TRANSFORMING CLASSROOMS THROUGH SOCIAL, ACADEMIC AND INTELLECTUAL ENGAGEMENT

FIRST NATIONAL REPORT MAY 2009

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Canadian Education Association | The Learning Bar | galileo

What did you do in school today? is a multi-year research and development initiative of the Canadian Education Association (CEA), funded through collaboration with the Canadian Council on Learning (CCL) and a number of Canadian school districts. Launched in 2007, the initiative was designed to capture, assess and inspire new ideas for enhancing the learning experiences of adolescents in classrooms and schools. ***What did you do in school today?*** includes an online survey of students in participating districts. Research and development work is being carried out through CEA's partnership with the Galileo Educational Network and The Learning Bar Inc.

The authors would like to acknowledge Jodene Dunleavy, National Coordinator, ***What did you do in school today?***, for her invaluable leadership in the development of this publication, and extend appreciation for the timely advice and feedback of Wise-Gillap Editorials, CEA staff Christa Freiler, Eeva Gakiza and Max Cooke, and volunteer Robert Kennedy.

What did you do in school today?

Transforming classrooms through social, academic and intellectual engagement

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FOREWORD

In 2006, the Canadian Education Association (CEA) adopted a focus on adolescent learners as its core priority. The first step was to engage 27 high school students of diverse backgrounds to tell their stories of life and learning. Under the inspired leadership of Kathleen Gould Lundy of Destination Arts, York University, the students created and performed ***Imagine a School...*** Their stories moved, energized and inspired us to wonder how we could get it right for adolescent learners. We decided that we needed a better understanding of the learning experiences of students from across the country. We also decided that, to make a difference, this new information should arise from collaborations among researchers, school and district leaders, teachers, and students themselves.

All those involved in the initiative, ***What did you do in school today?***, are convinced that there are effective ways to improve the educational experiences and learning outcomes for *all* young people in Canada. From CEA's standpoint, the process of transforming schools to improve learning will require a significant shift in our current designs for learning, the beliefs we hold about the purpose of schooling, and the knowledge we draw on to understand adolescent learning and development (CEA, 2006).

From these perspectives, ***What did you do in school today?*** emerged as a national initiative designed to explore the relationships among student engagement, achievement, and effective teaching. ***What did you do in school today?*** is grounded in the conviction that, in order to raise the achievement levels of all students and to narrow the gaps between students, we have to guarantee that all young people are engaged in their learning and that *all* receive effective and intellectually challenging instruction. More specifically, the initiative advances these four convictions:

- Teaching practices exist that enable all students to achieve at high levels.
- Certain teaching practices and learning processes engage students in deeper and more sustained learning.
- The achievement gap could be narrowed, if not eliminated, by consistently using the teaching practices that we know are effective.
- Students have a better educational experience when teachers and students actively collaborate in the process of improvement.

The first year of our work together has been an extraordinary learning experience. With generous support and valuable feedback from participating school districts, we have developed a conceptual framework for the initiative and extended our understanding of the initiative's meaning for students and teachers in classrooms. With a full year of data from 93 schools in 10 school districts, we have also been able to explore early national findings and reflect on how they connect with the initiative's convictions.

On behalf of CEA, I offer our appreciation to the Canadian Council on Learning for its support of this initiative; to the school districts for their commitment to making a difference for students; to the research team that has authored this report; and to the thousands of students who chose to participate and are engaged with their teachers in understanding the data and making change happen. From just one year's participation in ***What did you do in school today?***, my own school district has become even more determined and energized to improve outcomes for all students.

Carole Olsen
Superintendent, Halifax Regional School Board
President, CEA

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"WHAT DO WE WANT TO ACHIEVE FOR ALL YOUNG PEOPLE?"

INTRODUCTION

Dear CEA, I'm not exactly sure why I'm e-mailing you, but I guess I could use all the support I can get. I'm a 15-year-old guy from the suburbs of Vancouver, Canada. I guess you could say I'm one of those people that have fallen through the cracks. I am in fact a gifted student, and for the past two years I've tried looking for a school where I could perform to the best of my abilities - a place where I could pursue my passion for film production, where I could integrate courses into one big project, where I could use technology to its full capacity; a place where I could fit in.

– PAUL, PERSONAL CORRESPONDENCE WITH CEA, 2006

hi - i found you on the web. i'm about to get kicked out of school again ' cos of lates and skips. i want to be a subway train driver so i have to get my grade 12. i do want to learn but they don't understand that i can't learn this way. is there a different way to get a high school diploma in Ontario?

– KEVIN, PERSONAL CORRESPONDENCE WITH CEA, 2007

Paul and Kevin are real Canadian students. They illustrate a complex challenge faced by educators: how to engage students whose passions do not fit within the traditional curriculum, students who could do better at their studies, students who put in the time but make little effort, students who are invested only in passing the test, students who tune out, and those who drop out.

Many students thrive during adolescence: they are deeply engaged in their studies, participate in – and often lead – school and community activities, and seem set for life as they move on to post-secondary education with certificates and awards in hand. But many others "withdraw from the learning process, in body or in spirit, before they have achieved the level of knowledge and understanding needed to succeed as adults in today's world" (Dunning, 2008, p. 3).

There are no easy answers to show us what to do about students who go to school only to be in the band or on the sports team, but who otherwise skip class and care little about assignments; those who seem equally unsuccessful in academic or applied programs; or those who have come to believe that they cannot learn, at least not in school.

Across Canada, many students have told CEA that classrooms and learning as they are currently organized are not working. They are not working for students who can keep up with the pace set by the lectures, textbooks and tests, and they are not working for those who cannot. In CEA's work with students in creating ***Imagine a School…*** and ***Design for Learning***,[1] the message has been clear: students do not want learning made easy, they want it to mean something. They want to feel something, to be moved by what they learn; they want to connect deeply with things that matter to the world and matter to them; and they want the chance to make a difference.

Years of research have proven that schools can have a powerful impact on student engagement and student achievement (see, for example: National Research Council, 2003; Community Health Systems Resource Group, 2005; Tedllie & Stringfield, 1993; Willms, 2003). This body of research has energized the movement to ensure that students reach identified provincial or territorial learning outcomes – a movement that has shaped the dialogue on accountability and school improvement throughout Canada for the past 20 years.

1 For information on *Imagine a School…*, see http://www.cea-ace.ca/dia.cfm?subsection=the&page=ado
For CEA's *Design for Learning*, see http://www.cea-ace.ca/dia.cfm?subsection=the&page=del

But underlying the research on school effects, there are deeper questions that do not often get addressed in public dialogue about education: What hopes do we hold for public education in Canada? What is the purpose of schooling today and for the future? What do we want to achieve for all young people? These questions challenge us to re-imagine schools as places where all students experience success as they…

- become expert learners with an enduring passion for learning
- develop imaginative and innovative habits of mind
- learn the core concepts of the major disciplines, and value different knowledge traditions
- gain confidence in generating new ideas on their own and collaboratively
- develop cross-cultural, communicative, and ethical competence.

As the world changes, expectations for education also shift. The nature of schooling must follow suit. Research in the past thirty years has proven that the current model of schooling no longer adequately meets the needs of young people or of contemporary Canadian society. But as we contemplate the necessary shift and how to make it, we continue to encounter the incredible resilience of ideas about teaching and learning that are rooted in the economic, educational, and cultural norms of the early 20th century. As we call upon educators to invent new learning environments, we must realize the complexity of working within systems that evolved in and for the industrial past.

TRANSFORMING CLASSROOMS AND SCHOOLS THROUGH STUDENT ENGAGEMENT

Across Canada there is increased attention to the important relationship between the quality of learning environments – particularly effective teaching – and student achievement. Research on the importance of early learning has heightened efforts to improve learning environments for young children. So far, however, less attention has been focused on how to transform learning environments for adolescent learners.

The challenges faced by adolescent students are clear. There is growing concern about the number of students who are fading out or dropping out of school, and about the gaps in achievement among different groups of students. Evidence is mounting (see, for example: Bowlby & McMullen, 2002; National Research Council, 2003) to show that many problems experienced by students in middle and secondary schools – such as disengagement, dissatisfaction with their schooling experience, and dropping out – are significantly linked to the learning environment (see, for example, Pope, 2001).

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)

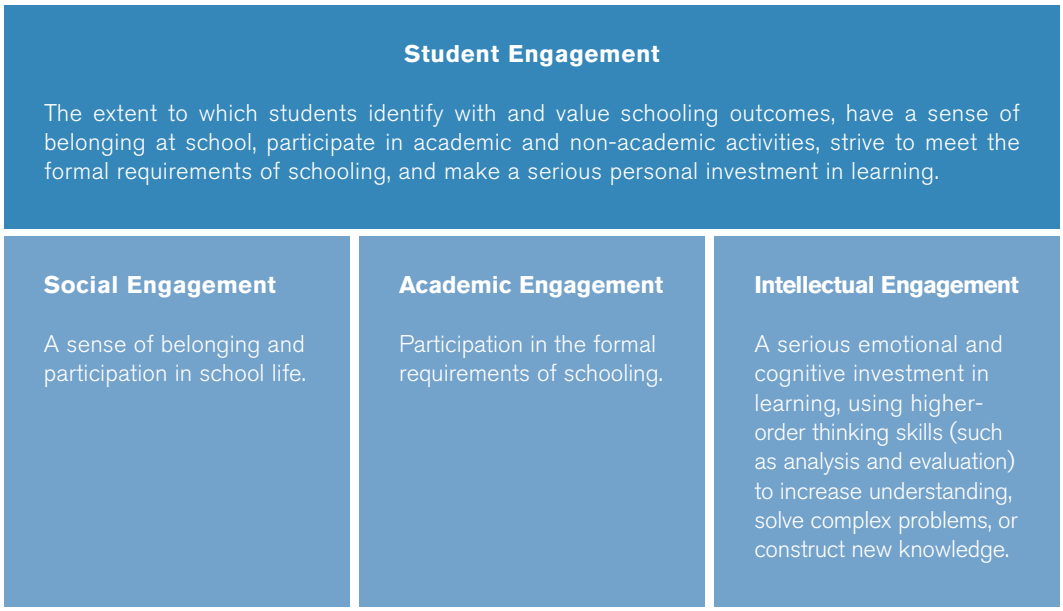
More recently, attention has also turned to the widening gap between the in-school and out-of-school lives of students – specifically to the different ways that young people use communications technologies; to the unaddressed diversity of the student population; and to the need to equip all young people for success in a period of massive, rapid and unpredictable social, technological and economic change.

What did you do in school today? grew out of an emerging awareness of the complex challenges facing adolescent learners, and a commitment to work with school districts to explore change strategies that respond to how their own students are experiencing school. Launched in 2007, the initiative was designed to capture, assess and inspire new ideas for enhancing the learning experiences of adolescents in classrooms and schools, using an expanded framework for thinking about student engagement and its relationship to learning (see Figure 1).

In addition to building on the established concepts of social and academic engagement, ***What did you do in school today?*** contributes to the newer concept of intellectual engagement by introducing a set of measures that allows us to explore what students are doing in classrooms; how they feel about their experiences of learning; and, whether the work they do contributes to learning. Students' experiences provide a starting point for investigating whether classroom practices – including the ways in which the work is designed for students, and other factors such as time, how students are grouped for learning, and the physical environment of classrooms – can be improved to create more effective and engaging learning environments.

The initiative is also designed to help researchers and practitioners understand how these processes of engagement occur, and whether all three forms of engagement – social, academic and intellectual – are the result of the same dynamics, make the same contributions to learning, and are equally important for all students.

Figure 1. *Three dimensions of student engagement*



WHY IS STUDENT ENGAGEMENT IMPORTANT?

A great deal of thinking about educational change as it relates to student achievement and engagement is framed in terms of preparing students for their future after graduation from high school – to help students toward a good job or in the transition to post-secondary learning. However, we also have to recognize that young people's engagement in school affects not just their future, but the quality of their daily lives and experiences *now*.

It is important to remember that young people are not just adults-in-training; their lives as they experience them now are as valuable and meaningful as those of the adults they will become. How they feel about school and their own achievement is, for most young people, central to their daily lives – whether they feel good about themselves and cared for at school; whether they are frustrated, anxious, bored, or depressed; whether they feel vibrant and excited by what they are learning; and, for that matter, whether they are learning at all.

Disengagement from school – whether a student leaves or struggles through to graduation – is also a significant source of inequity in Canadian society, not only because it places a large number of students at a disadvantage as they move into adult roles, but because disengagement is disproportionately experienced by students living in poverty, students with disabilities, and students from ethnic minority and Aboriginal communities (Audas & Willms, 2001; Caledon Institute for Social Policy, 2006; Community Health Systems Resource Group, 2005; Richards & Vining, 2004). As we are seeing in other countries and increasingly in this country, disengagement *in* and *from* school is linked to school violence, social exclusion, and a polarization severe enough to pose a threat to social cohesion in Canada.

From the perspectives of both human and social development, participation and engagement in learning are key to both individual and collective well-being. According to a 2008 World Health Organization report, engagement and participation are important for "social development, health, and well-being" because "[r]estricted participation results in deprivation of human capabilities" (Commission on Social Determinants of Health, 2008, p.18). Clearly, the rationale for student participation and engagement extends well beyond good educational practice and into social policy, social development, health, and well-being.

Finally, meeting the social and economic needs of a 21st-century society demands that we nurture the talents, skills and aspirations of *all* young people in Canada. The emergence of a knowledge-based economy, combined with a more diverse and complex society, compels us to rethink schools and learning. More than ever before, Canada needs engaged young people who have the skills, knowledge and dispositions necessary to become expert learners with a passion to learn throughout their lives and to contribute to a civil society.

CHAPTER

2

CAPTURING AND ASSESSING NEW IDEAS ABOUT STUDENT ENGAGEMENT.

RESEARCH DESIGN

BACKGROUND

In the course of our conceptual and research work for ***What did you in school today?***, we identified three distinct but inter-related dimensions of student engagement: social, academic and intellectual. The first two dimensions – social and academic – have framed much of the literature on engagement over the past two decades. The central importance of intellectual engagement, by contrast, is only beginning to be understood.

Earlier considerations of student attitudes and behaviours in relation to learning tended to locate the source of disengagement and engagement in the students' personal contexts, such as family background, individual motivation, natural abilities, or perceived intelligence. More recently, theories about the effects of growing up in a digital world have led some commentators to ascribe disengagement to the psychology of an entire generation of young people. But simple correlations of background variables or commentaries on the changing context of schooling and students' lives offer too little guidance for our purposes because they fail to explain the processes that lead to learning and student success.

In a recent examination of current ways of thinking about engagement and student success, the American National Research Council (2003) concluded that focusing on the more immediate indicators of engagement, such as attendance and dropout rates, is valuable but, in the end, what must be achieved is "the more ambitious goal of deep cognitive engagement that results in learning" (p. 32).

In education, a great deal of emphasis is often placed on using external measurements of school and district performance to hold the system accountable for student success, but these measurements do not always provide enough information to help local decision makers focus their ideas, practices, resources, energy and leadership to improve learning (Elmore, 2006). To actively participate in accountable decision making, schools need access to fine-grained data that can be collected, interpreted and acted upon in local settings.

What did you do in school today? Research in Schools and School Districts

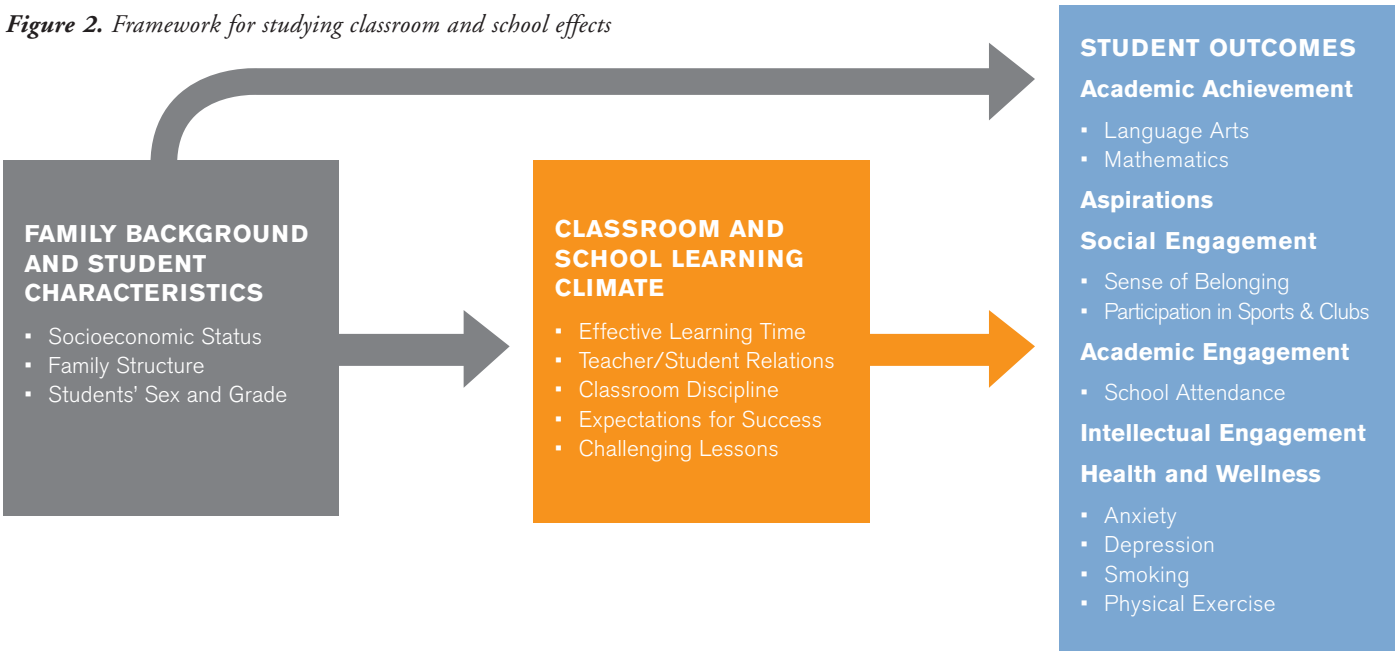
The ***What did you do in school today?*** online survey provides school districts and schools with regular access to reliable data that they can use to study teaching and learning in specific contexts. It extends the work of The Learning Bar's ***Tell Them From Me*** web-based evaluation system. Students at participating schools complete the survey at least once during the school year. The survey measures four aspects of social, academic and intellectual engagement, as well as student wellness and five indicators of classroom and school climate.

The research was designed to foster the development of new ideas through continuous cycles of "design, enactment, analysis and redesign" (Design-Based Research Collective, 2003, p. 5) that actively involve students, teachers, principals and district leaders. From the outset we understood that the goal of transforming classroom and school practices required us to begin looking at school improvement as a collaborative knowledge-building activity that actively engages teachers in co-constructing ideas that contribute directly to school improvement. We also recognized that students are uniquely positioned to provide insights about learning through their day-to-day experiences both in and outside of school.

THE NATIONAL RESEARCH FRAMEWORK

The ***What did you do in school today?*** survey and research framework build on a model that is commonly used in studies of classroom and school effects, shown in Figure 2. The model considers student engagement as a student outcome that is affected by what happens at home and at school. Family background is considered to have both *direct* and *indirect* effects on student outcomes, while classroom and school learning climate has *direct* effects on student outcomes.

Figure 2. *Framework for studying classroom and school effects*



The research on classroom and school effects has identified a number of classroom and school factors related to students' academic achievement, such as the quality of instruction, teacher/student relations, the disciplinary climate of the classroom, and expectations for academic success (for comprehensive reviews, see: Rutter, 1983; Sammons, Hillman, & Mortimore, 1995; Scheerens, 1992). Recent studies have indicated that the teachers students have from year to year have a greater effect on the students' learning outcomes than the schools they attend, and that this holds true at both the elementary and secondary levels. In statistical terms, this means that there is more variation in student performance among classrooms within schools than among schools (Hill & Rowe, 1996; Mortimore, Sammons, Stoll, Lewis, & Ecob, 1988; Scheerens, Vermeulen, & Pelgrum, 1989; Willms, 2000).

Two critical characteristics of successful schools are the effective use of class time, and teaching that is structured and adaptive (Scheerens, 1992; Slavin, 1994). The research also suggests that levels of student engagement vary among schools, and that some of the classroom and school factors associated with learning outcomes are also related to student engagement (Willms, 2003).

Results from the ***What did you do in school today?*** student survey stand to make an important contribution to this literature in at least three ways. First, the survey focuses on student engagement rather than academic achievement, with an emphasis on social engagement, academic engagement, and the newer concept of intellectual engagement. Second, it places greater emphasis on what is happening in classrooms rather than on school factors. And finally, it introduces the idea of *flow* (Csikszentmihalyi, 1991) as a classroom factor that allows us to understand the extent to which teaching practices are related to students' intellectual engagement.

MEASURING STUDENT ENGAGEMENT AND THE FACTORS AFFECTING IT

The study measures four dimensions of student engagement. These include two dimensions of social engagement (participation and sense of belonging); one dimension of academic engagement (attendance); and the newly defined dimension of intellectual engagement (see Figure 3).

Figure 3. *Four measures of student engagement*

TYPE OF ENGAGEMENT	WHAT'S IN THE SURVEY?	HOW IS IT SCORED?
Social Engagement **A. Participation in Sports and School Clubs**	Two questions that ask students how often they did the following during the past month: (1) played sports with an instructor at school, other than in a gym class (2) took part in art, drama or music groups; school clubs (e.g., a science, math or chess club); or a school committee, such as student council or the yearbook committee.	Students respond on a scale that ranges from "never or hardly ever" to "every day or almost every day". The measure indicates the sum of the number of weekdays that students participate in sports, plus the number of weekdays they participate in clubs.
B. Sense of Belonging	Six questions ask students whether they feel accepted at school by their peers and feel school is a place where they belong.	Students respond on a five-point scale, scored as follows: 0 (strongly disagree), 1 (somewhat agree), 2 (neither agree nor disagree), 3 (somewhat agree), and 4 (strongly agree). The scores are averaged across the six items to yield a score that ranges from 0 to 4. Students with an average score that is above 2.4 (i.e., slightly higher than neutral) are considered to have a positive sense of belonging.
Academic Engagement	The construct of academic engagement is still evolving. In its development so far, it is based on three aspects of *attendance*: the frequency during the previous month that students skipped classes or missed days at school without a reason, or arrived late for school or classes.	Students are considered truant if they score above 6 on a composite measure that places the greatest weight on missing days of school, and the least weight on skipping classes. For example, a child that missed one or two days of school per month, and skipped classes three or four times would be classified as truant.
Intellectual Engagement	Ten statements pertaining to the students' enjoyment, interest, and motivation to do well in their language arts and mathematics classes, as well as the extent to which they see these classes as relevant to their everyday life.	Students respond on a five-point scale that is scored as follows: 0 (strongly disagree), 1 (somewhat agree), 2 (neither agree nor disagree), 3 (somewhat agree), and 4 (strongly agree). The scores are averaged across the 10 items to yield an average score that ranges from 0 to 4. Students with an average score that is above 2.4 (i.e., slightly higher than neutral) are considered to have positive intellectual engagement.

A Note about Cut-points

To identify students who had either high or low scores on the four measures of engagement, the research team established unique cut-points. Setting a cut-point for low and high engagement is somewhat arbitrary, as there are no national standards for factors such as sense of belonging or intellectual engagement. The exception is the measure of school attendance, which uses a cut-point that is comparable to one used by the OECD (Willms, 2003). The cut-points for the other measures were based on the nature of the scale and the distribution of scores on each measure.

Although different cut-points would yield different levels of engagement, one can make valid comparisons among population subgroups, among jurisdictions, and over time.

MEASURING CLASSROOM AND SCHOOL EFFECTS

The ***What did you do in school today?*** survey also includes five measures of classroom and school climate (see Figure 4). Four of these are derived from the set of measures used in ***Tell Them From Me.*** A number of studies, including the Programme for International Student Assessment (PISA) led by the Organization for Economic Co-operation and Development (OECD), have determined that similar measures are related to academic achievement; however, previous research has not examined the relationship with student engagement.

The fifth measure of classroom and school learning climate, which we call *instructional challenge*, was developed specifically for this study. It is based on Csikszentmihalyi's (1991) theory of flow. Csikszentmihalyi (1997) described flow as deep absorption in an activity that is intrinsically interesting. Individuals in a state of flow see the activity as worthwhile even if no further goal is reached. Flow is believed to occur at the point of balance between the challenge inherent in the task at hand and the skills required to accomplish it. Applied to education, Csikszentmihalyi theorized four general relationships between skills and instructional challenge in students' experience of learning:

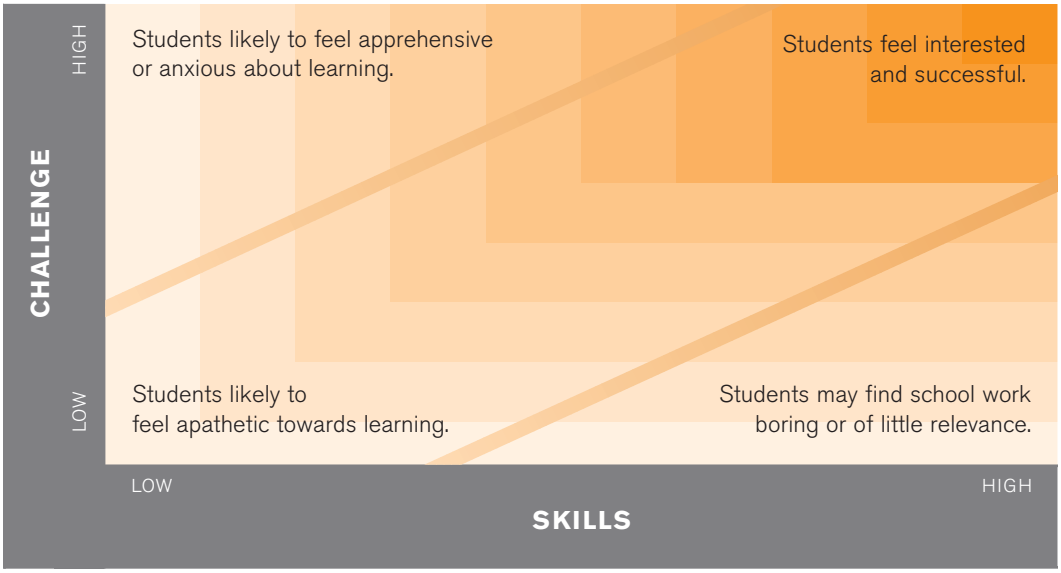
- High-Skills/Low-Challenge – students are more likely to feel that the challenges of learning are too few in relation to their skills, and they are not able to identify how they can make the experience more challenging. This leads to boredom, and to students disengaging because they see little relevance in what they are asked to learn.
- High-Skills/High-Challenge – students generally feel that their skills and the challenges of the tasks they are asked to perform are in balance. These are the students that would frequently experience *flow* in the sense described by Csikszentmihalyi.
- Low-Skills/Low-Challenge – students are more likely to feel apathetic about learning because they find themselves in learning situations where they have low skills and the tasks they are asked to perform are of low-challenge. These are students who tend to give up because school work is inconsequential.
- Low-Skills/High-Challenge – students are more likely to feel worried or apprehensive (anxious) in learning situations because they have low confidence in their skills and the tasks they are asked to perform are perceived as too challenging.

This relationship between skills and challenge is said to be symbiotic, where skills are neither too low nor too high in relation to the challenge at hand (see Figure 5). Under flow theory, the conceptualization of student engagement is the culmination of concentration, interest and enjoyment, as opposed to boredom or apathy (Shernoff et al., 2003).

Figure 4. *Five measures of the effects of classroom and school learning climate*

DIMENSION	WHAT'S IN THE SURVEY?	HOW IS IT SCORED?
Effective Learning Time	Six statements that measure three important aspects of classroom teaching: the extent to which important concepts are taught and understood; the efficiency with which class time is used; and the degree to which course objectives are aligned with homework assignments and evaluation procedures.	Students respond to each statement on a scale ranging from 0 (strongly disagree) to 4 (strongly agree). The scores are averaged across the six items and multiplied by 2.5 to yield a scale ranging from 0 to 10.
Teacher/Student Relations	Six statements that assess students' perceptions about how their teachers treat them, and whether they feel supported by them.	Students respond to each statement on a scale ranging from 0 (strongly disagree) to 4 (strongly agree). The scores are averaged across the six items and multiplied by 2.5 to yield a scale ranging from 0 to 10.
Classroom Disciplinary Climate	Six statements that assess the extent to which pupils internalize the norms and values of the classroom, and conform to them.	Students respond to each statement on a scale ranging from 0 (strongly disagree) to 4 (strongly agree). The scores are averaged across the six items and multiplied by 2.5 to yield a scale ranging from 0 to 10.
Expectations for Success	Six statements that assess the extent to which school staff value academic achievement and hold high expectations for all students. Schools with high *academic press* place a strong emphasis on academic skills.	Students respond to each statement on a scale ranging from 0 (strongly disagree) to 4 (strongly agree). The scores are averaged across the six items and multiplied by 2.5 to yield a scale ranging from 0 to 10.
Instructional Challenge	Twelve statements that assess the extent to which students feel challenged in their language arts and mathematics classes, and whether they feel confident about their skills in these subjects.	Students respond to each statement on a scale ranging from 0 (strongly disagree) to 4 (strongly agree). The scores for skills and challenge are averaged across the six items in each subject area to yield a score ranging from 0 to 4. A cut-point of 2 for each scale is used to construct a 2-by-2 matrix of challenge versus skills. (See Figure 5.)

Figure 5. *Instructional challenge*



THE *WHAT DID YOU DO IN SCHOOL TODAY?* SURVEY SAMPLE

The first-year findings in this report are based on data collected from 32,322 students in 93 schools from 10 school districts. The sample included 16,542 males and 15,780 females. The participating school districts and the number of schools participating in each district are shown in Figure 6. The number of children at each grade level in the full sample is shown in Figure 7.

The study included measures of mothers' and fathers' levels of education and family structure. The average level of mothers' education in years was 13.4 years and of fathers' education was 13.3 years. Twenty percent of the students were from single-parent families. In these respects, the sample is comparable to a nationally representative sample of Canadian youth this age, judging from findings of the National Longitudinal Survey of Children and Youth.[2]

2 For information on the National Longitudinal Survey of Children and Youth, see http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=4450&lang=en&db=imdb&adm=8&dis=2

Figure 6. *Survey Sample for 2007–08*

District	Number of Schools	Number of Students
Alberta		
Foothills School Division	6	718
Saskatchewan		
Greater Saskatoon Catholic Schools	10	3,529
Saskatoon Public School Division	11	5,813
Manitoba		
Evergreen School Division	7	1,748
Pembina Trails	11	4,233
Seven Oaks School Division	10	4,105
Sunrise School Division	9	2,269
Winnipeg School Division	9	1,677
Ontario		
Kawartha-Pine Ridge District School Board	10	3,202
Nova Scotia		
Halifax Regional School Board	10	5,028
Total	**93**	**32,322**

Figure 7. *Number of students participating by grade*

	Number of Students
Grade 5	176
Grade 6	2,333
Grade 7	4,933
Grade 8	4,917
Grade 9	6,482
Grade 10	4,972
Grade 11	4,309
Grade 12	4,200
Total	**32,322**

CHAPTER

3

BASED ON OUR ANALYSIS OF FIRST-YEAR FINDINGS, THIS CHAPTER EXAMINES FOUR FUNDAMENTAL QUESTIONS ABOUT STUDENT ENGAGEMENT:

FIRST-YEAR FINDINGS ABOUT STUDENT ENGAGEMENT

FIRST-YEAR FINDINGS ABOUT STUDENT ENGAGEMENT

ARE CANADIAN YOUTH ENGAGED AT SCHOOL?

Although many students are engaged at school, overall levels of engagement are quite low.

First-year findings from the ***What did you do in school today?*** national sample indicate the following:

- 67% of students participated in at least one school club or sport, and 71% had a positive sense of belonging at school.
- 69% of students had positive records of school attendance.
- Only 37% were intellectually engaged in their language arts and mathematics classes, the only two subject areas studied.

Although the level of *engaged* versus *disengaged* students depends on the criteria or cut-points used to define high and low engagement (see the note about cut-points on page 11), these findings are consistent with earlier research on sense of belonging and student attendance, which found that Canadian students have very low levels of engagement (Willms, 2003). These results further suggest that less than one-half of Canadian students are deeply engaged in their study of school subjects.

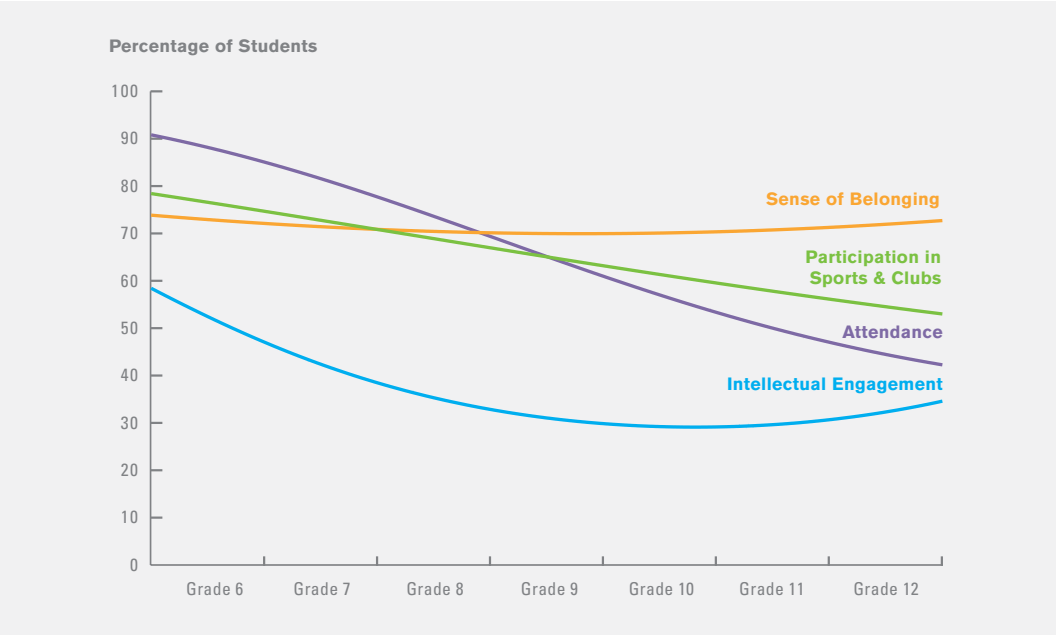
Levels of participation and academic engagement fall steadily from Grade 6 to Grade 12, while intellectual engagement falls during the middle school years and remains at a low level throughout secondary school.

With one exception, social, academic and intellectual engagement show a marked decrease with grade level. Figure 8 shows that students' sense of belonging remains at a fairly constant level throughout the middle and secondary school years. On the other hand:

- Participation (our second measure of social engagement) falls steadily as grade level increases.
- Attendance decreases from a high of 90% in Grade 6 to a low of about 40% by Grade 12. In the ***What did you do in school today?*** sample, students had lower levels of attendance at about age 15 (generally Grade 10) than students in a recent OECD study – about 57% compared to 74% for the OECD study (Willms, 2003).

The fall in student attendance parallels the fall in intellectual engagement through to about Grade 9, where intellectual engagement then remains at a fairly constant level at slightly above 30%.

Figure 8. *Percentages of students with a positive sense of belonging in Grades 6 through 12*



Differences between male and female students are relatively small on measures of social and academic engagement, but are considerable for intellectual engagement.

Male and female students tend to share similar experiences of social engagement across the grades. Both have similar patterns of attendance until the middle schools years (see Figure 9), but males are more likely than females to be truant when they reach secondary school.

From Grade 6 through Grade 12, female students are consistently between five and nine percentage points more likely to be intellectually engaged in language arts and math classes than male students (see Figure 10). This difference is likely explained by a number of interrelated factors, including, for example: general differences in skill levels among male and female students; the social context of learning; student aspirations; and the nature of curricula, learning materials, and activities.

Figure 9. *Percentages of students with regular attendance, by sex and grade*

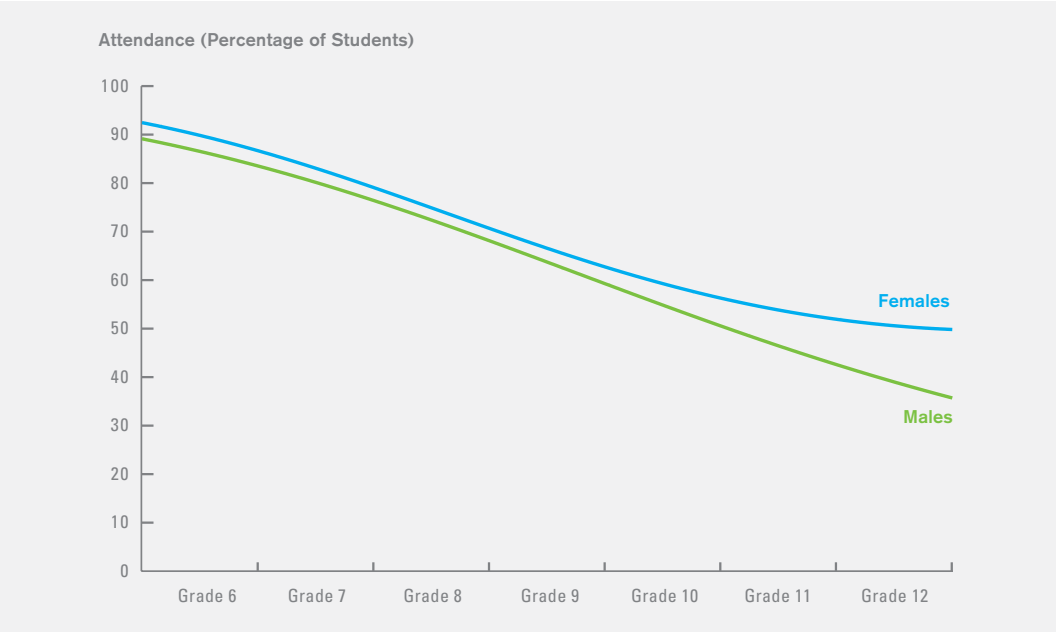
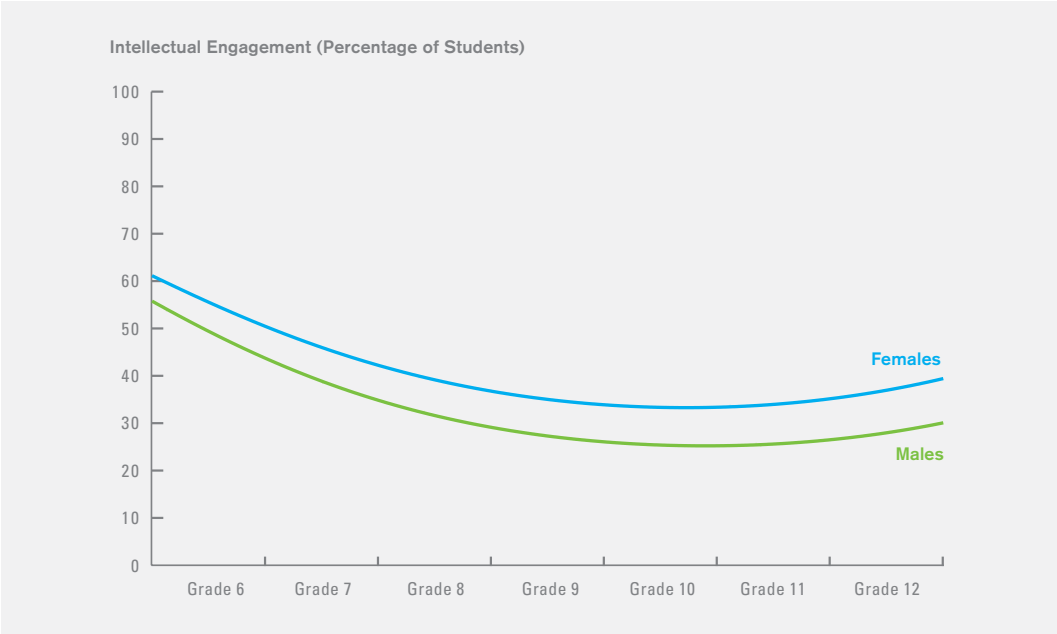


Figure 10. *Percentages of students who are intellectually engaged, by sex and grade*



Relationships among social, academic and intellectual engagement are weak at the student level, and stronger at the school level.

At the *student level*, for example, students who participate in clubs and sports do not necessarily have a positive sense of belonging – the correlation is 0.20. Figure 11 shows the relationships among the four measures of engagement at the student level (below the diagonal in blue), which range from a low of 0.09 between attendance and participation to highs of 0.25 and 0.28 between intellectual engagement and positive levels of sense of belonging and attendance.

Relationships among the different measures of engagement at the *school level* (above the diagonal in orange) are higher, and schools that score high on one measure are likely to score high on another. For example, the schools with high levels of sense of belonging are also more likely to have high levels of attendance (r = 0.53).

Figure 11. *Correlations among measures of student engagement*

	Participation	Sense of Belonging	Attendance	Intellectual Engagement
Participation	1.00	0.39	0.44	0.44
Sense of Belonging	0.20	1.00	0.53	0.40
Attendance	0.09	0.14	1.00	0.44
Intellectual Engagement	0.17	0.25	0.28	1.00

Note: Correlations at the ***student*** level are shown below the diagonal in blue; correlations at the ***school*** level are shown above the diagonal in orange.

HOW MUCH DOES FAMILY BACKGROUND MATTER?

Family socioeconomic status and family structure are related to student engagement.

Through the ***What did you do in school today?*** survey, students responded to a set of questions about their family background, including a measure of socioeconomic status (SES). SES was constructed using parents' levels of education and an index of home possessions.

High-SES students have significantly higher levels of engagement.

For all four measures of student engagement (participation, sense of belonging, attendance, and intellectual engagement), high-SES students have a significantly higher level of engagement than low-SES students. The pattern is similar for participation, sense of belonging, and attendance, with students from very high SES backgrounds (highest 20%) being about one-and-a-third times as likely to be engaged compared to those with very low SES backgrounds (lowest 20%). The differences attributable to SES are much more marked for intellectual engagement, with the percentages ranging from 25% to 41%.

Figures 12 to 15 show the relationships for the four types of engagement by levels of SES. These relationships were determined by controlling for grade level and sex, so that they give an indication of results for a sample with equal numbers of males and females in each grade.

Figure 12. *Percentages of students participating in sports or clubs, by socioeconomic status*

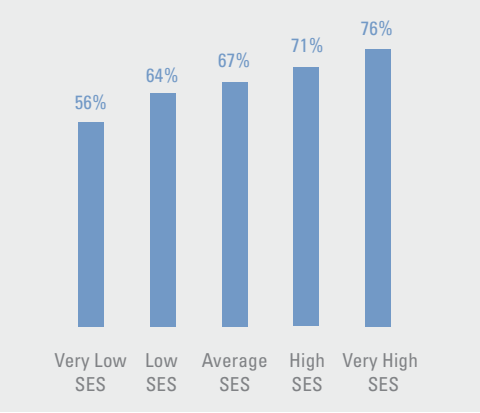


Figure 13. *Percentages of students with a positive sense belonging, by socioeconomic status*

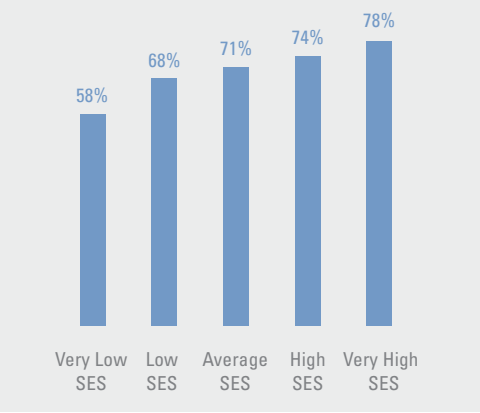


Figure 14. *Percentages of students with regular attendance, by socioeconomic status*

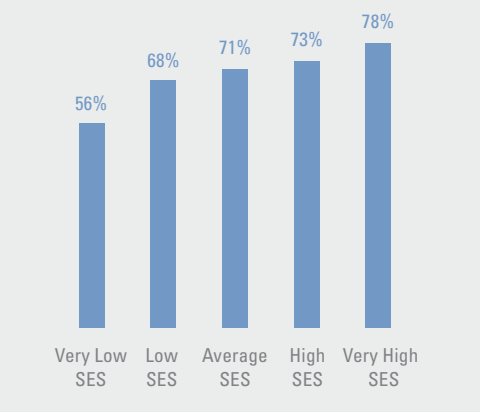
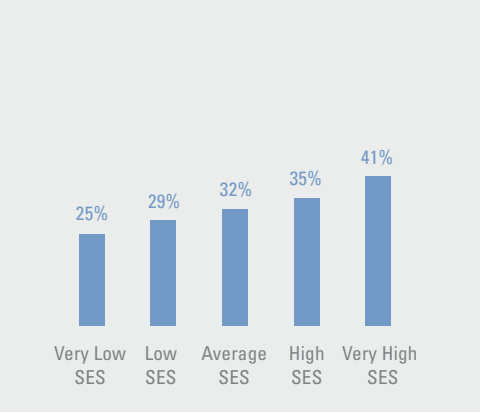


Figure 15. *Percentages of intellectually engaged students, by socioeconomic status*



Students living in two-parent families have higher levels of engagement

Students were also asked about the parents they lived with at home. That information was used to construct a measure of family structure denoting single-parent versus two-parent families. Students from single-parent families had lower levels of engagement than those from two-parent families, but some of these differences are attributable to differences in SES. Therefore, we estimated the difference in the level of engagement for each of the four types of engagement, controlling for SES, sex, and grade. The results in Figure 16 show that students from single-parent families are significantly less likely to be engaged at school than those from two-parent families. The differences are especially pronounced for student attendance.

Figure 16. *Percentages of engaged students in single-parent and two-parent families*

	Single-Parent Family	Two-Parent Family
Social Engagement (Participation)	67%	73%
Social Engagement (Sense of Belonging)	71%	76%
Academic Engagement (Attendance)	71%	82%
Intellectual Engagement	32%	35%

The findings concerning the role of SES in students' participation, sense of belonging, and school attendance are consistent with previous research. This work shows that the SES/outcome relationship is especially strong for intellectual engagement. The results also show that family structure plays a role, with the level of engaged students about 3 to 11 percentage points higher in two-parent families than in single-parent families.

Analyses of the PISA data for Canada show that the SES/outcome relationship varies substantially among schools for both emotional and academic outcomes (Willms, 2003, 2006). That is, some schools manage to achieve positive outcomes for both low-SES and high-SES students. Moreover, the outcome differences among schools in the ***What did you do in school today?*** sample, which were discussed above, far outweigh the differences associated with students' family background. These findings reveal that levels of engagement vary among schools, and suggest that the role of the classroom teacher may be as important, or even more important, than students' family background (see *Do Schools Make a Difference?*, below).

DO SCHOOLS MAKE A DIFFERENCE?

Social, academic, and intellectual engagement vary substantially among schools.

Figures 17 through 20 show the range in the levels of engagement across the 93 schools participating in the ***What did you do in school today?*** survey. Schools tended to vary quite considerably in their levels of student engagement. Across all 93 participating schools:

- Levels of participation in school clubs or sports were below 55% in six schools and above 85% in five schools. All other schools had levels of participation between 55% and 85%. The median level was 67% (see Figure 17).
- Levels of attendance were below 50% in 12 schools and over 90% in another 12 schools. The median level was 73% (see Figure 19).
- Levels of intellectual engagement varied from a low of 25% in four schools to highs above 60% in seven schools. The median level of intellectual engagement was 38% (see Figure 20).

Schools varied much less in their levels of students' sense of belonging (see Figure 18). Most schools had levels between 60% and 80%, eight schools had levels below 60%, and four schools had levels above 80%. Although the measure of sense of belonging can accurately distinguish among students within a school in their levels of sense of belonging, the measure is less reliable for determining high or low levels of sense of belonging at the school level.

Figure 17. *Number of schools at varying levels of student participation in sports and clubs*

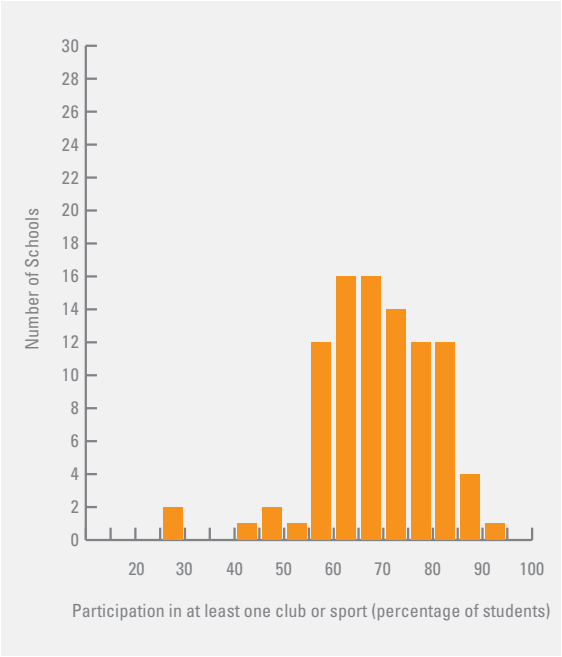


Figure 18. *Number of schools at varying levels of positive sense of belonging*

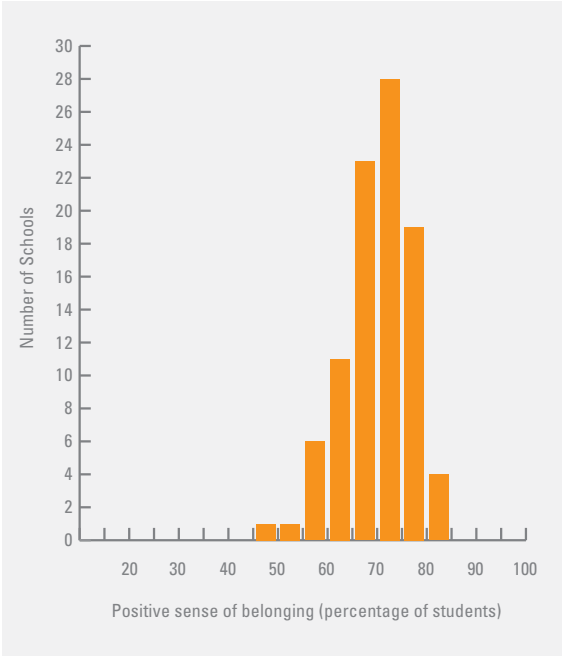


Figure 19. *Number of schools at varying levels of school attendance*

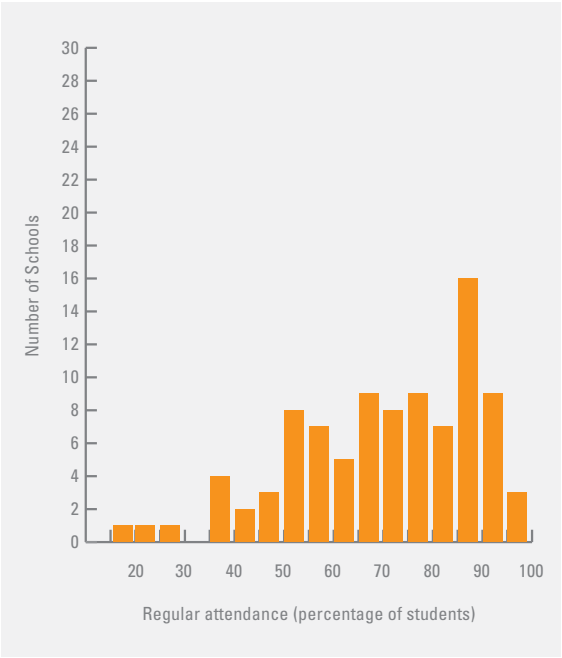
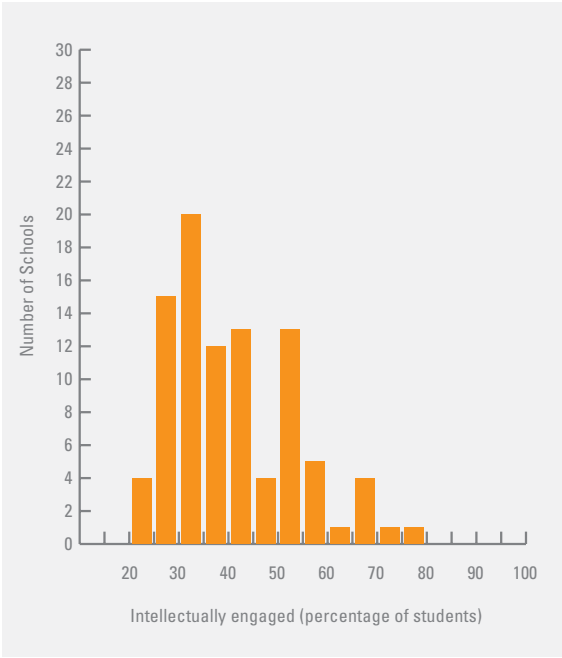


Figure 20. *Number of schools at varying levels of intellectual engagement*



With one exception, engagement levels are lowest in secondary schools.

Because grade structures of schools vary among provinces, and even among schools within districts, it is somewhat difficult to classify schools definitively as elementary, middle or secondary. Our approach to classifying schools in the study follows a system developed by The Learning Bar Inc., and is shown in Figure 21.

Figure 21. *Four school types in* What did you do in school today?

Elementary School	A school where the highest grade is Grade 6 or lower.
Middle School	A school where the lowest grade is either 5, 6 or 7, and the highest is Grade 7, 8 or 9.
Middle-Secondary School	A school that includes a grade below 8 and a grade above 9.
Secondary School	A school where the lowest grade is 8 or higher, and the highest grade is 10 or higher.

First-year results show that student engagement varies quite significantly among elementary, middle and secondary schools. With the exception of students' sense of belonging, which remains relatively constant, levels of engagement fall – gradually in terms of students' participation in school sports and clubs, and steeply in relation to students' attendance (see Figure 22).

Figure 22 also illustrates how intellectual engagement varies even more dramatically with school type. In elementary schools, 62% of students were classified as intellectually engaged. For middle schools, the level of engagement is only 44%, falling even further to 35% and 30% in middle-secondary and secondary schools respectively.

Some of this variation is attributable to the grade levels included in the school and the socioeconomic background of the students served. However, even after these factors are taken into account there is still significant variation among schools.

Figure 22. *Percentages of engaged students, by type of engagement and type of school*

	Participation	Sense of Belonging	Attendance	Intellectual Engagement
Elementary	79%	74%	91%	62%
Middle	73%	70%	81%	44%
Middle-Secondary	69%	66%	63%	35%
Secondary	61%	71%	58%	30%

The Effects of Classroom and School Climate

The ***What did you do in school today?*** survey includes five measures of classroom and school climate, described in chapter 2:

- Effective Learning Time
- Teacher/Student Relations
- Classroom Discipline
- Expectations for Success
- Instructional Challenge

With the exception of instructional challenge, which is a new measure developed for the survey, similar measures have been found to be related to academic achievement in a number of studies, including the OECD Programme for International Student Assessment (PISA). The ***What did you do in school today?*** survey's unique contribution to this research emerges from its focus on the relationship among these measures and student engagement.

Interpreting Odds Ratios

An odds ratio indicates the strength of a relationship. It is interpreted as the change in the odds of an event occurring associated with a one-unit change in the factor, given that all other factors in the model are held constant. In this study, for example, it is an estimate of the change in the odds of being engaged (e.g., a student participating in a sport or club) associated with a one-point increase in a school or classroom climate factor on its 10-point scale, when student-level factors (e.g., sex, SES, or grade level) are held constant. As a more concrete example, we can imagine two students at the same grade level, with the same sex, and comparable family backgrounds.

- Student A is in a school where students' ratings of classroom disciplinary climate are average.
- Student B is in a school where students' ratings of classroom disciplinary climate are one point above the average on the 10-point scale.

The odds of being intellectually engaged are more than one-and-a-half (1.57) times higher for Student B than for Student A.

With a few exceptions, the effects of classroom and school learning climate on student engagement are strong.

First-year findings demonstrate important relationships between what happens in classrooms and schools and students' experience of engagement. Figure 23 shows the estimates of odds ratios for each of the measures of classroom and school learning climate. These estimates indicate the following:

- Students are more likely to be socially engaged in schools with a positive classroom and school climate. High expectations for student success appears to be the most important factor.
- Students are more likely to have positive records of attendance when classroom and school learning climates include the following:
  - high expectations for student success
  - appropriate instructional challenge
- Students are more like to be intellectually engaged when classroom and school learning climates reflect the following:
  - effective use of learning time
  - positive teacher/student relations and disciplinary climates
  - high expectations for success
  - appropriate instructional challenge

Figure 23. *Relationship of classroom and school climate to measures of student engagement*

	Measures of Student Engagement			
Classroom/School Climate	**Participation**	**Sense of Belonging**	**Attendance**	**Intellectual Engagement**
Effective Learning Time	**1.29**	**1.20**	1.14	**1.57**
Teacher/Student Relations	**1.24**	**1.14**	1.01	**1.51**
Classroom Disciplinary Climate	**1.26**	**1.23**	1.15	**1.57**
Expectations for Success	**1.40**	**1.31**	**1.35**	**1.55**
Appropriately Challenged	1.05	**1.09**	**1.14**	**1.09**

Note: Odds ratios in bold text are statistically significant ($p < 0.05$).

For sense of belonging, regular attendance, and intellectual engagement, over one-half of the variation among schools is attributable to classroom and school learning climate.

Although family background has a strong influence on student engagement *within* schools, it does not account for much of the variation *among* schools. Instead, these findings (Figure 24) provide strong evidence that the five factors affecting classroom and school learning climate account for the differences among schools. Participation in school sports and clubs is an exception, because variation in participation among schools can only be partially explained by classroom and school climate.

Figure 24. *Explaining variation among schools in their levels of student engagement*

	Measures of Student Engagement			
	Participation	**Sense of Belonging**	**Attendance**	**Intellectual Engagement**
Correlation with School Mean SES	0.10	0.39	0.29	-0.14
Variance Attributable to Family Background	3%	25%	25%	–
Variance Attributable to School/Classroom Climate	18%	57%	52%	71%
Variance Attributable to Family Background & School/Classroom Climate	19%	65%	62%	58%

The first data row shows the correlations with school mean SES. Only sense of belonging and school attendance are significantly correlated with school mean SES, indicating that schools with higher levels of SES have fewer students who suffer a low sense of belonging or are regularly truant. However, levels of participation in sports and clubs and intellectual engagement are *not* significantly correlated with school mean SES. This seems to contradict the findings in Figures 12 to 15, which

show a strong relationship between SES and all factors. However, these results reveal that the relationships with SES for participation and intellectual engagement are a *within*-school phenomenon. In other words, SES is related to participation and intellectual engagement within most schools, but schools with higher levels of SES do not necessarily have higher levels of these types of engagement.

The second data row shows the percentage variation among schools in their levels of engagement attributable to students' SES and family structure. One-quarter of the variation in sense of belonging and school attendance is explained by family background. However, family background does not explain variation among schools in levels of participation or intellectual engagement. (The variation among schools in intellectual engagement is actually greater after controlling for family background, and therefore the proportion of variance cannot be estimated.)

The third data row shows the percentage of variation among schools in their levels of engagement attributable to classroom and school climate. Comparing the results in this row to those in the second row reveals that classroom and school climate play a much more important role in explaining variation among schools than measures of family background.

The bottom row of Figure 24 shows the variation among schools in their levels of engagement attributable to family background *and* classroom and school climate together. The results show that family background does not contribute substantially to the explanation of why schools vary, over and above the variance attributable to classroom and school climate. In the case of intellectual engagement, the model with climate factors alone explains more of the between-school variation (71%) than does the full model (58%).

DOES INSTRUCTIONAL CHALLENGE MAKE A DIFFERENCE?

In the previous section (*The Effects of Classroom and School Climate*), instructional challenge was treated as a school-level variable. That is, the section asked whether students' levels of engagement were related to whether they attended a school where there was a low or high percentage of students in the desired high-skills/high-challenge category (the flow quadrant in the instructional challenge matrix). The effects at this level were, on average, not as strong as the traditional measures of classroom and school climate. However, students' experience of flow may have a strong *within*-school relationship with student engagement.

Less than one-half of Canadian students report that they are confident about their skills in language arts and mathematics and are challenged in their classes.

About one-quarter to one-third of all middle and secondary school students indicated a lack of confidence in their skills to handle the language arts and mathematics curricula. This is consistent with the recent results of PISA, which indicate that about 29% of Canadian 15-year-old students performed at Level 2 or lower in reading and mathematics (Bussière, Knighton, & Pennock, 2007, p. 78). Level 3 is the minimum level needed for building skills in most school subjects. Most of the students in this study who reported a lack of confidence in their skills indicated that they found their classes challenging. About 20% to 33% of students were confident in their skills but did not find their classes challenging.

Flow in Canadian Middle Schools

Among Canadian middle school students (see Figure 25):

- 42% of students feel confident in their skills in language arts and feel they are appropriately challenged in their classes.
- 33% feel confident in their language arts skills, but do not feel they are adequately challenged in their classes.
- 25% do not feel confident in their skills in language arts classes. We expect that many of these students are struggling readers, and a level of 25% is just slightly below estimates based on PISA of the percentage of students that scored at Levels 1 and 2 in their reading skills, the two lowest levels on the five-level PISA scale (Bussière, Knighton, & Pennock, 2007, p. 78). About two-thirds of these students (17% overall) find their language arts classes to be too challenging.

The results for mathematics are similar, except that there is a higher percentage of students in the low-skill/high-challenge quadrant (24%), and a lower percentage of students in the high-skill/low-challenge quadrant (26%). About 45% were in the desirable high-skills/high-challenge quadrant, where students experience flow. (See Figure 26.)

Figure 25. *Instructional challenge for language arts in middle schools (7,022 students)*

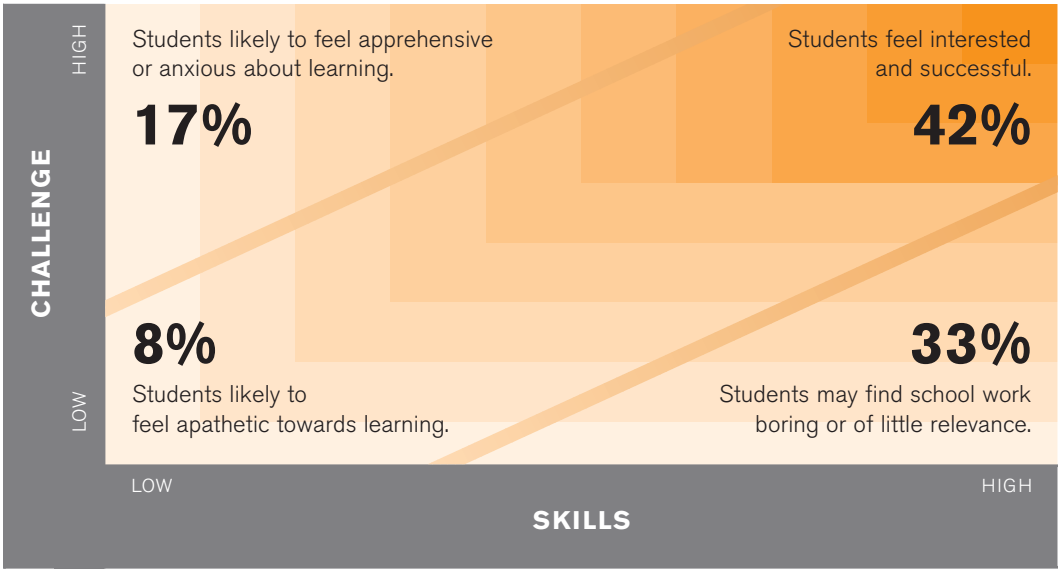
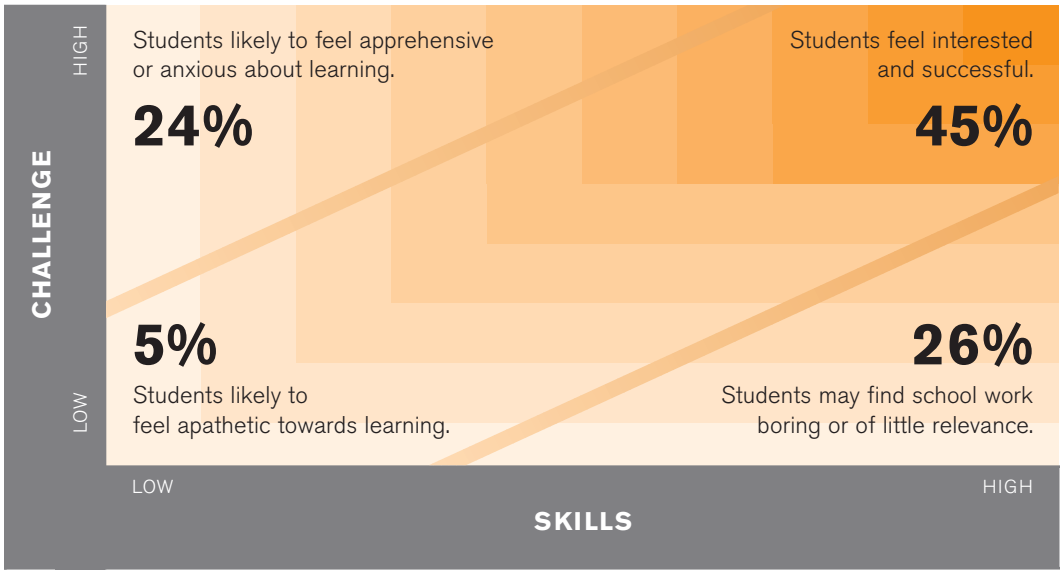


Figure 26. *Instructional challenge for mathematics in middle schools (7,061 students)*



Instructional Challenge in Canadian Secondary Schools

The pattern for secondary school language arts is very similar to the pattern for middle school language arts. The percentage of secondary students in each quadrant differs from the percentages for middle school students by 2% or less, and 43% of secondary students were in the desirable *flow* category (see Figure 27).

In mathematics, however, the pattern at the secondary school level differs quite considerably from the pattern for middle schools (see Figure 28). Fewer secondary school students are confident in their skills and feel they are not adequately challenged in their mathematics classes (20% compared with 26%). On the other hand, larger numbers of secondary students feel less confident in their skills and find their mathematics classes too challenging compared to their middle school counterparts (29% compared with 24%).

Figure 27. *Instructional challenge for language arts in secondary schools (8,427 students)*

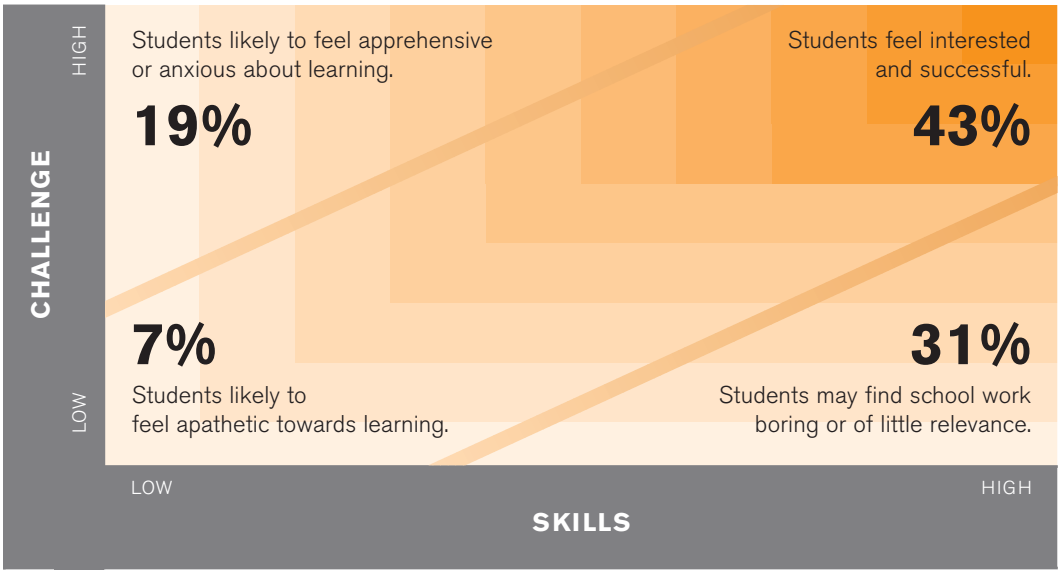
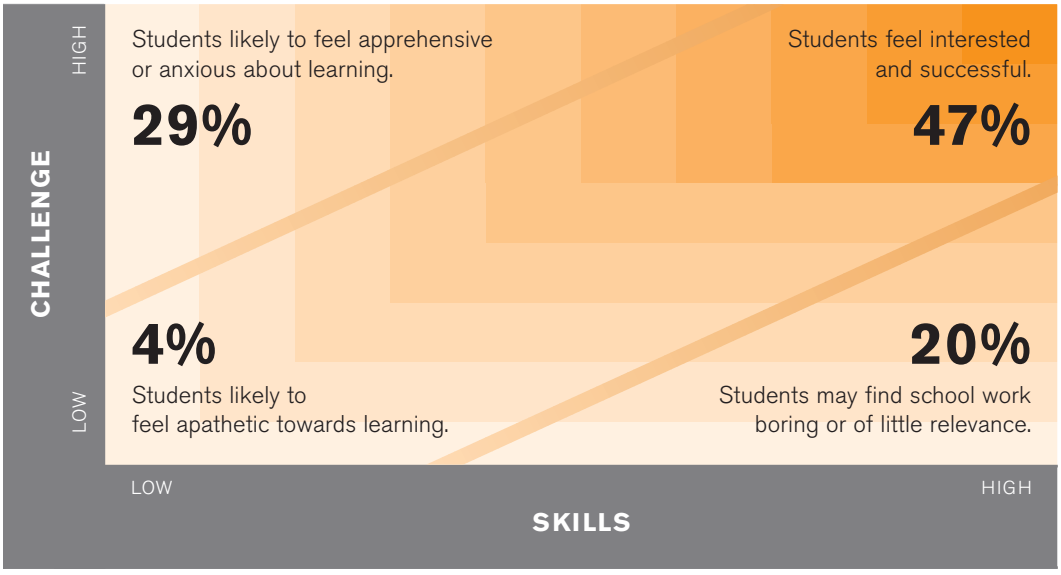


Figure 28. *Instructional challenge for mathematics in secondary schools (8,203 students)*



Relationships between instructional challenge and student engagement are significant.

Figure 29 illustrates the range of relationships among the four skill/challenge categories of instructional challenge and the four measures of student engagement. In these analyses, the high-skill/high-challenge category (which is associated with the sense of *flow*) was set as the reference quadrant.

Students who lack confidence in their skills exhibit lower levels of engagement on all four measures

Students in the low-skills/high-challenge group were less likely to be engaged socially, academically or intellectually. Compared to students who have high confidence in their skills and who feel challenged in their language arts and math classes, the odds of low-skills/high-challenge students being engaged were:

- 79% for participation in school clubs and sports
- 54% for having a positive sense of belonging
- 50% for having regular attendance
- 27% for being engaged intellectually

Students in the low-skills/low-challenge group were also less likely to be engaged at school. Indeed, the chances of those students being engaged were even lower than the chances for the low-skills/high-challenge group.

These relationships between skill levels and engagement are not surprising and are consistent with earlier research (Willms, 2003).

Students who are confident in their skills but do not feel challenged are also more likely to experience lower levels of engagement.

Results from the ***What did you do in school today?*** survey show that there is a large group of students who have strong skills but do not feel challenged in their classes. These students are less likely to be engaged than their peers with similar skills who do feel challenged. Most noteworthy, the odds of high-skill/low-challenge students being engaged were less than three-quarters of the odds for their high-skill/high-challenge counterparts.

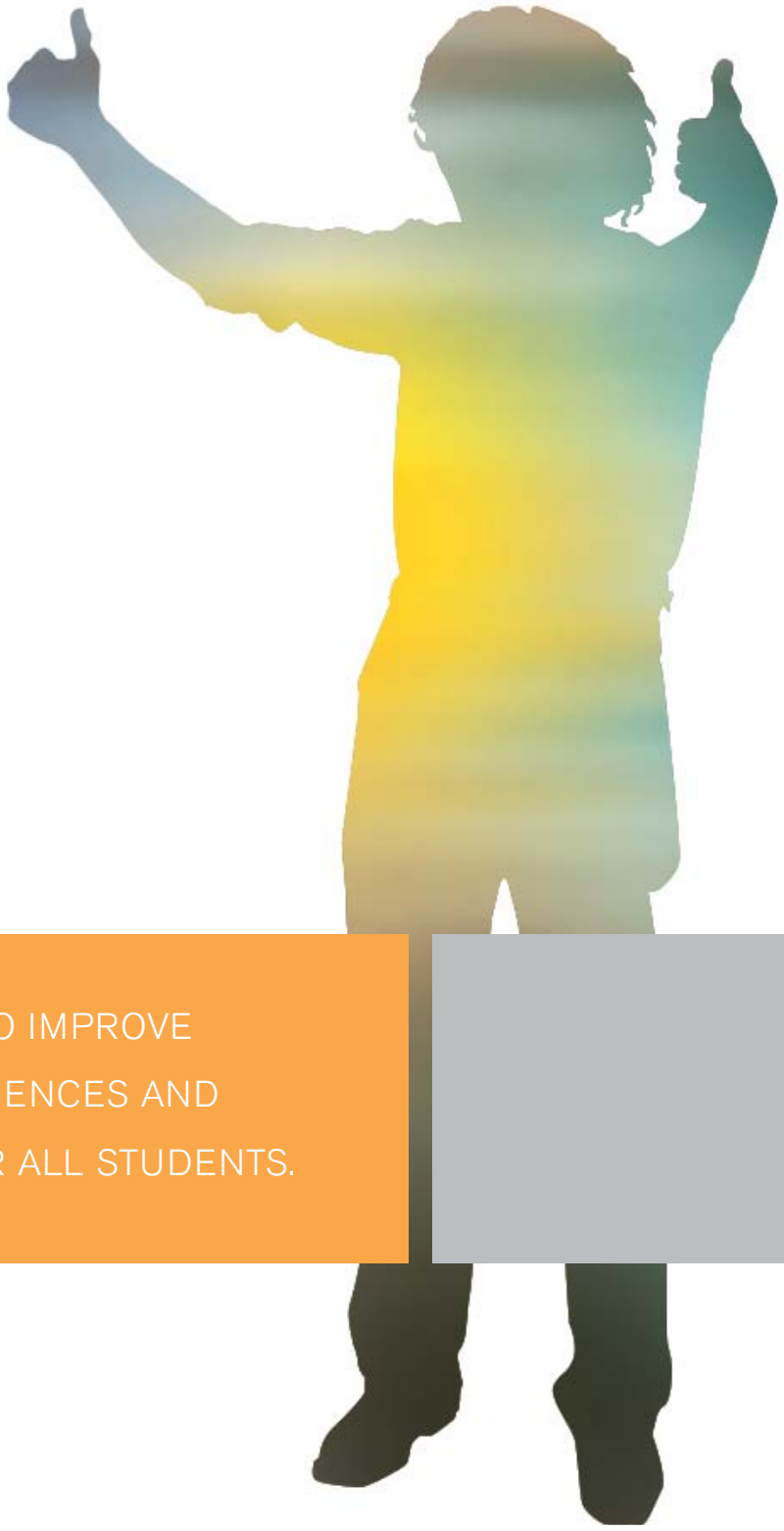
Figure 29. *Instructional challenge and its relationship with student engagement*

	Participation	Sense of Belonging	Attendance	Intellectual Engagement
Low-Skills/High-Challenge	**0.79**	**0.54**	**0.50**	**0.27**
High-Skills/High-Challenge (flow)	1.00	1.00	1.00	1.00
Low-Skills/Low-Challenge	**0.71**	**0.44**	**0.34**	**0.14**
High-Skills/Low-Challenge	0.97	**0.86**	**0.83**	**0.72**

Note: Odds ratios in bold text are statistically significant ($p < 0.05$).

CHAPTER

4



CULTIVATING PRACTICES TO IMPROVE THE EDUCATIONAL EXPERIENCES AND LEARNING OUTCOMES FOR ALL STUDENTS.

IMPLICATIONS FOR CLASSROOMS AND SCHOOLS

WHAT HAVE WE LEARNED?

Our first-year findings provide compelling evidence that schools differ substantially in their levels of student engagement, and that differences among schools have less to do with students' family background than they do with school policies and practices, particularly the learning climate (i.e., decisions about learning time, relationships, expectations for success, and instructional design) established in the classroom.

The findings also contribute to previous research on student achievement and engagement in Canadian schools, which shows that Canada's relatively high standings in tests of student achievement are not matched by similarly high levels of social or academic engagement (Willms, 2003). Findings from ***What did you do in school today?*** add a new dimension to this tension by illustrating that levels of intellectual engagement – which tap into students' sense of interest, feelings about the relevance of the school work they are asked to do, and motivation to do well in class – are significantly lower than dimensions of engagement prevalent in the current research literature.

Looking into mathematics and language arts classes in more than 90 schools, we found that only 37% (11,959) of the 32,322 students in our study are intellectually engaged, compared to approximately 70% of students who reported a positive sense of belonging, high levels of participation, and positive rates of attendance. Our first year of data also clearly indicates that intellectual engagement decreases steadily and significantly from Grade 6 to Grade 12. The longer students remain in school, the less likely they are to be intellectually engaged.

Observed relationships are much stronger in the ***What did you do in school today?*** data than those typically found in this kind of research. 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. However, the findings are strong enough to make a case that certain aspects of classroom and school climate should be the primary focus for smaller studies that collect longitudinal data, perhaps with classrooms randomly assigned to treatment and control conditions.

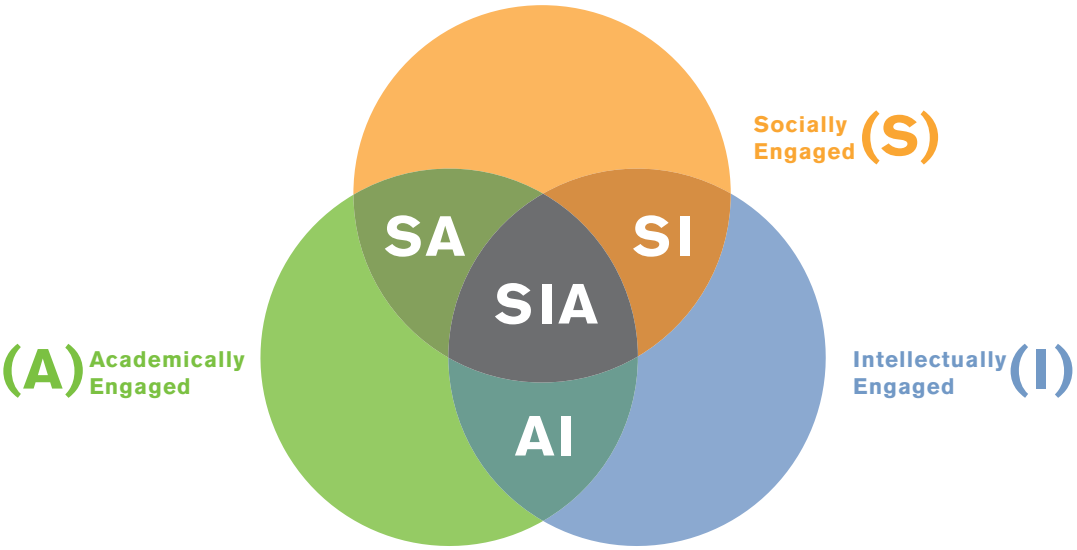
WHAT ISSUES DO WE FACE?

The findings regarding challenge and skills suggest that there are two separate but parallel issues facing Canadian schools:

- *How do we design instruction for the significant number of middle and secondary school students who have low confidence in their literacy or mathematics skills and are prone to social, academic and intellectual disengagement?* The findings contribute further evidence about the importance of foundational skills in these core learning areas during students' first years at school, and the need to continue supporting the development of literacy and mathematics skills throughout the school years.
- *How do we challenge students who are confident in their skills?* Students who are not appropriately challenged are also prone to becoming disengaged from school, especially intellectually.

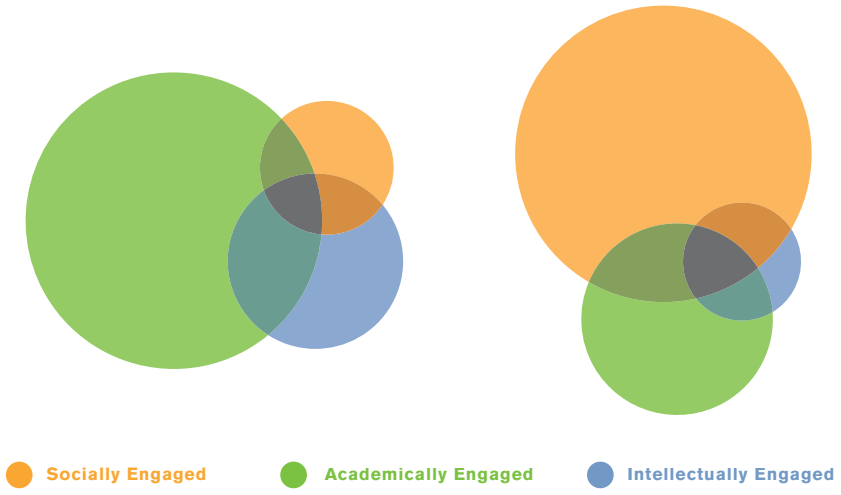
As we begin to interpret first-year results from the ***What did you do in school today?*** survey, it is also important to remember that students are likely to experience social, academic and intellectual engagement at different times and at varying degrees of intensity in their day-to-day lives at school (see Figure 30). They may be deeply interested in the work in some classes and bored in others. They may have little time for extracurricular activities because of their part-time jobs. Some will find caring relationships with adults at school; others may depend entirely on peer friendships. The complex relational and organizational aspects of school have a powerful and important impact on all forms of engagement.

Figure 30. *Interaction among dimensions of a student's engagement*



On any one, two or three of the dimensions of student engagement, students can also be deeply, moderately, or superficially engaged. Alternatively they can be engaged in some ways and disengaged in others, or they can be disengaged altogether in one or more of the dimensions of social, academic or intellectual engagement (see Figure 31)

Figure 31. *Hypothetical distributions of dimensions of engagement in a school population*



The challenge for district administrators and teachers is to understand the nuances of engagement in their own context – a process that requires robust indicators of engagement combined with the active involvement of students who bring unique perspectives to the work of school improvement. 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.

In the rest of this chapter we explore what these findings might mean for schools and school districts as they seek ways to create more socially, academically and intellectually engaged students. Drawing on insights from the current research literature and on our own experiences in working with students in ***Imagine a School…*** and ***Design for Learning***, we offer a framework for thinking about classroom practices that engage students so that they might understand deeply; gain critical perspective; create professional quality work by thinking and acting with the core ideas that are unique to particular disciplines; and make positive connections with their teachers, their peers and their communities – locally, provincially, nationally and globally – through the work they do together.

CLASSROOM PRACTICES THAT MAKE A DIFFERENCE

During our recent work with secondary students, one young student explained: "The only difference between me, the 95% student, and that guy sitting in the back of the room is that I have learned how to remember, recall and regurgitate, and he hasn't, can't or won't."

Current research (Bransford, Brown, & Cocking, 2000; Gardner, 2007; OECD, 2002, 2007; Perkins, 1993; Scardamalia, 2001) is clear that simply remembering content is no longer sufficient. Students need to be able to re-visit ideas and recast how ideas fit together in order to build an understanding of the fields of knowing within which content exists. This is in contrast to the linear progression that textbooks and most teaching resources make available to students and teachers.

The conventional response to the complex challenge of engaging students in learning has been fairly straightforward. Students who had low confidence in their skills and found school work to be too challenging were placed in classes that required lower skills and less challenge, while students who required greater challenge were provided with enrichment projects or given more assignments. Students who had given up on school because of low skills and low challenge sometimes found themselves in some type of remediation or behavioural class.

Secondary schools, beyond Grade 9, often stream students based on exactly such thinking, but Schwartz and Fischer (2006) suggest that such an approach might be too simplistic. If optimal learning occurs when students have a combination of high skills and high challenge, then what students need is a careful, intentional learning scaffold constructed around concepts that are central to the discipline or disciplines – "pyramids students can climb and re-climb multiple times." Simply reducing the complexity of the task or reducing the skill level in a linear fashion by placing students in a modified stream might not produce the desired results.

Design intentionally for today's world

First and foremost, effective teaching practice begins with thoughtful, intentional designs for learning – designs that deepen understanding and open the disciplines to genuine inquiry. One of the hallmarks of the new science of learning is its emphasis on learning with understanding. This means that teachers must go beyond developing techniques to implement the curriculum. Curriculum topics are not objects that can be disassembled and treated as if they were authentically learnable, independently and without regard to the relationships among the parts.

"Any seemingly isolated curricular mandate or objective needs to be re-thought in terms of the fields of relations to which it belongs" (Jardine, in press, p. 1). This means that teachers must, themselves, rethink what is taught, how it is taught, and how it is assessed. They must discover how to create learning designs that equip students to experience the ways of knowing, doing and being or to "learn their way around" within a discipline (Bransford, Brown, & Cocking, 2000, p. 139).

Research from the learning sciences and brain research also suggests a reverse of the typical orientation of curricula – from *Knowledge, Skills and Attitudes* (known as *KSA*), where knowledge receives the most time and attention in classrooms – to *Attitudes, Skills and Knowledge,* or *ASK* (OECD, 2002). This research highlights the ways in which "traditional curricula often fail to help students 'learn their way around' a discipline" (Bransford, Brown, & Cocking, 2000, p. 139), or form the connections necessary to go beyond simple content recall.

Rather than merely providing more or less traditional content or decreasing skill levels, something more is needed. Both of these solutions are still premised upon the idea that students learn in a linear way, piece after piece and the role of school is to fill minds with information. Both solutions ignore the fact that discipline knowledge is generative and meant to be built upon, to be changed and not simply stored for some time in the future.

Traditional learning activities that require students to merely remember, recall and regurgitate need to be rethought. There are times when students need easily recalled information in order to make progress in their learning, but such information needs to be placed within the "field of relations to which it belongs" (Jardine, in press) so teachers and students are able to make connections within and outside of the discipline. When the disciplines are thought of this way, they are open to questions, extension, investigation and exploration. Interestingly, this idea of "knowing your way around" is linked to the origins of the term "experience" (Jardine, Friesen, & Clifford, 2006, p. 7).

In their revisions to Bloom's Taxonomy, Anderson and Krathwohl (2001) provide teachers with some dimensions to guide their design work. The collected work of Bereiter and Scardamalia is also important in discussions about knowledge building. They contend that "because depth of understanding implies understanding deep things about something, no global hierarchy such as that of Bloom's Taxonomy can suffice. The 'deep things' need to be identified separately for each object of understanding" (Bereiter & Scardamalia, 2007, p. 21).

Make it mean something

Secondly, 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. Too frequently, the work students are asked to do does not allow them to use their minds well or to experience the life and vitality of real, intellectually rigorous work. Once fragmented, school work loses its intrinsic, disciplinary and intellectual meaning. In this form, the work cannot have any meaning or value to students beyond the achievement of high marks. A number of researchers (Csikszentmihalyi, 1991; Dweck, 2006; Fried, 2001; Jardine, Clifford, & Friesen, 2008; Schlechty, 2002), and students themselves, are clear that the work students want and need to do should be intellectually engaging.

Effective teaching is characterized by the thoughtful design of learning tasks that have these features:

- The tasks require and instill deep thinking.
- They immerse the student in disciplinary inquiry.
- They are connected to the world outside the classroom.
- They have intellectual rigour.
- They involve substantive conversation.

Substantive conversations have these three features: (1) considerable interaction with the ideas of a topic; (2) dialogue that builds coherently on participants' ideas in order to improve the collective understanding of a theme or topic; and (3) sharing or coherent promotion of collective understanding that occurs briefly and involves a flow of consecutive interchanges with many students participating (Newmann & Wehlage, 1993).

Effective teaching takes as a starting point what experts involved in a living discipline of knowledge assume, and what is rarely assumed with ease in schools – a holistic experience of the subject. For example, a sound, mathematically viable knowledge of quadratic equations must be developed within a field of relations that includes proportions, conic sections, and the golden ratio, which together can be easily linked to applications in our day-to-day lives (e.g., watching satellite TV or calculating the maximum height of a thrown baseball). Effective teachers know that knowledge is interrelated and that, therefore, knowledge is most effectively cultivated through an experience and understanding of relationships, not through the rote study of disconnected parts. Teachers and students must become immersed in the field and, from there, begin to learn their way around and within it.

Use assessment to improve learning and guide teaching

The third feature of effective practice is teachers' use of assessment to improve learning and guide teaching. Research in the field of assessment for learning clearly indicates that effective teachers intentionally design assessments into their practice to enable students to think deeply about their own learning. They use the assessment process to help students collect their thoughts, articulate what they have found, and speculate about where they are and where they might go – equipping their students to become more self-directed in their learning. Moreover, effective teachers provide students with opportunities not only to learn but also to articulate questions such as these:

- How are you going to show or demonstrate what you have learned?
- What shape can your demonstrations take that would enable other students and the teacher to describe what you have found?

Students can thus co-create assessment criteria with their teachers, based on powerful performances of quality work within the "field of relations to which it belongs" (Jardine, in press). As 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 school.

Build relationships

The importance of relationships of various sorts cannot be overlooked in a discussion of effective teaching practice. While a number of factors contribute to building effective relationships in a classroom, one factor stands out above the others in our research – 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 (see Figure 23 on page 25).

A positive classroom disciplinary climate creates a trusting, respectful, low-risk environment (Bransford, Brown, & Cocking, 2000; OECD, 2002, 2007). Bransford, Brown and Cocking (2000) call for a community-centered classroom, one that builds social cohesion and supports people's desire to continue learning throughout their lives.

> In a knowledge-building space, all ideas are regarded as constantly improvable through others' ability to pose theories, build on contributions, ask questions, posit different theories, offer evidence from contrary perspectives, challenge interpretations. In order to learn to their full potential, individuals must develop and contribute ideas that are both shared and extended by others (Clifford, 2004, p. 7).

In this space, teachers and students involved in robust inquiry enter into a relationship with each other and the discipline. They become mindful and attentive to each other and to what comes to meet them. Passionate teachers show their students what there is to be interested in within the topics of inquiry, thereby mediating students' efforts, attention and desire to engage in learning. They scaffold student learning by providing supports that promote deep learning and active knowledge construction.

The results from ***Imagine a School…***, ***Design For Learning***, and ***What did you do in school today?*** repeatedly show the following:

- 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.

Scardamalia & Bereiter (2001, 2003) contend that in knowledge-building environments, ideas must be publicly available so that all members of the class can build on the ideas, improve them, challenge them, and justify them. Knowledge-building environments both require and build strong relationships through the work people do together. In the context of these relationships – over time and in a learning environment that supports risk-taking and fosters a level of trust – students grow in their confidence as learners and creators of knowledge. The caring in these dynamic interdependent relationships encourages students to take risks and deepen their learning. Relationships such as these "develop people's ability to connect with one another, work together across their differences, and add value to each other" (Gilbert, 2005, p. 68).

In these classrooms, diversities of all kinds – languages, disciplines, abilities, interests, and more – become a necessity, something to be welcomed, appreciated and explored. We welcome diversity into our school communities because diverse ideas are a signature of all healthy living systems. Again, this mirrors the ways in which living disciplines work. In rich fields of intellectual inquiry, topics are experienced in their diversity.

Improve teaching practices in the company of peers

Finally, research is clear that teachers improve their practice, and hence their effectiveness, when they have opportunities to practice – and become practiced – in the company of their peers. Again, this is not about practicing disassembled parts, but about opening up and entering a living field of knowledge, articulating what you find, and listening and speaking to others in that field about knowing the way around.

McKinsey & Company (2007) examined top-performing school systems around the world, and their findings support the notion that teachers improve their practice in the company of their peers.

> The top-performing school systems recognize…which interventions are effective in achieving [improved learning] – coaching classroom practice, moving teacher training to the classroom, developing stronger school leaders, and enabling teachers to learn from others] – and have found ways to deliver these interventions throughout their school system (p. 26).

Researchers stress the importance of teachers becoming familiar with one another's work. This type of familiarity comes from frequent conversations centered on the work, access to each other's classrooms, and collective planning time. As self-reflective as teachers might be, they need constructive feedback from peers to improve their teaching. Effective teachers seek out conversations, not only about teaching but about the curriculum being taught.

CHAPTER

5

MAKING SCHOOL A SOCIALLY, ACADEMICALLY, AND INTELLECTUALLY EXCITING AND WORTHWHILE PLACE TO BE.

CONCLUSIONS AND NEXT STEPS

Teaching today is both complex and difficult. The diverse student populations in many schools, the disconnect between the ways that students use technology in and out of school, the urgent demand for public education that benefits all young people, and the explicit requirement for both higher standards and deeper learning combine to create a context for teaching that is unlike anything in the past.

Today's teachers are called upon to work with colleagues to design learning environments that promote deeper engagement in learning as a reciprocal process. Learning can no longer be understood as a one-way exchange where "we teach, they learn." It is a reciprocal process that requires teachers to help students learn with understanding, and not simply acquire disconnected sets of facts and skills. Teachers with effective teaching practices also know how critical strong relationships are in educating students, building social cohesion, and producing minds that thirst for knowledge for a lifetime. They, along with administrators and other important adults, make school a socially, academically, and intellectually exciting and worthwhile place to be.

Through ***What did you do in school today?*** so far, we have gained an appreciation for using the concept of student engagement to think about the impact of curricular and instructional reforms. The dimensions of engagement, whether considered alone or together, draw attention to the importance of students' experiences in school; the connections among those experiences; and the classroom and school practices that contribute to healthy human development, motivation to achieve, sense of confidence, pride in success at school, and other positive outcomes.

As illustrated in Figure 32, each dimension of student engagement contributes to valued outcomes for young people. Overlooking the potential benefits of any one dimension can increase the risks associated with disengagement. A clear and consistent focus on classroom and school practices that positively affect all dimensions – social, academic and intellectual – is key to ensuring that far more students become effective learners.

Figure 32. *Characteristics and outcomes of student engagement*

	SOCIAL ENGAGEMENT	ACADEMIC ENGAGEMENT	INTELLECTUAL ENGAGEMENT
Definition	Meaningful participation in the life of the school.	Active participation in the requirements for school success.	Serious emotional and cognitive investment in learning.
Factors Influencing Engagement	▪ School teams, clubs, student government, and school-wide campaigns such as environment week ▪ Positive relationships with peers and adults ▪ High expectations for success.	▪ Defined curriculum outcomes ▪ Assignments, tests, and marks ▪ Individual student effort ▪ High expectations for success ▪ Positive classroom disciplinary climate ▪ Intellectually challenging lessons ▪ Teacher and parental encouragement ▪ Direct and indirect consequences.	▪ Instructional challenge, characterized by: ▫ Curriculum as discipline ▫ Exploration, understanding of concepts ▫ Development of ideas through the disciplines and through work on authentic problems ▪ Individual and collective knowledge building ▪ Effective learning time ▪ Positive classroom disciplinary climate ▪ High expectations for success ▪ Positive relationships with teachers.
Developmental Outcomes	Friendships, social networks, sense of belonging, self-confidence, and often enjoyment of school.	Academic success, credit accumulation, and high school graduation. Post-secondary destinations. Orientation to good work and personal responsibility.	Confidence as knowledge-builders, problem-solvers, conceptual thinkers, self-motivated learners. Orientation to original work and often collaboration.
Engaged Canadian Students*	Emma was an obviously bright student with a talent for music and drama that she expressed through participation in the school's premier jazz ensemble and drama club. When at school, she could be found in the music room. Although school work came easily to her, she skipped many classes and left school at 17 without a graduation diploma. Her social skills and self-confidence enabled her to find office work. A supervisor eventually persuaded her to take post-secondary studies as a mature student.	Johanna's family had high expectations for her to be the first to go to university. A good student, she rarely skipped a class and worked late into the night to keep on top of her homework. She maintained a part-time job working at least 17 hours a week because her family was unable to provide more than the basics. She resisted group projects or extracurricular activities in order to focus on getting good grades and a university place. She hoped that life after high school would be less stressful for her.	From an early age, Aleem was a curious child fascinated by the world around him. Following the death of a childhood friend from cancer, he became determined to understand the disease and help overcome it. He dug deeper in his science classes and entered a number of projects in science fairs where his work attracted the attention of some research scientists. He began working in their labs during the school year and holidays. His plans include university studies that will allow him to pursue a medical research career.

***Note:** Names and other identifying information have been changed to protect the students' privacy.

The exploratory and collaborative nature of ***What did you do in school today?*** provides CEA, its research partners, and participating school districts with a unique opportunity to continue developing indicators for these dimensions of engagement, and to explore the possibility that increasing students' experiences of all three dimensions of engagement will help to ensure that education positively affects the opportunities of young people in Canada.

A concurrent focus on exploring these ideas in classrooms and schools will also allow district and school staff – with generous input from students – to plan ways to change patterns of engagement that will most directly benefit adolescent learners and advance the social benefits of learning. The initiative's first-year findings contribute to this ongoing process of inquiry by pointing us to the importance of the following: raising overall levels of engagement; identifying practices that help to boost students' experience of social, academic and intellectual engagement in middle and secondary schools; and addressing the two separate but parallel issues of students who feel that their work is too challenging and those who feel that the challenges of learning are too few.

As the work proceeds at both the national and district levels, however, we must be careful not to over-generalize what we learn about the dimensions of student engagement in an attempt to achieve conceptual tidiness. We cannot, for instance, overlook the fact that individual factors (for example, what students expect school to be like) and systemic factors (both in and outside of schools) play a significant role in student engagement. Questions of race, ethnicity, disability and other diversities, and "particularly, students' lived experiences and social reality, reveal a complex set of factors" that do not "fit neatly into de-contextualized accounts of youth experience" or engagement (Zyngier, 2007, p. 113).

We must also understand that educators are not alone in their efforts to shift patterns of student engagement and achievement. What is happening in classrooms to promote student engagement is the primary focus of the ***What did you do in school today?*** initiative because we know that effective learning environments do make a powerful difference. We know, for example, that interesting work, collaboration among students, effective modeling, and high academic expectations all contribute to student success. But there are other important things that need to happen in and outside of schools to engage young people (e.g., community youth leadership initiatives, youth parliaments, national, provincial and municipal youth councils, and youth arts programs) and to address the social, economic and educational conditions that can improve or limit their opportunities in and outside of schools.

Our first-year findings and informal feedback from participating school districts confirm the value of exploring student engagement as a core idea for improving the quality of teaching and learning in Canadian schools. Participating districts have told CEA that the ***What did you do in school today?*** student engagement framework (Figure 32 on page 40) and its teaching effectiveness model are meaningful to schools because they validate what many teachers have been thinking about and trying to achieve in their own classrooms. Schools have also welcomed new data from the student survey and commented on its value in helping them understand students' experiences in classrooms and schools. Although participating districts are working in different provincial and local contexts, the ***What did you do in school today?*** initiative is proving to be highly adaptable and an important starting point for new conversations and ideas about student engagement in learning. It will be an important priority in the second and third years of the study to build partnerships that will guide the research and help us all to capture and use the insights of educators and students across Canada.

Some important milestones were reached in the first year. In particular:

- The CEA research team built on the constructs and questions of the ***Tell Them From Me*** survey with combined measures of social and academic engagement and original questions that address the newer concept of intellectual engagement.
- Just over 32,000 students in middle and secondary schools in 10 districts across Canada completed the survey.
- Ninety-three schools began analyzing data, and many have already started digging deeper to understand the findings from students' perspective and within their local contexts.

The next phase of the initiative will focus on refining the research framework, exploring how districts are using the data in their school improvement processes, and identifying the strategies that appear to be most effective for enhancing the learning experiences and outcomes for students. In the third and final year of the initiative, emphasis will shift to developing deeper connections between the data and the change strategies, in collaboration with the school districts.

In the more immediate future, the research team will build on the ideas and findings of this report through a series of shorter publications, and will continue to share stories from participating school districts. The process of improving key concepts, understanding the importance of all three dimensions of engagement, and building on CEA's emerging teacher effectiveness framework, will continue. The research team will also review the effectiveness of measures used so far in the ***What did you do in school today?*** survey, with a focus on developing a more robust measure of academic engagement. Most importantly, however, CEA will continue to invite Canadians to join us in answering a question posed by a high school student in British Columbia at the International Congress for School Effectiveness and Improvement (Vancouver, January 2009):

> If we are going to change how students are engaged, we have to agree on one thing… We must keep it to learning … social, academic and intellectual engagement. I think everyone is capable of balancing all three. Now we ask, how is it going to work? (William Zhang, 2009)

GLOSSARY OF TERMS

academic engagement | Students' participation in the formal requirements of schooling – for example, completing assignments, attending classes, accumulating credits for graduation. (Also see *student engagement*.)

flow | Deep absorption in an activity that is intrinsically interesting (Csikszentmihalyi, 1997). Flow is believed to occur at a point of balance between the challenge of a task and the skills required to do it. In this report, flow is sometimes referred to as appropriate instructional challenge or optimal instructional challenge. (See *instructional challenge*.)

instructional challenge | The ways in which work is designed to be intellectually engaging for students and to reflect an appropriate balance between skills and challenge.

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. (Also see *student engagement*.)

odds ratio | A statistic measuring the strength of a relationship. In this report, it refers to an estimate of the change in the odds of an event occurring (e.g., a student participating in a sport or club) associated with a one-point increase in a school or classroom climate factor on its ten-point scale, when student-level factors (e.g., sex, socioeconomic status, or grade level) are held constant.

OECD | Organization for Economic Co-operation and Development. An international organization where 30 countries, including Canada, work together to address the economic, social and governance challenges of globalisation as well as to exploit its opportunities. The Programme for International Student Assessment (PISA) is an OECD initiative.

PISA | Programme for International Student Assessment. A cyclical study of the reading, mathematics and scientific skills of 15-year-olds in participating countries. PISA is a project of the OECD.

SES | Socioeconomic status. A sociological term that refers to the relative position of a family or individual in a hierarchical social structure, based on their access to, or control over, wealth, prestige and power (Mueller & Parcel, 1981). In most educational studies, SES is measured with indicators of the level of education of students' parents and the prestige of their parents' occupations (Willms, 2003). In ***What did you do in school today?***, SES is measured with measures of parental education and an index of educational and cultural possessions in the home.

social engagement | A sense of belonging and participation in school life. (Also see *student engagement*.)

student engagement | The extent to which students identify with and value schooling outcomes, have a sense of belonging at school, participate in academic and non-academic activities, strive to meet the formal requirements of schooling, and make a serious personal investment in learning. (Also see these subsets of student engagement: *academic engagement*, *intellectual engagement*, and *social engagement*.)

What did you do in school today? | A multi-year research and development initiative of the Canadian Education Association, designed to capture, assess and inspire new ideas about enhancing the learning experiences of adolescents in classrooms and schools.

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