GENDER DIFFERENCES AND ACADEMIC OUTCOMES IN BRITISH COLUMBIA'S K-12 ABORIGINAL POPULATION

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ABSTRACT / RÉSUMÉ

The British Columbia Ministry of Education reports that education outcomes of Aboriginal K-12 students have improved over the past seven years. However, there is a significant gap in these reports, in terms of gender analysis for the Aboriginal population. This study employs Ministry of Education data to analyze gender differences in the elementary and secondary school outcomes of Aboriginal students. The study, which utilizes a cohort analysis methodology, details results in terms of two Aboriginal groups, those with Band status, and those students who identify themselves as Aboriginal, but are not formally affiliated by a Band.

Selon le ministère de l'Éducation de la Colombie-Britannique, les résultats scolaires des élèves autochtones de la maternelle à la 12e année se sont améliorés au cours des sept dernières années. Cependant, ces rapports comportent une lacune importante en ce qui concerne l'analyse comparative entre les sexes pour la population autochtone. Cette étude utilise des données du ministère de l'Éducation pour analyser les différences entre les deux sexes dans les résultats scolaires des élèves autochtones aux niveaux primaire et secondaire. L'étude, qui utilise une méthodologie d'analyse par cohorte, expose en détail les résultats de deux groupes d'Autochtones, des élèves qui ont le statut d'Indien inscrit et d'autres qui s'identifient comme Autochtones, mais ne sont pas officiellement affiliés à une bande indienne.

THE STUDY

The British Columbia Ministry of Education reports that schooling outcomes of Aboriginal K-12 students have improved over the past seven years[1], although inequity in comparison to non-Aboriginal students persists. However, a significant gap in these reports exists in terms of gender analysis for the Aboriginal population, which comprises approximately 10% of the overall student population.

While differences between overall female and male student performance have been extensively analyzed in school, school district, and Ministry of Education reports[2], such gender differences are not delineated by specific subpopulations. This study examines differences between female and male Aboriginal students in schooling outcomes over elementary and secondary school years. The study, which employs a cohort analysis methodology, details results in terms of two Aboriginal groups: those with Band status (approximately 3% of the student population); and, those students who identify themselves as Aboriginal but are not formally affiliated by a Band[3] (approximately 7% of the population).

Data associated with several provincial cohorts[4] (approximately 50,000 students each) were used in this study. Cohorts were defined as all students who were enrolled in Kindergarten together province-wide in a given school year, plus students who entered the British Columbian system at later grade levels (typically 2% of the student population migrates to British Columbia each year). Three cohorts provided information on Kindergarten to Grade 7 years only. A fourth cohort provided information on Kindergarten to Grade 12, including (FSA) Foundation Skill Assessment results of a standardized Grade 10 testing regime. (There is only one cohort for whom this information exists, since the assessment at Grade 10 was discontinued in British Columbia.) Comparisons were made on schooling outcomes of Numeracy and Reading FSA exams held at Grade 4, Grade 7, Grade 10 and at school completion. Additional factors related to schooling (i.e., entry grade, enrolment in Band schools, excused status, grade level synchronicity and retention of assessment status over time) are discussed briefly. Finally, local variation of outcomes is outlined.

KEY QUESTIONS

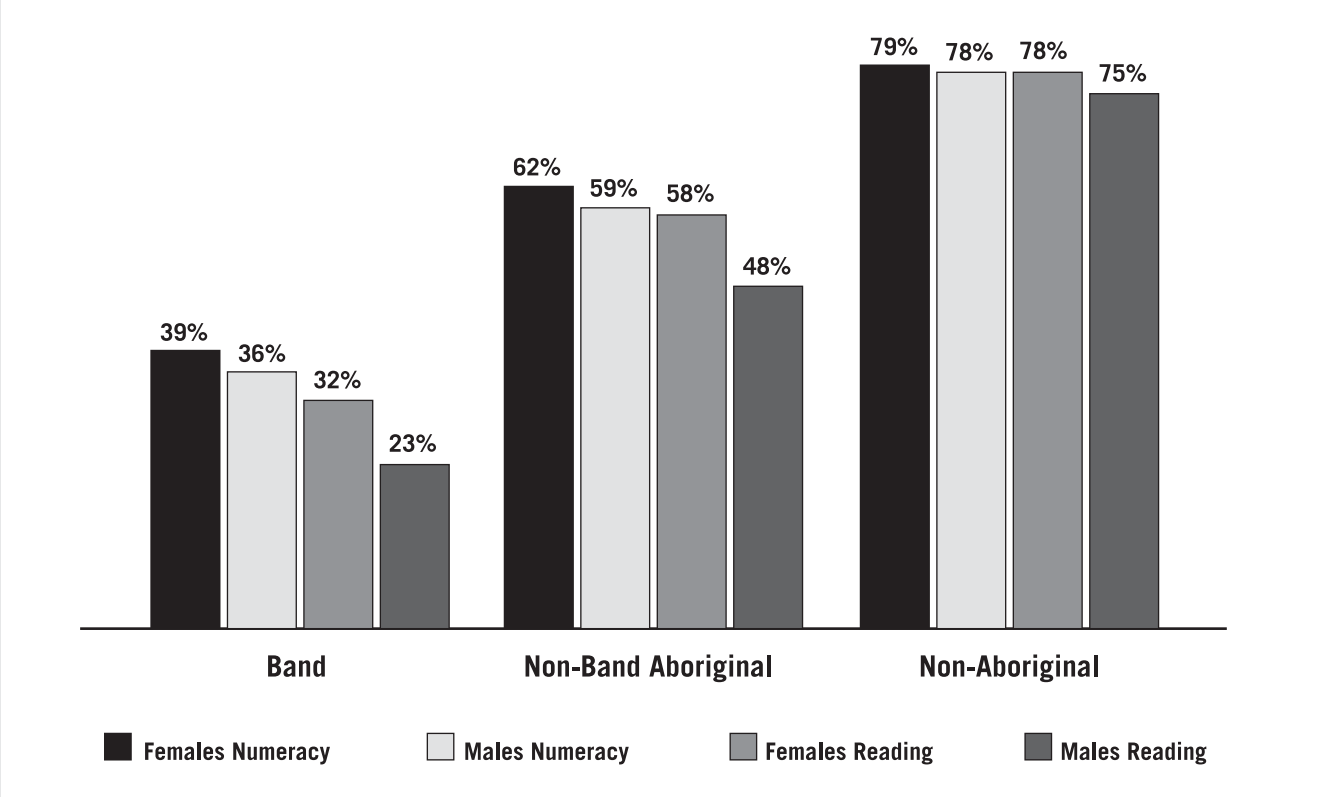
THIS STUDY ASKS THREE KEY QUESTIONS:

1) Are gender differences similar across Band, Non-Band Aboriginal and Non-Aboriginal populations?
2) Are the gender differences similar between Numeracy and Reading skills?
3) Are gender differences similar at different grade levels over the school trajectory?

GENDER DIFFERENCE ON GRADE 4 AND GRADE 7 NUMERACY AND READING FSAs

FSA exams are written by all British Columbian students (unless they are excused in advance) each spring in Grade 4 and Grade 7. There are three standardized exams: Numeracy, Reading, and Writing. (A presentation of Writing results does not occur here, because the marking scale of this particular exam poses difficulties in interpretation.) Students are assigned a percentage score as well as a 5-point categorical score indicating whether

FIGURE 1: Gr. 4 FSA Numeracy and Reading: Gender Differences in Meeting Expectations (Average of 3 years)



expectations have been met. This study utilizes the 5-point categorical scores. It groups students into those who meet (or exceed) expectations and those who do not (i.e., students who provided an ungradable response, were excused, were absent from the exam, or were not at grade level are assigned "not meeting expectations" status, so that the calculation of percentage meeting expectations reflects the entire cohort rather than just exam writers as typically reported). Results were pooled for the three cohorts available with both FSA 4 and FSA 7.

At the FSA 4 level (see Figure 1), the inequities across student groups are evident, for all Aboriginal students and for Band students in particular. In terms of Numeracy, there is little gender difference among Non-Aboriginal students and only a slightly larger gender gap for Aboriginal groups. In terms of Reading, there is a small gender gap in Non-Aboriginal students. This gap is amplified in the Non-Band Aboriginal and Band student cohorts. Finally, in terms of equity across skill domains, Non-Aboriginal females perform equally well on both exams, while Aboriginal females do less well in Reading than in Numeracy. The pattern is similar for boys, though amplified in Aboriginal male groups.

At the Grade 7 FSA level, success rates of all groups decline, while the inequity across student groups persists. There is little gender differential when Aboriginal groups are compared to the Non-Aboriginal group (i.e., females and males are equally as far from the success rate of female and male Non-Aboriginal students.) However, skill differences are more evident. Again, Non-Aboriginal females still perform nearly equally as well on Numeracy and Reading. Non-Band Aboriginal girls also perform equally well on both exams. However, this is no longer true for Non-Aboriginal males. It is also not the case for Band females. The skill differential is most acute for Band males.

These Grade 4 and Grade 7 outcomes are the pooled results of three cohorts. It is possible to examine whether the "meets expectations" status of individuals changed for students who were enrolled in the system for both FSA test years. For two groups, there was no gender difference in the "meeting expectations" status on Numeracy FSA 4 *and* 7: These groups were Non-Aboriginal Females and Non-Band Aboriginal females. However, fewer males than females were able to retain this status in the Band group for both Numeracy FSAs. On the Reading FSAs, no males in any group were able to meet expectations on both Grade 4 and Grade 7 exams in

FIGURE 2: Gr. 4 FSA Numeracy and Reading: Gender Differences in Meeting Expectations (Average of 3 years)

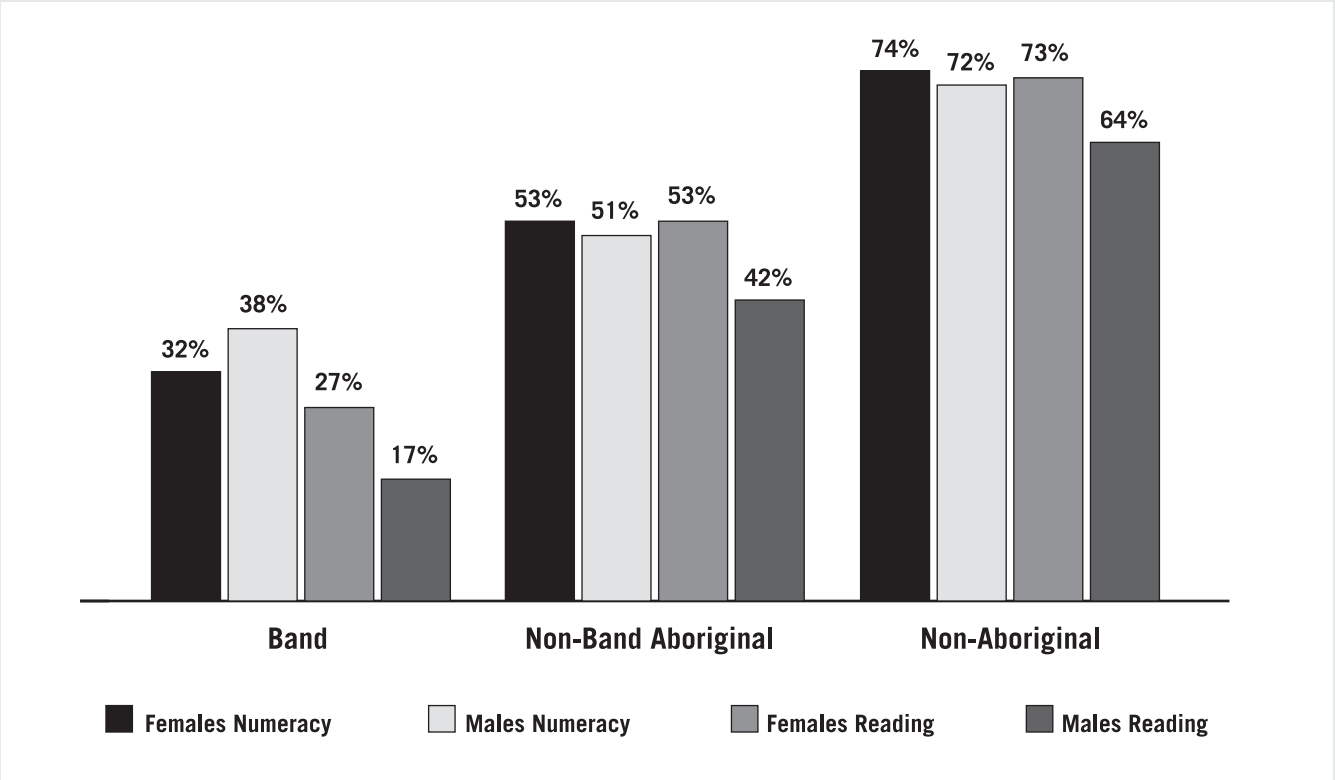
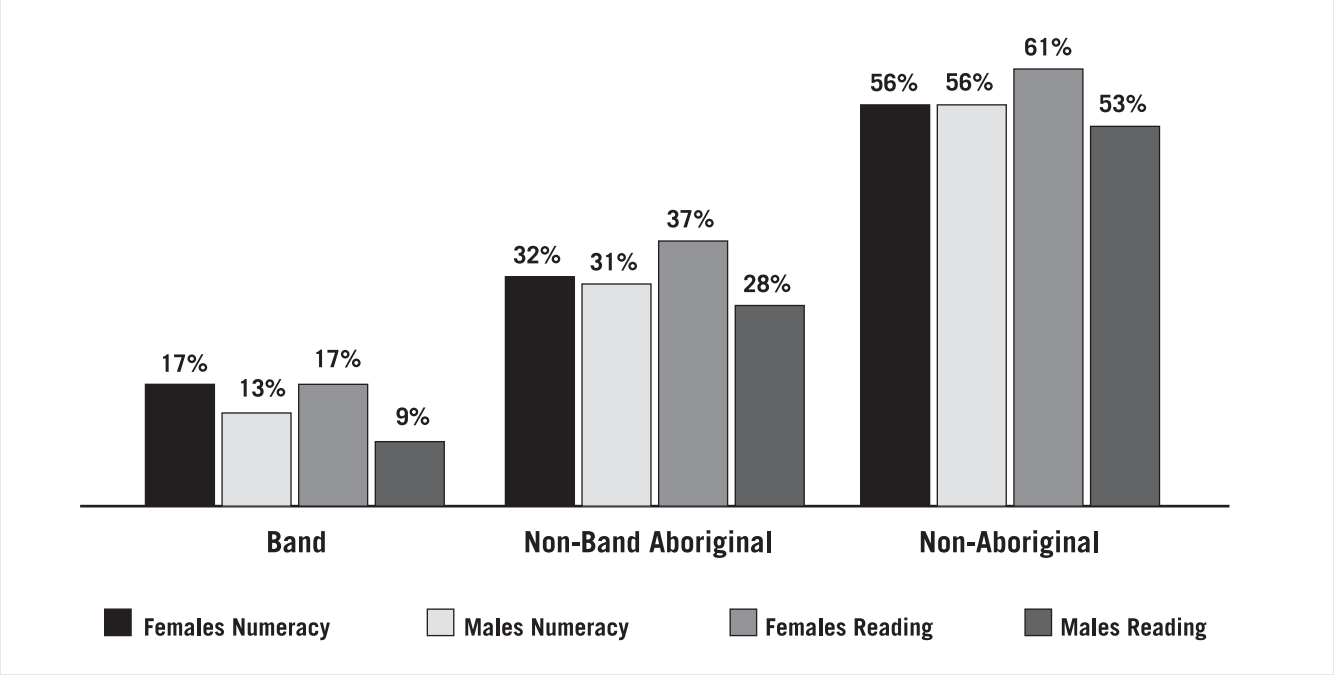


FIGURE 3: Gr. 4 FSA Numeracy and Reading: Gender Differences in Meeting Expectations (a single cohort)

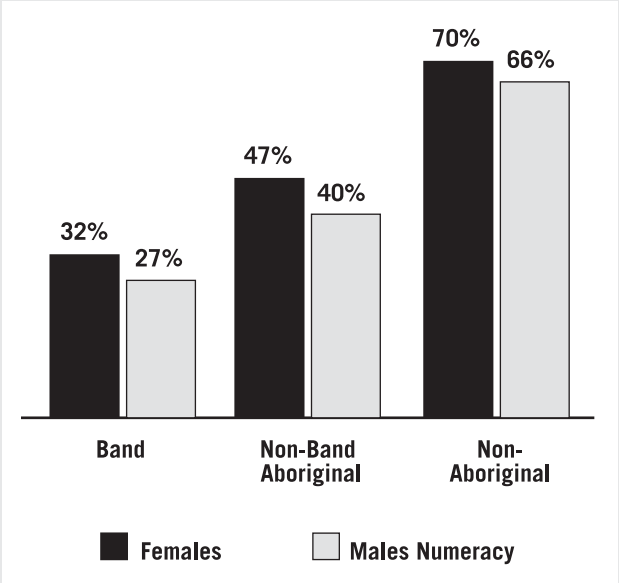


the same numbers as their female peers. Again, the differential between males and females was biggest in the Band group.

There is a single cohort for which results on Grade 10 FSAs are available in addition to information across the K-12 trajectory. Unfortunately, due to the timing and changes in British Columbia's testing regime, this cohort did not write Grade 4 and 7 FSAs. However, the results were felt to be of sufficient interest to include in this study (see Figure 3). First, inequity across student groups persists as with other cohorts analyzed. Second, and more alarmingly, less than 20% of the Band cohort meets expectations on either FSA. Gender differences in Numeracy for Band students are amplified, though gender differences in Reading results of Band students are not. The opposite pattern is exhibited in Non-Band Aboriginal students, where a male disadvantage in Reading is amplified. The performance of female Non-Aboriginal students is equal to that of males in Numeracy. Unlike in the case of the more recent K-7 cohorts, there is a substantial difference across skills for Non-Aboriginal females. At the secondary level, Non-Aboriginal females *are not equally successful* in both Numeracy and Reading.

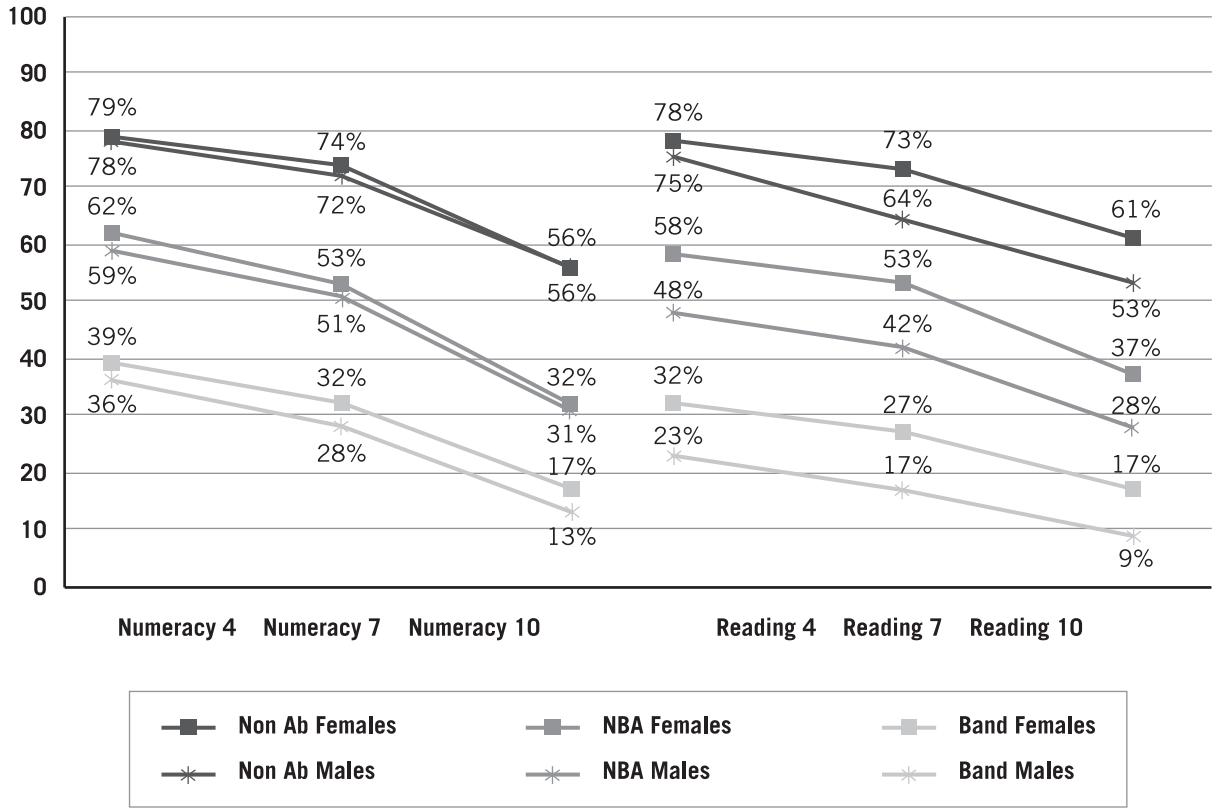
School completion is the ultimate outcome that can be calculated for a cohort. The school completion rates for a cohort that enrolled in Kindergarten[5] together is provided below (see Figure 4). As most descriptive results so far have supported, inequity of student groups is evident and, in all groups, females outperform male students.

FIGURE 4: School Completion: Gender Differences in Student Groups (a single cohort)



Using these findings, a diagram plotting the cohort success rate at different grade levels can be developed to provide a more clear sense of how groups of female and male

FIGURE 5: Gender and Student Group Differences in Meeting Expectations in Numeracy and Reading (Across Grade Levels)



students perform over the course of a school career (see Figure 5). Caution must be used in interpreting this diagram, since the Grade 10 results do not pertain to the same students providing the Grade 4 and Grade 7 results.

When results associated with different grade levels are plotted together, a clear downward trajectory exists for all groups. While gender differences in terms of numeracy are small over time; for Reading, the differences are stark. Where Non-Aboriginal males were similar to females in Grade 4 Reading, they did not retain similarity in later grade levels. Overall however, the most consistent pattern remains the persistent of inequity between Non-Aboriginal, Non-Band Aboriginal and Band student groups.

ADDITIONAL SCHOOLING FACTORS

DEFERRED ENTRY INTO SCHOOL SYSTEM

In British Columbia, students are not required to enrol at Kindergarten and may defer entry into the school system until Grade 1. A substantial proportion of Band-affiliated students (estimated 11%) defer entry. In contrast, an estimated 2% Non-Band Aboriginal students and Non-Aboriginal students defer entry. For both female and male students, students who defer entry to the school system fail to meet expectations on FSA exams to a higher degree than peers who enrol in Kindergarten.

NON SYNCHRONOUS GRADE LEVEL

By Grade 4, a high proportion (approximately 14%) of Band students are not enrolled in the expected grade level. The difference between Non-Band Aboriginal students (approximately 5%) and the Non-Aboriginal student population (approximately 3%) is more equitable. Male students are twice as likely to not be at the same grade level as their Grade 4 peers. By Grade 7, the proportions of student groups not at grade level are only slightly higher – 15% for Band students, 6% of Non-Band Aboriginal students and 4% Non-Aboriginal students. In Grade 10, 31% of Band students are not enrolled at the expected grade level

(22% of Non-Band Aboriginal and 12% Non-Aboriginal students). At this grade level, female students more are likely than at earlier grade levels to not be at their grade level. As noted above, this study categorizes students not enrolled in the expected grade level as "not meeting expectations." [6]

EXCUSED FROM FSA EXAMS

Very small proportions of students are excused from participation on the FSA 4 exam though Band students are excused to a greater degree than their non-Aboriginal peers. By Grade 7, the proportion of excused students increases in all groups. Approximately 10% of Band students are excused and 8% of Non-Band Aboriginal students are excused in contrast to 3% of non-Aboriginal students. Excused students are more likely to be female than male.

BAND SCHOOLS AND ALTERNATE SCHOOLS

A substantial proportion of Band students (approximately 20%) have been enrolled in Band schools at sometime in their grade trajectory. Band school students meet expectations on FSA exams in much lower proportions than Band peers enrolled in Public or Independent schools. Gender differences appear more pronounced in Band students enrolled in Band schools. Students enrolled in Band schools are about as half as likely to meet expectations on Grade 10 FSAs, when compared to their Band peers.

A higher proportion of Aboriginal secondary students (approximately 25%) have a history of having attended non standard schools (such as alternate schools) than Non-Aboriginal students (approximately 15%). There is little difference in the proportion of females and males in all groups enrolled in such schools. Females and males succeed to similar degree in these schools in on the Numeracy FSA; and, as is the case in standard schools, there is a gender gap in the Reading FSA results.

VARIANCE AT LOCAL LEVELS

Both FSA results and gender differentials vary across British Columbian, when the data is examined at the school district, community or school level. Band students are by no means a homogenous group – there are over 200 Bands located in British Columbia across a diverse range of economic and historic realities. The variance between Bands is high; but, there are few Bands with sufficient numbers of students in the cohort to conduct further analysis. However, preliminary Band-level analysis shows that neither poor success rates nor gender difference in success rates exist universally. Examples exist of Bands where students perform well and where females and male students perform equally well.

SUMMARY

The Introduction presented three questions for which we are now able to provide clear answers:

1) Are gender differences similar across Band, Non-Band Aboriginal and Non-Aboriginal populations?
   Gender differences exist in each of the three student groups but they amplified in Aboriginal students, particularly Band students.
2) Are the gender differences similar between Numeracy and Reading skills?
   Gender differences typically exist between these two skill modalities. Typically greater success rates occur in Numeracy than Reading. The Non-Aboriginal female students often achieve parity between these skills; male students consistently have lower success rates in Reading compared to Numeracy.
3) Are gender differences similar at different grade levels over the school trajectory?
   Gender differences are similar in Numeracy and Reading results across the trajectory, though decline in cohort success rates is striking. The difference widens at later grade levels for Non-Aboriginal males.

This preliminary investigation of gender differences in British Columbia's Aboriginal student population yields positive and negative findings. On one hand, in *many* cases the gender differences are relatively stable within groups. In other words, male students are *generally* as far behind as their female peers within Aboriginal groups, when compared to Non-Aboriginal male or female students. (Where Non-Aboriginal students lose gender equity over time appears to consolidate the general gender difference pattern.) On the other hand, Aboriginal students have lower success rates. That is, there is a far more unmistakable consistency in the equity gap between Aboriginal and Non-Aboriginal student groups. The equity gap for Band students is large. Aboriginal male students and, most urgently, male Band students are highly vulnerable in terms of schooling outcomes. This equity gap does not change, even while cohort success rates decline over time; and, Reading skills emerge as particularly problematic for male students. One final conclusion comes to mind: there is a critical need for more nuanced investigation in order to fully understand the lessons that can be learned regarding both gender equity and high performance in Aboriginal student groups, where this occurs at the local level.

NOTES

[1] See **http://www.bced.gov.bc.ca/abed/performance.htm**, retrieved September 15th, 2008.

[2] For example, see **http://www.bced.gov.bc.ca/reporting/levels/perf-bas.php,** retrieved September 15th 2008.

[3] British Columbia's Ministry of Education protocol regarding identification is followed: If a student ever self identifies as having Aboriginal ancestry that student is considered "Aboriginal" in subsequent analysis.

[4] Students who enrolled in Kindergarten in the 1996/1997, 1997/1998, and 1998/1999 school years were examined to determine elementary outcomes, and students enrolled in Kindergarten in the 1991/1992 school year were examined to determine secondary outcomes.

[5] Again, the cohort is defined as beginning Kindergarten together, so results will differ than those published regarding grade eight cohorts.

[6] When analysis is conducted removing these students from the calculation, the proportion of the cohort meeting expectations increases, however the sub group results do not change in relative position from one another.