GRADE LEVEL OF ACHIEVEMENT: 2007-08 REPORT ON PROGRAMS

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Alberta
EDUCATION

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This document is intended primarily for:
System and School Administrators
Education Stakeholders
Alberta Education Executive Team and Managers
Teachers
Parents
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ACKNOWLEDGEMENTS

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Executive Summary

This report presents the outcomes of the analysis of Grade Level of Achievement (GLA) data at the provincial level to inform the program planning and evaluation needs of Alberta Education as well as school and central office based administrators. GLA data reported to Alberta Education is a teacher's judgment of a student's academic progress. GLA is based on the learner outcomes in language arts and mathematics after a course for a specific grade level has been completed and reflects the results from the full range of classroom assessments. Given the comprehensiveness of classroom-based assessment, analysis of GLA data provides additional insights into factors that influence student achievement for students served by a range of specially focused programs.

GLA data is not used as part of the Accountability Pillar. Key purposes of reporting GLA to parents and to Alberta Education include identifying students who are under-achieving, asking why and providing solutions both individually and systemically. There are several benefits in reporting GLA to Alberta Education including:

- GLA shows parents how well students are performing when compared to set learning objectives.
- GLA provides schools, school boards and the Province ways to measure the effectiveness of education programs targeting special groups like English as a Second Language students and students with special needs.
- GLA results analyzed relative to gender differences, student mobility, and student birth month shows how the education needs of students can be better met if these factors are shown to be negatively affecting achievement.
- GLA enables Alberta Education to improve how to assess student performance.
- GLA requires Alberta Education to be more accountable to Albertans in providing an excellent education system.

Background

This report briefly describes the processes, and in more depth the outcomes associated with the 2007-08 Grade Level of Achievement (GLA) data based on the full implementation of the GLA reporting initiative. The four purposes for reporting GLA as defined in the GLA Handbook (Alberta Education, 2006:4) are:

- to provide richer information at the system level (both jurisdictional and provincial) to inform effective practices to determine the impact of specific programs on student learning (e.g., English as a Second Language, special education) and to determine processes to further refine these programs;
- as a catalyst within the school's professional learning community to focus on individual student learning needs and interests;
- to determine effective practices and strategies to foster higher levels of student achievement and confidence; and
- to contribute to the data or evidence used to report student achievement to parents/guardians, fulfilling the school's responsibility as outlined in the *Guide to*

Education: ECS to Grade 12 in the section entitled *Assessment as the Basis for Communicating Individual Student Achievement*.

Key Findings from the 2007-08 Analysis

- The degree of school participation in the 2007-08 was 96.2 percent.
- The error rate for data submission was 0.014 percent.
- As expected and similar to the 2006-07 analysis, the 2007-08 data demonstrates less variation for the total cohort than for specific sub-groupings of student achievement. For example, students achieving At or Above Grade Level in English Language Arts and Mathematics differed widely between students coded with severe or mild/moderate disabilities (55 to 63 percent), Canadian and foreign-born ESL students (77 and 86 percent), non-coded students (92 to 94 percent) and lastly, gifted students (98 to 99 percent).

- In addition, the following differences were observed within sub-groups:
  - The percentages of students attaining at or above grade level varied substantially by specific types of severe or mild/moderate disability.
  - Congruent with previously gathered GLA data, nearly three times as many males as females were coded as severely disabled and almost twice as many males were coded as mildly/moderately disabled compared to females. At the same time, males coded with different types of disabilities generally (with a few exceptions) tended to outperform coded females on GLA.
  - Coded groups of students (especially those with mild/moderate disabilities and Canadian and foreign born ESL) tended to perform better in Mathematics than in English Language Arts.
  - Students coded as gifted were also more likely to achieve above grade level in Mathematics. A much higher percentage of these students continue to be assessed above grade level in Mathematics than in English Language Arts or French Language Arts. Available trend data over two years points to higher percentages of gifted students performing above their enrolled grade levels in 2007-08 compared to 2006-07, both in English Language Arts and Mathematics. This could be symptomatic either of improved programming and more appropriate grade placement of these students.
  - When comparing foreign-born and Canadian-born ESL students, both groups of students performed at a similar level in Mathematics. With previous (2006-07) GLA reporting Canadian-born ESL students appeared to be at an advantage in English Language Arts. However, the currently available two-year trend data did not confirm this finding. Recent 2007-08 data indicate similar percentages of Canadian and foreign-born ESL students achieving at grade level in English Language Arts, and indicates foreign-born ESL students are closing the gap with their Canadian-born counterparts.
  - Slightly higher percentages of mildly or moderately disabled students achieved at/above grade level in 2007-08 compared to 2006-07, while their severely disabled counterparts showed a reversed trend. However, the comparative trend analysis was based on a partial data set (60 percent of schools reported GLA data in 2006-07), which also embraced only two consecutive years of data collection.

- Congruent to findings obtained with previously collected (2006-07) data, females slightly outperformed males on GLA (three to five percent more of them were at or above grade level compared to males).

- The percent of students below grade level increased through the elementary grades and peaked at Grades 8 and 9. Initial two-year trend data revealed subject-based variations in this pattern. While the percentage of students below grade level increased with grade for Mathematics, the proportion of students decreased with grade level for English Language Arts. This finding is compatible with other quantitative and qualitative evidence pointing to the issues related to achievement in Mathematics in junior-high.

- Similar to results obtained using past GLA data, the negative effect of high mobility on student achievement was evident in 2007-08 GLA results. The differences between highly and low mobile students with GLA below grade level ranged from six to over ten percent, depending on grade and subject.

- The age effect[1] was apparent in English Language Arts 2007-08 GLA data, especially in Grades 1 and 2. After Grade 3 the age effect tapered off. This relationship also unfolded in a similar way in the 2006-07 GLA data, with the only difference that it was more notable for Grade 3 and extended to Grade 5. These preliminary trend results confirm that the age effect is most apparent in early elementary grades.

- The results of comparisons between GLA and PAT outcomes for Grades 3, 6 and 9 bear much similarity to the findings in the previous GLA reporting period. Overall, there was almost 80 percent alignment between students assessed at or above grade level of achievement and earning acceptable or excellence on provincial achievement tests. The previously observed large difference between Mathematics 9 Provincial Achievement Test data and GLA (only 65 percent congruence) was also observed in the recent 2007-08 GLA data. This phenomenon warrants further trend observations and explanations of why large gaps between GLA and PAT assessment results tend to occur in Grade 9 Mathematics.

Primary purpose of this report

Using GLA data as a benchmark, jurisdiction and school staff may wish to compare the data in school and jurisdiction GLA reports over time or in relationship to provincial norms. This can support conversations in professional learning communities and with school councils and parents regarding promising practices that have been demonstrated to improve student achievement in specific settings or may point to program areas requiring further reflection to improve student results.

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[1] Age effect is defined as older students in a grade tending to have higher average test scores than the younger students in that same grade when measured by the z-score of average PAT results for each birth month group (Alberta Learning, 2001).

Introduction

This report describes the processes and outcomes for the 2007-08 Grade Level of Achievement (GLA) data collection and analysis. The report is also intended to define the provincial context supporting the four purposes for reporting GLA as defined in the GLA Handbook (Alberta Education, 2006:4) specifically:

- to provide richer information at the system level (both jurisdictional and provincial) to inform effective practices to determine the impact of specific programs on student learning (e.g., English as a Second Language, special education) and to determine processes to further refine these programs;
- as a catalyst within the school's professional learning community to focus on individual student learning needs and interests;
- to determine effective practices and strategies to foster higher levels of student achievement and confidence; and
- to contribute to the data or evidence used to report student achievement to parents/guardians, fulfilling the school's responsibility as outlined in the *Guide to Education: ECS to Grade 12* in the section entitled *Assessment as the Basis for Communicating Individual Student Achievement*.

GLA 2008 Data Collection

A relatively low number of initial data transmission errors occurred during the 2007-08 GLA data collection. Of a total of 359,111 student GLA records submitted, there were 5,145 initial errors received (.014 percent). The following table lists the type of error, the frequency and the percent of each type of error relative to the total number of errors.

Table 1 – GLA Error Counts by Type

Error Type	Number	Percent
Contains both GLA and IPP (Individualized Program Plan) codes for a single student.	273	5.31
Learner's ASN (Alberta Student Number) not found.	45	0.87
Incorrect GLA or IPP code.	12	0.23
Grade English Language Arts Introduced column incorrectly filled in for French Language Arts students.	346	6.72
School code does not belong to authority code or school year is wrong.	1	0.02
Duplicate record of learner (i.e. two entries for same person).	600	11.66
Student not registered at specified school; enrolled grade does not match grade registered in; or ASN is retired.	3,868	75.18
Total	5,145	100.0

For all errors a Datacheck error file, by type, was created and returned to the source jurisdiction for correction and resubmission. The resubmitted file was reloaded and if errors were again found the Datacheck error file process was repeated until it was deemed unnecessary to continue

returning error files and the data for that jurisdiction was deemed error free or as error free as possible.

The corrected individual student records have thus been included in the 2007-08 data throughout this report as well as in the school and jurisdiction reports available on the Extranet. One school authority was advised of two student cases where the specific errors were irreconcilable so they could accommodate this discrepancy in their interpretation of the value added GLA reports provided back to the jurisdiction and school that submitted GLA data. Alberta Education will consider front-end data cleaning procedures to eliminate the need to clean data post-submission.

Design and Description of GLA Data

A total of 1602 schools from 72 authorities submitted usable Grade Level of Achievement data, reporting for 353,815 students, 4,927 of whom were not on a graded curriculum. The fields collected are as follows:

All Students:
- student name (surname and given name),
- Alberta Student Number, and
- enrolled grade (defined as the grade to which the student was assigned).

GLA was collected for students on a graded curriculum as defined in the Alberta programs of study, in the following fields where applicable:

- GLA in English Language Arts
- GLA in French Language Arts - (French as the Language of instruction or Immersion students)
- GLA in Mathematics
- Grade English Language Arts Introduced (for French Language Arts students only)

Grade Level of Achievement in 2007-08 is reported as the following three categories: (1) GLA at grade level; (2) GLA above grade level; and (3) GLA below grade level. A GLA Handbook (Alberta Education, 2006) was updated and revised in January 2008 to facilitate data submissions for the 2007-08 school year. The GLA Handbook encourages teachers to consider GLA assessment in relationship to the full range of formative and summative assessment information available to them over the course of the school year in making a professional judgment of the student's grade level of achievement.

Students not on a graded curriculum also had data submitted. "Not on a Graded Curriculum" was meant to indicate that the student's program was restricted to learning outcomes that were significantly different from the provincial curriculum defined in the program of studies and were specifically selected to meet the student's special needs as defined in the *Standards for Special Education* (Alberta Learning, 2004). The information collected was teachers' ratings of students' learning outcomes in three areas: communication skills, functional skills and academic readiness skills. "Communication skills" refer to the development of expressive and/or receptive communication. This could be verbal communication and/or alternative modes of communication. "Functional skills" refer to skills that would assist the student in developing independence in the home, school and community. "Academic readiness skills" refer to skills that would prepare the student for learning outcomes in the programs of study.

Alberta Education staff used the Alberta Student Number to append data fields such as Provincial Achievement Test (PAT) results (both raw scores and achievement levels), student age, gender, number of school registrations, any additional special needs codes associated with the student, and the student's school starting date. Individual student identifiers were replaced with a discrete GLA data ID, leaving no personal identifiers in the dataset used in producing this report.

Grade Level of Achievement – Summary of Results

Students on a Graded Curriculum

There were 348,888 students on a graded curriculum included in this report for the 2007-08 school year. The students are roughly evenly distributed by enrolled grade with approximately 11 percent of the students in each grade cohort. The table below shows the distribution of the GLA sample data by enrolled grade (Grades 1 to 9).

Table 2 - Enrolled Grade Distribution

Enrolled Grade	GLA Frequency	Percent of GLA Total	Province	Percent of Total
1	37,525	10.8	39,724	10.7
2	36,690	10.5	38,834	10.5
3	37,749	10.8	39,896	10.8
4	38,347	11.0	40,388	10.9
5	38,246	11.0	40,329	10.9
6	39,370	11.3	41,576	11.2
7	40,515	11.6	42,967	11.6
8	40,273	11.5	43,071	11.6
9	40,173	11.5	43,388	11.7
Total	**348,888**	**100.0**	**370,173**	**100.0**

When compared to the number of students registered in Grades 1-9 there is a discrepancy of 21,285 students or 5.8 percent. This shortfall was due to the non-reporting of GLA by 63 schools providing programs to Hutterite students, distance education programs, students in blended programs, other specialized programs, and a few schools that missed the deadline for submitting GLA data.   The information regarding discrepancies relative to GLA data received vs. student registrations was referred to Field Services in Alberta Education for follow-up with the appropriate central office and school staff. The objective is to ensure that GLA is reported for 100 percent of Grades 1-9 students enrolled in public, separate, Francophone and charter schools by the school that holds the primary registration for the student.

Students may be coded as severely disabled, mild/moderately disabled, gifted or ESL. Students who were not coded as any of the preceding categories are termed 'non-coded'. The non-coded students make up the largest proportion of the sample as shown in Table 3 below.

Table 3 – Types of Student Codes

	GLA Frequency	Percent of GLA Total	Province	Percent of Provincial Total
Non-Coded (as mild/moderate, severe, gifted, or ESL)	276,521	79.3	287,997	77.8
Severe Disabilities	9,188	2.6	12,880	3.5
Mild/Moderate Disabilities	24,791	7.1	28,427	7.7
Gifted	5,050	1.4	5,193	1.4
ESL –Canadian-born	18,595	5.3	20,510	5.5
ESL – Foreign-born	16,859	4.8	18,700	5.1
Total	**351,004***		**373,707***	

*This is higher than the total in Table 1 because some students have multiple codes.

The total distribution of students in each of the GLA results categories by subject is shown in Table 4 below and the results for the cohort of non-coded students are displayed in Table 5.

Table 4 – GLA Results for All Students, Provincial

	Mathematics		English Language Arts		French Language Arts	
	Number of students	Percent of total enrolled	Number of students	Percent of total enrolled	Number of students	Percent of total enrolled
GLA below enrolled grade	31,583	9.1	35,026	10.0	1,161	4.4
GLA equal to enrolled grade	307,972	88.3	299,355	85.8	22,195	83.8
GLA above enrolled grade	5,532	1.6	4,781	1.4	431	1.6
GLA N/A[2]	3,801	1.1	9,726	2.8	2,707	10.2
Total	**348,888**	**100.0**	**348,888**	**100.0**	**26,494**	**100.0**

Table 5 – GLA Results for Non Coded Students at a Provincial Level

	Mathematics		English Language Arts		French Language Arts	
	Number of students	Percent of total enrolled	Number of students	Percent of total enrolled	Number of students	Percent of total enrolled
GLA below enrolled grade	15,907	5.8	16,054	5.8	901	3.8
GLA equal to enrolled grade	254,519	92.0	249,530	90.2	20,209	84.7
GLA above enrolled grade	4,090	1.5	3,981	1.4	361	1.5
GLA N/A	2,005	0.7	6,956	2.5	2,401	10.1
Total	**276,521**	**100.0**	**276,521**	**100.0**	**23,872**	**100.0**

Students Coded with Severe Disabilities

There were 9,188 students coded as severely disabled who had GLA reported for English Language Arts (ELA) and Mathematics. There were 155 students coded as severely disabled

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[2] GLA N/A refers to missing data, "not applicable" situation, or "not available."

who had GLA reported for French Language Arts (FLA). Table 6 presents students having a severe disability code and their grade level of achievement.

Table 6 – GLA Results for Students with Severe Disabilities at a Provincial Level

	Mathematics		English Language Arts		French Language Arts	
	Number of students	**Percent of total enrolled**	**Number of students**	**Percent of total enrolled**	**Number of students**	**Percent of total enrolled**
GLA below enrolled grade	3,355	36.5	3,536	38.5	22	14.2
GLA equal to enrolled grade	5,212	56.7	5,004	54.5	115	74.2
GLA above enrolled grade	60	0.7	59	0.6	2	1.3
GLA N/A	561	6.1	589	6.4	16	10.3
Total	**9,188**	**100.0**	**9,188**	**100.0**	**155**	**100.0**

Over half of students with a severe disability enrolled in Mathematics have a GLA equal to their enrolled grade (56.7 percent). In English Language Arts 54.5 percent of students have a GLA equal to their enrolled grade. Mathematics and English Language Arts are fairly similar in their GLA distribution. A very low proportion of French Immersion or French as the language of instruction students were coded as severely disabled.

Table 7 provides GLA information on students on a graded curriculum who were coded as severely disabled, by their disability type. The majority of students coded with a severe disability are those with an emotional/behavioural or physical/medical disability. These particular groups of students, along with small groups of students with severe multiple disabilities and deafness, exhibited low GLA outcomes. The proportions of these students assessed below grade level ranged between 34 and 54 percent in Mathematics and were even

Table 7 – GLA Results by Type of Severe Disability

Type of Severe Disability	Total		Mathematics			English Language Arts		
	Frequency	**Total Percentage**	**At/above grade level**	**Below grade level**	**GLA NA**	**At/above grade level**	**Below grade level**	**GLA NA**
			Percentage					
Severe Cognitive	77	0.8	18.4	23.7	57.9	18.4	23.7	57.9
Severe Emotional /Behavioural	4,882	53.1	60.8	34.4	4.9	58.6	36.4	5.0
Severe Multiple	283	3.1	25.4	56.2	18.4	23.3	58.0	18.7
Severe Physical or Medical	3,648	39.7	55.6	38.6	5.8	53.4	40.2	6.4
Deafness	183	2.0	56.8	37.2	6.0	50.3	43.7	6.0
Blindness	115	1.3	77.4	19.1	3.5	69.6	26.1	4.3
Total	**9,188**	**100.0**	**57.4**	**36.5**	**6.1**	**55.1**	**38.5**	**6.4**

higher in English Language Arts. At the same time, as high as 77.4 percent of students with blindness met the grade requirements in Mathematics and only 19 percent were below grade level. The high degree of variation in GLA results across the different types of severe

disabilities demonstrates the importance of considering the specific types of disability in unpacking achievement results for students with severe disabilities as well as for planning to best meet students' learning needs.

When the students coded as having a severe disability are split by gender, the large difference between genders becomes apparent (see Table 8 below). While an overwhelming majority (77.9 percent) of students coded with a severe disability were males (most of whom were students with an emotional or behavioural disability), severely disabled males tended to generally perform better then severely disabled females. Higher percentages of males across most disability types had GLA at or above grade level in both Mathematics and English Language Arts compared to females with the exception of students who are blind.

Table 8 – GLA Results for Students with Severe Disability by Gender

Type of Severe Disability	Gender	Frequency	Disability code (percent)	Mathematics			English Language Arts		
				At/above grade level	Below grade level	GLA NA	At/above grade level	Below grade level	GLA NA
				Percentage					
Severe Cognitive	Male	47	61.0	21.7	28.3	50.0	19.6	30.4	50.0
	Female	30	39.0	13.3	16.7	70.0	16.7	13.3	70.0
Severe Emotional /Behavioural	Male	4,052	83.0	61.8	33.4	4.8	59.0	36.0	5.0
	Female	830	17.0	55.5	39.4	5.1	57.0	38.2	4.8
Severe Multiple	Male	174	61.5	31.6	50.6	17.8	27.6	54.0	18.4
	Female	109	38.5	15.6	65.1	19.3	16.5	64.2	19.3
Severe Physical or Medical	Male	2710	74.3	57.8	36.2	5.9	53.7	39.9	6.3
	Female	938	25.7	49.0	45.4	5.5	52.5	41.2	6.4
Deafness	Male	98	53.6	57.1	34.7	8.2	51.0	41.8	7.1
	Female	85	46.4	56.5	40.0	3.5	49.4	45.9	4.7
Blindness	Male	78	67.8	75.6	19.2	5.1	69.2	25.6	5.1
	Female	37	32.2	81.1	18.9	0.0	70.3	27.0	2.7
Total	**Male**	**7159**	**77.9**	**59.4**	**34.7**	**5.9**	**56.0**	**37.9**	**6.2**
	Female	**2029**	**22.1**	**50.3**	**42.9**	**6.9**	**52.0**	**40.7**	**7.2**

Students Coded with Mild/Moderate Disabilities

There were 24,791 students in 2007-08 having mild or moderate disability codes in English Language Arts and Mathematics. In French Language Arts, a small group of 699 students were coded as having a mild or moderate disability. Table 9 below shows these students' distribution across GLA categories.

In both Mathematics and English Language Arts, the proportion of students with mild or moderate disabilities who have a GLA equal to their enrolled grade hovered around 60 percent and the proportion of students with GLA below enrolled grade varied between 35 and 40 percent.

These general results for students coded as having mild or moderate disability are not dissimilar to the corresponding GLA outcomes for students identified as severely disabled (see Table 6).

Table 9 - GLA Results for Students with Mild/Moderate Disabilities

	Mathematics		English Language Arts		French Language Arts	
	Number of students	Percent of total enrolled	Number of students	Percent of total enrolled	Number of students	Percent of total enrolled
GLA below enrolled grade	8,790	35.5	9,974	40.2	133	19.0
GLA equal to enrolled grade	15,430	62.2	14,161	57.1	488	69.8
GLA above enrolled grade	90	0.4	64	0.3	4	0.6
GLA N/A	481	1.9	592	2.4	74	10.6
Total	**24,791**	**100.0**	**24,791**	**100.0**	**699**	**100.0**

When split by the type of disability (refer to Table 10), GLA results for students on a graded curriculum coded with a mild or moderate disability reveal a lot of variation depending on disability category. The largest proportion of students had a learning disability, followed by communication disability and mild cognitive disability. The highest proportion of students attaining below their grade level (64 to 68 percent) belonged to the groups coded with a mild or moderate cognitive disability. Only a quarter or less of these students reached or exceeded grade level of achievement. At the same time, a small number of students with a mild or moderate hearing or visual disability tended to achieve at a relatively high level, with about 80 or higher percentages performing at or above grade level. By analogy, relatively high proportions (close to two-thirds) of students with mild/moderate emotional/behavioural, communication or physical/medical disabilities achieved at or above GLA in both Mathematics and English Language Arts.

Table 10 - GLA Results by Type of Mild/Moderate Disability

Type of Mild/Moderate Disability*	Total		Mathematics			English Language Arts		
	Frequency	Percent of Total	At/Above Grade Level	Below Grade Level	GLA NA	At/Above Grade Level	Below Grade Level	GLA NA
			Percentage					
Mild Cognitive	3,638	14.7	27.7	67.9	4.4	25.8	69.6	4.6
Moderate Cognitive	150	0.6	21.3	64.0	14.7	20.0	63.3	16.7
Emotional/Behavioural	2,312	9.3	72.3	25.9	1.8	72.2	26.2	1.6
Learning	11,460	46.2	66.9	31.7	1.3	60.9	37.5	1.6
Hearing	264	1.1	83.0	15.9	1.1	79.2	19.7	1.1
Visual	44	0.2	81.8	18.2	0.0	84.1	15.9	0.0
Communication	4,224	17.0	73.8	24.7	1.5	63.3	33.9	2.8
Physical/Medical	1,494	6.0	74.5	24.2	1.3	72.2	25.9	1.9
Multiple	1,203	4.9	54.4	44.1	1.5	50.5	47.2	2.2
Total	**24,791**	**100.0**	**62.6**	**35.5**	**1.9**	**57.4**	**40.2**	**2.4**

*Two students enrolled in Grade 1 coded as ECS Developmentally Immature and ECS Mildly or Moderately Disabled were removed from this analysis. They have been included in the rest of the report.

Table 11 below illustrates the gender differences in GLA categories across the mild/moderate disability types. In all, by analogy with students with severe disability codes, coding in various mild/moderate disability groups was noticeably prevalent among males – consistently higher percentages of males were coded in this category compared to females (see the " percent of each disability" column). There was also apparent gender-based difference in GLA results depending on the type of mild/moderate disability. For example, these gender differences are most noticeable for students having an emotional/ behavioural and physical/medical disability.

Table 11 - GLA Results for Students with Mild/Moderate Disability by Gender

Type of Mild or Moderate Disability*	Gender	Frequency	Each Disability (percent)	Mathematics			English Language Arts		
				At/Above Grade Level	Below Grade Level	GLA NA	At/Above Grade Level	Below Grade Level	GLA NA
				Percentage					
Mild Cognitive	Male	2,124	58.4	29.3	66.4	4.3	26.0	69.8	4.2
	Female	1,514	41.6	25.4	70.1	4.5	25.4	69.4	5.2
Moderate Cognitive	Male	78	52.0	24.4	65.4	10.3	20.5	66.7	12.8
	Female	72	48.0	18.1	62.5	19.4	19.4	59.7	20.8
Emotional/ Behavioural	Male	1,699	73.5	73.7	24.7	1.6	72.2	26.4	1.4
	Female	613	26.5	68.2	29.4	2.4	72.4	25.6	2.0
Learning	Male	7,232	63.1	68.5	30.2	1.2	59.2	39.1	1.6
	Female	4,228	36.9	64.2	34.3	1.5	63.8	34.6	1.6
Hearing	Male	131	49.6	83.2	16.0	0.8	75.6	23.7	0.8
	Female	133	50.4	82.7	15.8	1.5	82.7	15.8	1.5
Communication	Male	2,713	64.2	74.8	23.4	1.7	61.6	35.2	3.2
	Female	1,511	35.8	71.9	26.9	1.2	66.4	31.6	2.0
Physical/ Medical	Male	1,035	69.3	77.8	20.6	1.6	73.1	24.7	2.1
	Female	459	30.7	67.1	32.5	0.4	70.2	28.5	1.3
Multiple	Male	840	69.8	56.5	42.6	0.8	51.2	47.1	1.7
	Female	363	30.2	49.6	47.4	3.0	49.0	47.4	3.6
Visual	Male	29	65.9	79.3	20.7	0.0	79.3	20.7	0.0
	Female	15	34.1	86.7	13.3	0.0	93.3	6.7	0.0
Totals	Male	15,882	64.1	64.8	33.4	1.8	57.0	40.7	2.3
	Female	8,909	35.9	58.6	39.2	2.2	58.0	39.5	2.5

*Two students enrolled in Grade 1 were coded as ECS Developmentally Immature ECS Mildly or Moderately Disabled and were removed from this analysis. They have been included in the other sections of the report.)

In a similar way to the results for students with severely disabled coding (Table 8), generally lower percentages of females in the mildly/moderately disabled group reached or exceeded the grade level of achievement compared to males (Table 11), although these differences tended to be less pronounced than among the students with severely disabled codes.

Gifted Students

Among 348,888 students on a graded curriculum with GLA data available, 5,050 were coded as being gifted in English Language Arts or Mathematics. There were 340 students in French Language Arts coded as gifted. Table 12 shows the grade level of achievement distributions for these students.

Table 12 - Gifted Students, Provincial

	Mathematics		English Language Arts		French Language Arts	
	Number of students	Percent of total enrolled	Number of students	Percent of total enrolled	Number of students	Percent of total enrolled
GLA below enrolled grade	25	0.5	40	0.8	2	0.6
GLA equal to enrolled grade	4,247	84.1	4,676	92.6	266	78.2
GLA above enrolled grade	762	15.1	289	5.7	7	2.1
GLA NA	16	0.3	45	0.9	65	19.1
Total	**5,050**	**100.0**	**5,050**	**100.0**	**340**	**100.0**

The general assumption with gifted students is that they tend to achieve and perform better than the population of students as a whole. According to the above frequency table, we can see that the vast majority of gifted students were performing equal to their enrolled grade level (84.1 and 92.6 percent in Mathematics and English Language Arts respectively), and under one percent of students were "below grade level" for each subject. Gifted students were performing better in Mathematics than in English Language Arts with approximately nine percent more students having a GLA "above grade level" in Mathematics.

English as a Second Language Students

For English as a Second Language (ESL) students, there were two groups of student codes. The first are ESL students coded as Canadian-born (code 303). Of this group of students there were 18,595 in English Language Arts and Mathematics and 905 students in French Language Arts. For ESL students who are coded as foreign-born (301), there were 16,859 in English Language Arts and Mathematics and 551 in French Language Arts. The distribution of both groups' GLAs is shown in Tables 13 and 14 below. Both Canadian-born and Foreign-born ESL students follow a similar GLA pattern. Approximately 83 to 84 percent of each ESL group were attaining a GLA that was equal to or above enrolled grade in Mathematics and about 76 to 77 percent was equal to or above grade level in ELA.

Table 13 - Canadian-born ESL Students, Provincial

	Mathematics		English Language Arts		French Language Arts	
	Number of students	**Percent of total enrolled**	**Number of students**	**Percent of total enrolled**	**Number of students**	**Percent of total enrolled**
GLA below enrolled grade	2,455	13.2	3,392	18.2	67	7.4
GLA equal to enrolled grade	15,471	83.2	14,236	76.6	719	79.4
GLA above enrolled grade	319	1.7	279	1.5	40	4.4
GLA NA	350	1.9	688	3.7	79	8.7
Total	**18,595**	**100.0**	**18,595**	**100.0**	**905**	**100.0**

Table 14 - Foreign-born ESL Students, Provincial

	Mathematics		English Language Arts		French Language Arts	
	Number of students	**Percent of total enrolled**	**Number of students**	**Percent of total enrolled**	**Number of students**	**Percent of total enrolled**
GLA below enrolled grade	1,844	10.9	2,944	17.5	37	6.7
GLA equal to enrolled grade	14,224	84.4	12,763	75.7	422	76.6
GLA above enrolled grade	260	1.5	137	0.8	17	3.1
GLA NA	531	3.1	1,015	6.0	75	13.6
Total	**16,859**	**100.0**	**16,859**	**100.0**	**551**	**100.0**

Student Gender

Given growing interest in achievement differences depending on gender, students' GLA was analyzed by gender in order to observe any anomalous patterns that may emerge. In 2007-08 data there was a somewhat larger number of males than females. Tables 15 through 17 show students' GLA by gender, with females consistently, but slightly, outperforming males in Mathematics, English Language Arts, and French Language Arts.

Table 15 - Gender, Mathematics, Provincial

	Female		Male	
	Number of students	**Percent of total enrolled**	**Number of students**	**Percent of total enrolled**
GLA below enrolled grade	13,576	8.0	18,007	10.1
GLA equal to enrolled grade	152,286	89.5	155,686	87.1
GLA above enrolled grade	2,635	1.5	2,897	1.6
GLA NA	1,647	1.0	2,154	1.2
Total	**170,144**	**100.0**	**178,744**	**100.0**

Table 16 - Gender, English Language Arts, Provincial

	Female		Male	
	Number of students	**Percent of total enrolled**	**Number of students**	**Percent of total enrolled**
GLA below enrolled grade	12,909	7.6	22,117	12.4
GLA equal to enrolled grade	149,652	88.0	149,703	83.8
GLA above enrolled grade	2,907	1.7	1,874	1.0
GLA NA	4,676	2.7	5,050	2.8
Total	**170,144**	**100.0**	**178,744**	**100.0**

Table 17 - Gender, French Language Arts, Provincial

	Female		Male	
	Number of students	**Percent of total enrolled**	**Number of students**	**Percent of total enrolled**
GLA below enrolled grade	513	3.5	648	5.5
GLA equal to enrolled grade	12,429	84.4	9,766	82.9
GLA above enrolled grade	275	1.9	156	1.3
GLA NA	1503	10.2	1,204	10.2
Total	**14,720**	**100.0**	**11,774**	**100.0**

Student Grade

As illustrated in Table 18 below, the percentages of students who did not meet their grade level of achievement tended to increase with grade in Mathematics. The results for English Language Arts revealed a reversed trend: somewhat higher percentages of older students were more likely to achieve at grade level in comparison to younger students. Proportions of students above grade level are very similar across the grades, and proportions of students at grade level are lower for older students with the biggest achievement decline between Grades 8 and 9.

Table 18 – GLA by Grade, Provincial

Mathematics	Gr.1		Gr.2		Gr.3		Gr.4		Gr.5		Gr.6		Gr.7		Gr.8		Gr.9	
	Per-cent	Total	Per-cent	Total	Per-cent	Total	Per-cent	Total	Per-cent	Total	Per-cent	Total	Per-cent	Total	Per-cent	Total	Per-cent	Total
GLA below enrolled grade	7.0	2,627	6.9	2,540	8.2	3,110	8.2	3,154	9.2	3,504	9.7	3,816	9.1	3,698	10.1	4,077	12.6	5,057
GLA equal to enrolled grade	90.4	33,921	90.9	33,336	89.5	33,775	89.7	34,386	88.4	33,804	88.0	34,660	87.8	35,575	86.5	34,852	83.8	33,663
GLA above enrolled grade	1.4	525	1.5	549	1.4	511	1.4	548	1.4	528	1.6	626	1.8	718	2.0	822	1.8	705
GLA NA	1.2	452	0.7	265	0.9	353	0.7	259	1.1	410	0.7	268	1.3	524	1.3	522	1.9	748
Total	**100.0**	**37,525**	**100.0**	**36,690**	**100.0**	**37,749**	**100.0**	**38,347**	**100.0**	**38,246**	**100.0**	**39,370**	**100.0**	**40,515**	**100.0**	**40,273**	**100.0**	**40,173**
English Language Arts																		
GLA below enrolled grade	11.0	4,124	10.4	3,824	11.5	4,338	10.6	4,049	10.8	4,120	10.5	4,128	8.6	3,469	8.5	3,424	8.8	3,550
GLA equal to enrolled grade	78.0	29,273	81.5	29,913	85.9	32,421	87.1	33,392	87.0	33,263	87.3	34,359	88.2	35,745	88.3	35,577	88.1	35,412
GLA above enrolled grade	1.7	629	1.5	556	1.4	541	1.2	468	1.2	452	1.2	487	1.5	596	1.4	554	1.2	498
GLA NA	9.3	3,499	6.5	2,397	1.2	449	1.1	438	1.1	411	1.0	396	1.7	705	1.8	718	1.8	713
Total	**100.0**	**37,525**	**100.0**	**36,690**	**100.0**	**37,749**	**100.0**	**38,347**	**100.0**	**38,246**	**100.0**	**39,370**	**100.0**	**40,515**	**100.0**	**40,273**	**100.0**	**40,173**

Student Mobility

Changing schools, especially during the school year can be disruptive for a student who may be placed at a different point in the curriculum than he/she left behind. It also takes some time for teachers to determine the student's learning level, learning style, interaction skills, etc., and thus define the optimal program.

These issues concur with the findings within the research literature of a negative relationship between the number of times a student changes schools in a given period and his/her academic growth in that period. Other Alberta studies (Wasserman, 2001) of this relationship have supported these findings and suggest that additional research would be useful. Further investigation would enrich our understanding of the relationship between student mobility and academic achievement while highlighting any situations in which the negative impacts may have been mitigated by helpful strategies to support better transitions for students.

Student school registrations are captured by Alberta Education, once at the end of September and again in March, and compiled in the Student Information System (SIS). The Student Mobility Indicator (SMI) provides an indication of the number of times a student has changed schools since entry into the Alberta school system. The SMI is calculated by counting the number of different school registrations each student has up until the most recent calendar year. Students could be changing schools more frequently than is captured, thus the numbers shown may be a conservative estimate of student mobility. All students start with an SMI of 1 as they have all been registered in at least one school. Student mobility is then broken down into two categories – high and low. In Grades 1-3, high mobility students are those having a mobility indicator of 2 or more. Students having a mobility indicator of 1 are considered low mobility. In Grades 4-6, high mobility students are those having a mobility indicator of 3 or more. Students having a mobility indicator of 2 or less are considered low mobility. In Grades 7-9, high mobility students are those having a mobility indicator of 4 or more. Low mobility students have a mobility indicator of 3 or less. In the following tables (Tables 19 through 21) the two categories of mobility include students on a graded curriculum in Grades 1 to 9.

Table 19 - Student Mobility, Mathematics, Provincial

Mathematics	High Mobility		Low Mobility	
	Number of students	Percent of total enrolled	Number of students	Percent of total enrolled
GLA below enrolled grade	12,113	14.7	17,749	7.1
GLA equal to enrolled grade	67,973	82.3	227,656	90.4
GLA above enrolled grade	1,115	1.3	4,178	1.7
GLA NA	1,437	1.7	2,158	0.9
Total	**82,638**	**100.0**	**251,741**	**100.0**

Table 20 - Student Mobility, English Language Arts, Provincial

English Language Arts	High Mobility		Low Mobility	
	Number of students	Percent of total enrolled	Number of students	Percent of total enrolled
GLA below enrolled grade	12,638	15.3	20,839	8.3
GLA equal to enrolled grade	66,884	80.9	219,901	87.4
GLA above enrolled grade	876	1.1	3,729	1.5
GLA NA	2,240	2.7	7,272	2.9
Total	**82,638**	**100.0**	**251,741**	**100.0**

Table 21 - Student Mobility, French Language Arts, Provincial

French Language Arts	High Mobility		Low Mobility	
	Number of students	Percent of total enrolled	Number of students	Percent of total enrolled
GLA below enrolled grade	196	5.8	947	4.3
GLA equal to enrolled grade	2,694	79.4	18,958	85.0
GLA above enrolled grade	53	1.7	374	1.7
GLA NA	448	13.2	2,012	9.0
Total	**3,391**	**100.0**	**22,291**	**100.0**

The majority of students can be described as having low mobility (72.2 percent of all students with GLA data in 2007-08 compared to 69.1 percent in 2006-07).[3] As expected, a greater proportion of high mobility students have a GLA below their enrolled grade level compared to low mobility students.

Tables 22 and 23 further examine the effect of student mobility on grade level of achievement in English Language Arts and Mathematics. The graphs depicted in Figures 1 and 2 and based on the data shown in Tables 22 and 23 illustrate that there is a notable difference between high and low mobility students' GLA outcomes in both English Language Arts and Mathematics. Consistently, higher percentages of highly mobile students achieved at below grade level compared to their counterparts who displayed low mobility.

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[3] There is no mobility information on 14,509 students (4.2%) in the 2007-08 GLA data set.
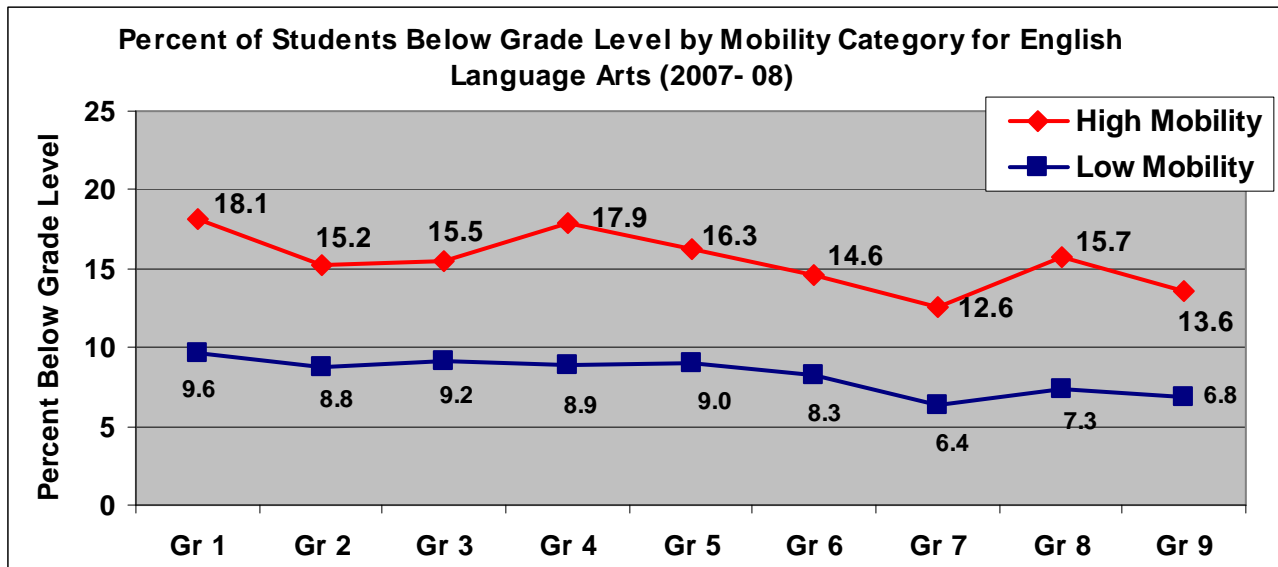
Table 22 - Student Mobility and English Language Arts by Enrolled Grade

Enrolled Grade	Mobility	GLA Equal or Above		GLA Below		GLA NA		Total	
		Total	Percent	Total	Percent	Total	Percent	Total	Percent
1	High	4,619	74.1	1,129	18.1	483	7.8	6,231	100.0
	Low	25,283	80.8	2,995	9.6	3.016	9.6	31,294	100.0
2	High	7,394	79.7	1,407	15.2	477	5.1	9,278	100.0
	Low	23,075	84.2	2,417	8.8	1,920	7.0	27,412	100.0
3	High	11,355	82.9	2,117	15.5	223	1.6	13,695	100.0
	Low	21,607	89.8	2,221	9.2	226	0.9	24,054	100.0
4	High	5,668	80.7	1,254	17.9	102	1.5	7,024	100.0
	Low	28,190	90.0	2,793	8.9	336	1.1	31,319	100.0
5	High	7,437	82.6	1,465	16.3	100	1.1	9,002	100.0
	Low	26,229	90.0	2,609	9.0	303	1.0	29,141	100.0
6	High	9,019	84.4	1,555	14.6	109	1.0	10,683	100.0
	Low	25,466	90.8	2,328	8.3	259	0.9	28,053	100.0
7	High	6,476	85.4	958	12.6	152	2.0	7,586	100.0
	Low	27,797	92.0	1,942	6.4	488	1.6	30,227	100.0
8	High	5,787	81.0	1,125	15.7	238	3.3	7,150	100.0
	Low	20.104	91.0	1,615	7.3	368	1.7	22,087	100.0
9	High	10,005	83.5	1,628	13.6	356	3.0	11,989	100.0
	Low	25,879	91.9	1,919	6.8	356	1.3	28,154	100.0

Table 23 - Student Mobility and Mathematics by Enrolled Grade

Enrolled Grade	Mobility	GLA Equal or Above		GLA Below		GLA NA		Total	
		Total	Percent	Total	Percent	Total	Percent	Total	Percent
1	High	5,340	85.7	761	12.2	130	2.1	6,231	100.0
	Low	29,106	93.0	1,866	6.0	322	1.0	31,294	100.0
2	High	8,150	87.8	1,012	10.9	116	1.3	9,278	100.0
	Low	25,735	93.9	1,528	5.6	149	0.5	27,412	100.0
3	High	11,931	87.1	1,591	11.6	173	1.3	13,695	100.0
	Low	22,355	92.9	1.519	6.3	180	0.7	24,054	100.0
4	High	5.886	83.8	1,060	15.1	78	1.1	7,024	100.0
	Low	29,046	92.7	2,092	6.7	181	0.6	31,319	100.0
5	High	7,535	83.7	1,350	15.0	117	1.3	9,002	100.0
	Low	26,747	91.8	2,109	7.2	285	1.0	29,141	100.0
6	High	9,084	85.0	1,517	14.2	82	0.8	10,683	100.0
	Low	25,803	92.0	2,089	7.4	161	0.6	28,053	100.0
7	High	6,318	83.3	1,110	14.6	158	2.1	7,586	100.0
	Low	27,903	92.3	2,019	6.7	305	1.0	30,227	100.0
8	High	5,577	78.0	1,378	19.3	195	2.7	7,150	100.0
	Low	20,063	90.8	1,808	8.2	216	1.0	22,087	100.0
9	High	9,267	77.3	2,334	19.5	388	3.2	11,989	100.0
	Low	25,076	89.1	2,719	9.7	359	1.3	28,154	100.0

Figure 1

Percent of Students Below Grade Level by Mobility Category for English Language Arts (2007- 08)

The graph illustrates the effect of student mobility on achievement in English Language Arts by contrasting the percentages at below grade level for students in the high mobility and low mobility categories. Consistently, throughout all nine grades, about twice as many highly mobile students (13 to 18 percent) achieve below grade level in English Language Arts compared to low mobility students (6 to 10 percent).

Figure 2

Percent of Students Below Grade Level by Mobility Category for Mathematics (2007- 08)
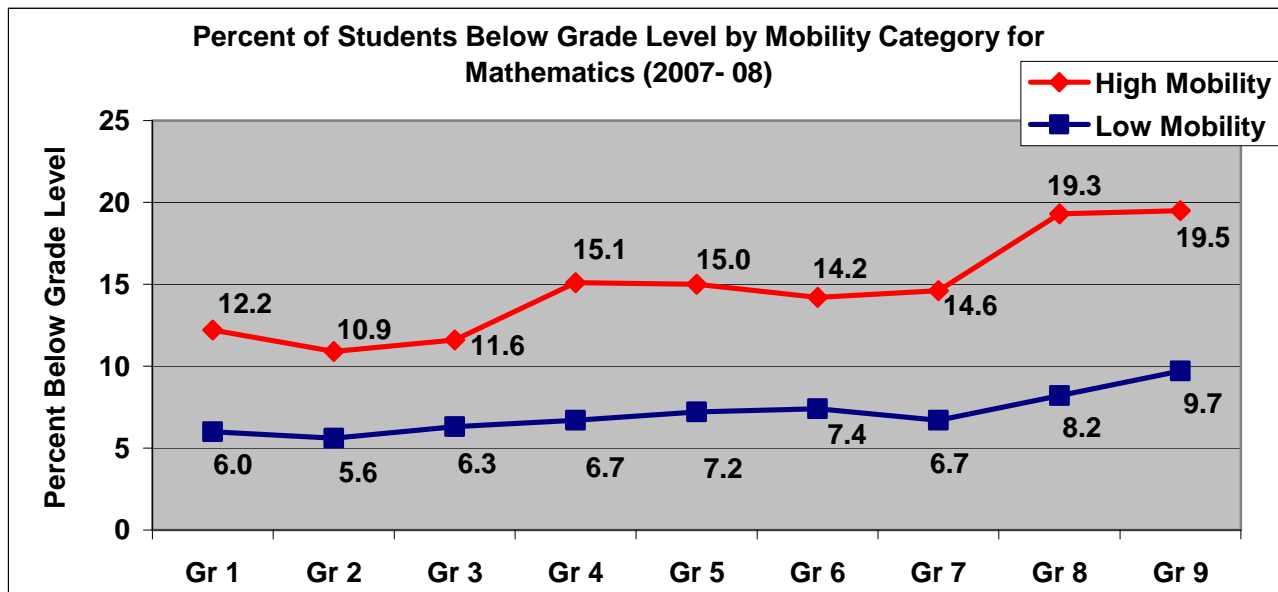
This graph juxtaposes the percentages of students distinguished by high mobility versus those with low mobility below grade level in Mathematics. Congruent to English Language Arts, approximately twice as many students in the high mobility category are more likely to achieve below grade level in Mathematics (11 to 20 percent) in comparison to low mobility students (six to 10 percent).

17

Students not on a Graded Curriculum (Modified Programming)

There were 4927 students reported in 2007-08 who were not on a graded curriculum. These students were assessed based on the degree of achievement in their Individual Program Plans (IPPs) relative to their foundational skills, academic readiness skills and life skills. The results reported below should be considered preliminary as data will become more meaningful as multi-year trends become available.

Table 24 - IPP Foundation Skills

Foundation Skills	Number of Students	Percent of Total Enrolled
All skills attained	669	13.6
Most skills attained	1,342	27. 2
Some skills attained	1,685	34.2
None of the skills attained	125	2.5
N/A	1,106	22.4
Total	**4,927**	**100.0**

Table 25 - IPP Academic Readiness Skills

Academic Readiness Skills	Number of Students	Percent of Total Enrolled
All skills attained	693	14.1
Most skills attained	1,371	27.8
Some skills attained	1,852	37.6
None of the skills attained	219	4.4
N/A	792	16.1
Total	**4,927**	**100.0**

Table 26 - IPP Life Skills

Life Skills	Number of Students	Percent of Total Enrolled
All skills attained	672	13.6
Most skills attained	1,172	23.8
Some skills attained	1,552	31.5
None of the skills attained	109	2.2
N/A	1,422	28.9
Total	**4,927**	**100.0**

The available data demonstrate that consistently, across all three skill categories, about 40 percent of IPP students tended to attain all or most of these skills and about one-third mastered some of the skills.

Birth Month-Combined Grades

Table 26 shows the distribution of students on a graded curriculum by birth month for all grades of students. Students in the 1st January and February are the oldest students in each grade, whereas students in the 2nd January and February are the youngest in each grade.

Table 27 – Student Birth Month

Month	Frequency	Percentage
1st January	18,956	6.1
1st February	19,583	6.3
March	29,100	9.4
April	28,314	9.1
May	29,643	9.6
June	27,826	9.0
July	28,173	9.1
August	27,042	8.7
September	25,914	8.4
October	23,219	7.5
November	20,080	6.5
December	16,494	5.3
2nd January	9,012	2.9
2nd February	6,238	2.0
Total*	**309,594**	**100.0**

*Not all students were included in this table since some students fell outside the scope of analysis meaning they were much older than the targeted group of students.

Previous research (Alberta Learning, 2001) based on provincial achievement test (PAT) scores demonstrated that older students tended to achieve at a higher level than their younger counterparts. A comparative analysis, which was undertaken using 2006-07 GLA data confirmed a moderate positive relationship between student age and GLA outcomes in English Language Arts in Grades 1 through 5. After Grade 5, the age effect tapered off and was no longer apparent. A similar analysis was repeated using more recent and complete GLA data from the 2007-08 reporting cycle and results of these analyses are discussed in the following section.

GLA and PAT Results by Age within Student Grade Cohorts

The percentages of students "at or above" their grade level in English Language Arts were converted and plotted on the graphs shown below. In general the results confirmed previous findings that younger students in early grades are more likely to attain lower academic performance compared to their older peers. The data on Grade 1 and 2 students (Figures 3 and 4) showed evidence of age effect, which was much less pronounced in Grade 3 GLA data (Figure 5). However, Grade 3 PAT data revealed notable differentiations in student achievement depending on the birth month. The graph in Figure 6 demonstrates that when PAT scores are recoded into "percent at or above acceptable" to mimic the GLA data, the relative age effect remains.

Congruent with the findings based on the previously collected (2005-06) GLA data, 2007-08 data did not reveal a notable age effect in Grades 4, 5 and older. The implication of these findings is that schools with pronounced age effects may want to take this into account in interpreting Grade 3 PAT results and may consider strategies for diminishing the age effect. Also, the case can be made for multiple entry points into the ECS and Grade 1 programs and for careful consideration of the extent to which the age effect might influence student achievement within a specific classroom or school context.

Figure 3

Grade 1 English Language Arts: At/Above GLA
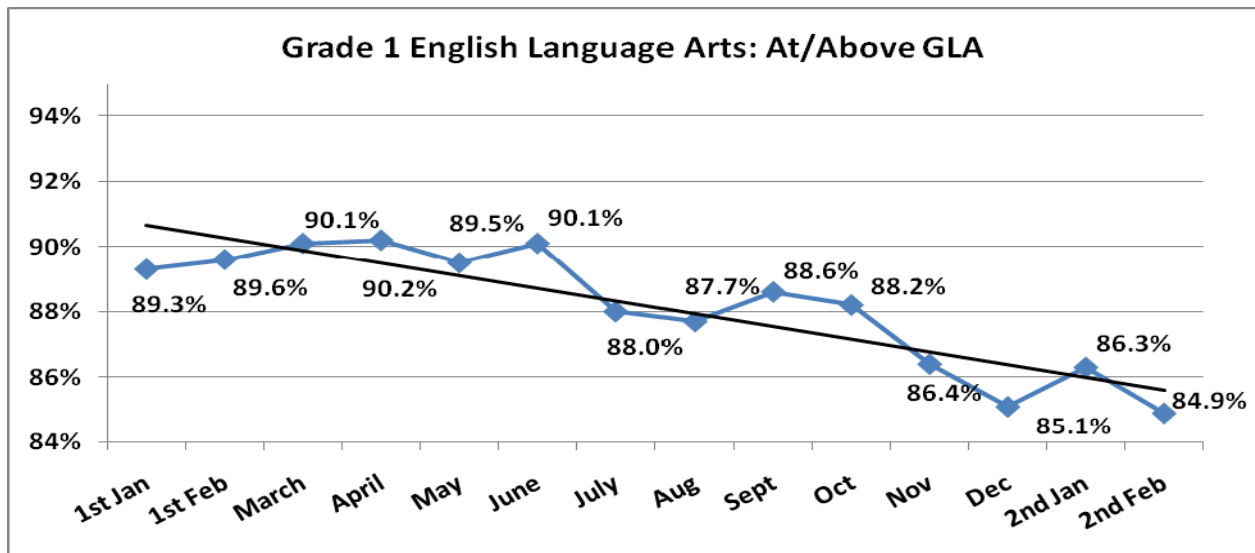
This graph shows percentages of students who were at or above grade level in Grade 1 relative to birth month. The straight line represents a linear trend. Students with birthdays falling on the 1st January/February were the oldest in the cohort and students with birthdays on the 2nd January/February were the youngest. There was a notable age-based difference in student achievement in Grade 1 with the oldest students outperforming the youngest ones by approximately five percent.

Figure 4

Grade 2 English Language Arts: At/Above GLA
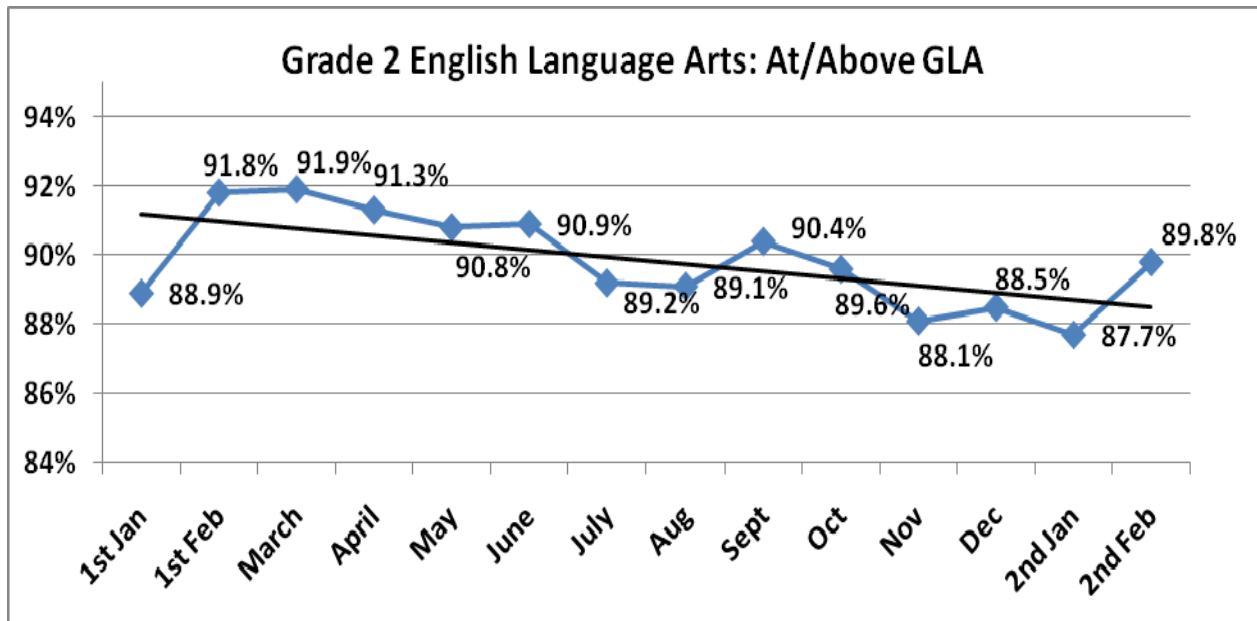
This graph shows percentages of students meeting their grade level in Grade 2 depending on the month of birth. In general, similar to Grade 1 data, higher percentages of older students with earlier birth month were achieving at or above grade level compared to their younger counterparts.

Figure 5

Grade 3 English Language Arts: At/Above GLA
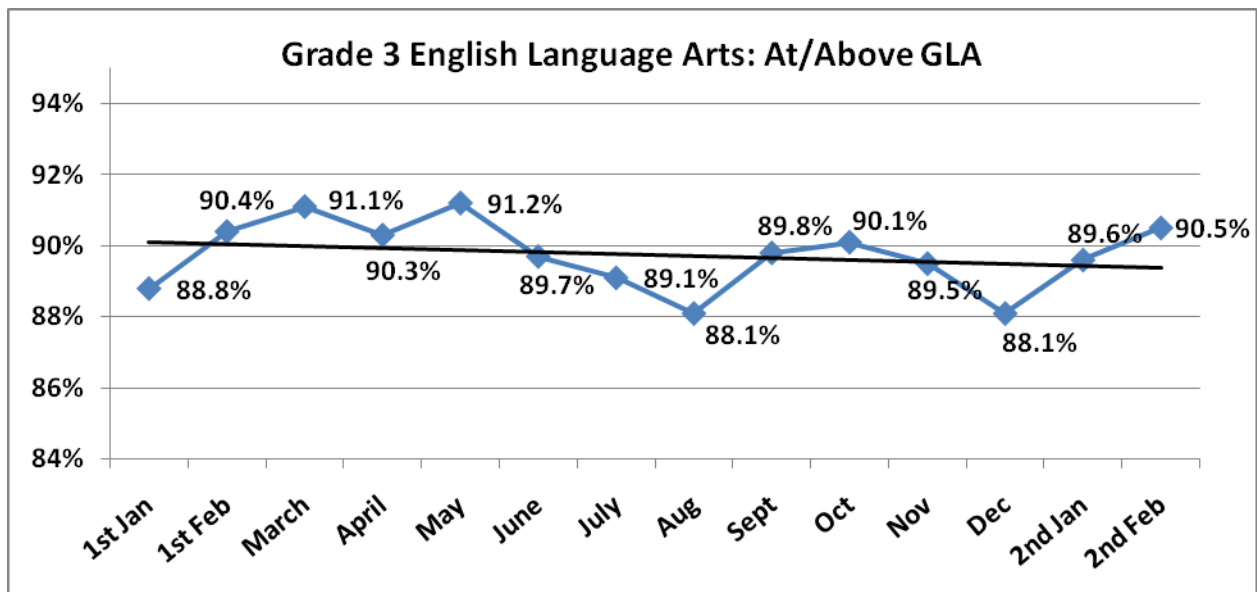
By Grade 3 the age effect was much less apparent in 2007-08 GLA English Language Arts data. There is not much difference between the older students (the oldest ones with birthdays falling on the 1st January/February) and their younger peers (with birthdays in the 2nd January/February). In all, this finding is congruent with preceding research, which indicates that the age effect tends to be more pronounced in the earliest elementary grades.

Figure 6
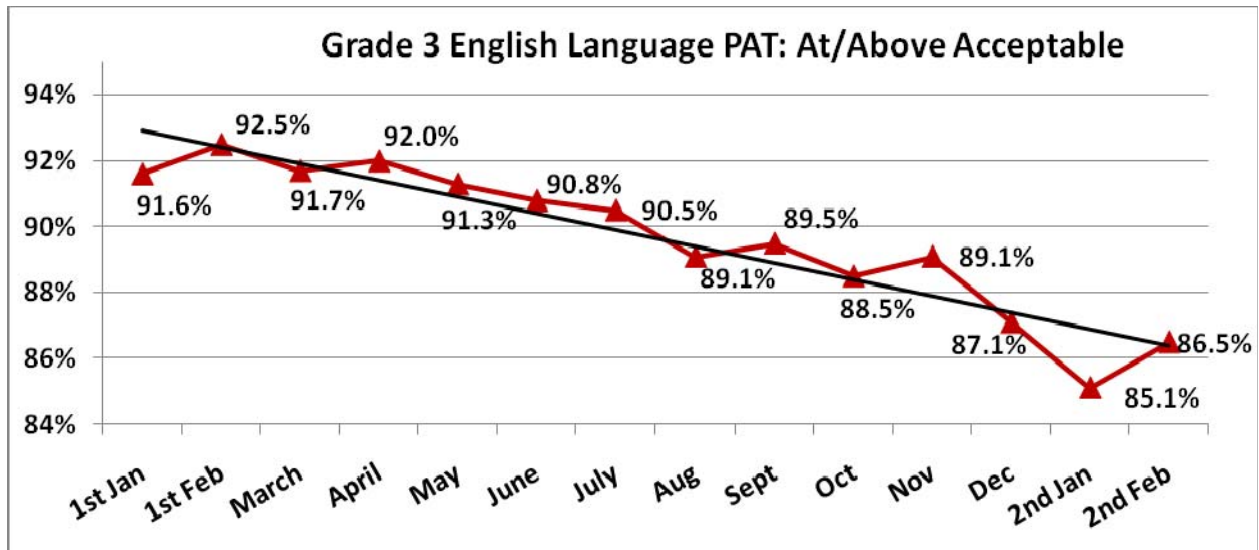
Unlike Grade 3 GLA data, Grade 3 PAT data plotted on this graph (percent of students at or above acceptable level of achievement) show more pronounced differences in student achievement depending on the month of birth. Approximately seven percent more of the oldest students who were born in the 1st January/February achieved at or above acceptable level compared to their younger counterparts born in the 2nd January/February. The differences in GLA and PAT data may be attributed to their different nature and data collection methodologies. Variations like this illustrate the usefulness of holistic approaches to data collection and analysis, in order to capture diversified trends and issues in student academic achievement.

Dynamics in GLA Data Between 2006-07 and 2007-08 Reporting Periods

The following section of the report is based on the two last years of GLA data collection and highlights the type of trend analysis that will become viable as the GLA initiative becomes implemented over several years. The data in these two data sets were matched to capture the same students and follow their progress in two GLA reporting years. The analysis was run on the same matched 179,355 students that were used for trend analysis of non-coded and coded students.

Table 28 below shows general GLA results for all matched students. There is an indication of a slight increase in the percentages of students below grade level for Mathematics in 2007-08 compared to 2006-07, but a decrease of students in this category for English Language Arts. However, these results should be considered as preliminary and illustrative, since the 2006-07 data set was incomplete due to the pilot status of GLA reporting that year and a relatively high proportion of cases had the data classified as "GLA N/A," indicating missing ("not available") data.

Table 28 – Difference in GLA Results: All Matched Students in 2006-07 and 2007-08 GLA Data Sets

	2006-07		2007-08	
	Number of students	**Percent of total matched**	**Number of students**	**Percent of total matched**
Mathematics				
GLA below enrolled grade	15,743	8.8	16,309	9.1
GLA equal to enrolled grade	160,349	89.4	159,201	88.8
GLA above enrolled grade	792	0.4	2,388	1.3
GLA NA	2,471	1.4	1.457	0.8
Total Matched in 2006-07 – 2007-08	**179,355**	**100.0**	**179,355**	**100.0**
English Language Arts				
GLA below enrolled grade	18,948	10.6	17,450	9.7
GLA equal to enrolled grade	154,481	86.1	157,191	87.6
GLA above enrolled grade	448	0.2	2,114	1.2
GLA NA	5,478	3.1	2,600	1.4
Total Matched in 2006-07 – 2007-08	**179,355**	**100.0**	**179,355**	**100.0**

Tables 29 and 30 display the same data split by grade. These data are also plotted in Figures 7 and 8. It is important to keep in mind that a relatively small proportion of the reported students might not have advanced an enrolled grade from 2006-07 to 2007-08. For example, 426 of 2006-07 Grade 1 students were also in Grade 1 in 2007-08 (see Tables 29 and 30), and 58 students who were in Grade 9 in 2006-07 also were present in the 2007-08 Grade 9 group.

Overall, the data reveal somewhat higher percentages of students below grade level up to Grade 6 for English Language Arts compared to Mathematics. After Grade 6 this trend reverses, with slightly higher proportions of junior-high students achieving below grade level in Mathematics compared to English Language Arts (juxtapose percentages in low columns in Figures 7 and 8). Put another way, while the percentage of students below grade level tended to increase with grade for Mathematics (from six to seven percent in Grade 1 to 12 percent in Grade 9), the proportion of students in this category tended generally to decrease with grade for English Language Arts, with a peak at around upper-elementary level (11 to13 percent in Grades 4 through 6 and a dip at a junior –high school (eight to nine percent).

Table 29 – Comparisons of GLA in Mathematics in 2006-07 and 2007-08 by Grade

|		Below enrolled grade		Equal to enrolled grade		Above enrolled grade		GLA N/A		Total matched cases by grade	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Gr. 1	2006-07	1,273	5.8	20,279	92.0	40	0.2	440	2.0	22,032	100
	2007-08*	39	9.2	375	88.0	8	1.9	4	0.9	426	100
Gr. 2	2006-07	1,484	6.6	20,559	92.0	56	0.3	254	1.1	22,353	100
	2007-08	1,456	6.7	19,880	91.5	260	1.2	125	0.6	21,721	100
Gr. 3	2006-07	1,885	8.4	20,121	89.8	76	0.3	312	1.4	22,394	100
	2007-08	1,819	8.2	20,052	90.0	249	1.1	165	0.7	22,285	100
Gr. 4	2006-07	2,000	8.9	20,092	89.8	74	0.3	213	1.0	22,379	100
	2007-08	1,821	8.1	20,189	90.3	245	1.1	107	0.5	22,362	100
Gr. 5	2006-07	2,330	10.4	19,769	88.2	62	0.3	246	1.1	22,407	100
	2007-08	2,083	9.3	19,811	88.5	256	1.1	223	1.0	22,373	100
Gr. 6	2006-07	2,332	10.2	20,271	88.7	53	0.2	190	0.8	22,846	100
	2007-08	2,156	9.6	19,889	88.7	251	1.1	127	0.6	22,423	100
Gr. 7	2006-07	2,085	9.3	19,770	88.2	207	0.9	365	1.6	22,427	100
	2007-08	2,068	9.0	20,223	88.4	380	1.7	214	0.9	22,885	100
Gr. 8	2006-07	2,326	10.4	19,467	86.7	224	1.0	442	2.0	22,459	100
	2007-08	2,184	9.8	19,609	87.6	412	1.8	176	0.8	22,381	100
Gr. 9	2006-07*	28	48.3	21	36.2	0	0	9	15.5	58	100
	2007-08	2,683	11.9	19,173	85.2	327	1.5	316	1.4	22,499	100
Total	2006-07	15,743	8.8	160,349	89.4	792	0.4	2,471	1.4	179,355	100
	2007-08	16,309	9.1	159,201	88.8	2,388	1.3	1.457	0.8	179,355	100

*N's for Grade 1 in 2007-08 and Grade 9 in 2006-07 are low as these students are repeating the grade and are therefore not included in Figures 7 and 8.

Table 30 – Comparisons of GLA in English Language Arts in 2006-07 and 2007-08 by Grade

|		Below enrolled grade		Equal to enrolled grade		Above enrolled grade		GLA N/A		Total matched cases by grade	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Gr. 1	2006-07	2,054	9.3	17,831	80.9	69	0.3	2,078	9.4	22,032	100
	2007-08*	79	18.5	326	76.5	5	1.2	16	3.8	426	100
Gr. 2	2006-07	2,253	10.1	18,573	83.1	65	0.3	1,462	6.5	22,353	100
	2007-08	2,207	10.2	17,997	82.9	304	1.4	1,213	5.6	21,721	100
Gr. 3	2006-07	2,514	11.2	19,365	86.5	76	0.3	439	2.0	22,394	100
	2007-08	2,478	11.1	19,362	86.9	266	1.2	179	0.8	22,285	100
Gr. 4	2006-07	2.586	11.6	19,421	86.8	77	0.3	295	1.3	22,379	100
	2007-08	2,358	10.5	19,647	87.9	212	0.9	145	0.6	22,362	100
Gr. 5	2006-07	2,801	12.5	19,238	85.9	56	0.2	312	1.4	22,407	100
	2007-08	2,376	10.6	19,634	87.8	220	1.0	143	0.6	22,373	100
Gr. 6	2006-07	2,609	11.4	19,972	87.4	29	0.1	236	1.0	22,846	100
	2007-08	2,323	10.4	19,768	88.2	197	0.9	135	0.6	22,423	100
Gr. 7	2006-07	2,026	9.0	20,030	89.3	54	0.2	317	1.4	22,427	100
	2007-08	1,927	8.4	20,354	88.9	346	1.5	258	1.1	22,885	100
Gr. 8	2006-07	2,082	9.3	20,026	89.2	22	0.1	329	1.5	22,459	100
	2007-08	1,810	8.1	20,052	89.6	283	1.3	236	1.1	22,381	100
Gr. 9	2006-07*	23	39.7	25	43.1	0	0	10	17.2	58	100
	2007-08	1,892	8.4	20,051	89.1	281	1.2	275	1.2	22,499	100
Total	2006-07	18,948	10.6	154,481	86.1	448	0.2	5,478	3.1	179,355	100
	2007-08	17,450	9.7	157,191	87.6	2,114	1.2	2,600	1.4	179,355	100

*N's for Grade 1 in 2007-08 and Grade 9 in 2006-07 are low as these students are repeating the grade and are therefore not included in Figures 7 and 8.

Figure 7 – Comparisons of GLA in Mathematics in 2006-07 and 2007-08 by Grade
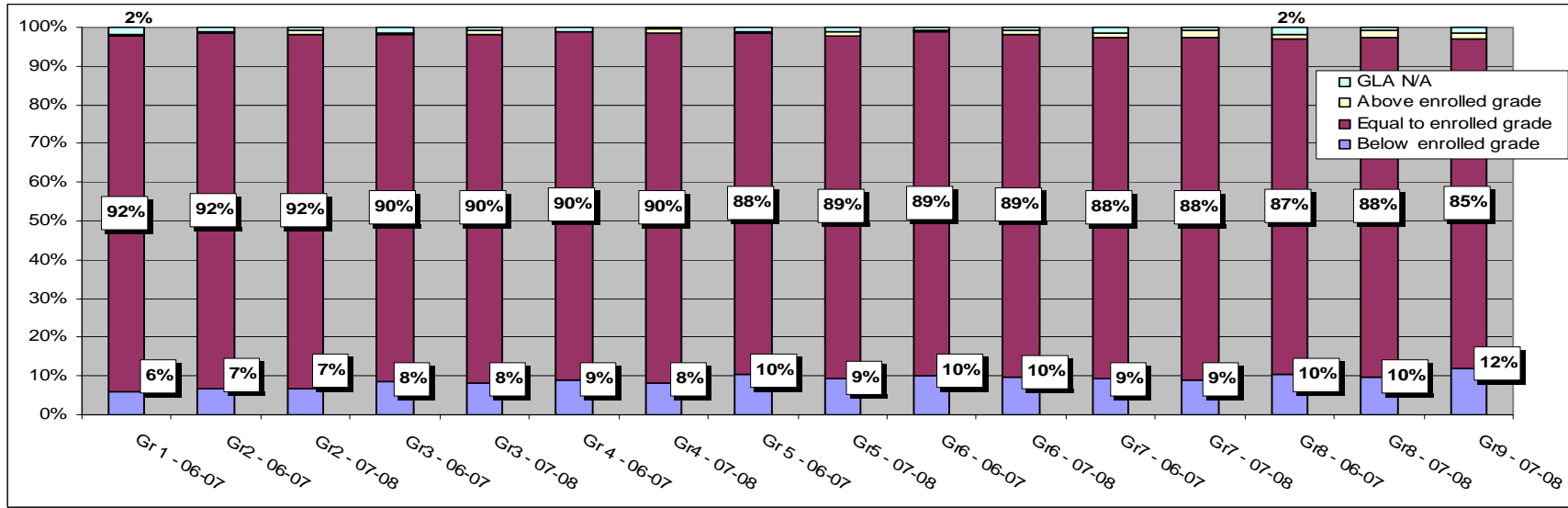
The graph depicts the dynamics of GLA Mathematics data collected over two years (2006-07 and 2007-08). Each column represents 100 percent of all students that were matched across the two GLA reporting years. The lower section of the column shows percentages of students who were below their enrolled grade. The middle portion of the column shows proportions of students who were at grade level, and the upper sections show percentages of students above grade level and/or percentages of students with no GLA data (GLA N/A). While the vast majority of students across all nine grades (over 85 percent) were at/above grade level, the percentages below grade level tended to increase with grade, almost doubling from six to seven percent in Grade 1 to 12 percent in Grade 9. This trend clearly reflects province-wide issues with student achievement in mathematics. GLA data provides a supplementary, more consistent base for monitoring and addressing this issue compared to sporadic PAT tests.

Figure 8 – Comparisons of GLA in English Language Arts in 2006-07 and 2007-08 by Grade
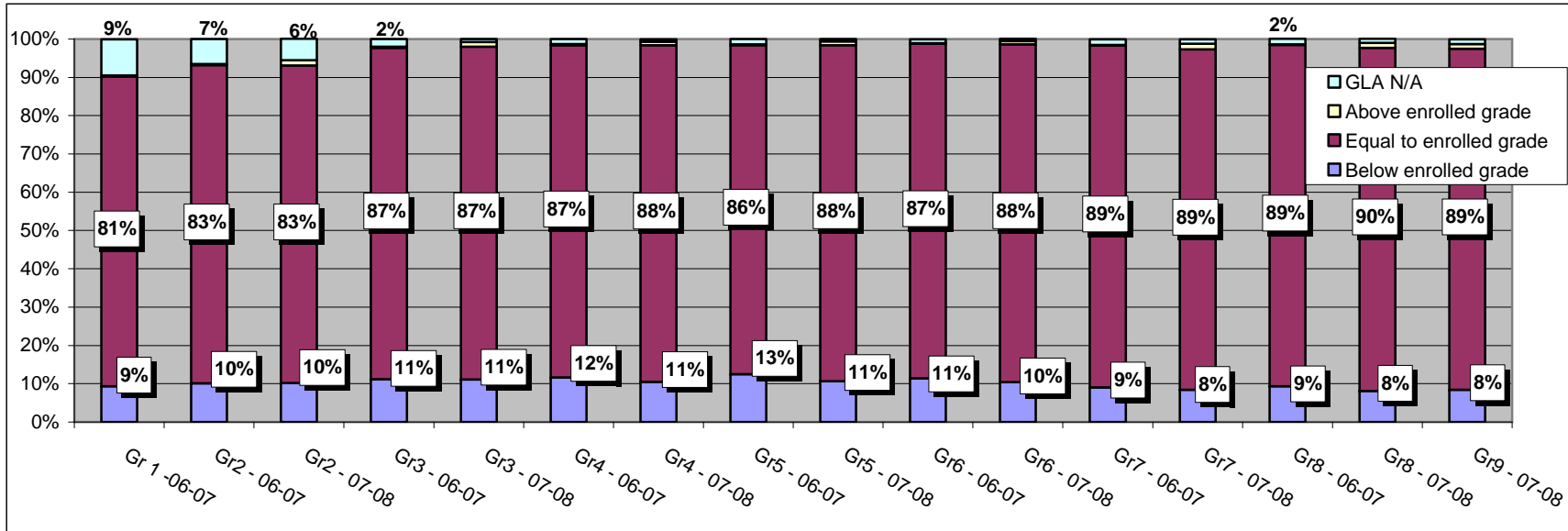
The graph depicts the dynamics of GLA English Language Arts data collected over two years (2006-07 and 2007-08). Total column represents 100 percent of all students that were matched across the two GLA reporting years. The lower section of the column shows percentages of students who were below their enrolled grade. The middle portion of the column depicts proportions of students who were at grade level, and the upper sections show percentages of students above grade level and/or percentages of students with no GLA data (GLA N/A). Unlike GLA outcomes for Mathematic, the proportion of students below grade level in English Language Arts tends to reach the highest point in upper-elementary grades and then decrease in junior-high school.

The following section of the report compares the two last years of GLA data on coded and non-coded students on a graded curriculum. These comparisons were run in order to demonstrate potential practical utilities of the future GLA data collections for identifying long-term trends and programming issues and hence, clearer directions for remedial interventions.

Comparison of Outcomes for Non-coded and Coded Students in 2006-07 and 2007-08

A data set comprising 217,302 students on a graded curriculum were collected during the previous 2006-07 GLA reporting cycle. However at that stage of GLA reporting, not all Alberta public, charter, separate and Francophone schools were required to submit GLA results. Therefore, although sizeable, the resultant data set is not complete and does not fully reflect the Alberta student population. The most recent GLA data collection yielded usable data on 348,888 students and came much closer to fully embracing student population in the mentioned types of schools.

As noted earlier, the data in these two data sets were matched to capture the same students and follow their progress in two GLA reporting years. As a result, 179,355 matching student cases were identified and constituted the base for the data analyses reported below. A relatively "small" number of matched cases may be explained by the vast majority of 2006-07 Grade 9 students moving to Grade 10 and Early Childhood Services (kindergarten) students entering Grade 1 in 2007-08 and hence not being included in the 2006-08 GLA reporting frame, which embraces Grades 1 through 9 students only. In addition, some 2006-07 students have migrated out of the province, joined a private school or for other reasons are not registered in a public, charter, separate or Francophone school.

In order to compare the progress of similar groups of students, students who were *identically* classified as non-coded, mildly/moderately or severely disabled, gifted or ESL in both 2006-07 and 2007-08 GLA reporting periods were selected for the analysis highlighted in Tables 31 and 32 below. The analysis was performed on generalized data on Mathematics and English Language Arts, without breaking the results by grade. Since this analysis was run on "truncated" matched data sets, some results may differ from an analogous analysis, which was run using the full 2007-08 data set.

The data on the matched non-coded students in Table 31 do not reveal any major differences in the proportions of students at or below enrolled grade between the two GLA reporting periods, and, in fact, demonstrate a high degree of consistency. The differences hover around half to one percentage point. For example, slightly higher proportions of students achieved at grade level in Mathematics in 2006-07 compared to the 2007-08 school year, but, reversely, somewhat higher percentages finished at grade level in English Language Arts in 2007-08. In addition, about one percent more of the examined students were above grade level in 2007-08 than in 2006-07. However, consideration of these results should take into account the higher percentages of missing data ("GLA N/A") in 2006-07, which might incorporate some of the students for whom the GLA data became available later, in 2007-08.

Table 31 – Difference in GLA Results: Matched Non-coded Students for 2006-07 and 2007-08

All Grades	2006-07				2007-08			
	Mathematics		English LA		Mathematics		English LA	
	Non-coded Students (as mild/moderate, severe, gifted, or ESL)							
	Percent	Total	Percent	Total	Percent	Total	Percent	Total
GLA below enrolled grade	4.6	6,197	5.1	6,918	5.0	6.781	4.7	6,354
GLA equal to enrolled grade	94.3	127,189	92.3	124,392	93.3	125,829	93.0	125,405
GLA above enrolled grade	0.3	456	0.3	366	1.2	1,557	1.2	1,608
GLA NA	0.7	998	2.3	3,164	0.5	673	1.1	1,473
Total for Matched Students in 2006-07 – 2007-08	**100**	**134,840**	**100**	**134,840**	**100**	**134,840**	**100**	**134,840**

Table 32 includes findings on coded students. Surprisingly, the GLA for students coded as having severe disabilities was not much different from students who were classified as mildly or moderately disabled, with over 50, but under 60 percent of the students in both categories achieving at the grade level in both reporting periods, about 40 percent falling behind their grade level and 0.5 percent or under being assessed above their enrolled grade. Nevertheless, while both Mathematics and English Language Arts GLA results were slightly better in 2007-08 than in 2006-07 for mildly/moderately disabled students (about two to four percent difference in GLA equal to or above enrolled grade), their counterparts in the severely disabled category showed slight (one to three percent) "decline." Also in all, GLA in Mathematics was consistently somewhat higher than GLA in English Language Arts in both mentioned groups of students, for both reporting periods.

Table 32 – Difference in GLA Results: Matched Coded Students for 2006-07 - 2007-08

All Grades	2006-07				2007-08			
	Mathematics		English Language Arts		Mathematics		English Language Arts	
	Students with Severe Disabilities							
	Total	Percent	Total	Percent	Total	Percent	Total	Percent
GLA below enrolled grade	37.2	1,202	40.3	1,304	39.7	1.284	41.0	1,324
GLA equal to enrolled grade	58.6	1,894	55.2	1,784	55.5	1,794	54.3	1,754
GLA above enrolled grade	0.2	7	0.2	5	0.5	15	0.4	14
GLA NA	4.0	129	4.3	139	4.3	139	4.3	140
Total	**100**	**3,232**	**100**	**3,232**	**100**	**3,232**	**100**	**3,232**
	Students with Mild/Moderate Disabilities							
GLA below enrolled grade	40.5	4,330	47.0	5,025	38.9	4,157	42.8	4,574
GLA equal to enrolled grade	57.4	6,131	50.7	5,418	59.1	6,317	54.8	5,862
GLA above enrolled grade	0.2	19	0.1	9	0.3	31	0.3	28
GLA NA	2.0	209	2.2	237	1.7	184	2.1	225
Total	**100**	**10,689**	**100**	**10,689**	**100**	**10,689**	**100**	**10,689**
	Gifted							
GLA below enrolled grade	1.2	30	1.5	37	0.8	21	1.1	27
GLA equal to enrolled grade	91.2	2,297	97.5	2,457	83.0	2,092	92.5	2,331
GLA above enrolled grade	7.0	19	0.3	8	15.8	398	6.1	153
GLA NA	0.6	15	0.7	17	0.3	8	0.3	8
Total	**100**	**2,519**	**100**	**2,519**	**100**	**2,519**	**100**	**2,519**
	ESL – Canadian-born							
GLA below enrolled grade	11.5	1,089	15.2	1,449	11.4	1,087	14.7	1,395
GLA equal to enrolled grade	84.0	7,986	77.9	7,399	85.3	8,103	81.1	7,703
GLA above enrolled grade	0.7	62	0.3	30	1.7	163	1.5	144
GLA NA	3.9	366	6.6	625	1.6	150	2.7	261
Total	**100**	**9,503**	**100**	**9,503**	**100**	**9,503**	**100**	**9,503**
	ESL – Foreign-born							
GLA below enrolled grade	10.5	868	18.3	1,512	10.7	888	15.0	1,240
GLA equal to enrolled grade	83.8	6,942	72.1	5,973	86.0	7,120	81.0	6,707
GLA above enrolled grade	0.5	43	0.1	9	1.6	135	1.0	86
GLA NA	5.2	429	9.5	788	1.7	139	3.0	249
Total	**100**	**8,282**	**100**	**8,282**	**100**	**8,282**	**100**	**8,282**

On the other hand, the overwhelming majority of students coded as "gifted" were at or above the enrolled grade level (see Table 32). To no surprise, these cumulative percentages were somewhat (three to five percent) higher than those for the non-coded students (seeTable 31). There were notable "spikes" (six to eight percent) in proportions of gifted students at above enrolled grade level in both Mathematics and English Language Arts in 2007-08 compared to

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2006-07. This could be symptomatic of progress in this particular group of students (possibly due to more successful programming), but the current preliminary findings should be further substantiated by future collections of trend GLA data.

Finally, general GLA results do not point to drastic differences between Canadian and foreign-born ESL students (see Table 32). Both groups were consistently less successful in English Language Arts in both reported school years than in Mathematics. At the same time, there is evidence of some progress in 2007-08 compared to 2006-07 in both subjects, for both groups of ESL students (cumulative percentage of students with GLA equal or above the enrolled grade). As already mentioned, these preliminary findings, while encouraging, need further confirmation using additional complete trend data.

The data presented in Tables 31 and 32 illustrate the potential of using systematically collected GLA (grade level of achievement) data to identify trends and diagnose issues related to the programming for and performance of different groups of students. For example, the current preliminary results point to the importance of addressing various language deficiencies in both ESL and severely/moderately/mildly disabled students. Addressing language and literacy issues could boost achievement in other fields, including Mathematics. In addition, virtually "equal" general grade progress among some groups of students coded as severely disabled and mildly/moderately disabled raise questions regarding the adequacy and consistency of the coding standards and procedures across the system. Depending on the specific diagnostic or intervention objectives the continuous GLA data is a comprehensive corollary complementary to PAT data.

Although trend grade-based analysis of the data on coded students is outside of the scope of this report, it is worth mentioning that future examination using fuller, systematically gathered GLA data may yield valid insights into issues affecting student achievement and point to potential solutions.

GLA by PAT Analysis-Comparisons Using Achievement Levels

In order to illuminate the relationship between the GLA data and provincial achievement test (PAT) data, PAT data was re-coded into the categories of "acceptable or excellence" and "below acceptable" and "excused or absent" in order to be comparable to the GLA categories of "at or above grade level" and "below grade level or GLA NA."   The groupings were chosen based on the current Alberta Education standard for cohort reporting. The groups were then cross-tabulated with the expectation that students who score at or above the acceptable level on PATs tend to be at or above grade level, and likewise those that score below acceptable tend to be below grade level. Tables 33 and 34 display these relationships with 76 to 81 percent of the students in Language Arts and 65 to 80 percent of the students in Mathematics who are at grade level are also at or above the acceptable level on the PATs. The 2007-08 data compares to the 2006-07 data where 76 to 78 percent of the students in Language Arts and 66 to 80 percent of the students in Mathematics who were at grade level were also at or above the acceptable level on the PATs.

Table 33 - Comparison of English Language Arts PAT and GLA

		Grade Level of Achievement – English Language Arts					
		At or Above Grade Level		Below Grade Level or GLA NA		Total	
		Percent	Total	Percent	Total	Percent	Total
PAT - Grade 3 English Language Arts	Accept. or Excellence	**78.7**	29,711	<u>5.2</u>	1,953	83.9	31,664
	Below Accept., Excused or Absent	<u>8.6</u>	3,251	**7.5**	2,834	16.1	6,085
	Total	87.3	32,962	12.7	4,787	100.0	37,749
PAT - Grade 6 English Language Arts	Accept. or Excellence	**80.8**	31,819	<u>4.3</u>	1,679	85.1	33,498
	Below Accept., Excused or Absent	<u>7.7</u>	3,027	**7.2**	2,845	14.9	5,872
	Total	88.5	34,846	11.5	4,524	100.0	39,370
PAT – Grade 9 English Language Arts	Accept. or Excellence	**76.4**	30,678	<u>2.1</u>	859	78.5	31,537
	Below Accept., Excused or Absent	<u>13.0</u>	5,232	**8.5**	3,404	21.5	8,636
	Total	89.4	35,910	10.6	4,263	100.0	40,173

Note: Bolded numbers represent consistent relationships between GLA and PAT data; underlined numbers indicate inconsistent relationships.

It should be noted, in reviewing the above two tables and the data from 2006-07 that more students are categorized as "below grade level" in the PAT results than is true in GLA ratings. This suggests that in terms of evaluating acceptable progress, the PAT is a more difficult standard to attain than is the GLA. The two assessments can be expected to demonstrate some variance because they are different forms of assessment, but both are designed to assess whether a student has met grade level standards. The variance between these two sets of measures may be due to a number of possible explanations, such as: 1) it may be more difficult for teachers to assign a "below grade level" evaluation to their students than is the case for markers of the PAT assessments who do not know the students whose work they are judging; 2) student performance on PATs may be attenuated by test anxiety; 3) students may perform better on many assessments over time than on a single paper and pencil test; or 4) a combination of these factors and/or other factors. The key opportunity this analysis presents lie in identifying where discrepancies occur, both individually and for various student groups, and investigating the specific reasons for the discrepancy. Such reflection will help to ensure students and parents are well-served by the overall assessments used to judge student achievement. *A priori* pronouncements on the appropriate relationship between classroom assessment results and large scale test results ignore the inherent complexities associated with student assessment.

Table 34 - Comparison of Mathematics PAT and GLA

| | | Grade Level of Achievement – Mathematics | | | | | |
| | | At or Above Grade Level | | Below Grade Level or GLA NA | | Total | |
		Percent	Total	Percent	Total	Percent	Total
PAT - Grade 3 Mathematics	Accept. or Excellence	**79.6**	30,067	<u>2.8</u>	1,057	82.4	31,124
	Below Accept., Excused or Absent	<u>11.2</u>	4,219	**6.4**	2,406	17.6	6,625
	Total	90.8	34,286	9.2	3,463	100.0	37,749
PAT - Grade 6 Mathematics	Accept. or Excellence	**76.4**	30,075	<u>1.9</u>	757	78.3	30,832
	Below Accept., Excused or Absent	<u>13.2</u>	5,211	**8.5**	3,327	21.7	8,538
	Total	89.6	35,286	10.4	4,084	100.0	39,370
PAT – Grade 9 Mathematics	Accept. or Excellence	**64.8**	26,047	<u>1.7</u>	699	66.6	26,746
	Below Accept., Excused or Absent	<u>20.7</u>	8,321	**12.7**	5,106	33.4	13,427
	Total	85.5	34,368	14.5	5,805	100.0	40,173

Note: Bolded numbers represent consistent relationships between GLA and PAT data; underlined numbers indicate inconsistent relationships.

The key issue emerging from this analysis is to understand the implications for teachers and administrators who are experiencing significant variance between these two sets of measures. Should teachers be encouraged to teach more specifically to the test blueprints that underlie the PATs, or should they be encouraged to align their classroom assessment strategies more directly to the general and specific learning outcomes defined in the subject program of studies? Research on this question tends to suggest that the latter strategy has the most potential to ensure that when students are assessed with external tests that the results correspond to the classroom assessment results [see for example, *Integrating Differentiated Instruction and Understanding by Design* (Tomlison and McTighe, 2006)] for a comprehensive discussion of the dynamic relationship between pedagogy and assessment.

According to classical test theory (Crocker and Algina, 1986) all assessments are subject to some degree of test error. Given this fact the more achievement data available the clearer the true picture of a student's achievement becomes. One would expect some differences as well as complementary relationships in the designation of individuals in the two ratings provided by PAT and GLA data. Classroom assessment is based on an array of assessment methods over time for the GLA rating, ideally measuring the full and complete range of learning outcomes; whereas the PAT is a single, highly valid and reliable, selected and constructed response test that typically measures between 66 percent and 95 percent of the curricular outcomes in the tested

subjects[4]. The PATs are very likely the single best criterion-referenced assessment instrument available to the classroom teacher. Since the objective of both methods is to measure and provide evidence on how well a student is achieving as compared to the learning outcomes in the program of studies, one would expect a generally positive relationship between the students identified as "below" by both methods, and that is what we see in this data set. Where anomalous or inconsistent relationships are observed it presents the occasion to ask why and to delve deeper into the data to help understand why the measures differ. When such variance is present there is no substitute for careful review and reflection on the reasons for the discrepancy so that the student and parents are more fully informed of what the assessment results imply for future program decisions.

Discussion and Conclusions

Highlights of Findings
The key question addressed by this report considered how GLA data contributes to our knowledge base in terms of provincial level student achievement overall and examined the data in relationship to specific student cohorts who are served by special programming. Another important issue is demonstrating the potential of applied research and the practical utilities of systematically collected GLA data, which, in conjunction with other data and information sources, can be applied in the decision-making process at a provincial, jurisdiction and school level. Lastly, this report may serve to give parents and the public a clearer picture of student achievement in Alberta.

The error rate for 2007-08 GLA data submission was low with only 0.014 percent of the files submitted having initial errors. This low error percentage attests to a significant progress in the refinement of the data collection and reporting processes. The quality of data collected from schools is expected to further improve after the error detection software is introduced in the data collection process in the near future as a component of the "Provincial Approach to Student Information" initiative. Systematic collection of full sets of GLA data will make it possible to conduct trend analysis of achievement for different groups of students at the provincial, jurisdiction and school levels.

As expected and similar to the 2006-07 analysis, the 2007-08 data demonstrates less variation for the total cohort than for specific sub-groupings of student achievement. The following key findings emerged from the analysis of 2007-08 GLA data as well as from the examination of the available starting two-year trend data:

- Substantial variations continue to be observed in GLA between major student sub-groups. For example, over half (55 to 63 percent) of students coded with severe or mild/moderate disabilities and between 77 and 86 percent of Canadian and foreign-born ESL students achieved at or above grade level in English Language Arts and Mathematics compared to 92 to 94 percent of non-coded students and 98 to 99 percent of gifted students (refer to Tables 5, 6, 9, 12, 13 and 14).

- In addition, the following differences were observed within some of these sub-groups:

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[4] These figures were obtained from a discussion paper presented to the Program and Accountability Advisory Committee, November 8, 2007.

- The percentages of students attaining at or above grade level varied substantially by specific types of severe or mild/moderate disability.
- Congruent with previously collected (2006-07) GLA data, nearly three times as many males as females were coded as severely disabled and almost twice as many males were coded as mildly/moderately disabled compared to females (see Tables 8 and 11). At the same time, males coded with different types of disabilities generally (with a few exceptions) tended to outperform coded females on GLA.
- Coded groups of students (especially those with mild/moderate disabilities and Canadian and foreign born ESL) tended to perform better in Mathematics than in English Language Arts.
- Students coded as gifted were also more likely to achieve better in Mathematics. A much higher percentage of students coded as gifted continue to be assessed above grade level in Mathematics than in English Language Arts or French Language Arts. Available trend data over two years (see Table 32) points to higher percentages of gifted students performing above their enrolled grade levels in 2007-08 compared to 2006-07, both in English Language Arts and Mathematics. This could be symptomatic either of improved programming and more appropriate grade placement of these students.
- When comparing foreign-born and Canadian-born ESL students, both groups of students performed at a similar level in Mathematics. While during previous, 2006-07 GLA reporting period Canadian-born ESL students appeared to be at an advantage in English Language Arts, the currently available two-year trend data did not confirm this finding. Recent 2007-08 data indicate similar percentages of Canadian and foreign-born ESL students achieving at grade level in English Language Arts, and may indicate foreign-born ESL students are closing the gap with their Canadian-born counterparts.
- While slightly higher percentages of mildly or moderately disabled students tended to achieve at or above grade level in 2007-08 compared to 2006-07, their severely disabled counterparts showed a reversed trend (see Table 32). However, the comparative trend analysis was based on a partial data set (60 percent of schools reported GLA in 2006-07, which also embraced only two consecutive years of data collection.

- Congruent to findings based on previously collected (2006-07) data, females slightly outperformed males on GLA (three to five percent more were at or above grade level compared to males).

- The percent of students below grade level tended to increase through the elementary grades and peaked at Grades 8 and 9. The two-year trend data (Figures 7 and 8) revealed subject-based variations in this pattern. While the percentage of students below grade level tended to increase with grade for Mathematics, the proportion of these students tended to decrease with grade for English Language Arts. This finding is compatible with other quantitative and qualitative evidence pointing to the issues related to achievement in Mathematics in junior-high school.

- By analogy with the results obtained using past GLA data, the negative effect of high mobility on student achievement was evident in 2007-08 GLA data. The differences between highly and low mobile students with GLA below grade level ranged from six to over 10 percent, depending on a grade and subject.

- The age effect[5] was apparent in English Language Arts 2007-08 GLA data, especially in Grades 1 and 2. After Grade 3 the age effect tapered off. This relationship also unfolded in a similar way in the 2006-07 GLA data, with the only difference that it was more notable for Grade 3 and was also evident up to Grade 5. These preliminary trend results confirm that the age effect is most likely to occur in early elementary grades.

- The results of comparisons between GLA and PAT outcomes for Grades 3, 6 and 9 bear much similarity to the findings in the previous GLA reporting period. Overall, there was almost 80 percent alignment between students assessed at or above grade level of achievement and earning acceptable or excellence grade on provincial achievement tests. However, the previously observed large difference between Math 9 Provincial Achievement Test data and GLA (only 65 percent congruence) was also observed in the recent, 2007-08 GLA data. This phenomenon warrants further trend observations and explanations of why such large gaps between GLA and PAT assessment results tend to occur in Grade 9 Math.

Opportunities for Enhanced Dialogue on Student Achievement

GLA data make it possible to systematically obtain consistent information on student achievement, which otherwise would not be available. PAT results represent high quality but more periodic data on student achievement and academic progress. GLA provides important consistent information that would not otherwise be available for students in grades not tested by PATs. GLA data can be applied as a useful supplement to consideration of PAT outcomes, and can be used on its own in grades not tested with large-scale assessments to interpret patterns and trends in student achievement, depending on context and/or decision-making needs.

This report points to a number of potential questions that may benefit from further reflection within schools, jurisdictions, stakeholder organizations and Alberta Education. For example:

- Why is the proportion of male students coded with a severe disability so much higher than female students? Also, why do females coded with severe as well as mild/moderate disabilities tend to perform at a somewhat lower level on GLA compared to males?
- Why are gifted students more likely to have a GLA above their enrolled grade in Mathematics than in Language Arts
- What strategies might be most effective in offsetting the negative effect of mobility on student achievement?
- What pedagogical adaptations might be helpful in mitigating the age effect in the early grades?
- Does the Grade 9 PAT in Mathematics or the GLA for Mathematics 9 represent the best predictive validity for subsequent high school math achievement?

The ensuing practical implications based on GLA data analysis include, but are not limited to the following examples:

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[5] Age effect is defined as older students in a grade tending to have higher average PAT test scores than the younger students in that same grade (Alberta Learning, 2001).

- Similar general grade progress among some groups of students coded as severely disabled and mildly/moderately disabled may be indicative of a lack of consistency in the coding standards and procedures across the system and reflects the complexity of the learning profiles of individual students. These patterns support the current provincial initiative targeting a review of current research and best practices and input from Albertans in order to build a more effective special education policy framework.

- Relatively better progress by males, who represent the vast majority of the student population coded with various types of disabilities in comparison to females, may be due to the lack of special programming and attention to the needs of relatively fewer coded females or perhaps a phenomenon of over-coding of male students.

- The observed higher degree of success in Mathematics GLA in students coded as ESL or gifted in comparison to English Language Arts may be due to a number of factors. For example, it could be symptomatic of various language (learning) deficiencies among ESL students which support the need for an enhanced focus on language and literacy. The observed discrepancies for gifted students may be due more to curricular design issues as opposed to ability levels of these students.

- The comparisons of GLA data with PAT results (refer to Tables 33 and 34) may represent a useful exercise for identification and examination of issues that would otherwise be concealed if only PAT data were taken into consideration. For example:

  - The "discrepancies" in GLA and PAT results could point to issues such as inflated classroom grading or sources of internal and/or external bias in the provincial achievement tests. However, it would be useful to try to gain a more detailed understanding of why some students who "passed" GLA fall below the acceptable standard on PATs or vice-versa. There could be various underlying issues that explain non-congruence between GLA and PAT results.
  - Given that lower than expected student achievement in Mathematics have been a persistent issue in junior and senior high grades, it is imperative to uncover the reason for a large inconsistency between GLA and PAT results for Grade 9 Mathematics (see Table 34). This would include answering the earlier mentioned question regarding the predictive validity of both GLA and PAT assessment in Grade 9 for subsequent high school math achievement.
  - GLA data is valuable for both trend and comprehensive examination of student achievement complementary to PAT results as useful check points.

- Finally, collection and analysis of GLA data raises general questions about assessment theory and practices, including standards and comparability of GLA data. Since teaching practices vary a lot in terms of methods and practices (that can depend on individual groups of students), it would be difficult and undesirable to "uniformly standardize" GLA assessment techniques. At the same time, it would be useful to support excellent assessment approaches and methodologies that would improve comparability and consistency of GLA data coming from different sources. This would require consistent professional development training and preparation in assessment for already practicing and future teachers. The concurrent Alberta Student Assessment Study will provide insight to this issue.

Future Data Collection and Analysis

Additional analysis of GLA data in relationship to 2006 census data will be available later in the current school year to provide an indication of the extent to which variables external to schools influences student achievement. To create the most accurate comparison of the census data and the GLA data, the census data will be broken down by enrolled students' postal code.

Examples of Socio-economic status (SES) variables include Mother's Level of Education, Average Family Income/LICO (Low-Income Cut Off) and Home Rental/Ownership.

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