

Wireless Writing Program: Peace River North

Summary Report on Grade 7 Achievement: 2009

Dr. Sharon Jeroski, Horizon Research and Evaluation Inc.

Context

The Wireless Writing Project (WWP), initiated in 2001, provides laptop computers to all grade 6 and 7 students in Peace River North School District. Students use their laptops throughout the day, and are able to take them home. The WWP is designed to improve and sustain student achievement, particularly writing. District and provincial assessments, along with teacher action research projects and classroom assessment have consistently shown gains for students in the WWP. Reports for each year are available on the Peace River North website: prn.bc.ca.

This report focuses on four questions:

- What level of achievement do grade 7 students demonstrate?
- How did their achievement level change during their grade 7 school year?
- What pattern of achievement gains did students show over their two years in the WWP – from the beginning of grade 6 to the end of grade 7?
- How do changes in achievement vary by school?

All grade 7 teachers submitted writing samples from fall and spring assessments. Only those students (n=377) with both fall and spring samples available were included in the analyses.

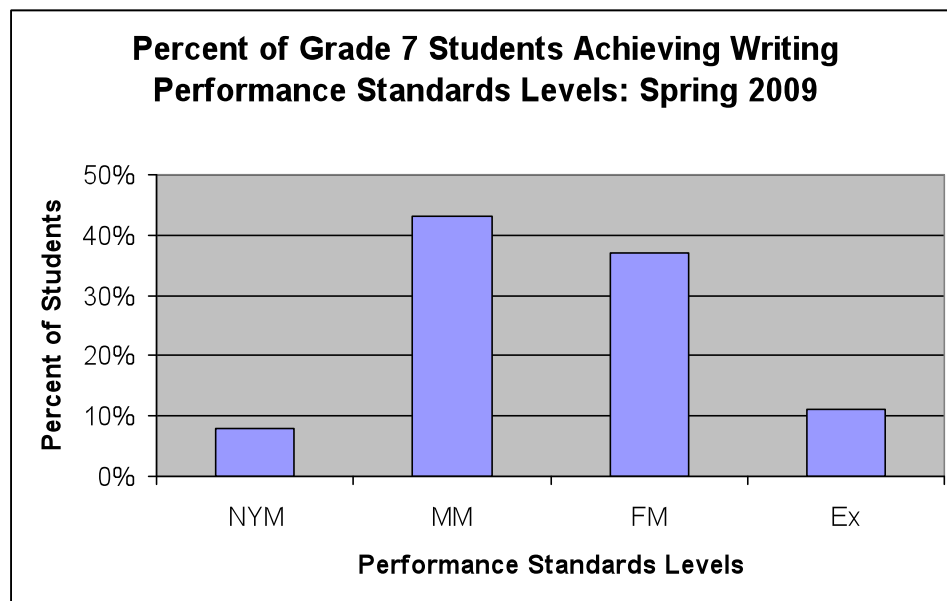
A district marking committee assessed the writing. Fall and spring writing samples were mixed together; each writing sample was assessed by two independent markers, using the Grade 7 BC Performance Standards (Impromptu Writing.) Discrepancies of more than one scale point were assessed by a third marker. Markers were extremely consistent; only 3 of the samples assessed required a third assessment, and in most cases, there was exact agreement. Students with missing data were deleted from the analysis.

After the grade 7 analysis, based on 377 students was completed, trends over two years, grade 6 through grade 7, were examined for the 231 students for whom four writing scores were available: beginning and end of grade 6; beginning and end of grade 7. This analysis used grade 6 scores on file from the 2008 marking sessions.

Results

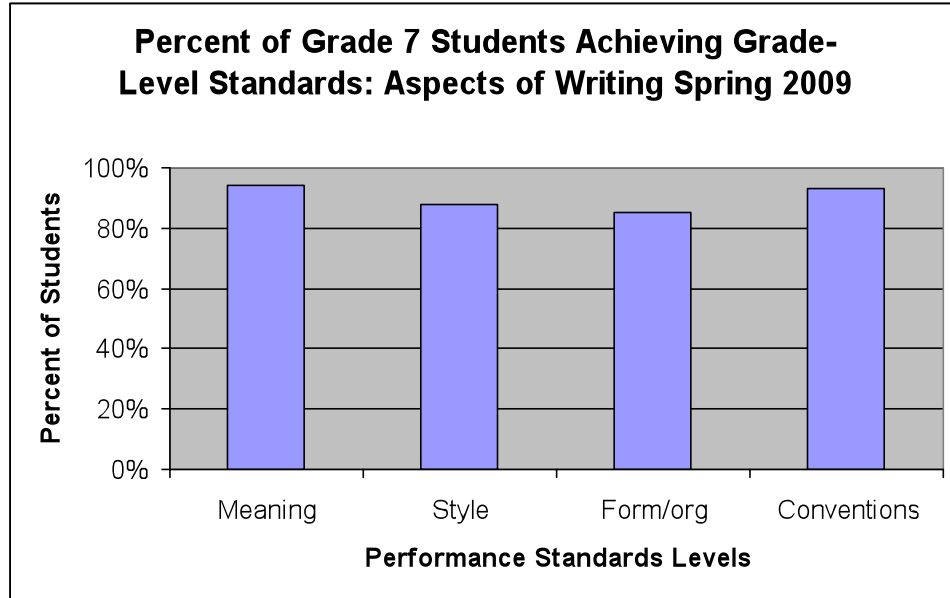
1. Grade 7 writing achievement: Spring 2009

- At the end of grade 7, over 90% of students in Peace River North achieved expectations on an impromptu writing assessment.
- Approximately one-half of students (48%) produced writing at the top two levels of the performance standards, fully meeting or exceeding grade level expectations.
- Using a four-point scale, where 1=not yet meeting expectations, and 4=exceeding expectations, the average score was 2.5 – midway between meeting expectations at a minimal/moderate level, and fully meeting expectations.

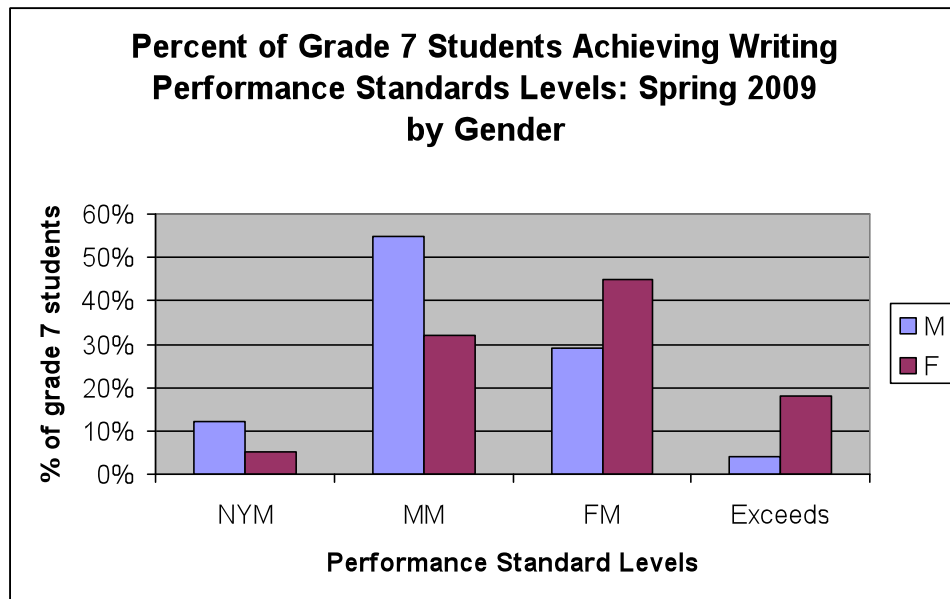


Note: on this and subsequent graphs of this type, NY=not yet within grade-level expectations;
MM = meeting minimal/moderate expectations; FM=fully meeting expectations; Ex=exceeding expectations

- In addition to an overall rating, the performance standards incorporate four aspects of writing: meaning (content; use of detail; voice); style (language and sentences); form/organization; and conventions (correctness). Student writing at the end of grade 7 was judged to be strongest in terms of meaning and conventions, and slightly lower for style and form/organization.

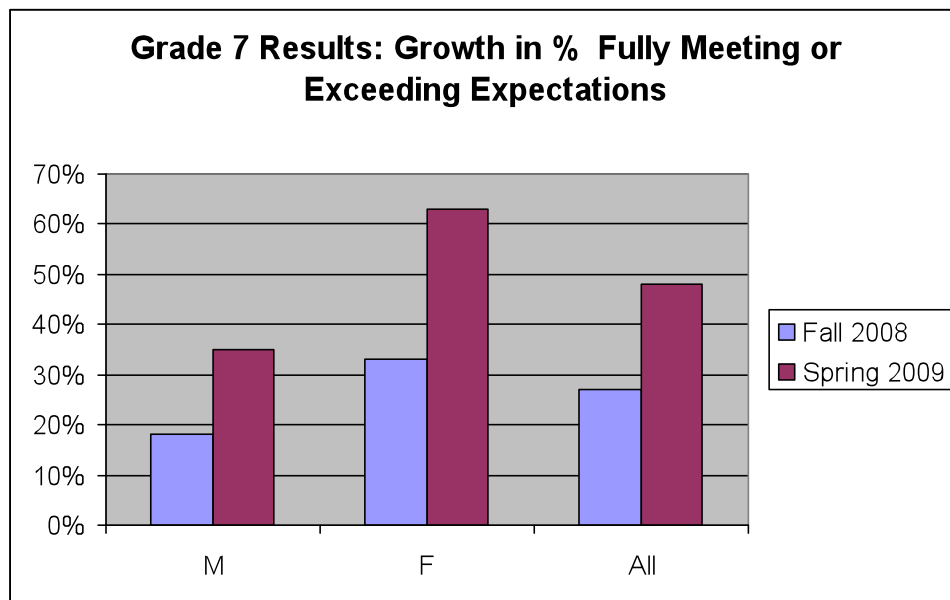
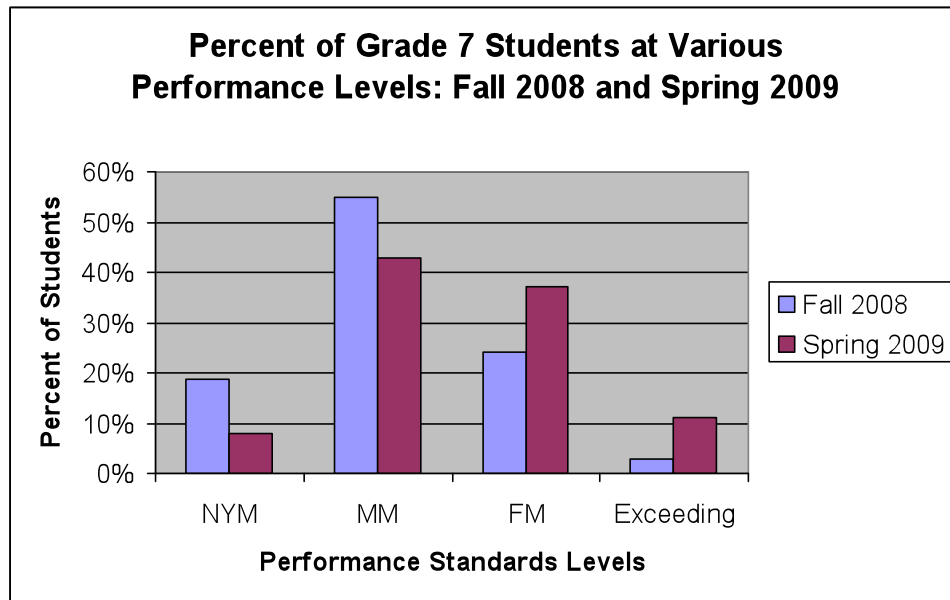


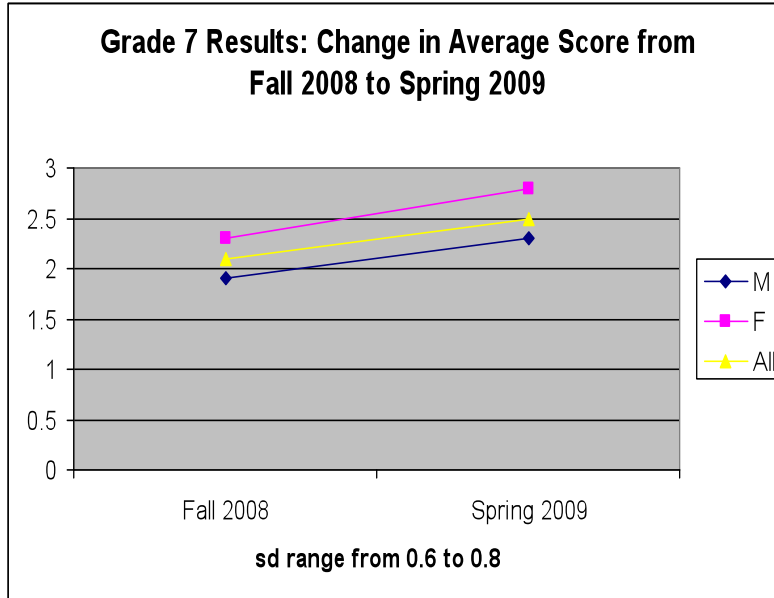
- At the end of grade 7, girls demonstrated higher levels of achievement on all aspects of writing than boys: 95% of girls met grade-level expectations compared with 88% of boys. The difference at the top two levels of performance standards is even more substantial, with nearly twice as many girls (63%) as boys (33%) fully meeting or exceeding grade-level standard. These differences are consistent across all aspects of writing.



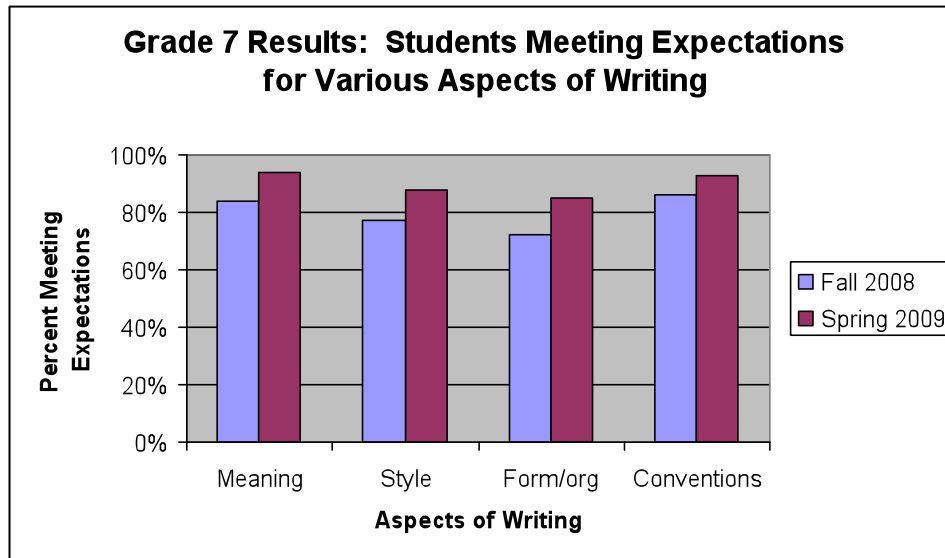
2. Growth in Grade 7 writing achievement: Fall 2008 to Spring 2009

- During their grade 7 school year, students showed improvement in their writing performance moving from:
 - 81% to 92% meeting expectations
 - 27% to 48% fully meeting/exceeding expectations
 - an average score of 2.1 to 2.5 (approximately one-half of a standard deviation and one-half a performance standards level—a change that is both statistically and educationally significant)
 - girls showed a slightly stronger gain during their grade 7 year than boys





Students showed improvement in all aspects of writing, with highest levels of competence for meaning and conventions, and greatest gain for form/organization.



3. Growth in Achievement over two years (grade 6-7)

Complete data for grade 6 and 7 were available for 231 students. Note that this is fewer than those used in the grade 7 analysis because some schools did not submit complete data in 2007-2008; eliminating the 130 students with incomplete 2007-2008 data also produces slightly different grade 7 results.

Scores for grade 6 are based on the grade 6 performance standards; those for grade 7 are based on the grade 7 performance standards. The standards for grade 7 require a higher level of achievement than those for grade 6 – where a student receives the same score in both grade, in fact, the student is demonstrating substantial improvement -- one full grade level.

Generally, over their two years in the WWP, most students show greatest improvement in grade 6. If they are able to sustain this gain through grade 7, it means that they begin grade 8 with a higher level of achievement than they had at the beginning of grade 6.

The 2007-2009 cohort demonstrated impressive gains during grade 6; as shown in the tables and graphs below, they sustained, and to some extent, increased those gains during grade 7:

- **During grade 6 (Fall 07-Spring 08):**
 - The average score increased nearly a full standard deviation.
 - The percent of students meeting expectations increased by 18%.
 - The percent of students fully meeting or exceeding expectations increased 31% (25% to 56% -- a dramatic change.)

- **At the beginning of grade 7 (Fall 08):**
 - Overall, students entered grade 7 much better prepared for work at this level than they had been for grade 6.
 - At the beginning of grade 7, 88% were already within grade 7 standards compared with 74% at grade 6, and approximately one-third were already fully meeting or exceeding grade 6 expectations for impromptu writing.
 - The average score on grade 7 standards compared favourably with their average grade 6 score (2.3 compared with 2.0), and was nearly one-half a standard deviation higher.

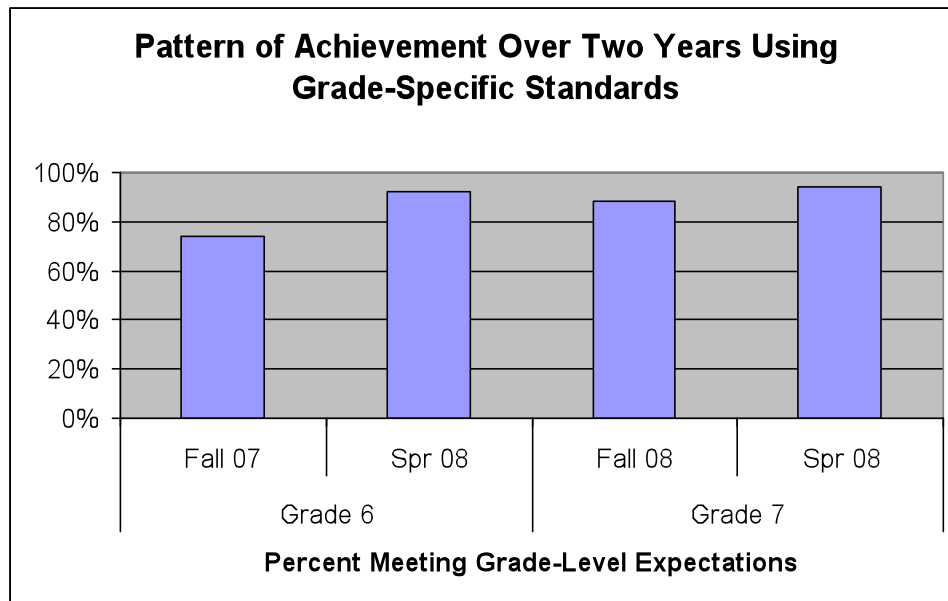
- **At the end of grade 7 (Spring 09):**
 - More students were meeting grade 7 standards than at the beginning of the year; writing scores had improved substantially.
 - The average score on the grade 7 assessment increased from 2.3 to 2.7 (note—this is slightly different from that reported for *all* grade 7 students because not all schools are included in this section of the analysis)
 - The percent meeting expectations had increased from 88% to 94%; the percent fully meeting or exceeding from 34% to 56%

- Student performance on year-end grade 7 assessments was slightly higher than their year-end in grade 6 (i.e., more students met expectations at the end of grade 7, than had met expectations at the end of grade 6.)
- **Over two years**
 - At the end of grade 7, students sustained or exceeded the performance levels they achieved for grade 6 even though the standards were more rigorous and the expectations higher.
 - In terms of grade-level standards, after two years in the WWP (i.e., comparing fall of grade 6 with spring of grade 7): approximately 20% more students met at least basic expectations (from 74% to 95%); approximately 30% more fully met or exceeded expectations (from 25% to 55%); the average score, on a 4-point scale, increased a full standard deviation, from 2 to 2.7. This is close to one full level on the performance standards.
 - While the pattern is similar for all aspects of writing, the greatest improvement appears for form/organization; then meaning. The smallest changes are in style and conventions. These results are consistent with those from other years.
- **Gender differences**
 - From the beginning of grade 6 to the end of grade 7, the percent of boys meeting expectations increased from 64% to 92%; girls, 83% to 97%.
 - The percent of boys fully meeting or exceeding expectations increased from 18% to 41%; girls, from 32% to 70%.
 - Because they entered the WWP with substantially higher scores, it is not surprising that the gains for girls are at the top end of the scale.
 - In the second year of the program, boys sustained the growth from the first year; girls continued to improve; for this sample of students, the difference between boys and girls was slightly greater after two years in the WWP.

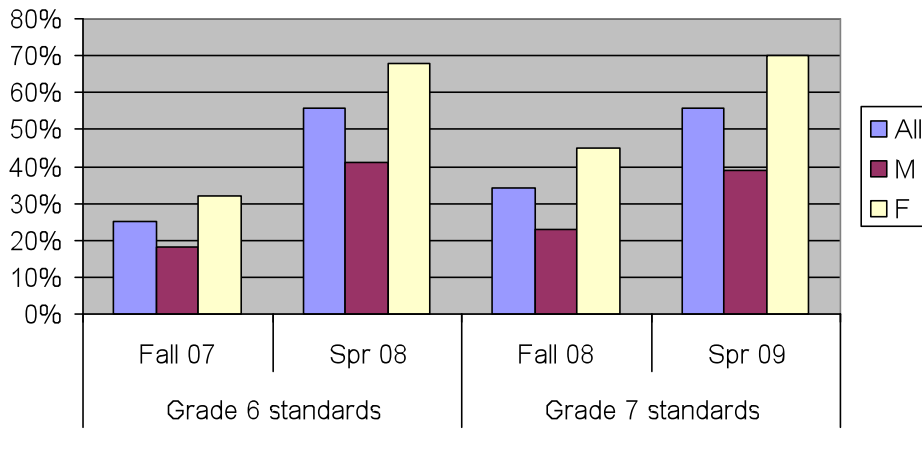
**Student Performance on Grade-Specific Writing Standards:
Grade 6 through Grade 7 (Matched cases only: n=231)**

Assessment session	Grade 6 standards		Grade 7 standards	
	Fall 07	Spring 08	Fall 08	Spring 09
Mean score*				
All	2.0	2.6	2.3	2.7
Male	1.8	2.4	2.1	2.4
Female	2.2	2.8	2.4	2.9
standard deviation	0.7	0.7	0.6	0.8
Exceeding expectations	2%	12%	4%	15%
Fully meeting expectations	23%	44%	30%	40%
Meeting expectations (minimal/moderate level)	49%	36%	54%	39%
Not yet meeting expectations	26%	8%	12%	6%

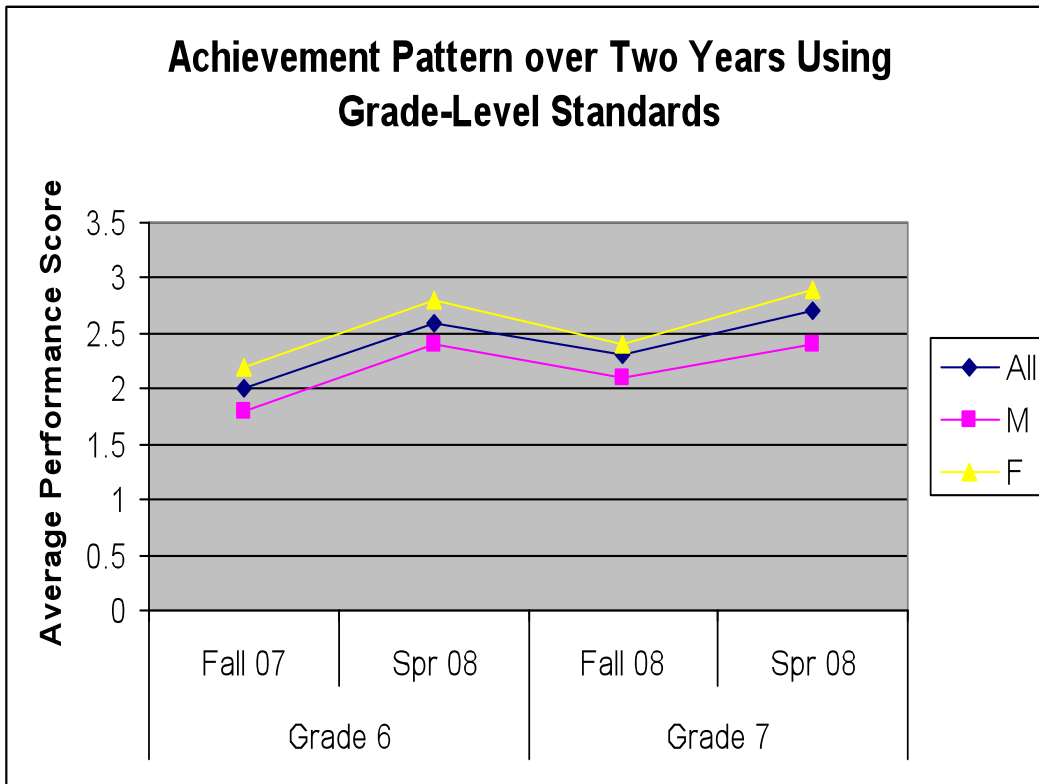
*Using a four-point scale were 1=not yet meeting grade-level expectations; 2=meeting expectations at a minimal/moderate level; 3=fully meeting expectations; 4=exceeding expectations



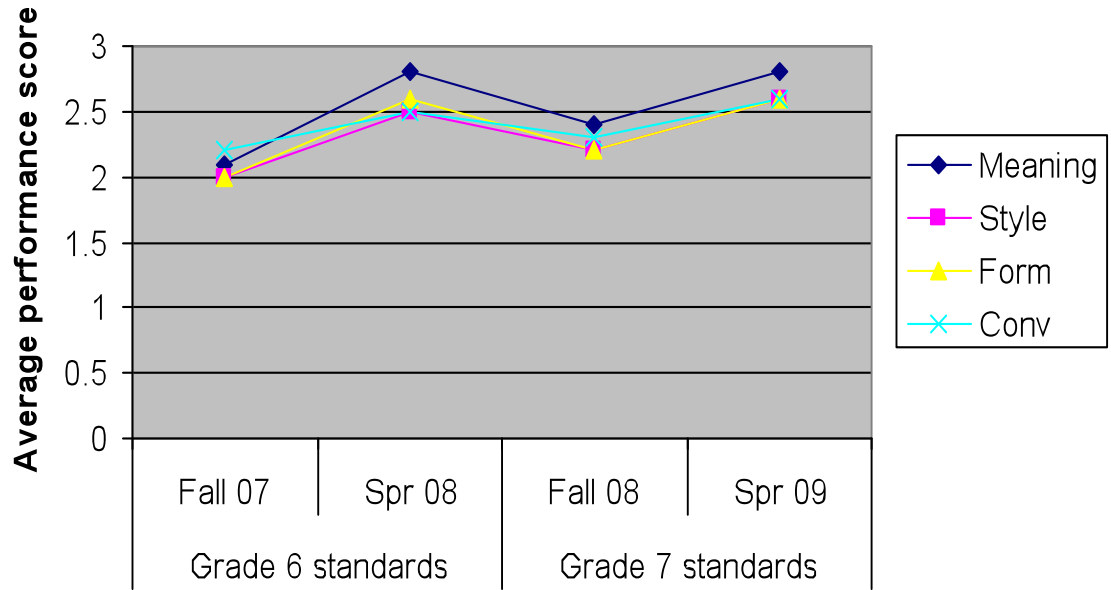
Pattern of Achievement: % Fully Meeting or Exceeding Expectations



Achievement Pattern over Two Years Using Grade-Level Standards



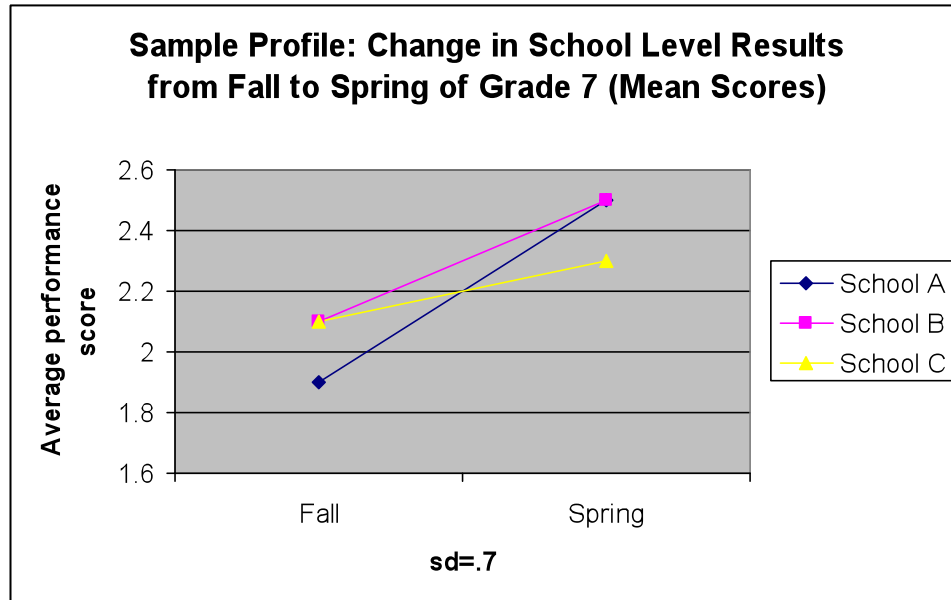
Achievement Pattern over Two Years: Aspects of Writing



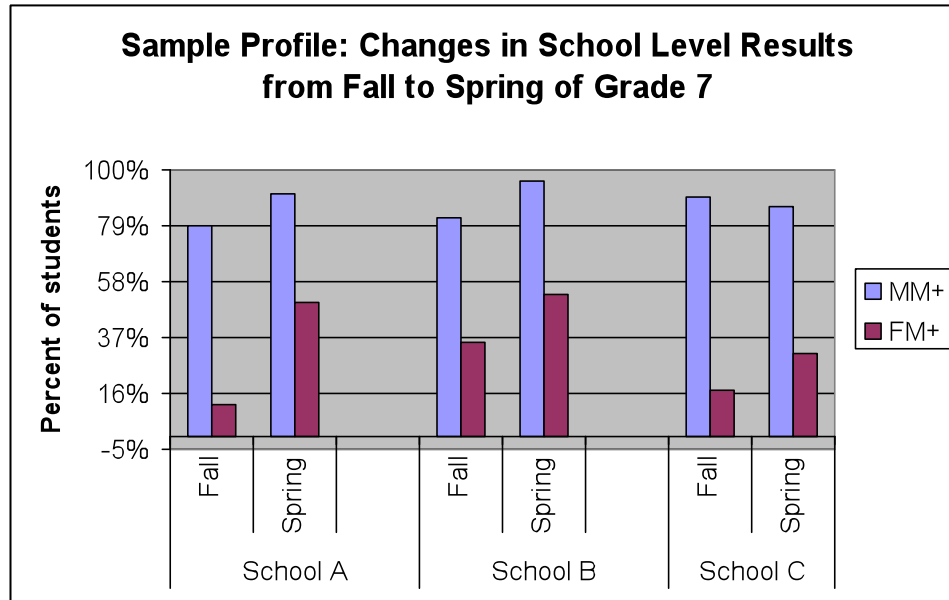
4. Changes in achievement by school

Both the grade 7 assessment (2008-09), and the grade 6-7 assessment (2007-2009) were analyzed by school focusing on changes in achievement over time. In both cases, there were statistically and substantially important differences in the amount of change, both for grade 7, where data were available for all schools, and for the longitudinal results over the two years of the WWP, grade 6 through 7.

- **Changes from Fall to Spring of Grade 7**
 - School-level results are easiest to analyze at grade 7 where all schools provided both fall and spring samples, and there is very little missing data.
 - As described in previous sections, on average, grade 7 writing improved from an average score of 2.1 in fall, 2008, to an average score of 2.5 in spring, 2009 – a gain of .4, approximately one-half a performance standard level, or, in statistical terms, one-half a standard deviation.
 - Most individual schools mirrored the district results, showing a gain of .4; however, one school showed a gain of .6, and two schools had gains as low as .2.
 - *Note:* two schools showed higher gains (.8 in one case, and 1.0, in another), but because they have very few students, the results need to be interpreted with caution.
 - The graph below shows the average gain at three schools with different profiles: School A demonstrated a stronger gain than the district as a whole; School B showed a gain similar to the district results; School C showed a limited gain. These differences resulted in a different ranking of the three schools, in terms of the impromptu writing samples, at the end of grade 7 compared with the beginning: the lowest scoring school has equaled the highest; a high scoring school is now lowest among the three.

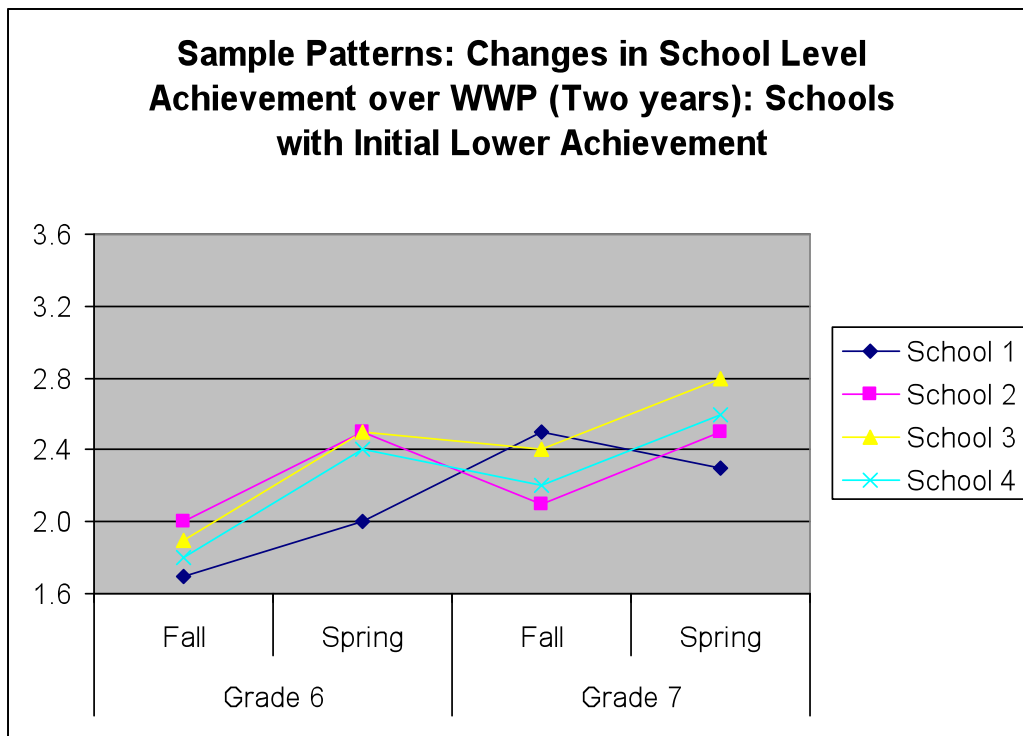


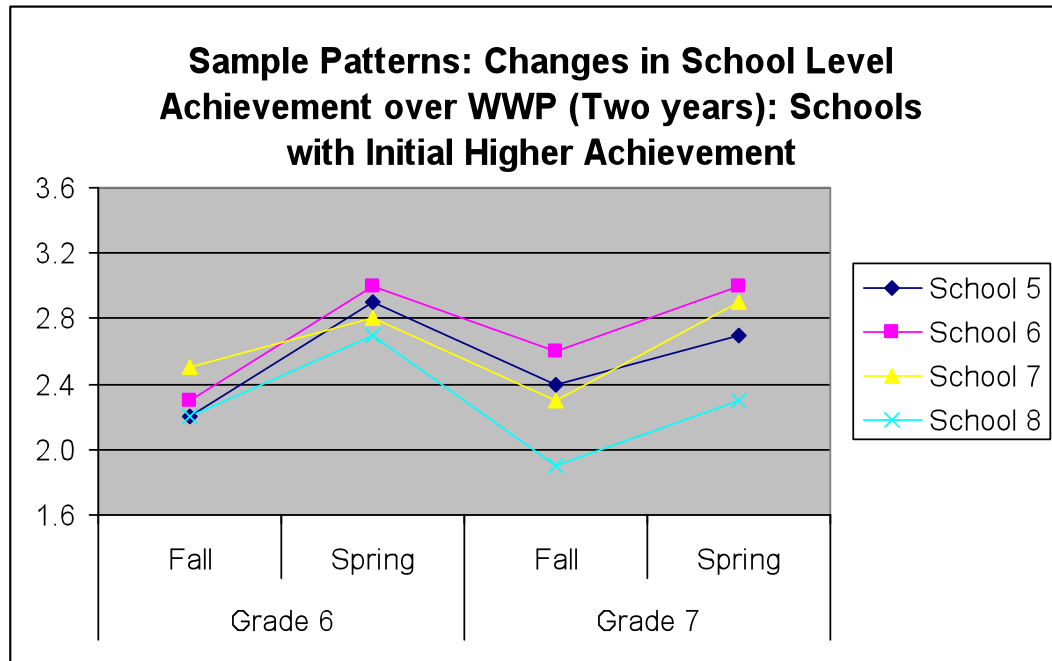
- The graph below shows results for the same schools in terms of the percent of students meeting and exceeding expectations:
 - School A: the percent of students meeting at least minimal expectations increased from 79% in the fall to 91% in the spring; the percent fully meeting or exceeding (the top two scale points), increased from 12% to 50%.
 - School B: the percent of students meeting at least minimal expectations increased from 82% in the fall to 96% in the spring; the percent fully meeting or exceeding, increased from 35% to 53%. (This is similar to the district pattern.)
 - School C: the percent of students meeting at least minimal expectations decreased from 90% in the fall to 86% in the spring; the percent fully meeting or exceeding, increased from 17% to 31%.



- When specific aspects of writing were analyzed – meaning, style, form/organization, and conventions – differences across schools were easiest to detect for form/organization, where some schools showed an average growth of a full scale level over one year, and others showed virtually no change at all.
 - Differences were least apparent for conventions which showed the smallest changes overall, and the smallest differences from one school to another.
 - It is important to note that school-level differences were not associated with school location, size, or initial achievement.
- **Changes over two years of WWP by school (Fall 2007 to Spring 2009.)**
- Results in this section need to be viewed with extreme caution because of the large amount of missing data – some schools did not submit any data from one of the 2007-2008 assessments; others submitted writing from a small number of students.
 - In preparing the graphs below, only those schools that submitted writing for all four testing periods for a substantial number of students were included. Schools with very small populations were also excluded.
 - As shown in the graphs, some schools demonstrated very strong gains in grade 6; then moderate declines in grade 7; others showed similar gains across both years; and some were much stronger in grade 7. These patterns suggest that differences may be more strongly associated with classrooms than schools.
 - A few schools stand out with approximately one full level of improvement from the beginning of grade 6 to the end of grade 7. This gain is especially impressive given that the grade 7 standards are much more demanding than those for grade 6.

- It is important to note that gains are not related to initial scores; some schools with higher initial scores did not change much while others did; similarly, some schools with lower scores changed dramatically; others did not.
- As with grade 7 results, differences are not associated with school size or location (however, note that smaller schools were not included because the small number of students makes results unstable.)
- The graphs below profile eight schools. The first graph shows how average scores changed over two years in four schools with relatively low initial achievement. The second graph shows similar information for four schools with relatively high initial achievement.
- As these graphs demonstrate, schools demonstrated different levels and different patterns of gains over the four impromptu assessments.





Summary

- Grade 7 students in Peace River North demonstrate relatively high levels of achievement on impromptu writing. Almost all students meet at least minimal expectations for the end of grade 7; close to half of the students fully meet or exceed expectations.
- During grade 7, students' writing improved substantially in terms of grade level standards, with the average score approximately one-half level greater at the end of grade 7 than at the beginning.
- Girls began grade 7 with substantially stronger writing scores; at the end of grade 7, the difference had increased slightly. The difference is most noticeable for the percent that fully meet or exceed expectations.
- When results over two years are examined, student gains appear to be greatest in grade 6. These gains are then sustained – and slightly increased – during grade 7. This pattern may be due to the initial novelty of having laptops, or to the age/developmental level of students.
- Changes in achievement are most apparent for the core aspects of meaning and form/organization. Student writing appears to change least for conventions/surface features. This suggests that the improvements are fundamental to good writing, and not simply a reflection of having tools such as a spell checking program available.
- There are strong differences among schools both in terms of overall gain across two years, and in terms of the pattern of gains from year to year.

