrenched in technology. OECD (2008) reports that negative consequences of technology in learning are frequently reported, but there is limited empirical research about the positives. However, our review suggests that recent research is beginning to show positive correlations between technology and student engagement.

> (This research) presents and discusses the main research findings in controversial areas such as the effects of technologies on i) cognitive skills development, ii) social values and lifestyles, and iii) educational performance. This section reveals how little is known and examines how empirical research has contributed more to highlighting the negative impacts of technology than to unveiling and documenting its positive sides. Accordingly, a plea for more empirical research as well as for more cumulative efforts is made (OECD, 2008, p. 2).

Engaging and Challenging Instruction: Two aspects seem to encourage engagement – engaging pedagogy and engaging curriculum. According to the research, we need to change how we teach as well as what we teach if we are to engage learners. The literature suggests moving from didactic to constructivist pedagogy. As mentioned above in the "interaction" section, challenging constructivist instruction requires strong respectful relationships and the creation of a safe learning environment, especially as teacher-student relationships shift from expert-disciple towards peer-based collaborative learning.

Several authors note that this shift might require an uncomfortable change in locus of control over process and, at times, content. Given the freedom and sense of safety to do so, "Students can find material that challenges the faculty member's worldview and expertise; they can uncover stories and research results that the faculty member has never heard about. It can be uncomfortable when the instructor no longer controls the subject matter the students will use" (Windham, 2005, p. 8.16).

> Affecting a deeper transformation to school and classroom practices calls upon all of us to begin looking at school improvement as a collaborative *knowledge-building activity* where teachers themselves are actively engaged in co-constructing ideas that contribute directly to school improvement and development" (Dunleavy & Milton, 2009, p. 18).

Meyer and Turner (2006) speak to emotion and motivation to learn in classrooms; they talk about creating safe environments conducive to learning and "academic risk-taking" (p. 377). Claxton (2006) also discusses the need to make it safe to speak up, challenge, and engage in learning.

> Expanding the capacity to learn means creating a climate in which that feeling of enfranchisement and entitlement is systematically broadened and strengthened – not weakened, undermined or simply ignored. In such a climate, students' questions are welcomed, discussed and refined, so the disposition to question becomes more and more robust; more and more evident across different domains; and more and more sophisticated (Claxton, 2006, p. 7).

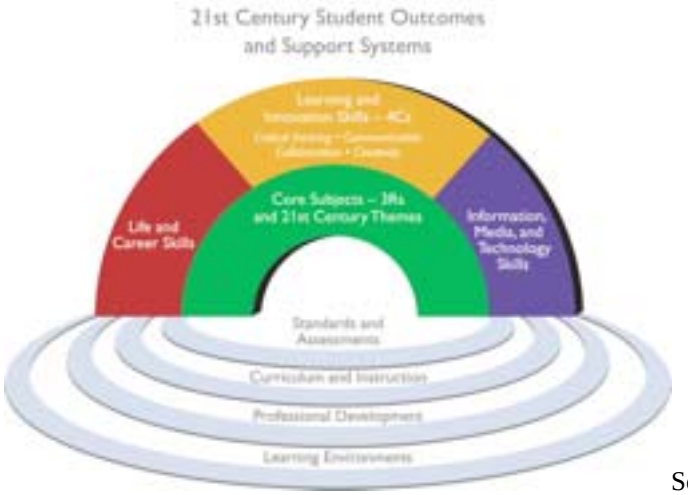
That is to say, creating an engaging learning environment includes ensuring students feel entitled and safe to challenge their teachers as part of the learning process. It also means they will need to learn the interpersonal skills to engage in dialogue respectfully and constructively, as well as learn the subject content. Students want more autonomy to engage in and design their own learning (Glenn, 2000; Tapscott, 1998; Hay, 2000; Carlson, 2005). They want to learn and utilize their learning preferences and styles and want support to do so. The research call to change our pedagogy is clear. The ways in which we can do that are still being developed.

Contrary to the suggestion that today's students are asking for a diluted or moderated curriculum, research shows that students prefer to be held to high expectations; they also desire quality, rigorous, and meaningful curriculum and high academic goals. Students' preferences for instructional challenge were reported by a majority of authors reviewed, including Willms, Friesen, and Milton (2009), Dunleavy & Milton (2009), Oblinger &

Oblinger (2005), Windham (2005), Parsons, McRae, Taylor, Larson & Servage (2006), Barak & Doppelt (2002), Shernoff, Csikszentmihalyi, Schneider, and Shernoff (2003), Barnes, Marateo, & Ferris (2007), and many more.

There is also a push for interdisciplinary curriculum – the "what" we teach. The new, "more engaging" curriculum reported in the research is primarily built on cross subject exploration and collaboration, often called "Century 21 Skills" in recent literature. Such curriculum is preferred by students. Students interviewed by Dunleavy & Milton (2009) stated that engaging learning includes hearing the teacher's notes and ideas and having opportunities to "see how subjects are interconnected, learn from and with each other and other people in their community, and have more opportunities for dialogue and conversations" (p. 10).

Unlike curriculum of the last 150 plus years, which focused on learning and mastery of individual "specialties" or "majors," the new curriculum is intentionally interdisciplinary. An example of this new curricular focus is expressed in the following model created by *Partnership for 21st Century Skills* (see http://www.p21.org).



Source: www.P21.org/

Changes in curriculum referred to in the literature include the addition of new "literacies," as previously discussed. As articulated in the above model, the expected outcomes of education are no longer limited to acceptable (according to standardized testing) levels of knowledge in core disciplines. New literacies and skills are required – critical thinking, interpersonal relationship skills, creativity, information, media and technology skills – all infused into core content as both process and outcome. For example, the call for rigorous instruction in "Information Navigation" (Brown, 2002) or "digital information literacy" (Oblinger & Oblinger, 2005; Windham, 2005; and Barnes, et al, 2007) shows up repeatedly in the research.

> While they are frequent users of electronic tools, Net Geners typically lack information literacy skills, and their critical thinking skills are often weak (Oblinger & Oblinger (2005). They may be digital natives, but they do not necessarily understand how their use of technology affects their literacy or habits of learning. For educators, providing the technological bells and whistles needed

> to engage Net Geners may not be as effective or as critical as improving their information literacy and critical thinking skills (Barnes, Marateo, Ferris, 2007a, ¶28).

As mentioned previously, engagement does not mean that core knowledge and traditional literacies (aka 3Rs) should be discarded; instead, students want to learn these in more engaging ways, while also learning how they learn. They want quality instruction delivered in socially, emotionally, and intellectually engaging ways. *The Framework for 21st Century Learning* created by Partnership for 21st Century Learning sums up quite adequately a list of both the preferred outcomes and the key components of an engaging curriculum.

"Framework for Century 21 Learning"

Core Subjects and 21st Century Themes

Mastery of **core subjects and 21st century themes** is essential to student success. Core subjects include English, reading or language arts, world languages, arts, mathematics, economics, science, geography, history, government and civics. In addition, schools must promote an understanding of academic content at much higher levels by weaving **21st century interdisciplinary themes** into core subjects:

- **Global Awareness**
- **Financial, Economic, Business and Entrepreneurial Literacy**
- **Civic Literacy**
- **Health Literacy**
- **Environmental Literacy**

Learning and Innovation Skills

Learning and innovation skills separate students prepared for increasingly complex life and work environments in today's world and those who are not. They include:

- **Creativity and Innovation**
- **Critical Thinking and Problem Solving**
- **Communication and Collaboration**

Information, Media and Technology Skills

Today, we live in a technology and media-driven environment, marked by access to an abundance of information, rapid changes in technology tools and the ability to collaborate and make individual contributions on an unprecedented scale. Effective citizens and workers must be able to exhibit a range of functional and critical thinking skills, such as:

- **Information Literacy**
- **Media Literacy**
- **ICT (Information, Communications and Technology) Literacy**

Life and Career Skills

Today's life and work environments require far more than thinking skills and content knowledge. The ability to navigate the complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills, such as:

- Flexibility and Adaptability
- Initiative and Self-Direction
- Social and Cross-Cultural Skills
- Productivity and Accountability
- Leadership and Responsibility

Source: http://www.p21.org/documents/P21_Framework.pdf

Authentic Assessment for Learning: Willms, Friesen, & Milton's (2009) research found that *five* effective teaching practices promise to increase engagement in learning – (1) create thoughtful, intentional designs for learning; (2) make learning meaningful; (3) build relationships; (4) improve teaching practice in the presence of peer teachers; and (5) use assessment to improve learning and guide teaching (pp 33-37). Given the opportunity to "co-create assessment criteria with their teachers, … students figure out the criteria of powerful work, they are able to use the criteria to guide their own learning, both in school and beyond" (p. 35).

Assessment for learning is more about "learning for further development" and less about "marking according to standard expectations" to meet externally dictated accountability measures. Standardized testing often leads teachers to teach to the test instead of to learner's needs, interests, and abilities (Armstrong, 2006). Standardized testing also removes responsibility and accountability from the learner, a side effect that can disengage learners. Barrett (2005) provides "ten research-based principles of Assessment for Learning (AFL) to guide classroom practice:

- AFL should be part of effective planning of teaching and learning
- AFL should focus on how students learn
- AFL should be recognized as central to classroom practice
- AFL should be regarded as a key professional skill for teachers
- AFL should be sensitive and constructive because any assessment has an emotional impact
- AFL should take account of the importance of (and foster) learner motivation
- AFL should promote commitment to learning goals and a shared understanding of the criteria by which they are assessed
- AFL develops learners' capacity for self-assessment so that they can become reflective and self-managing
- AFL should recognize the full range of achievements of all learners
- Learners should receive constructive guidance about how to improve (as cited in Barrett, 2005, p. 17).

Barak & Doppelt (2002) and Barrett (2005) both recommended alternatives to standardized testing. Student portfolios were the most frequently suggested method for assessment for learning because they actively helped learners explore and articulate what they wanted to learn and how they would demonstrate they learned it.

> The time is right to study the potential of electronic portfolios to engage students in active participation in assessing and managing their own learning. In 2005, the level of available technologies makes possible an international study…to support

student learning, engagement and collaboration. We have the technology. We have the vision. We need to better understand what works, especially with adolescent learners and their teachers (Barrett, 2005, p. 23).

"Imparting creative thinking within science and technology education requires not only changing the teaching methods and learning environment, but also adopting new assessment methods such as portfolio assessment, which is based on records of pupils' activities (Barak and Doppelt, 2002, p. 22).

Authors' summaries of requirements for engagement in learning

Barnes, Marateo, and Ferris (2007a) sum up by citing Glenn (2000): "Net Geners need self directed learning opportunities, interactive environments, multiple forms of feedback, and assignment choices that use different resources to create personally meaningful learning experiences" (p. 2). Claxton (2007) summarizes his recommendations of strategies that promote engagement in learning. He recommends the following eight ideas as ways to successfully create "epistemic cultures" that support learning how to learn.

1) **Language** – speak "learnish" (talk about process of learning, nature of oneself as a learner, one's improvements and intentions as a learner.)
2) **Activities** – a potentiating milieu (learning is both attractive and challenging; activities and topics that stretch the learners)
3) **Split-screen thinking** – the warp and weft (keeping both content and process in mind; make sure students understand *how* they just learned some content; embed meta-cognition into lesson plans)
4) **Wild topics** – rich, real, responsible (problems or projects are real, relevant, and make a positive difference in some way – real life feedback and benefits for all)
5) **Transparency and involvement** – students as epistemic co-workers (students are made aware of what's going on, given significant input or control in assessing their own learning and learning styles)
6) **Transfer thinking** – looking for wider relevance and application (explicitly discussing where current learning could be useful, what else could we do with this? Where else would this be useful knowledge?)
7) **Progression** – stronger, broader, deeper into subjects and learning
8) **Modeling** – walking the learning talk (Claxton, 2006, pp. 9-14).

When Dunleavy & Milton (2009) discuss the requirements for intellectual engagement, they note how difficult it is to "pinpoint which classroom practices will be most effective in supporting it" (p. 13). However, they summarize the following list of common instructional "designs for learning that begin with the goal of intellectual engagement:"

1. Emphasize conceptual learning and opportunities for students to work with **authentic ideas and problems**, develop a deep understanding of ideas, sort

through misconceptions, learn new ideas and create or improve upon ideas, see conceptual **connections across disciplines**.
2. Require high levels of **student participation** and provide time for in-depth work.
3. Incorporate **authentic assessment** as a strategy that helps students set goals and assess their own learning.
4. Use work that is **relevant, interesting, and connects with students' aspirations**; is rigorous and allows students to think as "professionals" and create professional" quality outcomes; is challenging and allows students to experience a sense of deep **intellectual and emotional investment** in learning; is built from diverse and improvable ideas; and is informed by the current state and growing knowledge bases of different subject disciplines.
5. Promote students' **sense of ownership** and responsibility for their own learning.
6. Invite students to be **co-designers of their learning** in classrooms; support student voice and autonomy.
7. Provide a **high level of social support** for learning and encourage students to take risks, ask questions, and make mistakes.
8. Foster **collaboration** and **community building**.
9. Engage students in becoming **literate with technologies** as social networking-knowledge building tools.
10. Connect students with opportunities to **develop abilities in critical thinking,** intellectual curiosity, reasoning, analyzing, problem solving, communicating, etc.
11. Bridge students' experience of **learning in and outside of school** by exposing them to digital technologies in knowledge building environments (Dunleavy & Milton, 2009, pp. 13-14).

Dunleavy, Milton, & Crawford (2010) sum up their research from the students' perspective:

> Students want to experience work that is meaningful, not easy: they want to work with ideas that matter, solve real problems, learn from each other, people in their communities, and experts in the subjects they are studying, engage in dialogue in their classes, and know that their learning contributes to making a difference in the world. They consistently demand to be respected (p. 1).

What needs further research and discussion?

Defining Student Engagement

The call for clarification, consensus, and consistency in definitions of student engagement was ubiquitous in the literature. Nearly all authors believed the concept of student engagement was in its infancy and, as it evolves, seems to grow increasingly complex and dynamic. Educators strongly believe that settling the discourse – coming to a shared language – is imperative to successful future implementation. Harris (2008) says it best: "The concept of student engagement must be explicitly defined within academic research and government documents to avoid misunderstandings and misinterpretations

(p. 75). She adds that, until we clarify and communicate what student engagement means, we chance "it will fail to be taken seriously by many professional educators" (p. 75).

Secondary to the difficulty in defining student engagement is difficulty measuring student engagement. Many questions remain about how to adequately and accurately measure student engagement. What does real student engagement look like? For example, if student engagement is measured only by high school completion, what about student learning? If we detach engagement from achievement, *what* should we look for? If we believe the goal of student achievement should not be a destination, but a journey, how shall we evaluate our success? What does successful engagement look like? Perhaps this difficulty encourages our tendency to retreat to measures of achievement (Claxton, 2006), and not measures of learning. Obviously, more research is needed.

Study the dynamic interplay between various types of engagement

Student engagement is complex and dynamic construct. As noted, educators note that we have yet to understand the term, never mind the interplay among different types of engagement – social, psychological, cognitive, academic, intellectual, behavioral, etc. The jury is out on whether all types of engagement are required for learning to be most effective. As Harris (2008) states,

> Future research should continue to investigate the relationship between behavioural, psychological, and cognitive aspects of engagement and should explore how teacher conceptions are translated into classroom practices. It would also be useful to investigate conceptions held by other educational stakeholders. This study suggests that future work on student engagement must aim to increase conceptual clarity instead of just adding new ideas to an already crowded construct (p. 75).

Meyer and Turner (2006) suggest further studies on the integration and interrelation of cognition, motivation, and emotions (p. 384) and their impact on learning. They specifically note that the way "emotion, motivation, and learning evolve as coordinated processes as well as conflict with each other are not well explained in linear or hierarchical conceptualizations" and suggest creating new theories. Willms, Friesen, & Milton (2009) found that students were "likely to experience social, academic and intellectual engagement at different times and at varying degrees of intensity in their day-to-day lives at school" (p. 32), which creates challenges when it comes to implementing any particular strategy to increase student engagement for all students.

> While it is tempting to infer that if schools simply altered certain aspects of the learning climate (for example, by increasing effective learning time or raising expectations for success) students would increase their levels of engagement, one cannot make such strong *causal* inferences from cross-sectional data (p. 31).

Along these same lines, more studies should work to correlate levels of challenge and levels of engagement in learning. Dunleavy, et al. (2010, p. 3) refer to Csikszentmilhalyi's initial research on "Flow".

Challenge and change our assumptions on the purpose of education

"Improving the educational experiences and outcomes for young people in Canada requires a reorientation in our thinking about student engagement that grounds it more intentionally in what we genuinely want to achieve for all students" (Dunleavy & Milton, 2009, p. 16).

There are frequent requests in the literature for educational reform, educational transformation, paradigm shifts, and cultural shifts in our education systems. There is also near consensus that the standards and models we used in the past no longer work. A discussion is needed to bring us all up to date on what's needed and how education can support those goals. As Gilbert (2007) says, we have all the ideas, tools, strategies, and even resources we need to create the world class, innovative classrooms our students require; however, those ideas and innovations have been "imported into education systems that are build on the Industrial Age mental models" (p. 8).

> Before we start using these ideas, we need to change the mental models that underpin our thinking about education. However, before we do this, we need to have a debate about what we think our schools are for in this new age, about what we think students need and why, and about how we will know when we have been successful in providing those things (Gilbert, 2007, p8).

One core debate is academic *achievement* versus *learning* discourse. Throughout the literature the focus on achievement versus learning was glaring. Our measures, our goals, and our language are geared toward higher achievement and completion, and not toward learning and human development. Dunleavy & Milton (2009) allude to this in the following:

> The measures we currently use to assess school effectiveness tell us a lot about the objectives of learning – students' marks, attendance patterns, credit accumulation, graduation, achievement on standardized tests – and very little about the kinds of learning experiences described above (engaged learning). By relying exclusively on indicators that treat learning as a cumulative event, we have little sense of students' emerging capacity as learners, the fuller scope of what they are learning, or if they feel their learning contributes to outcomes that are meaningfully connected to their aspirations" (p. 16).

Throughout this literature review, it was clear that, as Gilbert suggests above, student engagement was used as a tool to improve student *achievement* and not to enhance student *learning*. Good students can be categorically different than good learners. Armstrong's (2006) book *The Best Schools: How Human Development Research Should Inform Educational Practice* asserts that "Academic Achievement Discourse transfers control of the curriculum away from educators in the classroom and toward the organizations that set the standards and exams" (p. 27). A focus on achievement – most often measured through standardized testing – instead of learning "fails to take into consideration individual differences in cultural backgrounds, learning styles and rates,

and other crucial factors in the lives of real children … it undercuts the intrinsic value of learning for its own sake" (p. 30). The difficulty may be, Claxton (2006) reports, that "until very recently, we have had no clear conceptual framework for talking about what *capacity to learn* involves. We have had no coherent approach to pedagogy, or to school development, directly targeted at expanding the capacity to learn" (p. 2).

The Partnership for 21st Century learning suggests that we need to look deeply into innovative ways to support 21st Century learning because current educational systems are not designed to support the new "multi-dimensional" abilities learners need and want to be engaged in learning. Such innovation require a paradigm shift in how we educate our teachers and students, manage our resources, lay out our classrooms and learning environments, design our curriculum and pedagogy, and assess our learners (www.P21.org, 2010).

> The Partnership has identified five critical support systems to ensure student mastery of 21st century skills:
>
> - 21st Century Standards
> - Assessments of 21st Century Skills
> - 21st Century Curriculum and Instruction
> - 21st Century Professional Development
> - 21st Century Learning Environments (www.p21.org/documents/P21_Framework.pdf, p. 2)

Increase Teacher involvement and input into research on engagement in learning

Harris (2008) notes that little research has studied teachers' perspectives on student engagement and suggests that teachers are unclear or inconsistent about how they understand student engagement and how important engagement is to their classroom environment and teaching practices. The focus seems to be primarily on behavior and not on learning, for example. Dunleavy & Milton (2009) agree that we need to engage teachers in studying and applying concepts of student engagement. Willms, Friesen, & Milton (2009) concur: "Engaging teachers in school improvement, as a collaborative knowledge building process, is also key to understanding the types of practices educators might start to cultivate to improve the educational experiences and learning outcomes for all students" (p. 33).

Continue to seek student voice and perspective on engagement in learning

As named before, Willms, Flanagan, Dunleavy, Friesen, Milton, Crawford, and the Canadian Education Association, among others, are actively seeking students' perspectives and voices in their work on student engagement. They are some of only a few beginning to look at students' perspectives. There is still need for deeper research into students' perspectives about what keeps them engaged in learning.

Claxton (2007) refers to this inclusion as "transparency and involvement" – suggesting that "the goal of expanding students' learning capacity seems more likely to take root in a

school culture if students understand what is going on, and are given some significant role in helping to design and bring about the desired culture change" (p. 12). Projects like *Imagine a School…* and *Design for Learning* and *What did you do in school today?* already impact definitions and measures of student engagement in the literature, but more clarification and discussion is required before we can fully understand this complicated, evolving construct that seems to show such promise for creating the educational experiences and outcomes students require to be successfully engaged.

Perhaps in addition to student voice, we should add "parent" voice. We noted there was little to no reference to the role parents can play to increase student engagement to classroom learning, with the exception that most research studies on engagement state that student background might impact their levels of engagement. Certainly other research on socio-economic factors, education levels of parents, and general attitude about education in the home have been found to impact student's levels of engagement in school. Perhaps this omission of parental voice suggests that researchers believe parents are beyond the scope or realm of influence for teachers and educators.

If we do not expand our research and thinking about student engagement, we fall victim to traditional views that education is something that happens only in school; and, until we modify or eradicate this limited view of how children learn, most of our work in the area of student engagement will fall short. If we have learned nothing else from our review of research literature, it is that learning involves what happens in learners' entire lives – not just school, and not just home – everywhere. This message seems central to our emerging insights about what will engage our children in learning.

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