Towards an Understanding of Gender Differences in Literacy Achievement

Literature Review

Prepared for EQAO by

Don A. Klinger, Ph. D.,
Associate Professor, Assessment and Evaluation

Lyn A. Shulha, Ph. D.,
Professor, Assessment and Evaluation

Lesly Wade-Woolley, Ph. D.,
Associate Professor, Cognitive Studies

Queen’s University

MARCH 2009
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EQAO research projects delve into the factors that influence student achievement and education quality, and examine the statistical and psychometric processes that result in high-quality assessment data.
Towards an Understanding of Gender Differences in Literacy Achievement:

Literature Review
Introduction

It is generally accepted that teachers and schools have significant influence on student achievement and growth. Increasingly, public education is being held accountable to demonstrate its efforts to ensure high levels of student achievement and equity of outcomes for students. However, there remain significant differences in students’ success across schools and inequities continue to exist. In response, education policies, initiatives, and practices are being developed and implemented around targets to address these achievement levels and gaps. In order for efforts and expenditures to be worthwhile and informative, it is necessary to understand the nature of the difference and inequities, and the impact of efforts to address these differences in achievement. Further, we understand the role of context and how policies, initiatives, and practices may best support successful learning within these diverse contexts. Of particular relevance to the educational research and professional community has been the issue of achievement gaps in literacy achievement that are observed between girls and boys.

In order to clarify and update the theoretical frameworks guiding the inquiry into gender differences in literacy learning, a review of previous research examining these differences in academic achievement, with a focus on reading, is required. We begin with a brief, general review of gender differences in achievement, followed by a more focused look at the literature on gender differences in reading performance. From there, we will examine the literature on gender differences in reading by students at the ends of the distribution (that is, those who are especially high- or low-scoring), as well as those considered to have learning or reading disabilities. From there, research-supported
methods of addressing the issue of gender differences in reading will be discussed: school environment, motivation, and cognitive processes.

Gender Differences in Achievement

Gender differences in achievement have been widely reported. For instance, in the most recent administration of the Programme for International Student Assessment (PISA), female students outperformed male students in literacy in every country (OECD, 2001, 2002). At the same time, the historical gender gap in mathematics and science in which boys previously outperformed girls continued to decline with no meaningful differences being found in mathematics achievement in several countries. Canadian research has served to further confirm these findings (e.g., Klinger, Rogers, Anderson, Poth, & Calman, 2006; Ma & Klinger, 2000; Rogers, Ma, Klinger, Dawber, Hellsten, Nowicki, & Tomkowicz, 2006). The reasons for these decreasing gaps in mathematics and science and ongoing gaps in literacy remain of interest to researchers and practitioners (e.g., Gray, Peng, Steward, & Thomas, 2004; Halpern, Benbow, Geary, Gur, Hyde, & Gernsbacher, 2007; Younger, Warrington, & McLellan, 2002). At the same time, researchers and practitioners are interested in the persistent literacy gap favouring females.

While gender gaps in literacy achievement favouring females are consistently found across jurisdictions, in some schools, male and female performance has been shown to be broadly similar. For example, a review of the British General Certificate of Secondary Education examinations revealed that although girls were performing better on average than boys, almost half the schools in the country had males and females progressing at almost equal rates – that is, with little to no gap between boys and girls
However, these schools with little or no gaps also tended to have lower overall student achievement. Such a finding highlights the complexity of achievement issues, and these interactions in academic performance across schools point to the need to better understand the different ways gender differences may occur in different school contexts (Gray et al., 2004). Researchers are only now beginning to examine the contextual factors and policy implications as they relate to the differences in male and female literacy achievement.

Prevalence of Gender Differences in Literacy Development

There are a number of points of comparison between males and females in terms of academic skills and cognitive processes. Certainly, there is no evidence that enables either gender to claim overall superiority in terms of academic achievement. However, reported findings do identify set of skills and abilities for which the members of that gender typically excel. For instance, females have been described as more people-oriented while males are often more thing-oriented in their interests (Lippa, 1998). What is less clear has been the causes and reasons for these observed differences.

Girls and boys develop neither at the same biological rate nor at the same cognitive rate. Since girls generally develop earlier than boys, researchers often attribute their superior early reading skills in part to this biological factor (Halpern, 2006). The ability to learn and use language contains a female advantage from as early as during the first two years of life. Average vocabulary growth demonstrates this advantage: beginning with a mean 13-word difference favouring girls at 16 months, which grows to a 51-word difference at 20 months, and a 115-word difference at 24 months. This gap in acquired vocabulary items was even shown to occur, to some degree, above and beyond
input, that is, how much mothers talked to their children (Huttenlocher, Height, Bryk, Seltzer, & Lyons, 1991).

The prevalence of gender differences in reading performance is somewhat divided. Certainly, studies have commonly provided evidence for girls’ consistent superior performance in reading and writing (e.g., Arnot et al., 1999; Flynn & Rahbar, 1994; Scroggins, 1993; Younger, Warrington, & McLellan, 2002). However, the size of the reading achievement gap varies and has been found to be non-existent in some cases (e.g. Davies & Bremer, 1999; Hyde & Linn, 1988; Rowe, 1991; Willingham & Cole, 1997). Nonetheless, there are no reported studies in which boys performed better than girls in reading and writing. Nor is this greater academic performance by female students in literacy a new phenomenon. Girls’ superior performance in reading has been a widely observed relatively static pattern for at least the last forty years (see for a review, Hedges and Nowell, 1995).

The Program for International Student Assessment (PISA) is an international measure of achievement of 15-year-old students in literacy, mathematics, and science, and is conducted every three years. Each time the test is administered, one of the subject areas is emphasized while the other two are given less emphasis. In 2000, the most recent administration of the literacy-focused PISA, girls performed significantly better than boys in reading in all 32 participating countries, as well as in all Canadian provinces (OECD, 2002). Canadian girls scored a mean of 551 and boys a mean of 519, achieving scores second only to Finland’s results. In its most recent administration in 2006, science was emphasized and literacy less so, but results on the literacy component showed the same pattern: females were performing better on average than males in all 57
participating countries. According to the Canadian PISA 2006 results girls had a mean score of 543 and boys had a mean score of 511 on measures of reading. Similar patterns have been found on the Progress in International Reading Literacy Study (e.g., Martin, Mullis, Gonzalez, & Kennedy, 2003; Ogle et al., 2003), designed to assess a wide range of reading skills and strategies at the fourth grade level (average age of 10 years). Fourth grade girls performed significantly better than fourth grade boys in all 35 participating countries.

Examining the Gender Gap in Reading Performance

One of the most comprehensive Canadian studies carried out in the last ten years on the subject of gender differences in reading development was published in 2002 by Phillips, Norris, Osmond and Maynard, who sought to track the relative reading performance of boys and girls from Grade 1 through to Grade 6. They were seeking to determine the extent to which the gender differences in reading achievement were immutable. That is, “to what degree does the gap in early reading performance between boys’ and girls’ reading remain unchanged over years of schooling?” Using the comprehension subtest of the Gates-MacGinitie Reading Tests (MacGinitie, Kamons, Kowalski, MacGinitie, & MacKay, 1978), which measures decoding ability as well as comprehension, students were categorized based on their performance at each grade level (“average,” less than one standard deviation (SD) from the mean; “above average,” one or more SD above the mean; “below average,” one or more SD below the mean). Through Grades 1 to 3, there were greater proportions of boys than girls in the below-average category, and a lower proportion of boys than girls in the average and above-average categories. By the end of Grade 4, there was no relationship between gender and
reading category, and neither was there a difference in Grades 5 and 6. That is, the proportions of boys and girls in each of the three categories became more equal. Over time, the proportion of girls in the below-average category doubled, becoming approximately equal to the proportion of boys. Further, the difference in the proportion of boys and girls in the average category decreased, and the proportions of boys and girls in the above-average category remained the same (Phillips et al., 2002). Thus a reduced difference between boys and girls was achieved because of decreasing performance by girls in the Junior grades (more girls in the below-average category) and an equalling of the proportion of boys and girls in the average category. These findings are contrary to the finding that reading performance is immutable between Grade 1 and Grade 4 (i.e., the probability that a poor reader in Grade 1 will be a poor reader in Grade 4 is 0.88; Juel, 1988).

Phillips et al (2002) found that the middle of the distribution contained the least difference: for children who were average in Grade 1, the probability that they would be average in Grade 6 was 0.76, and the proportions for boys and girls were nearly equal; the probability that average readers would become below-average was 0.13, and 0.11 that they would improve to above-average (Phillips, et al., 2002). Students reading at an above-average level in Grade 1 had a zero percent probability of shifting to below-average, and about an equal probability that they would be reading at an average or above-average level in Grade 6. For below-average readers in Grade 1, there was a 0.53 probability that they would improve to average by Grade 6: a 0.50 probability for boys and a 0.60 probability for girls. Although 70% of the students in Phillips et al.’s study remained in the same category in Grade 6 as they had been in Grade 1, category
movement for 30% of the students gives support to the notion that reading skills are perhaps more mutable than previously assumed (Phillips et al., 2004).

Phillips et al. (2004) pointed out the policy implications for the results of their study. Immediate identification and intervention for students who decrease by a category would greatly help to keep achievement on track. Further, their data challenges the widespread notion that reading achievement is immutable, allowing interventions to potentially have more of an effect for older struggling readers than previously thought possible (Phillips et al., 2004). However, the use of classification categories for comparisons is not without its potential flaws. Measurement error, combined with regression towards the mean may result in changes in classification that are associated with very small changes in student performance. Certainly, the longitudinal nature of their study likely minimized this effect but it would not eliminate it. Further, classification categories may mask differences in reading achievement within category. For example, girls that shifted from the average to the below average category could have been in the lower portion of the average category and were now in the upper portion of the below average category. Thus there may be gender differences in the location of boys and girls within each category that Phillips et al. did not measure or identify.

In his review of 2,296 American students from Kindergarten to Grade 1, Chatterji (2006) examined the magnitude of early reading gaps and the extent to which these gaps changed as students experienced their first full year of reading instruction. A gap between girls’ and boys’ reading performance became apparent as formal reading instruction began in Grade 1 (boys were -0.31 SD units below girls, \( p < .05 \), after controlling for SES and ethnic differences), wherein small differences in Kindergarten “increased and
appeared to consolidate” as children approached the end of Grade 1 (Chatterji, 2006; p. 502). However, the reading gaps in Kindergarten were more associated with socio-economic status (SES) than with the student’s gender (low SES children were between – 0.61 and –1.0 SDs below high SES children). Chatterji noted that smaller class sizes and more time devoted to reading instruction appeared to produce positive effects on low SES children’s reading performance.

Performance at the Ends of the Distribution

In their review of six studies (which together spanned the years 1960 to 1992) using national probability samples of students between the ages of 13 and 22 to provide an accurate sample of the total population, Hedges and Nowell (1995) examined gender differences in reading comprehension, writing, and other academic subjects (e.g., math, science). Overall, females performed slightly better in reading and substantially better in writing, and males performed better in math and science (Hedges and Nowell, 1995). Examining mean scores, the variance of these scores, and the numbers of students with scores in the top or bottom 10% across these six data sets, they discovered that boys tended to be more variable in their cognitive performance (including reading comprehension and writing), and represented greater proportions at the low and high ends of skill distribution than females – in particular, boys were found in greater proportions near the bottom of the distribution (bottom 10%) for reading comprehension and writing than girls, and lower proportions in the top of the distribution (top 10% and top 5%). In comparison, for those in the average (middle) portion of the distribution, the difference between the boys and girls was not as great as at ends of the distribution (high- and low-ability) (Hedges & Nowell, 1995; McGillicuddy-De Lisi & De Lisi, 2002).
Examining the changes over time, Hedges and Nowell (1995) noted the gap narrowed somewhat over time in math and science, but not in reading and writing – for writing in particular, boys remained “at a rather profound disadvantage” compared to girls (p. 45). Despite the narrowing gap in math and science performance, the authors concluded that the variance of within-group scores changed very little over time: boys have remained more variable in achievement throughout the time period between 1960 and 1992.

Gender Differences in Learning and Reading Disabilities

One of the most widely reported differences between males’ and females’ reading performance is with respect to referral due to reading disabilities. Gender differences in the frequency and severity of reading disabilities is an important, real issue in education (Halpern, 2006). For example, boys are twice as likely as girls to be identified with dyslexia, but boys are much more likely than girls to have milder forms of reading disabilities (Rutter, Caspi, Fergusson, Horwood, Goodman, Maughan, et al., 2004). Similarly, twice as many boys than girls are identified for referral to educational psychologists (Vardill, 1996); and significantly more boys than girls are found in remedial reading classes (Alloway & Gilbert, 1997).

Ratios of boys to girls referred for additional assistance have been shown to differ depending on the identification method used. Consequently, the ratio of males to females identified with a reading difficulty can vary widely. Using clinical/referral methods, ratios range from 2:1 to 15:1 (boys: girls) (e.g., Vogel, 1990); however, research-identified samples have often shown a ratio as close as 1:1 (e.g., Harlaar, Spinath, Dale, & Plomin, 2005; Hawke, Wadsworth, & DeFries, 2006). Despite these differences due to
method of identification, it remains typical to have more boys than girls identified with reading disabilities in the school system.

Shaywitz, Shaywitz, Fletcher, and Escobar (1990) suggested that teachers tended to disproportionately diagnose boys with learning problems, while research-identified criteria identified a more even ratio of boys to girls. School personnel in their study had identified a higher percentage of males in both second (13.6% of boys, 3.0% of girls) and third (10.0% of boys; 4.2% of girls) grades. In contrast, when research-identified methods were used, Shaywitz et al. found no significant differences in the prevalence of reading disability for boys compared with girls in the second (8.7% of boys; 6.9% of girls) and third (9.0% of boys, 6.0% of girls) grades. One of the strengths of this research project was that the research team was able to use a stratified random sampling procedure, ensuring statistically equivalent samples. Based on their research design and the findings, the authors concluded that school-identified samples may be subject to a selection bias based on patterns of behaviour as opposed to strictly academic difficulties (Shaywitz et al., 1990).

In her review of the research on gender differences in typically achieving students and children with a learning disability (LD), Vogel (1990) found a general female advantage for verbal and reading ability in typically achieving children, with gender differences varying according to age, measures used, magnitude of achievement between groups, and variability within groups. Students with learning disabilities had a more varied pattern depending on the method used to identify LD status (that is, system-identified or research-identified). Vogel reported a 4:1 selection ratio (boys to girls) in learning disability programs, and between a 6:1 and 3:1 selection ratio for reading
disability diagnoses. Girls with inattention problems were less likely to be identified because their behaviour was not always differentiated from good behaviour, although achievement was low. Vogel suggested that girls would likely have to be more severely impaired or have a larger discrepancy between aptitude and achievement in order to be identified.

A subsequent study of 708 American children investigated the validity of referral programs examining those students who were either test-identified or school-identified for reading failure to (Flynn & Rahbar, 1994). “Teacher-identified” was defined by enrolment in learning disability (LD) and Chapter One (a government-legislated program that provides financial assistance to support students from low-income families) programs, as identification for student placement in these programs relied largely on teacher referral. Teacher-identified students for special assistance exhibited a large gender difference, 2.5 boys identified for every girl for LD programs, while similar percentages of boys and girls were identified for Chapter One programs “(for which qualification depended much more on a selection protocol and standardized measures).

“Test-identified” was defined as referral based on performance on nationally standardized tests. Using the scores from these group-administered standardized tests, between 1.1 and 1.4 boys failed in reading for every girl. This ratio applied both to groups below the 10th percentile and those between the 11th and 30th percentile – that is, the bottom 30% of students (Flynn & Rahbar, 1994).

Such results suggest a potential gender selection bias for reading disabilities. Nonetheless, contrary evidence exists. In a review of four epidemiological studies carried out in Britain and New Zealand, Rutter and his colleagues sought to provide evidence
regarding the “nature, extent, and significance of sex differences in reading disability” (Rutter, Caspi, Fergusson, Horwood, Goodman, Maughan, Moffitt, Meltzer, & Carroll, 2004; p. 2007). Each of the studies carried out word reading and IQ tests on the students in their samples, all of whom were between 7 and 15 years of age. Rutter et al. used two methods to calculate reading disability: non-IQ-referenced (lowest 15% of the distribution in reading) and IQ-referenced (participant’s reading ability more than 1 SD below what was predicted by IQ test performance). Contrary to the findings above, in all four epidemiological studies boys had substantially more referrals for reading disabilities than did girls regardless of the method of identification for referral (that is, IQ-referenced or not).

It has been suggested that behaviour problems might be interfering with the identification of reading problems and the provision of support. As early as preschool, children exhibit differential social behaviours associated with emergent literacy skills; problems with emergent literacy are associated with aggressive misbehaviour and fewer pro-social behaviours are noted for boys, but not for girls (Doctoroff, Greer, & Arnold, 2006). That is, boys who are experiencing difficulty with early reading act out, while girls experiencing the same difficulty do not. This pattern may contribute to the over-identification of boys as learning disabled because of increased negative attention from teachers (Keenan & Shaw, 1997), contributing to cycles of misbehaviour and learning problems that are more visible in boys than in girls (Stowe, Arnold, & Ortiz, 2000).

In an effort to determine whether the origins of reading difficulties were different for boys and girls with severe reading impairments, Hawke, Wadsworth, Olson, and Defries (2007) tested sets of twins (monozygotic/identical, same-sex dizygotic/fraternal,
and opposite-sex dizygotic/fraternal twins). No evidence was found for a different etiology of reading difficulties as a function of gender, suggesting that the same genetic and environmental factors contribute to reading difficulties in both boys and girls.

Addressing the Issue of Gender Differences in Literacy

There has been surprisingly little empirical research into the effectiveness of particular interventions to address the gap between girls’ and boys’ academic performance, or whether some strategies are more appropriate for certain school contexts than others (Gray et al., 2004). In order to evaluate strategies that aim to reduce the gap between male and female performance, Younger, Warrington, and McLellan (2002) examined different approaches in place in the British school system at the secondary level. They grouped these approaches into four categories: (i) organizational, (ii) individual, (iii) pedagogical, and (iv) socio-cultural (2002). Organizational strategies were defined as whole-school approaches that attempted to change the culture of the school to one where achievement was the norm, and was celebrated. Individual approaches were those that focused on certain children and involved some type of individual target-setting. Pedagogical strategies involved work at the classroom level and included interactions and dynamics within the classroom as well as teaching and learning styles. Socio-cultural approaches attempted to influence or change “images of laddish masculinity” (Younger et al., 2002; p. 393) held by peers, the family, and the community – making it cool and desirable for boys to learn and be intelligent.

The authors found that the four types of strategies were effective in generally improving achievement, but that the gender gap did not consistently narrow at any of the schools examined. Organizational strategies that established a culture of achievement
were widely accepted by staff and policy makers. The most effective individual-based approaches gathered performance data to assist in target-setting (e.g., use of data, regular monitoring and feedback, mentoring). Schools that adopted a socio-cultural approach focused on students who were role models and social leaders, thereby influencing the majority of students indirectly. Unfortunately, the pedagogic approaches were not as well developed as other strategies in this study and it was unclear how these would be operationalized.

Challenges included building capacity in order to fully deliver and sustain these strategies so that they were delivered consistently by all staff and over a long period of time – “most successful innovations only succeed when they are given time to mature, to become established” (Younger et al., 2002; p. 401). Although the initiatives examined were aimed at secondary school students, their common characteristics, as highlighted by Younger and colleagues, can be argued to hold true for elementary education as well: a sense of belonging to the school community; agency for students through responsibility and choice; safety and security within the school; and self-worth as learners.

The Contribution of Engagement and Motivation to Reading and Writing

The OECD (2002) noted that reading engagement was a stronger predictor of literacy achievement than socioeconomic status (OECD, 2002). Further there may be important gender differences in terms of reading engagement (Topping, Samuels, & Paul, 2008). Topping et al. conducted a secondary analyses of over three million books read by over 45 000 students. The grade range of the students was between Grades 1 through 12, although the majority of the students were in Grades 1 through 6. At the same time as accessing students’ quantity of reading, the researchers also had access to measures (book
quizzes) of students’ quality of reading comprehension. Girls exhibited higher scores in both quantity and quality of their reading as compared to boys, and this difference increased in subsequent grades. More importantly, when boys and girls having similar levels of reading quantity and quality were compared, “boys and girls achieved similar gains, suggesting gender-specific patterns were not immutable” (p. 514).

Closely related to the topic of engagement is that of motivation. In their study of student motivation for reading and writing in Grades 3 to 5 students, Meece and Miller (1999) found few gender differences in students’ goal orientation for reading and writing. One participant group displayed a difference in work-avoidance scores, with boys scoring higher than girls, but overwhelmingly, motivation was not mediated by a student’s gender. Interestingly, Grades 4 and 5 students displayed decreased levels of task-mastery and performance goals, while work-avoidance scores increased on average over the school year; Grade 3 students displayed a similar pattern of task-mastery and performance goals, although their work-avoidance patterns also decreased (Meece & Miller).

Oakhill and Petrides (2007) compared the reading comprehension of 10 and 11 year-old boys and girls. They reported that comprehension was significantly affected by the content of reading passages for boys and they performed significantly better on texts they were interested in reading. In contrast, girls’ performance was the same regardless of their interest in the text. The authors also investigated poor comprehenders’ performance, and determined that the relationship between text interest and reading performance remained significant for boys but not for girls, regardless of comprehension level. The finding that boys are often more influenced by the level of their interest in the text has
also been previously shown (e.g., Ainley, Hidi, & Berndorff, 2002), implying that “girls are more likely to persist with reading than boys, and do well, even on low-interest texts” (Oakhill & Petrides, 2007; pg 231). Oakhill and Petrides suggest that reading tests be made less homogeneous by offering choices of topics and genres, and that they contain both fiction and non-fiction sections, as boys may be encouraged to persist when reading with content they find interesting and motivating. In addition, they argued that students should be taught the necessary strategies for reading comprehension regardless of personal level of interest.

The Cognitive Process Taxonomy

Another method of addressing the gender gap in literacy performance is to step back from an examination of student ability as a function of academic performance and examine differences between males and females with respect to the cognitive, or thought, processes involved when answering questions. The cognitive process taxonomy, developed by Halpern (2000, 2004), attempts to formulate an understanding of student performance via cognitive gender differences. Halpern argues that both boys and girls have differential strengths and weaknesses in problem solving. With respect to reading and writing, Halpern categorizes underlying cognitive skills as follows.

a. Boys perform better on tests of verbal analogies, which involve mapping verbal relationships in working memory, as well as tasks involving transformations in visuo-spatial working memory.

b. Girls are able to more rapidly access phonological, semantic, and episodic information from long-term memory; they show the largest advantages in other memory tasks, as well as a strong advantage in writing.
Halpern’s approach also addresses the differing levels of performance of boys and girls due to type of test: girls tend to receive higher grades in school, especially when the teacher’s test material closely resembles what was taught, while males obtain higher marks on standardized tests, where test material tends not to be as similar to what was taught in class (Halpern, 2006). Halpern dismisses the suggestion that this difference is simply due to girls’ learning being more rote than boys’ (as was suggested by Kimball (1989), for example), noting that girls’ superior performance in writing constitutes a “highly creative act” that is above and beyond rote learning (Halpern, 2006; p. 645).

Halpern (2006) argues that biological and environmental influences may be too closely intertwined to be isolated, making the gender gap a difficult one to address. Nature and nurture do not simply interact, they mutually influence each other in cyclical ways. She cites the psychobiosocial model as a theory that best accounts for differences between boys and girls (Halpern, 1997). This model is based on the notion that, as above, it is impossible to separate biological and psychosocial (i.e. environmental) influences, and that all children can improve in every ability area with appropriate instruction (Halpern, 1997, 2006).

Conclusions

With so many citing and attempting to illuminate the gender gap in education, it is certainly likely that a difference between girls’ and boys’ performance in reading and writing exists. Girls have been shown to have a significant and consistent advantage in literacy from an early age over boys, and this advantage is found not only in North America and English-speaking countries, but internationally across cultures and languages. However, these gender differences may not be consistent across the range of
abilities. Of potential importance, boys are generally more variable in their literacy performance, and constitute a greater proportion than girls in the lower ends of the distribution in literacy achievement.

The modes of assessment have been linked to differences in achievement and identification between males and females. Performance varies based on the types of measure used. For example, Dwyer and Johnson (1997, cited in Halpern, 2006) noted a dichotomy between in-school performance and achievement on standardized tests; female students, on average, do better in school assessments but often score lower than boys on standardized tests or aptitude-type tests. However, such results are not consistently found in the research literature. Further, the gender differences in literacy achievement are also found in standardized measures of literacy. Thus, and to the extent that these assessment mode differences truly exist, the gender differences in literacy achievement may be under reported. Secondly, the methods used to identify students as reading disabled result in differing gender proportions. IQ-referenced or non-IQ-referenced selection methods and teacher-identified or test-identified selection criteria have differing impact on the ratio of boys to girls diagnosed. Such findings suggest that diagnoses have been subjected to a selection bias using problematic criteria, such as patterns of behaviour, as opposed to strictly academic difficulties.

Attempts at altering the school environment in order to better support academic achievement and literacy for boys (as well as for all students) include approaches that target the organizational structure of the school, the individual student, the pedagogical outlook of the classroom, and the sociocultural relationships of students and their beliefs about learning have all been shown to have relative levels of success. This success is
most commonly found in an overall increase in student achievement rather than a
differential increase for boys or girls. Hence such approaches may increase overall
achievement but not reduce the gender difference in literacy achievement.

It also appears that the least information is known about the impact of differing
pedagogical approaches to literacy achievement for boys and girls. Certainly, anecdotal
evidence exists about the value of specific pedagogical approaches for addressing boys’
literacy. As an example, the use of non-fiction reading materials have been promoted as
technique to better engage boys in literacy activities. While there is evidence that boys
may choose non-fiction more so than girls, both boys and girls seem to prefer fiction to
non-fiction materials (Harkader, & Moore, 1997; Moss, 1999; Topping, Samuels, & Paul,
2008). Moss noted that when boys do choose nonfiction materials, the materials tended to
be visually based and may have been chosen to help hide their poor reading skills.
Similarly, Topping et al. noted that while boys did read proportionately more non-fiction
than girls, they read it less carefully and tended to read less overall, especially in the
higher grades. Although the non-fiction materials children chose tended to be more
challenging than fiction materials to read, Topping et al. actually identified a negative
correlation between the amount of non-fiction reading and overall reading achievement.
Mirroring the conclusions of Halpern (1997, 2006), Topping et al. were able to identify
differences between classrooms in promoting successful comprehension, suggesting that
specific interventions can improve literacy achievement. As Moss concluded, “tackling
boys’ underachievement is closely linked to overall school improvement” (see also,
Younger et al., 2002).
Given the complex nature of education, in addition to the intricacies of group and individual differences in academic achievement, more research is needed to illuminate the gender differences in literacy achievement. While gender differences in literacy are consistently reported, the reasons for these differences and the interventions and strategies to address these differences are largely unknown. Certainly there is a real need to systematically examine ongoing attempts occurring in classrooms or schools to reduce this gap. It is important to challenge boys to improve their literacy performance and to find ways to better engage boys in the reading process, but we need to better understand the processes that will help boys to meet these challenges. Fortunately for researchers and practitioners, the variation in the gender gap in literacy achievement found across schools and jurisdictions (see for example (OECD, 2001), suggest these differences are not absolute and can be addressed through teaching.
References


