The Effect of Teacher Gender on Student Achievement
Doris M. Newbury P.O. Box 571 Victoria NL A0A 4G0

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Abstract

The principal objective of this paper is to report on the effect of teacher gender on student achievement in language arts and mathematics in primary and elementary grades. This research focused on three main issues. First, it determined that the number of female teachers in many parts of the world exceeds males. It further confirmed there are a substantially higher number of females teaching in the primary and elementary grades than males. Second, the literature indicates that girls are outperforming boys in reading both nationally and internationally and, while boys are doing well in mathematics, girls have reached parity with boys in this area. Third, this paper examined the impact the gender of the teacher has on boys’ and girls’ reading and mathematics achievement. The findings were inconclusive. Many researchers report conflicting results. Some argue that gender interaction between teachers and students has a significant effect on student performance. Conversely, others reported both boys and girls perform better in reading with a female teacher than with a male. Others concluded male teachers were better for all students in math, which aids in purporting the notion of gender stereotypes where girls are better in reading and boys are better in math. This study concludes with a look at implications/recommendations for practice. Again, because the findings were varied, the implications vary as well. It was concluded that further research on this important topic is required.
Introduction

Gender differences have long been a strong source of debate. Many societies have become consumed with fairness and equal opportunity for all. Over time a new vocabulary has evolved. Phrases such as gender gaps, gender theory, and gender wars have become commonplace. Academics have argued the contributions of biological and environmental determinants of the so-called gender gap (nature versus nurture) on student achievement. One such environmental factor discussed throughout the literature is how students’ interactions with teachers may aid in shaping both the cognitive development and intellectual engagement of young boys and girls.

This paper will analyze literature on the impact of student-teacher gender interactions on primary and elementary school children’s performance in language arts and mathematics. Educational researchers such as Kuecken and Valfort (2012) have identified gender differences in the classroom that can have a bearing on the academic success of young children. Constantinou (2008) posits that the gender of teachers also influences how they interact and communicate with their students. There is a line of research which has concluded that students learn better from teachers of their same sex (Dee, 2007). Many of these conclude that since female teachers outnumber males in primary and elementary grades, this makes it somewhat easier for girls to obtain same-sex role models (Carrington & McPhee, 2008). Smith (2004) recognized the diminishing presence of male teachers as a global issue. Countries around the world, including Australia, England, and Hong Kong, have policies in place to recruit more male teachers into the teaching profession in an attempt to raise the achievement level of boys. Research shows boys do not achieve as well as girls in reading (Mullis, Martin, Kennedy, & Foy, 2007) and girls are somewhat outperformed by boys in math in some areas. A study of Kenyan
schools conducted by Robert, Owiti, and Ongati (2013) concluded there is a significant relationship between teachers’ gender and students’ achievement in primary mathematics. The study recommended the deployment and training of more female teachers at upper primary school levels since their contribution towards student achievement and learning was proven to be substantial. Interestingly, male teachers dominated in the primary schools studied.

Current statistics and literature show there are far more female than male teachers worldwide, and that girls are outperforming boys in reading. Research, however, does not conclusively support the notion that boys tend to outperform girls in mathematics. Ammermueller and Dolton (2006) recognized the large amount of literature that exists on the differences between the overall academic achievement of boys and girls. They noted that historically girls have outperformed boys in reading, but in more recent times, girls are improving in both mathematics and science in many countries. This paper will explore the effect the gender of the teacher has on boys’ and girls’ achievement in these two subject areas.

**Background Statistics**

According to Statistics Canada (2014), the number of teachers and professors in Canada was 756 900. Of these 32% were men and 68% were women. The proportion of women among all elementary school and kindergarten teachers in Canada in 2011 was 84%. In that year the number of female teachers in elementary and kindergarten classrooms was 227 810, while the number of male teachers was 43 390. The proportion of women among all secondary school teachers in Canada in 2011 was 59%. The actual number of women in these positions was 101 960. If we compare this to the number of males in the same positions, we see the number is significantly lower at 72 015. The proportion of women among all early childhood educators in
Canada in 2011 was 97% or 181,705. The number of male teachers in these same positions was only 6050.

Based on statistics available (Hoque, Zabidi, Zohora, & Islam, 2013), there are a total of 229,921 primary teachers in the country of Malaysia out of which 159,276 are females. This represents 69.3% of the total number of teachers, thus leaving the representation of male primary teachers at 30.7%. In a statistical press release by Statistics and Research Agency in 2013, Northern Ireland reported that the proportion of teachers working in all schools who were male has been declining over the past several years. This same report confirmed the proportion of teachers across the nursery and primary sectors who were male was 14.9%. In this same year it was reported that 75.9% of all teachers in Northern Ireland were female and 24.1% were male. The World Bank Group database (2015) released a report that listed the percentage of female teachers teaching in primary levels around the world. These statistics reveal the vast majority of these countries employ female teachers in the primary grades, and thus more females than males are teaching language arts and mathematics. This phenomenon has become known as the ‘feminization of education’. If the gender of the teacher does indeed affect and influence the achievement of his/her students, and if the research shows that students do achieve higher success with a teacher of the same sex, then certainly girls should be achieving more success than boys.

**Student Achievement in Language Arts**

A distinct and growing shift towards examining boys’ and girls’ education through research on gender and schooling did not begin until the mid 1990s (Ailwood, 2003). Over the last decade or so there has been mounting evidence of an apparent gender gap, especially in reading achievement, both at the international and national levels. At the national level, the
Canadian Council of Ministers of Education, as far back as 1998, reported notable gender differences in literacy achievement at 2 age levels. Here 13-year-old and 16-year-old girls on a consistent basis outperformed boys in reading test scores. In 2004 a comprehensive analysis of gender differences in reading achievement by the National Center for Education Statistics in the United States revealed that females in grades four, eight, and 12 consistently performed better than boys in reading achievement (Freeman, 2004). Females outscored males in writing achievement as well in this study. This trend was shown to continue as a new study was released in 2006 which bore the same results. The apparent gender gap continued, with girls consistently outperforming boys.

In the United States an independent non-profit organization called the Center on Education Policy conducted extensive research beginning in 2002 that looked at the achievement of boys and girls on a state reading test. This study was used for No Child Left Behind accountability. The main findings were released in 2009 which concluded girls outperformed boys in reading at the elementary, middle, and high school levels. Higher percentages of girls than boys scored at or above the proficient level on state reading tests at grade 4, grade 8, and high school; in some states these gaps exceeded 10 percentage points. Also in grade 4 reading, higher percentages of girls than boys reached the basic, proficient and advanced levels. Lastly, the same study reported that while both boys and girls saw improvement in reading since 2002, girls saw far more progress than boys overall (Chudowsky & Chudowsky, 2010).

Lower reading achievement for boys is a dilemma worldwide. In New Zealand in 1997 a longitudinal study was conducted to measure the educational outcomes of a group of over 1000 children. Fergusson and Horwood (1997) found … “the difference in achievement levels of traditional educational disadvantages shown by females has largely disappeared and has been
replaced by an emerging male disadvantage” (Fergusson & Horwood, 1997, p.88). Sadly, they also found that the lower achievement of boys compared to girls was present throughout the students entire school career. In 2002, The Parliament for the Commonwealth of Australia released a report from an inquiry into the education of boys on that continent. The inquiry was the result of a request made by the Minister for Education, Training and Youth Affairs. The purpose of the inquiry was to study and later report on the evidence of boys’ under-achievement and disengagement from learning. Key indicators included measures of early literacy achievement, where fewer boys at year 3 and year 5 achieved the national benchmark than girls. Girls received higher average marks than boys across the subject areas and the gap between these total marks continued to widen as students went on to begin high school. As a result, close to 60% of students being granted admission to higher education schools, such as universities, were female (House of Representatives Standing Committee on Education and Training, 2002).

The National Assessment of Educational Progress (NAEP) in the United States is a widely respected test conducted by the U.S. Department of Education. Its intent is to measure trends in both boys’ and girls’ academic achievement over long periods of time. The main NAEP test tracks students’ performance in reading and math as well as other academic subjects, and has been doing so since the early 1990s. It tests students’ achievement in grades four, eight, and 12. The most recent NAEP, administered in 2005, showed that fourth-grade boys’ reading achievement had improved since the previous reading assessment given in 2003. While this is seen as a success for boys’ reading abilities, their assessment scores did lag behind fourth-grade girls who were given the same test. This makes it quite difficult, if not impossible, for boys to catch up with girls’ reading scores in later years. The NAEP further found that older boys, for example, 12th graders, showed a loss of reading achievement from earlier years. As such, it can
be concluded that the reading achievement gap between boys and girls does indeed widen over time. Given the importance of reading with regard to educational and individual development, within school and later in one’s life, it is perhaps not surprising that concern for this purported gender gap in reading achievement is widespread (OECD, 2001). One would certainly be caused to question if the predominance of female teachers in both primary and elementary grades could be a leading cause of boys’ underachievement in reading.

**Student Achievement in Mathematics**

The question of gender differences in mathematics achievement and attitudes is a continuing concern for scientists and researchers alike. Stereotypes that girls and women lack mathematical ability continue to exist despite ever-increasing evidence of gender similarities in math achievement (Hyde, Lindberg, Linn, Ellis, & Williams, 2008). The Programme for International Student Assessment is organized by the Organisation for Economic Cooperation and Development. PISA released a document in 2011 which compared boys’ and girls’ mathematics skills. Boys outperformed girls in mathematics in 35 of the 65 countries and economies that participated. In five countries, girls outperformed boys, and in 25 countries there was no significant difference between the genders. On average in OECD countries, boys outperform girls in mathematics by 12 score points – a gender gap that is only one-third as large as that for reading, in which girls outperform boys. In Belgium, Chile, Switzerland, the United Kingdom, the United States, and the partner countries Colombia and Liechtenstein, boys outperform girls by more than 20 score points, close to one-third of a proficiency level. While boys did outperform girls by an average of 12 points across the OCED countries involved, this can be considered a small gap compared to the average 39 points in favor of girls in reading.
performance (OCED, 2011). It is also worth noting here that four of the six best-performing countries showed little or no gender differences in mathematics performance.

Examining recent data from the United States and other nations, Hyde and Mertz, (2009) concluded that U.S. girls now perform as well as boys on mathematics testing at all grade levels. They reported evidence indicating that girls have indeed reached parity with boys in mathematical performance. These researchers also noted the same trend occurring in other nations around the world. Hyde, Fennema, and Lamon (1990) released a meta-analysis report which revealed similar results to those of 2009. Hyde et al. found girls showed a slight advantage over boys in computation skills in both elementary and middle school. They further found no real gender differences in understanding of concepts at any age. In the earlier grades, complex problem-solving tasks displayed no real gender differences, but these differences did emerge favoring males in later years in high school. Voyer and Voyer (2014) released findings based on studies spanning from 1914 through to 2011. Their research concluded that the differences in grades between boys and girls were largest for language arts courses and smallest for math and science. Girls’ advantage in math and science was generally not apparent until junior high or middle school. This expansive study included countries from all over the globe. Seventy percent of the sample students were from the United States. Other countries which were represented by more than one sample included, but were not limited to, Norway, Canada, Germany, New Zealand, Australia, and Sweden. Sample countries represented by only one sample were Belgium, Portugal, Hong Kong, and India. Lindberg, Hyde, Petersen, and Linn (2010) used meta-analysis to analyze gender differences in studies of mathematical performance published between 1990 and 2007. The results indicated no gender differences in math achievement. Else-Quest, Hyde and Linn (2010) conducted research as well in which they
utilized meta-analysis to estimate the magnitude of gender differences in math achievement and attitude. The data collected indicated a pattern of gender similarities in math achievement over 2 decades. This meta-analysis provides further evidence that males and females differ very little in mathematics achievement, even though males had a slightly more positive attitude toward math (Else-Quest, et al. 2010).

The Pacific Educational Research Journal published a very interesting report in 2005. The research, conducted by Reiss and Zhang at the University of Hawaii, focused on exacting reasons why girls were consistently outperforming boys in mathematics in Hawaii (Reiss & Zhang, 2005). Their findings were quite conclusive. They found that girls were shown to have the advantage in math because they were better readers and writers. This research acknowledged that while boys are often assumed to have the advantage in mathematics relative to girls, males’ lower reading and writing scores had a negative impact on their math performance. Reiss and Zhang further concluded that basic reading and writing skills should be considered prerequisites to mathematics achievement.

Stereotypes of female inferiority in mathematics seem to be in distinct contrast to actual research results. In many countries, so-called gender differences are in steady decline. One possible factor for this may be the need for more male teachers in primary and elementary grades. An important consideration which must be made is the overall effectiveness of male teachers compared to female teachers in educating boys.

**Impact of Teacher-Gender on Student Achievement**

Since the mid-1990s concerns have been widely expressed by both educators and researchers about the whole idea of the feminization of education. The assumption is that the ever-increasing number of female teachers is swiftly leading to a lack of adequate male role
models for boys, which may lead to negative consequences for boys in the areas of achievement and behavior (Driessen, 2007). A large-scale study of Dutch primary schools was conducted in 2007 by Driessen involving 5181 grade 8 pupils, 251 teachers, and 163 schools. This researcher found, in every set of analyses performed, the sex of the teacher did not significantly influence the achievement, attitudes or behavior of the primary-aged pupils. These results were found to hold true for the total number of male teachers these students had in their primary years, the phase in which they had male teachers (lower and higher years), and the sex of the teacher during year 8. Furthermore, there were no significant differences found for female versus male students. Driessen (2007) concluded that putting more male teachers in the classroom does not necessarily lead to better achievement, behavior and attitudes on the part of boys.

Carrington, Francis, Hutchings, Skelton, Read, and Hall (2007) collected data from interviews with more than 300 7-8-year-olds who were attending schools in various locations throughout England. Carrington et al. (2007) set out to examine the claim the scarcity of male role models in schools was continuing to have an adverse affect on boys’ academic motivation and achievement. Their findings revealed that the gender of the teacher had minimal effect on the motivation, achievement, and engagement of both boys and girls academically. Most children agreed that the sex of their teacher was immaterial. Students valued consistency, fairness and support from teachers – regardless of their gender.

Unfortunately, not all research on this issue has reported the same conclusions. Conversely, a study by Dee (2007) indicated startling results. Dee’s research concluded that the gender interactions between teachers and students have quite significant effects on such educational outcomes as test scores and teacher perceptions of student performance. For example, being assigned to a teacher of the opposite sex can actually lower student achievement.
Another interesting idea stemming from Dee’s work is the implication that if boys were to spend one full year with a male English teacher, the gender gap in reading between boys and girls could virtually be eliminated. While the performance of boys’ reading achievement would be improved, however, girls in the same class would see their reading achievement levels drop.

With regards to teacher and student perceptions, the effect was similar. Dee reported boys were much more likely than girls to be seen as disruptive during instruction times. Again, the results suggested here indicate spending a year with a male teacher could close this gap as well (Dee, 2007). Any implications suggested from this study will be discussed in a later section.

Okoro, Ekanem, and Udoh (2012) reported findings similar to Dee. Their data analyses results revealed teacher gender plays a significant role in the academic performance of primary school students in language arts and mathematics. Okoro et al. (2012) focused specifically on the notion that boys taught by male teachers perform differently from those taught by female teachers. Their findings were similar to others in that it showed boys actually suffer a disadvantage because of the lack of male teachers in primary schools. Okoro et al. concluded as well that girls taught by female teachers perform significantly better than girls taught by males.

To further complicate this already complex issue, Kuecken and Valfort (2012) reported yet another scenario regarding teacher gender and student achievement. They conducted research to examine how student-teacher gender interactions impact young primary-aged students’ achievement in mathematics and reading in eleven Sub-Saharan African countries. Their findings revealed boys and girls both perform better in reading with a female teacher than with a male. They also concluded that male teachers were better for all students in math (Kuecken & Valfort, 2012). This serves to encourage the long-thought, more traditional idea of the stereotype effect, which purports the notion that males are better at math than females and
females are better at reading than males. Curiously, their work revealed this stereotype effect could actually be seen influencing the expectations that teachers place on themselves. Here, male teachers felt more confident in their ability to teach math, while female teachers felt the same about the teaching of reading.

Neugebauer, Helbig, and Landmann (2010) asked the question: Can the growing feminization of the teaching profession explain the apparent disadvantage of boys in academic achievement? Through their research in Germany these authors helped to confirm the lack of solid evidence to support the same-sex conjecture. Neugebauer et al. found boys simply do not benefit from male teachers with regard to academic performance measured by test scores and grades. They concluded that the so-called feminization of schools, especially in primary and elementary, has not led to weaker skills of boys, nor has it improved the overall academic skills of girls (Neugebauer et al., 2010). Further evidence revealed that the enlistment of more male teachers in the primary grades could lead to unintended and unwelcome consequences. For example, boys and girls taught by a German male teacher for four years had substantially lower, well-developed reading skills than students who were taught by a female teacher.

Much research has also been conducted aiming to explore the impact of student gender, teacher gender and their interaction on academic motivation. Because of the established gender stereotype, boys should fare better academically when taught by males. Likewise, girls are expected to perform better with female teachers (Martin & Marsh, 2005). These researchers studied 964 junior and middle high school students. They found boys did not fare any better with male teachers than with females in terms of academic motivation and engagement. Martin and Marsh (2005) reported findings which demonstrated that boys and girls are no more or less motivated when taught by males than when taught by females. The data they presented, they
felt, questioned the gender stereotype model or idea. Their research also calls into question if the popular argument does really exist; do boys really achieve more academically with men teachers and do girls achieve more with women? Martin and Marsh (2005) concluded their study by adding the only significant interaction to emerge from this work was that girls felt they had a better relationship with their female teachers, while boys reported similar relationships with both female and male teachers.

Statistics show primary school teaching has, by and large, become a female profession. Most researchers would agree that this fact alone could lead to a lack of role models for young male students in primary education. Coen and Van Klaveran (2013) investigated this very issue. They wanted to know if a same-gender teacher effect exists. In particular they investigated the effect of having a same-gender/opposite-gender teacher on mathematics performance of primary students. Coen and Van Klaveran (2013) paired a girl and boy together within a class based on their similar math scores in the previous year. Interestingly, they could neither find evidence for the existence of a same-gender teacher effect, nor an opposite-gender teacher effect for mathematics. These researchers therefore concluded that there is not a same-gender or opposite-gender teacher effect for math. Differences in primary students’ mathematics scores did not appear to be related to or influenced by the gender of their teacher (Coen & Van Klaveran, 20113).

A clear, consistent consensus on this important issue has yet to be reached. Conflicting research results make it difficult to suggest the effect teacher gender has on student achievement, if any at all. Caution should be taken before drawing conclusions and implementing new policies.
**Implications/Recommendations for Practice**

There is a preponderance of statistical information confirming what many have believed to be true for some time; the number of female teachers in primary and elementary schools around the world, in most instances, far outweighs the number of males. In primary and elementary grades more women are teaching language arts and mathematics than men. A plethora of research has been done on the reading achievement levels of boys compared to girls. Researchers in this field agree that girls are outperforming boys in reading/literacy achievement. There is an abundance of research as well which has focuses on whether boys outperform girls in mathematics in the early stages of schooling. Much of this research indicates girls are doing well in math and, in many cases, are performing just as well or better than boys. The literature reviewed here reveals that girls are performing well overall in these two subject areas. While boys are lagging behind in reading achievement, they continue to perform well in math overall – even if their scores are on par with girls a significant percentage of the time.

Considering the fact that so many female teachers choose to teach in these lower grades, that girls seem to be outperforming boys in some areas and doing just as well as them in others, one would be inclined to conclude that teacher gender does play an important role in student achievement. The findings here, however, are inconclusive. Researchers do not agree as to whether the gender of a teacher has an effect on student learning or if it does, to what extent. There are proponents of the same-sex student/teacher classroom, but an equal number endorsing the opposite as well. Considering the lack of consensus, it may be tedious and somewhat difficult to suggest implications for practice for the future.

This section will discuss possible recommendations and/or implications for moving forward. There are research findings which report that the gender of the teacher has very little
bearing on student’s academic achievement or engagement in a primary or elementary classroom. The vast majority of these students expressed that their teachers, regardless of gender, both encouraged them and wanted them to work hard (Carrington et al. (2007). These researchers cautioned the government and school board policies on recruitment of more male teachers for the purpose of providing role models for boys in school. They emphasized that little is known about the extent to which young children show greater affinity to teachers of the same gender. The overall views from the children interviewed seemed to be one of irrelevance when asked about the gender of their teacher. Carrington et al. (2007) concluded their research by suggesting their study indicated clearly that unsupported claims about the advantages of same-sex matching of student and teacher should have no place in the making of decisions and policies.

Dee (2007) concluded unequivocally that same-gender teacher assignment significantly improves the achievement of boys and girls. However, he was quick to point out that his findings do not suggest gender-based segregation of students and teachers. This, Dee cautioned, was merely one of many environmental determinants involved in the educational outcomes of both girls and boys. Likewise, he suggested these results do not give the possible consequences involved in segregating students and teachers by gender. Lastly, Dee recommended that since gender interactions between students and teachers are consequential, further research into this important issue would certainly be worthwhile.

There are also findings which point to the benefits of matching both boys and girls with male teachers in math and female teachers in reading (Kuecken & Valfort, 2012). When considering putting policies in place, these researchers caution resorting to such measures. They emphasize these types of pairings would be detrimental in the long-run because it would
reinforce the already-existing stereotype which purports females are better at reading and males are better at math. Kuecken and Valfort (2012) reiterate policies should aim to replace stereotypes about gender-specific achievement with the idea that teachers and students are quite capable of performing well in both areas.

Neugebauer et al. (2010) reported findings on this gender issue as well. They found that boys do not benefit from male teachers and girls do not significantly benefit from female teachers. Further, their research concluded the unqualified call for more male teachers in primary classrooms could possibly have unwanted consequences. Both boys and girls taught by a male teacher for four years had less developed reading skills than students taught by a female teacher for the same period of time. Neugebauer et al. recommended more research is needed in this critical area of education. Because of their findings, these researchers cautioned that the campaign to entice more males into the teaching profession in general, and into the primary classroom more specifically, may unintentionally harm the reading skills of both boys and girls by being taught by males. One possible explanation of this particular finding is the possibility that female teachers possess higher reading skills themselves which they then convey to their students. In summary, Neugebauer et al. suggested the ever-increasing success of girls may simply be a result of equal gender opportunities being afforded them as they are being encouraged to reach their fullest academic potential, which in turn leads to more female teachers.

Research findings by Okoro et al. (2012) were similar to those of Dee (2007). For example, boys taught by male teachers perform significantly different than boys taught by females. Conversely, girls taught by females perform significantly different than girls taught by males. They reported that teacher gender significantly influences the academic achievement of students (Okoro et al., 2012). From this research these authors proffered several
recommendations. The government should seek to entice and employ more male teachers to offset the perceived teacher gender imbalance in schools. Institutions such as colleges and universities should encourage men to pursue a career in primary education. As a means of enticing and encouraging males to enter the teaching field, scholarships and grants should be provided for male teachers-in-training. Primary teachers should devise and implement pedagogical approaches which deemphasize teacher gender; not behave in a stereotypical manner. Teachers should pay particular attention to the engagement and achievement of students in their classes of the opposite sex. Okoro et al. did not include any advice or suggestions as to how these recommendations would be implemented.

One study in particular is worth mentioning here, not only for its results but also for its implications. Hoque and Zohora (2014) attempted to determine the impact of gender in the primary teaching profession on student learning. The overall, initial finding from this quantitative study was that men are slightly better to teach in primary as opposed to women when test scores are analyzed. However, when the analysis was further broken down, and analyzed for the impact of same or opposite gender, the combined result did not find strong evidence to support whether young children should be taught by teachers of the same sex or the opposite. It revealed mixed evidences in that it did not support the argument for same-gender student and teacher or opposite gender. Hoque and Zohora recommended that instead of spending time debating teachers’ gender, it makes much more sense to focus on the right ‘type’ of teacher. They suggested teachers’ personality traits and overall classroom qualities are much bigger and more important than the gender of the teacher.

Obviously research does not clearly state or define the effect the gender of the teacher has on student achievement. Varying results and views have been discussed throughout this
paper. Clearly there is no real consensus as to which gender of teacher has the more effective influence on primary and elementary student achievement. Because of these varying and somewhat contradictory views, the implications and/or recommendations for the future education of young children are uncertain at best. As is referenced by many researchers throughout this paper, further research into this important topic is merited.

Conclusion

The findings by many well-known researchers in this field are far from conclusive. Some reported findings that clearly state the gender of the teacher impacts student achievement in language arts and mathematics a great deal, while others report just the opposite. Some claim girls should be taught by women and boys by men, while still others report both boys and girls should be taught by females, especially in language arts. The gender of the teacher may not be the only factor to consider when analyzing student achievement. Research data also points to the biological make-up of girls compared to boys. Some researchers propose these differences in skills and cognitive abilities are determined by such biological factors as brain organization, hormones, and genetics. These differences are said to be responsible for gender variance in academic achievement (Gibb, Fergusson, & Horwood, 2008). While researchers have long agreed that girls appear to possess more advanced, even superior language abilities to boys, it wasn’t until a study was conducted by Northwestern University that solid evidence emerged showing a clear, biological basis for these differences (Northwestern University, 2008). Using functional magnetic resonance imaging (fMRI) researchers measured brain activity in boys and girls aged 9 to 15 as they performed spelling and writing language tasks. These language tasks were delivered in two types of sensory modes – visual and auditory. The children read words without hearing them and heard words read aloud but could not see them. Girls showed greater
activation in language areas of the brain than the boys. The information in the assigned tasks got through to the girls’ language areas of the brain. In the boys, however, accuracy in their performance of reading words depended on how hard the visual areas of the brain were working. Likewise, in hearing the words, their performance depended on how hard the auditory areas of the brain were working. If we assume this pattern extends to language processing in the classroom, it could have widespread implications for teaching and testing methods. Testing boys on lecture knowledge should perhaps be conducted orally, while knowledge gained from material read would be most suited to written tests for boys. For girls, varying the test method appears to not be necessary. These data present profound possibilities for Inclusion and Differentiated Instruction for classrooms in the future.

An important cause or factor to consider regarding the gap between boys’ and girls’ reading achievement levels is the socialization of gender. Gender norms or the accepted and perhaps expected behavior for a specific sex has a direct impact on students’ participation in various educational activities which are deemed to be either masculine or feminine. Children quickly learn these behaviors through experiences they encounter at home, in school, or in society. Chapman, Filipenko, McTavish, and Shapiro (2007) explain that both sexes are socialized into preferring particular texts or genres over another. Chapman et al. found boys chose books for other boys in keeping with their socially constructed understanding of gender, rather than their own reading preferences. Merisuo-Storm (2006) noted that “boys are more apt than girls to closely guard the gendered boundaries of their reading, and girls cross gender boundaries more freely than boys” (p. 113). Boys do not want to be seen as un-masculine in their choice of reading and writing materials. Marinak and Gambrell (2010) state that one of the most powerful, persuasive facets of reading motivation is gender. Their research found boys were
more likely to label themselves as non-readers than girls. They also reported that girls were more interested in read-aloud books, and were externally motivated to read in a social context. They concluded that these attitudes towards reading help perpetuate the gender gap. These findings bear strong comparison to a study done by Warrington, Younger, and Williams (2000). Warrington et al. reported boys are more likely to be ridiculed by their peers for working hard in school, and as a result sometimes resort to inappropriate behaviors such as challenging authority and pretending not to care about their school work.

There are indeed a multitude of points to consider when one attempts to ascertain things that affect student learning and achievement. The research appears to be endless on this topic. Future research might explore possible reasons why men are not interested in the teaching profession – especially in primary and elementary grades. Further studies would also aid in understanding the dynamics of teaching in a classroom based on gender. Perhaps the gender of a child’s teacher is irrelevant. Perhaps as Carrington et al. (2007) pointed out, the gender of the teacher is immaterial to a primary or elementary aged student. Children who succeed in these lower grades may do so simply because they experience a warm, kind-hearted, engaged, and supportive teacher who, regardless of their gender, has devoted their life to the betterment of the students they have in their charge.
References


