Development of School Readiness Skills in Multicultural HIPPY Participants: Associations with Socio-Demographic and Parenting Factors*

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Introduction

The Mothers Matter Centre (MMC) oversees the Home Instruction for Parents of Preschool Youngsters (HIPPY) program in 26 sites across Canada. HIPPY is an evidence-based school readiness program for vulnerable newcomer, refugee, and Indigenous families of preschool-aged children. As part of the ongoing evaluation of this program, the MMC collects yearly data on socio-demographic characteristics of child and parent participants, children's school readiness skills, and parent behaviours that previous research indicates support children's school readiness. In this paper we report on the findings from five Multicultural HIPPY sites across Canada. Multicultural HIPPY is a branch of the program specifically designed to support newcomer and refugee families. We examined changes in children's school readiness skills from the start to end of one year in the program. We also examined school readiness and change over time in school readiness in relation to a variety of socio-demographic and parenting behaviours. Our findings continue to confirm the value of the Multicultural HIPPY program for newcomer and refugee families.

Participant Details

Children

Participants in the present study included 424 children (202 boys; 218 girls; 4 with missing data for gender). At the baseline assessment their ages ranged from 36 to 80 months. Of these children, 220 were born in Canada, 165 were born outside of Canada (22 of which were refugees), and 39 had missing data on place of birth. English or French was the mother tongue of 123 children, 365 spoke a language other than English or French as their mother tongue, and 21 had missing data on mother tongue. Some level of English or French was spoken at home by 131

children, 197 spoke no English or French at home, and 96 had missing data on languages spoken at home.

Caregivers

The parent demographic questionnaire was completed by 375 caregivers (21 men; 351 women; 3 with missing data for gender). Ten caregivers were born in Canada, 354 were born outside of Canada (78 of which were refugees), and 11 had missing data on birthplace. Of the caregivers born outside of Canada, 191 were from Asia, 69 were from Africa, 52 were from the Middle East, 18 were from Europe, 18 were from North America, 13 were from South America, 3 were from Russia, and 11 had missing data on place of birth. Time spent in Canada ranged from less than one year to more than 15 years (see Table 1).

Table 1

Caregivers' Time Spent in Canada

Years in Canada	Number of caregivers
<1	30
1	14
2	38
3	38
4	39
5	28
6-10	146
11-15	16
>15	11

English or French was the mother tongue of 33 caregivers, 325 spoke a language other than English or French as their mother tongue, and 17 had missing data on mother tongue. Some level of either English or French was spoken at home by 113 caregivers, 237 did not speak

English or French at home, and 25 had missing data on language spoken at home. For oral English or French language comprehension levels, 110 caregivers were considered advanced, 188 were considered medium, 49 were considered low, 7 were considered as having none, and 21 had missing data on official language comprehension.

With regards to caregivers' highest level of education, 12 caregivers had received no formal education, 32 had started or completed elementary school, 66 had started or completed high school, 84 had started or completed college or technical school, 164 had started or completed a university degree, and 16 caregivers had missing data on education. As concerns annual family income, 75 families were between $0-20,000, 57 families were between $20,000-40,000, 75 families were between $40,000-60,000, 46 families' were over $60,000, and 122 families did not report annual family income.

Nearly all (355) caregivers were married or in common law relationships; 13 were single, divorced, separated, or widowed; and 7 had missing data. The number of children in each home ranged from 1-8, with an average of 2.46 children in the home. Caregivers reported multiple reasons for enrolling in HIPPY, listed in Table 2 from most common to least common.

Table 2

Caregivers' Reasons for Enrollment in HIPPY

Reasons for enrollment	Number of caregivers
Address their child's school readiness	185
English or French language barrier	156
Social isolation	108
Settlement barriers and adaptation issues	101
Child development issues	70
Low literacy in their home language	47
Child behaviour issues	40

Assessment Details

Data were collected between 2016 and 2020, at five Multicultural HIPPY sites across Canada: Nanaimo, BC; Calgary, AB; Red Deer, AB; Halton, ON; and Halifax, NS. In all five communities, English is the majority language and the language of the public schools. Children's school readiness was assessed with the Bracken School Readiness Assessment – Third Edition (Bracken, 2007), which comprises five subscales including Colours, Letters, Numbers, Size, and Shape. The Bracken assesses children's knowledge of the concepts that preschool and kindergarten teachers traditionally expect children to know in preparation for formal education. The assessment yields a raw score, which is converted into a standard score adjusted for age (range: 40-160; M=100; SD=15), and falls within one of five descriptive classifications (very delayed, delayed, average, advanced, very advanced). Time 1 (baseline) assessments were completed at the beginning of the 30-week HIPPY program year (between October-November), and Time 2 (follow-up) assessments were completed at the end of the program year (between May-June). These assessments were individually administered in HIPPY participants' homes, conducted in English by trained HIPPY home visitors.

Parent and child demographic information was collected at baseline by home visitors. Parent Progress Reports (PPR) were completed by Home Visitors at baseline and follow-up and assessed parents' ability to prepare their children for school, involvement in their community, and their cultural expression. Parent Self Assessments (PSA) were completed by parents at follow-up and assessed frequency of engaging in educational activities with their child, confidence teaching their child, comfort communicating with their child's school/daycare staff, and sense of belonging and community connectedness.

Findings

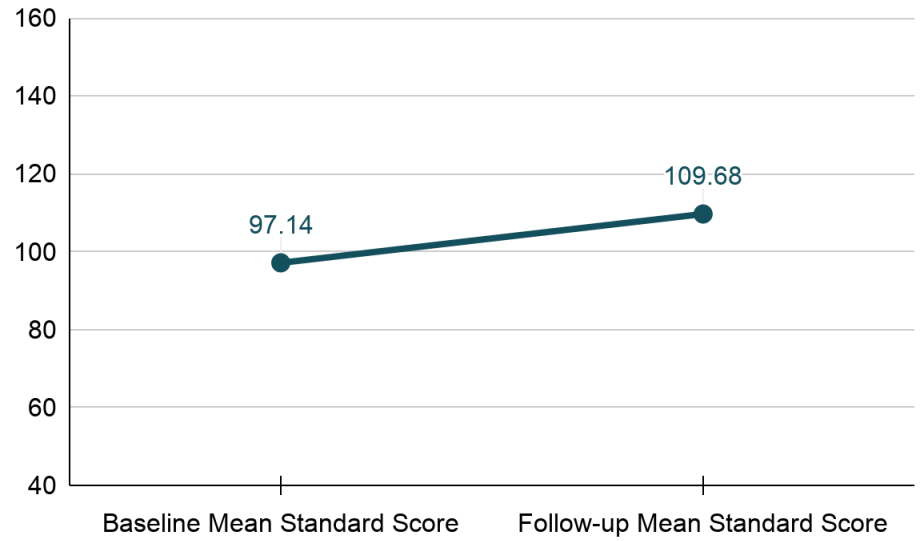
1. Did children improve in school-readiness skills from the beginning to the end of their first year in the Multicultural HIPPY program?

Bracken Standard Scores

Paired sample t-tests comparing baseline and follow-up Bracken standard scores revealed a significant increase in scores. Of the 317 children that completed both baseline and follow-up assessments in their first program year, the mean follow-up score (109.68) was higher than the mean baseline score (97.14) (see Figure 1) and this difference was statistically detectable ($t=-19.98$, $p<.001$). Note that as standard scores are adjusted for child age, increases over time in standard scores do not reflect maturation, lending support to the positive impact of HIPPY participation on children's school readiness.

Figure 1

Mean Improvement in Bracken Scores over One Program Year



Bracken Descriptive Classifications

Table 3 displays the conversion of standard scores to descriptive classifications, the number of children in each group at baseline, and the number of children in each group at follow-up. The number of children in the very delayed, delayed, and average classifications decreased from baseline to follow-up, and the number of children in the advanced and very advanced classifications increased from baseline to follow-up (see Table 3).

Table 3

Distribution of Scores and Descriptive Classifications at Baseline and Follow-up

Bracken Standard Score	Bracken Descriptive Classification	Baseline: Number of children in classification	Follow-up: Number of children in classification
40-70	Very delayed	18 (6%)	5 (2%)
71-85	Delayed	57 (18%)	20 (6%)
86-114	Average	196 (62%)	160 (50%)
115-129	Advanced	40 (13%)	95 (30%)
130-160	Very advanced	6 (2%)	37 (12%)

Table 4 displays the change in Bracken descriptive classifications from baseline to follow-up in greater detail. As can be seen in the table, only 8 children (2.52%) moved down one descriptive classification, 145 children (45.74%) remained in the same descriptive classification, 142 children (44.79%) moved up one descriptive classification, 20 children (6.31%) moved up two descriptive classifications, and 2 children (.63%) moved up three descriptive classifications. Overall, nearly 52% of children moved up one or more Bracken descriptive classifications from baseline to follow-up in their first HIPPY program year.

Table 4

Descriptive Classification Movement from Baseline to Follow-up

	Follow-up: Bracken Descriptive Classifications

Baseline: Bracken Descriptive Classifications	Very delayed (5)	Delayed (20)	Average (160)	Advanced (95)	Very advanced (37)
Very delayed (18)	5	6	7		
Delayed (57)		11	42	2	2
Average (196)		3	106	76	11
Advanced (40)			5	17	18
Very advanced (6)					6

2. Are socio-demographic factors related to Bracken scores and changes in Bracken scores over time?

Associations with Socio-demographic Factors

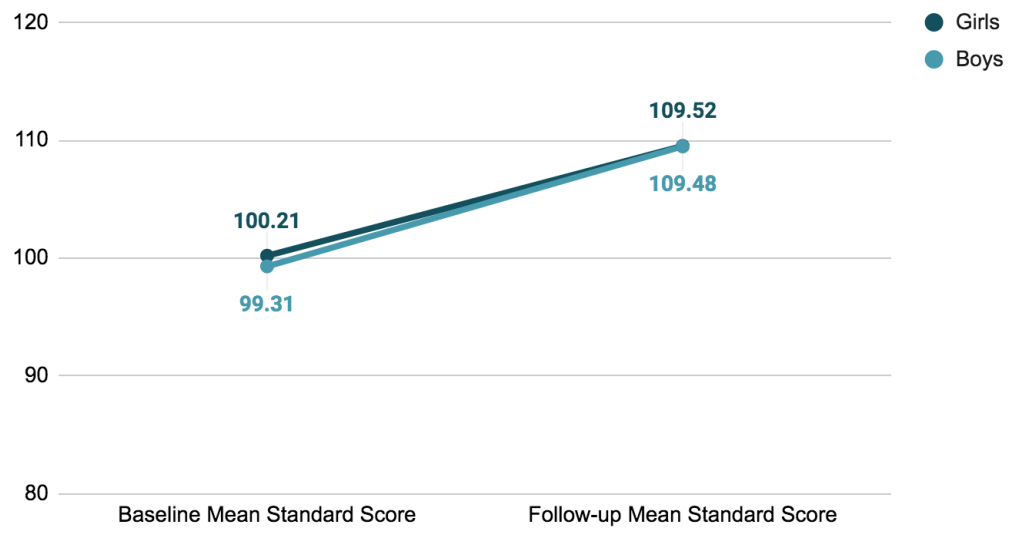
We examined baseline and follow-up Bracken standard scores in relation to sociodemographic factors, as well as pre-post difference scores in relation to sociodemographic factors. Pre-post difference scores were calculated by subtracting baseline Bracken standard scores from follow-up Bracken standard scores and provided an index of change over time in school readiness skills for each individual child.

First, a one-way analysis of variance (ANOVA) revealed no significant differences between boys and girls in Bracken standard scores (see Figure 2). The mean baseline Bracken standard score for girls (100.21) was slightly higher than the mean baseline Bracken standard score for boys (99.31), but this difference was not statistically detectable ($F(1, 403)=.27$, $p=.60$). The mean follow-up Bracken standard score was almost equal for girls (109.52) and boys (109.49), with no statistically detectable difference ($F(1, 317)=.00$, $p=.99$). An ANOVA examining the pre-post difference scores of boys and girls revealed almost identical change over

time for girls (12.59) and boys (12.48), with no statistically detectable difference (F(1, 309)=.01, p=.93).

Figure 2

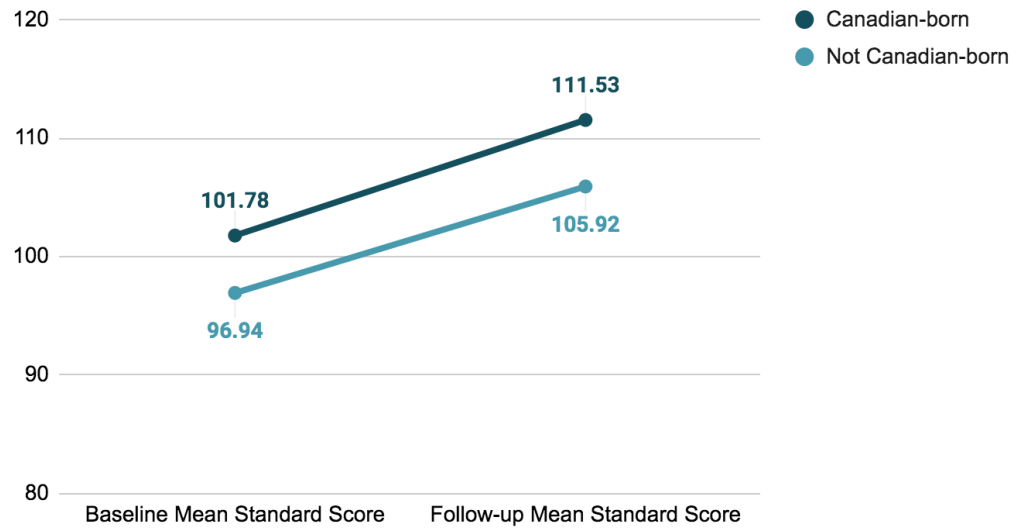
Relationship between Bracken Scores and Gender



Next, one-way ANOVAs of baseline and follow-up Bracken standard scores showed that children born in Canada tended to score higher than those who were born outside of Canada at both baseline and follow-up (see Figure 3). The mean baseline Bracken standard score was higher for Canadian born children (101.78) than children born outside of Canada (96.94) and this difference was statistically detectable (F(1, 368)=7.25, p=.01). The mean follow-up Bracken standard score was also higher for Canadian born (111.53) than newcomer children (105.92) and this difference was statistically detectable (F(1,290)=7.70, p=.01). However, an ANOVA comparing pre-post difference scores between Canadian born and non-Canadian born children revealed that although Canadian born children improved slightly more on average (12.52) than non Canadian born children (11.56), this difference was not statistically detectable (F(1,282)=.53, p=.47).

Figure 3

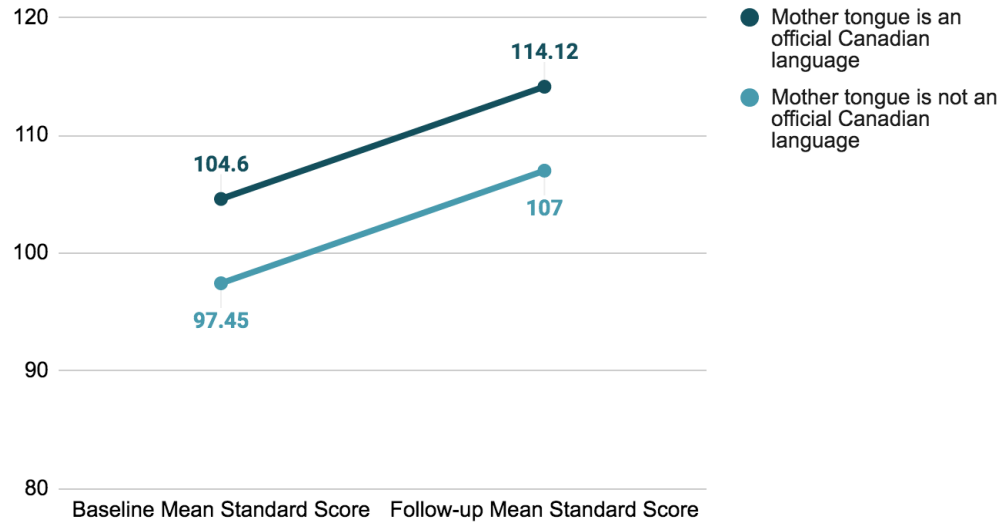
Relationship between Bracken Scores and Place of Birth



One-way ANOVAs of baseline and follow-up Bracken standard scores showed that children who spoke an official Canadian language (English or French) as their mother tongue tended to outperform those who did not speak an official Canadian language as their mother tongue (see Figure 4). The mean baseline standard score was higher for children who spoke an official Canadian language (104.60) than children who did not (97.45) and this difference was statistically detectable ($F(1, 385)=14.67$, $p<001$). The mean follow-up standard score was also higher for children who spoke an official Canadian language (114.12) than children who did not (107.00) and this difference was statistically detectable ($F(1, 305)=11.85$, $p=.001$). An ANOVA comparing pre-post difference scores between groups revealed that children who did not speak an official Canadian language as their mother tongue (12.41) improved slightly more than children who did (11.97), but this was not statistically detectable ($F(1, 297)=.11$, $p=.75$).

Figure 4

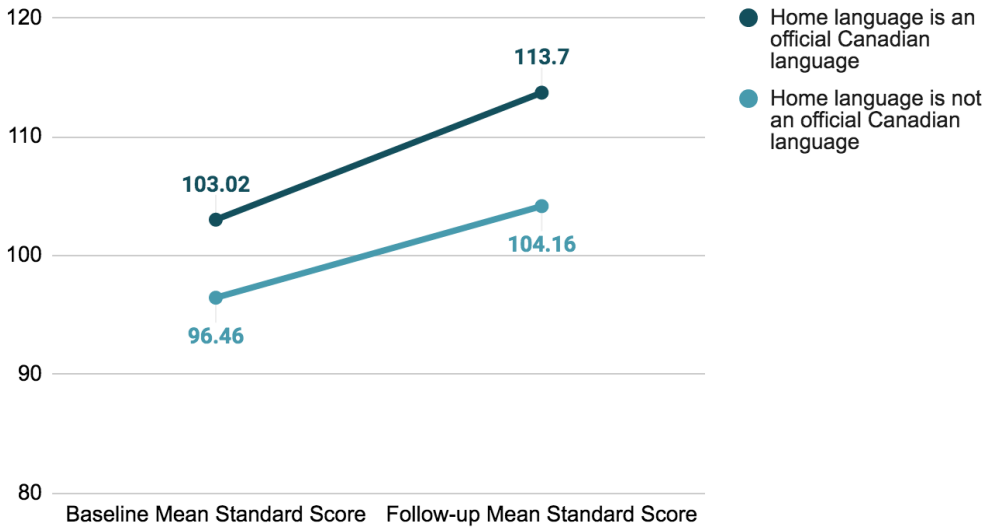
Relationship between Bracken Scores and Mother Tongue



Similarly, one-way ANOVAs of baseline and follow-up Bracken standard scores revealed children who spoke an official Canadian language (English or French) at home tended to outperform those who did not speak an official Canadian language at home (see Figure 5). The mean baseline standard score was higher for children who spoke an official Canadian language at home (103.02) than children who did not (96.46) and this difference was statistically detectable ($F(1, 312)=11.49$, $p=.001$). The mean follow-up standard score was also higher for children who spoke an official Canadian language at home (113.70) than children who did not (104.16) and this difference was statistically detectable ($F(1, 259)=20.18$, $p<.001$). Further, an ANOVA comparing pre-post difference scores between groups revealed that children who spoke an official Canadian language at home improved slightly more (11.68) on average than children who did not (10.55), but this difference was also not statistically detectable ($F(1,252)=.75$, $p=.39$).

Figure 5

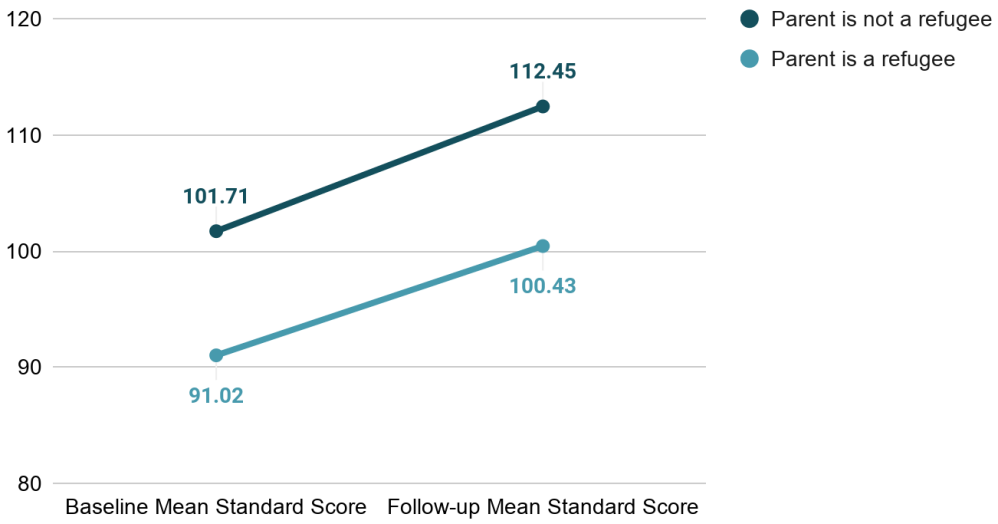
Relationship between Bracken Scores and Language Spoken at Home



Additionally, one-way ANOVAs of baseline and follow-up Bracken standard scores showed that children whose parents were not refugees tended to score higher than children whose parents were refugees (see Figure 6). Mean baseline standard score was higher for children whose parents were not refugees (101.71) than children whose parents were refugees (91.02) and this difference was statistically detectable ($F(1, 376)=28.63$, $p<.001$). Mean follow-up standard scores were also higher for children whose parents were not refugees (112.45) than children whose parents were refugees (100.43) and this difference was statistically detectable ($F(1, 303)=30.69$, $p<.001$). An ANOVA comparing pre-post difference scores between children whose parents were refugees and children whose parents were not refugees indicated that while children whose parents were not refugees improved more on average (13.15) than children whose parents were refugees (10.80), this difference was not statistically detectable ($F(1, 295)=2.66$, $p=.10$).

Figure 6

Relationship between Bracken Scores and Parent Refugee Status



Finally, parent level of formal education was positively correlated with both baseline standard scores ($r=.29$, $p<001$) and follow-up standard scores ($r=.30$, $p<001$), indicating that higher levels of parent formal education were associated with higher scores on children's Bracken assessments. The correlation between parent education and pre-post difference scores was not statistically significant ($r=.04$, $p=.51$), indicating no detectable association between parental level of education and degree of change in child school readiness skills over time.

3. Are parenting factors related to Bracken scores and changes in Bracken scores over time?

Associations with Parenting Factors

Amount of days per week parents reported reading to their child was positively correlated with both baseline standard scores ($r=.17$, $p=.005$), follow-up standard scores ($r=.23$, $p<.001$), and pre-post difference scores ($r=.13$, $p=.05$), indicating that the more time parents spent reading to their children, the higher their children tended to score on the Bracken assessment and more they improved on the Bracken assessment over time.

More frequent parent interaction and volunteering with their child's school was also positively correlated with baseline standard scores ($r=.19$, $p=.003$), follow-up standard scores ($r=.35$, $p<.001$), and pre-post difference scores ($r=.15$, $p=.05$), indicating that the more involved parents were with their child's school, the higher their children tended to perform on the Bracken assessment and more they improved on the Bracken assessment over time.

Summary and Conclusion

Children who participated in Multicultural HIPPY for one program year significantly improved in school readiness skills. Over half (51.73%) of the children who completed both baseline and follow-up Bracken assessments moved up at least one full descriptive classification after their first year of participating in HIPPY.

Gender was not related to Bracken scores, but place of birth, mother tongue, language spoken at home, parent refugee status, and parent education level were related to Bracken scores. However, these factors were not related to the impact of HIPPY. In other words, all groups of children analyzed in relation to socio-demographic factors improved equally in school readiness skills. But, children who had lower scores at baseline still had lower scores at follow-up, indicating that the relative disadvantage of these children at the start of the program remained at the end of the first year, despite the improvements they made over that year.

Two parent behaviours that the HIPPY program teaches and encourages (reading to one's child and involvement with their child's school) were positively correlated with Bracken scores as well as to improvement in Bracken scores over time. This suggests that the HIPPY program should continue to focus on supporting these parenting behaviours given their positive association with children's school readiness skills.

Overall, our findings are encouraging, indicating that HIPPY has a positive impact on school readiness skills of children in Multicultural HIPPY programs across Canada. These findings reiterate the value of school readiness programs for newcomer and refugee children specifically.

References

Bracken, B. A. (2007). Bracken School Readiness Assessment – Third Edition (BSRA-3). Pearson Canada Assessment.