

***DEALING WITH GENDER DISPARITY  
IN EDUCATION***

***More men and only boys***

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**'MISSING MEN' BACKGROUND PAPER**

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## **DEALING WITH GENDER DISPARITY IN EDUCATION – More men and only boys**

### **Abstract**

This background paper seeks to explore the relative underachievement of boys in the compulsory education sector. In particular this paper will consider the appropriateness and effectiveness of two possible solutions to this underachievement: recruiting more males teachers and implementing more single-sex schooling. In exploring this topic the most salient feature of the literature is the extent to which both theoretical and empirical work conflict. More research and data gathering is required to improve our understanding in this area. Further, our current measures of success prove inadequate to explain the many complex aspects of the interaction of sex with educational achievement. This paper will assess claims that a major impediment to reforming education policy so that it reflects an evidence-based approach to the relative achievement of boys and girls is biological and social determinism in light of some of the competing approaches; including the significance of the non-uniform conversion of difference into disadvantage as a result of societal constructions of gender; and the value basis and insufficiency of measures of success. These approaches focus on our understanding of the way in which gendered societal expectations, incentives and consequences work to enhance or impede learning; and whether the way in which assessment of this learning accurately reflects accomplishment and potential. Either way this paper argues that empirical evidence must be contextualized within increasingly heterogenous society.

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# DEALING WITH GENDER DISPARITY IN EDUCATION – More men and only boys

## INTRODUCTION

There are a wide array of possible solutions to the relative underachievement of boys in the compulsory education sector. However, this background paper discusses the appropriateness and effectiveness of two solutions: recruiting more males teachers and implementing more single-sex schooling. The paper will not analyse the existence of a disparity between boys' and girls' educational achievement in depth, that has been done elsewhere (See for overview: Alton-Lee & Praat, 2001; Baker, 2006), except where critical analysis of the diagnosis of the problem is required in order to assess these potential solutions.

The most salient feature of the literature on this subject is the extent to which both theoretical and empirical work conflict. More research is required in many areas which will be discussed at the conclusion of this paper, but our current measures of success prove inadequate to explain the many complex aspects of the interaction of sex with educational achievement. The insufficiency and contradictory nature of the existing evidence seems to require that the interpretation of empirical evidence in the formulation of policy display a degree of consciousness of these problems and a degree of openness as to the limitations of this evidence as justification for one policy position or another.

Some argue that one of the impediments to reforming education policy so that it reflects an evidence-based approach to the relative achievement of boys and girls is biological and social determinism (Rowe & Rowe, 2002). Such determinism is manifested in prescriptive solutions to gendered disparities, but as Alton-Lee and Praat note:

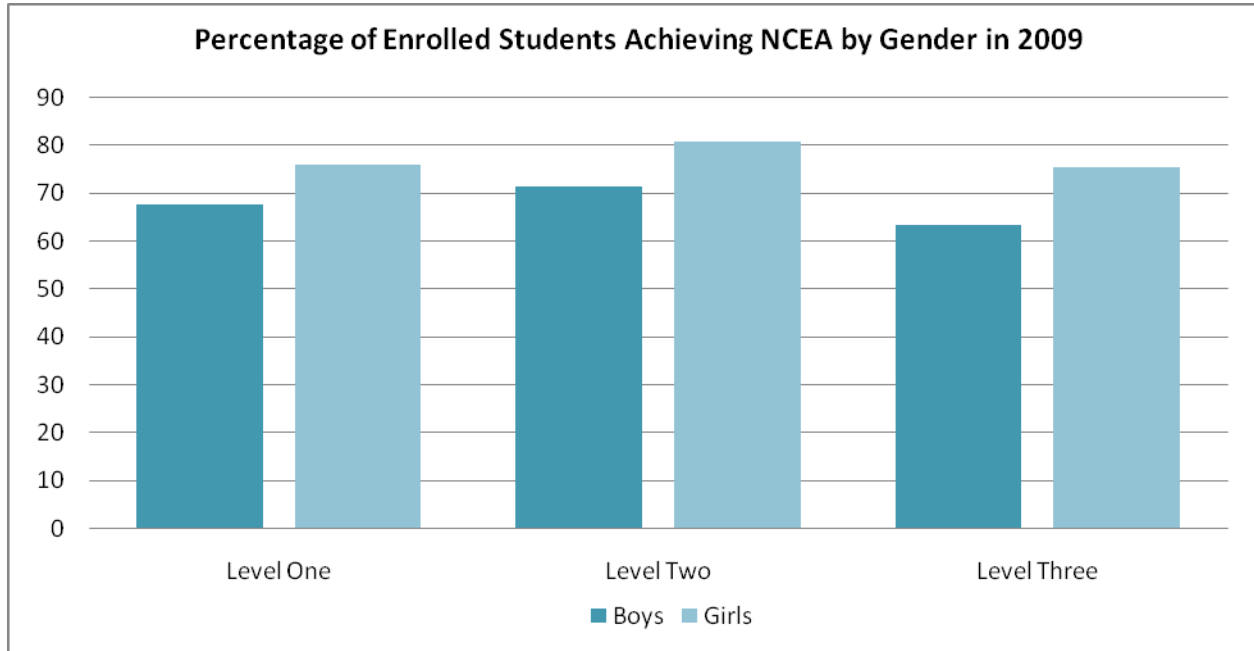
Prescriptive responses can uncritically and unhelpfully frame girls as passive, victims, or advantaged 'other', and boys variously as heroes, bullies, victims or 'disadvantaged'. Such thinking, and the politically correct prescriptions that can follow, fail to reflect the complexity and inter-relatedness of gender and power in education and society (or the agents of), and constraints upon students and teachers. (p.4)

While these concerns may be warranted in some contexts there is increasing heterogeneity in opportunities for both men and women, which needs to be taken into account in developing a more nuanced approach to analysing gender disparity from empirical evidence (Callister, Leather, & Holt, 2008). Analysis of empirical evidence must, therefore, be contextualized within the increasing heterogeneity of society. Under this approach this paper will focus on two considerations: the non-uniform conversion of difference into disadvantage as a result of societal constructions of gender; and the value basis and insufficiency of measures of success. In order to discern the nature of the gender disparity issue and subsequently the appropriateness of potential solutions policy development needs to be informed by an understanding of the way in which gendered societal expectations, incentives and consequences work to enhance or impede learning; and whether the way in which assessment of this learning accurately reflects accomplishment and potential.

The paper is divided in four parts. The first part deals with this overarching approach. The second part deals with the first of the two possible solutions to be dealt with in this paper: recruiting more male teachers as a means to address the educational underperformance of boys. The third part address the second possible solution: implementing single-sex schooling to close the gender gap. The fourth part is a final discussion of the issues covered in the paper and areas for further research

**I. UNDERSTANDING GENDER DISPARITY IN EDUCATION AND ITS SIGNIFICANCE**

**From Difference to Disadvantage - Who cares about the gender gap anyway?**



**Source: New Zealand Qualifications Authority - <http://www.nzqa.govt.nz/ncea/index.html>.**

The average girl is doing better in school than the average boy (Collins, Kenway, & McLeod, 2000; Rowe & Rowe, 2002). Some of the debate over the last decade has attributed the underperformance of boys in the education system to the “feminisation” of education (See Biddulph, 1995; Karoski, 2007; West, 2005). There is a perception that a consequence of gender equity policies targeting girls educational issues, has resulted in the “feminisation” of education manifested in a negation of boys’ educational issues (Karoski, 2007; West, 2005). Ailwood (2003) highlights the “competing victim syndrome” that characterises much of the popular debate on the issue of gender disparity in education and reflects the power relations involved in defining relative disadvantage. As noted in the introduction to this paper the conflicting evidence as to the existence, nature and significance of the gender differences in learning behaviour and educational achievement seems to demand a cautious approach.

The vast array of divergent positions on gender disparity in education seem to indicate that “more complex systems are at work and only an examination of systems of relationships will illuminate gender development in the classroom setting” (Sokal, Katz, Chaszewski, & Wojcik, 2007).

From the behaviouralist approach it is argued that addressing the supposed “feminisation” of education by “re-masculinising” will compound stereotypes (Skelton, 2002). In the essentialisation of the sexes, the power relations between men and women which underpin society, are ignored (Gill, 2005). Gender goes beyond the purely biological or physical differences to encompass the “way those differences, whether real or perceived, have been valued, used and relied upon to classify women and men, and to assign roles and expectations to them” (Alton-Lee & Praat, 2000; citing Ministry of Women's Affairs, 1996, p. 7). The focus Gill (2005) argues should be on the *attribution* of these differences, the societal processes of constructing differences between male/female and the way in which these processes reflect particular power relations in society.

Gill (2005) argues inequality can only be addressed by “considering both girls’ and boys’ experiences and their relationship to hegemonic masculinity”:

### **Hegemonic Masculinity**

In the context of education policy “hegemonic masculinity” refers to the impact of dominant models of masculinity on learning. In particular the premise is that these dominant models structure “specific kinds of learning experiences for both boys and girls in schools...learning is regulated within a specific regime of institutional and social practices which limit students’ capacity for learning” (Cox, 1997).

This behaviouralist approach seeks to look beyond the gender as ascribed to the person to the construction of gender in society and its effect. This approach is premised on the idea that there may be many variables which interact with gender, such as ethnicity, class, prior achievement, rural/urban background, which may be more significant than gender in determining educational outcomes (Collins, et al., 2000). Consequently, theorists argue that policy should be targeted to determine *which* boys and *which* girls are being disadvantaged by the education system (For example: Ailwood, 2003; Collins, et al., 2000).

This approach highlights the continued disadvantage experience by a group of girls in the education system, and caution that policies targeting the underperformance of boys risk essentialising the differences between boys and girls, ignoring the social processes which construct these categories (Ailwood, 2003; Gill, 2005). This continued disadvantage is evidenced in gendered subject choices in which girls tend to choose subjects attributed less societal worth, a reality which Gill (2005) argues is a function of societal constructions of masculinity, not just a mere difference between the way girls and boys learn, and their preferences (See also: Ailwood, 2003). It is argued therefore that policy should acknowledge the social, historical, structural and political factors which lead to *particular* girls and boys underachieving in school (Ailwood, 2003).

There has been significant criticisms of this behaviouralist approach as a means to “deny and trivialise” the issue of boys’ under achievement (Baker, 2006). It is true that in New Zealand the difference between Maori/Pasifika and Pakeha achievement is much more significant than the overall difference between boys and girls. However, the gender gap cuts across all ethnicities and socio-economic groups to differing degrees. Consequently the prevalence of gender disparity across other demographic categories demands attention, however a nuanced approach is required which acknowledges the

different ways in which the gender gap manifests itself in the context of other forms of societal disparity. One possible approach would be to acknowledge a diversity of masculinities/femininities across all ethnic groups and socio-economic groups which the current framework of gender within our education system does not accommodate particularly effectively. Although at first glance ethnic disparity in education seems much more severe than gender disparity, many societal issues not directly linked to education – such as high a rate of crime and suicide among young men – have a gendered profile which pervades all ethnic groups and social classes.

### **Measures of Success**

The complexity of dealing with gender related issues in education is highlighted by Raphael Reed (1999) who opines that:

“a narrow focus on measurable outcomes inadequately capture the complexity of gender issues in education, and...a broader concern with the “hidden curriculum” and social processes of schooling should remain a key priority” (Jackson, 2002, citing; Raphael Reed, 1999, p. 97).

It is imperative in terms of designing potential solutions for the underachievement of groups of boys to establish what we mean when we say “boys are failing”. In post-schooling life men are still getting the highest paid jobs, getting more promotions etc (Human Rights Commission, 2004). But young men are also more likely to commit suicide, be involved in violent crime, or be drug and alcohol abusers. So it is important to pinpoint what in particular we are trying to achieve with strategies to address gender disparity in education (Human Rights Commission, 2004).

Are we concerned about...

- **Wider societal concerns** – retention rates and their connection to youth unemployment, crime, drug and alcohol abuse; or
- **Unqualified boys** – boys at the end of the tail coming out of the education system without formal qualifications into a world in which such qualifications are increasingly in demand; or
- **Equal outcomes** – equal representation and achievement levels across the board, at primary, secondary, and tertiary level and in all disciplines of both gender.
- **Equal opportunities** – where educational outcomes are different, ensuring that those outcomes result from the active choices made by students exercising equal opportunities.

Differing levels of achievement between boys and girls do not necessarily equate to wider societal disadvantage in a straightforward manner, for example an Australian study shows that male early-school leavers are more likely to be employed than females, and higher academic achievement does not necessarily equate to more favourable labour market positions for women (Ailwood, 2003; Alton-Lee & Praat, 2000; Collins, et al., 2000). Notwithstanding the continued post-schooling disadvantage experienced by groups of girls changes in the labour market have seen many apprenticeships decline or disappear, and the educational requirements for entering a trade extend to completion of final years of secondary education (Karoski, 2007). This has significantly altered the “educational experience of boys” (Karoski, 2007). The growing demand for higher educational qualifications, communication and

interpersonal skills stand to disadvantage groups of boys in the long term if they are unable to develop these skill sets (Karoski, 2007).

The proposition that education is a key determinant of one's ability to participate in the labour market and in society generally is by and large uncontroversial (Callister, et al., 2008 p. 16). This would seem to suggest that examining the impact of gender disparity in schooling on opportunities in later life would be useful. This may be so, however, the correlation is not straightforward and shifts in labour markets in industrialised countries mean these patterns are changing (Callister, et al., 2008 ). Jobs in both skilled and unskilled manual labour are being replaced by managerial, professional, "in-person service" jobs. The space in the labour market for those who lack the skills to work in one of these burgeoning areas is increasingly small; consequently they are forming a group who are unable to even enter the market or participate in this increasingly complex and educated society(Callister, et al., 2008 ). Men are disproportionately represented in this group, as Callister et al. note in 2006 in all age groups between the ages of 20-49 there were notably more men without formal qualification than women(Callister, et al., 2008 ). When analysis moves to the higher end of the skill set further complexities present themselves. Although on the face of it educational achievement seems to correlate positively with employment and earnings, analysis of the significance of levels of education, subject/course, occupation and industry, paid/unpaid work also need to be taken into account (Callister, et al., 2008 ). Further, as the above discussion on changes in the labour market evidences, the value attributed to particular skill sets and occupations is not static. This may mean that perceived relative gains/losses of women and men in terms of educational achievement may not translate into comparative advantage in the labour market and earning power (Callister, et al., 2008 ; P. Gilbert & Gilbert, 2001). Another level of analysis may further problematise drawing correlations between gendered differences in educational achievement and wider societal disparities, that is the extent to which gender, rather than ethnicity or socio-economic characteristics, effects achievement(Callister, et al., 2008 ).

Consequently, if our understanding of gender disparity in education is based solely on standardised testing and other measurable outcomes we will have an incomplete picture of the way in which such disparity results in disadvantage. An alternative to measuring success solely in relation to standards would be to incorporate some measure of individual improvement. Although subject to some criticism, which will be considered further, the Te Kotahitanga programme has adopted a collaborative approach which focuses on developing relationships within the classroom which are conducive to learning for Māori students. The programme centers around the Effective Teaching Profile which rejects deficit theorising and cultivates a culturally responsive learning environment for Māori students. These discursive classrooms focus on making *progress* rather than simply getting through the syllabus (Bishop, Berryman, Cavanagh, & Teddy, 2009; Waikato, 2009).

It is important to note, in terms of diagnosis of the problem and appropriate solutions, that difference does not convert into disadvantage in the same way for boys and girls (Ailwood, 2003; Collins, et al., 2000). Although, it is obviously important that both boys and girls are having meaningful educational experiences and leaving school with qualifications which prepare them for employment or further study, it may be that the significance of the gender gap should not be assessed solely in relation to results from standardised testing. It may be that we should focus on the societal characteristics which

convert differences into disadvantage in a non-uniform fashion, and how this may be changing. Such an approach may help elucidate aspects of the learning environment which limit both boys' and girls' capacity to learn. As Callister et al. note this will require the careful collection of data, development of analytical frameworks, and reporting of data and its analysis (Callister, et al., 2008 ).

### **Readiness, Preference, and Performance**

Although there seems to be little evidence to suggest general biological differences between males and females in terms of intelligence, there is some evidence to support gender differences in relation to specific cognitive tasks (Dee, 2007). Boys display statistically significant relative underperformance in reading, and girls display a non-trivial underperformance in science and maths (Dee, 2007). Boys' language and social skills tend to develop more slowly and boys display greater behavioural problems than girls (Karoski, 2007). Evidence-based research indicates that the emphasis and structuring of literacy aspects of the curriculum and assessment are "beyond both [boys'] developmental capacity and normative socialization experiences to cope successfully" (Rowe & Rowe, 2002).

If it is accepted that there are gender differences in specific cognitive tasks and that these differences may result in differing degrees of readiness to engage in particular tasks this poses a challenge to the way in which we measure achievement of both boys and girls relative to the same standard. This does not necessarily mean there should be two standards, one for boys and one for girls. The existence of differing degrees of readiness both *between* and *within* genders would seem to support measures of success which gauge progress rather than achievement of a generic standard which does not account for disparate starting points, nor readiness for particular cognitive tasks.

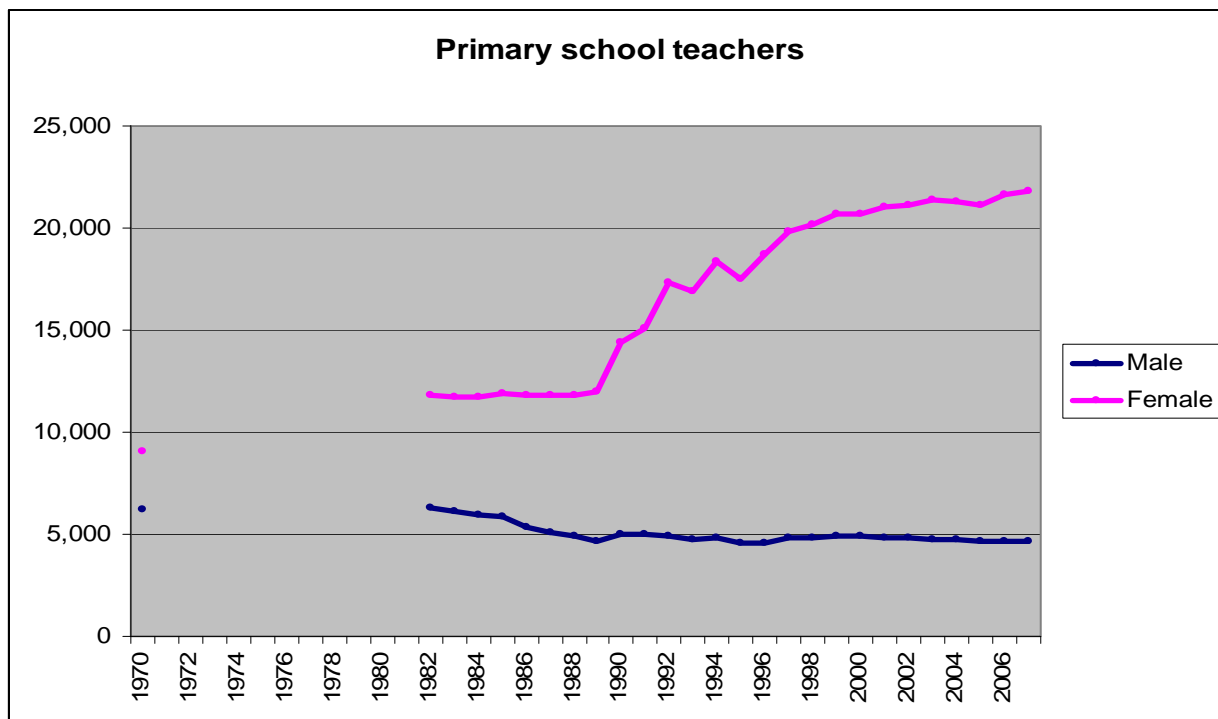
Subject specific gender gaps seem to reflect these differing levels of readiness for learning particular cognitive tasks, for example that boys may develop literacy skills later than girls. Gill emphasises that gendered subject preferences may also reflect societal constructions of masculinity and femininity (Gill, 2005). Consequently, Gill argues the main concern may not be the underperformance or underrepresentation of one gender in a particular subject but rather the societal attitudes which lead to these disparities; and the wider consequences of such attitudes in society. In other words gender difference per se may not be most acute concern, but rather the societal structures which convert these differences to disadvantage.

Differing motivations and career ambitions have been noted between boys and girls which may result in different subject choices and allocations of effort. Karoski (2007) attributes boys' underperformance in academics in part to the influence of "strong anti-academic masculine expectations". An observed lack of morale, sense of direction or purpose in many boys as young as primary school age may be attributed to the absence of a coherent message as to what society expects from and values in men (Karoski, 2007). This has led some theorists and practitioners to question the extent to which differences in ability levels are responsible for the underachievement of boys, and suggest that motivation maybe equally/more influential. This motivational element of boys' underperformance is discussed in more depth in relation to self-worth protection strategies to follow. Addressing the question of differing motivations also necessitates an examination of gendered societal attitudes which may influence what

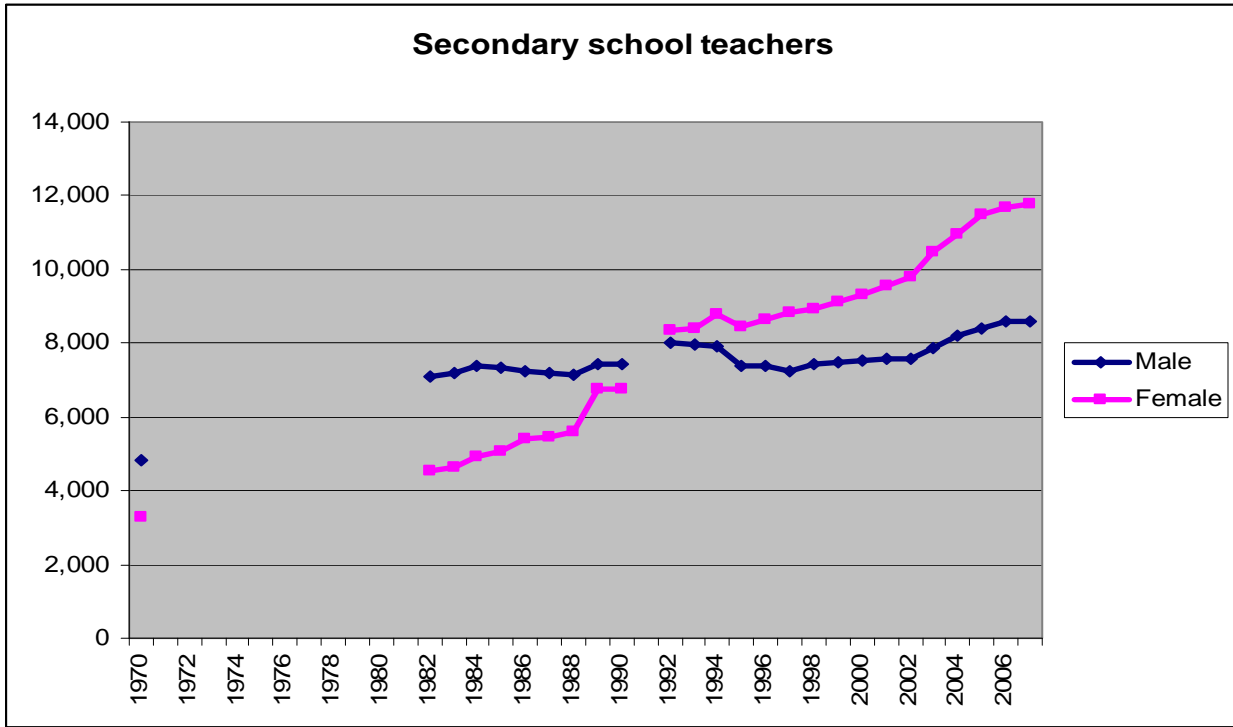
boys and girls consider appropriate career paths for their gender; for example Baker (2006) notes that a disproportionate number of young boys want to be policemen and AllBlacks.

## II. MORE MEN - Recruiting more male teachers to improve boys' achievement

Numbers of male teachers relative to female teachers have been declining across the education sector from at least the 1980s. Ministry of Education data shows that despite high levels of unemployment generally in the late 1980s and early 1990s there is a significant decline in the relative numbers of male teachers during this period. In 1993 Peter Ellis was convicted of multiple charges of sexual abuse while working in a crèche in Christchurch. The result of which was a fear among male teachers/childcare-givers of false accusation, combined with comparatively low pay (discussed below), this appears to have had a notable impact on numbers of male teachers, particularly in the early childhood sector. Census data shows (see Appendix I.) that between 1986 and 1996 the numbers of male teachers dropped by 1,287, while numbers of female teachers increased by 7,230, further widening a very significant pre-existing disparity between numbers of female and male teachers in the sector.



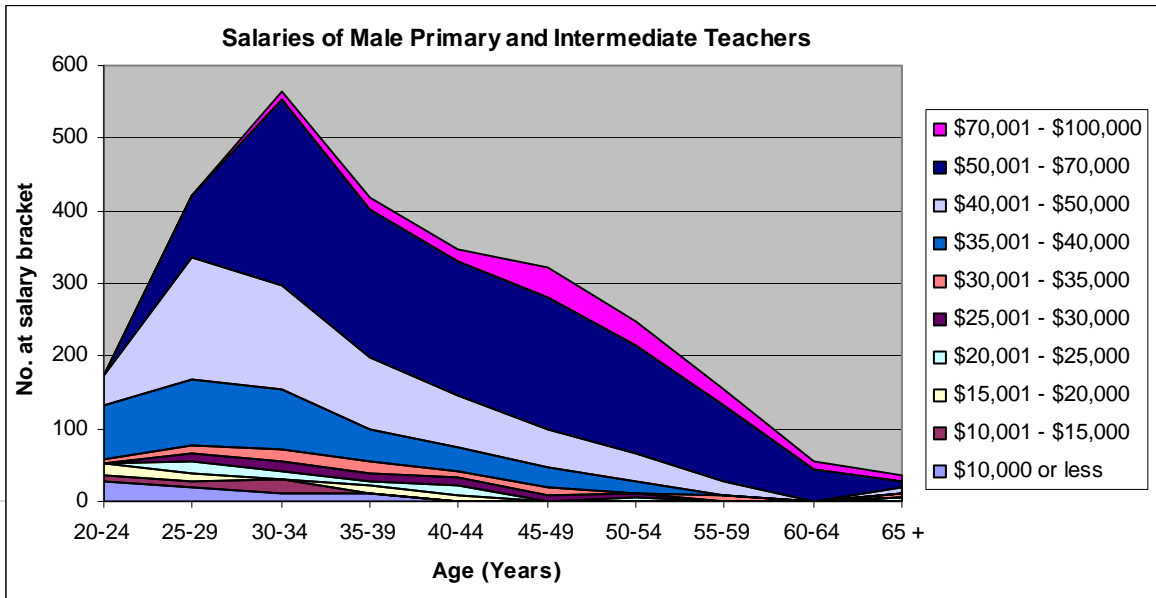
Source: Ministry of Education



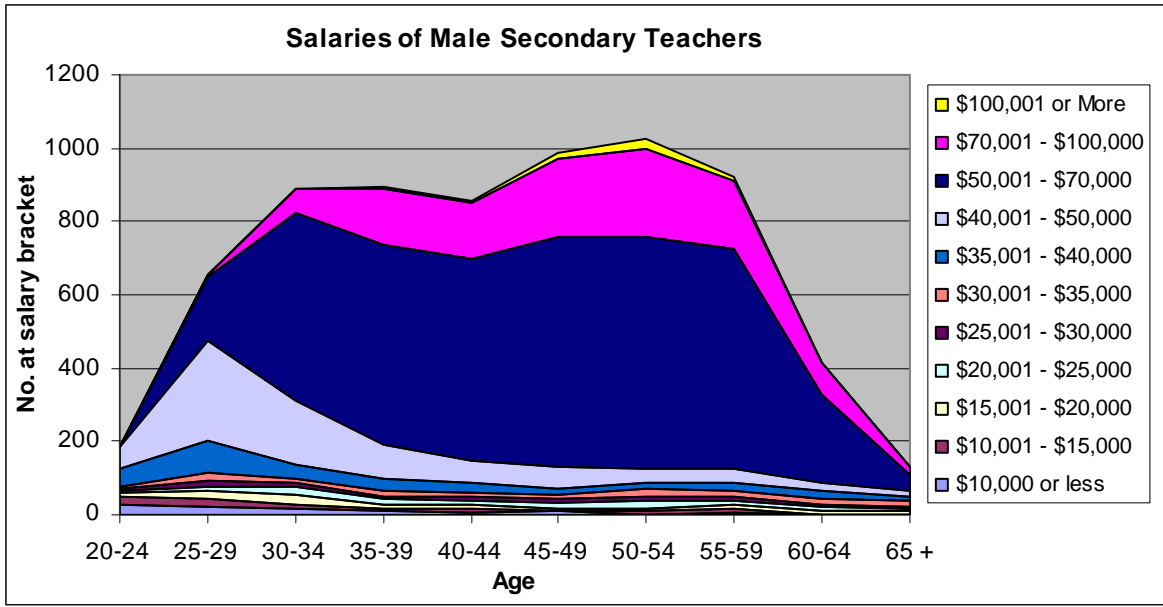
Source: Ministry of Education

#### Profession undervalued as a whole

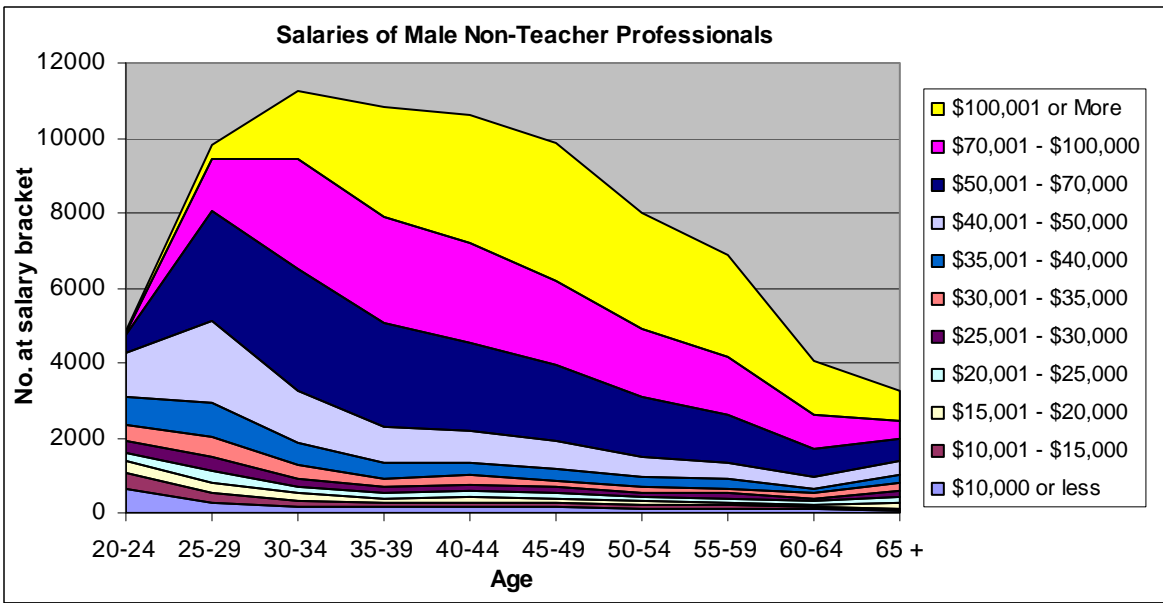
While there are important questions to be asked about why men are not choosing to go into teaching a cautious approach should be adopted in relation to policies which specifically incentivise men to enter the teaching profession. The need for such policies sheds light on the undervaluing of the teaching profession relative to other professions, and the customary predominance of women in low valued occupations. The undervaluing of the teaching profession certainly appears to be a contributing factor to the exodus of men from the profession (Mills, Martino, & Lingard, 2004). The resultant predominance of women perpetuates such undervaluing due to entrenched gendered pay disparity, and also leads to an attitude that male who chose to teach in this environment are somehow 'abnormal'.



Source: Statistics New Zealand Census 2006



Source: Statistics New Zealand Census 2006



Source: Statistics New Zealand Census 2006

These statistics show that although male teachers' salaries are competitive at the outset of a career within five years and certainly after ten years salaries of other professionals far outstrip the majority of teachers. Furthermore over the length of a career there are very few male teachers who reach the highest salary bracket (over \$100,000), whereas a significant proportion of other professionals achieve this. This disparity is clearly reflected in the severe drop off in numbers of male teachers at approximately the age group where males in other professions are starting to earn significantly more than teachers.

Lahelma's study (2000) indicates gender disparity in teaching is considered more of a problem by teachers than students. It is an issue of "gender segregation in the working life in more general terms", and not specifically in teaching (Lahelma, 2000). The absence of men in the profession indicates wider societal disparities, such as pay levels for teaching. It may also indicate the influence of wider societal stereotypes about men caring for young children, concerns about sexual abuse and homophobic stereotypes (Alton-Lee & Praat, 2000; Baker, 2006; Mills, et al., 2004; Skelton, 2002).

There is a case for a more demographically representative teaching workforce on the basis that having more male teachers and role-models would serve to break down gender stereotypes and raise the value of the profession as a whole and the legitimacy of men's participation in it. (Alton-Lee & Praat, 2000; Carrington, Tymms, & Merrell, 2008; Karoski, 2007). Breaking down such stereotypes through increasing the number of male teachers has the potential to encourage men to enter the profession in a self-perpetuating fashion (Carrington, et al., 2008). Thus, policies aimed at augmenting numbers of male teachers, while not directly raising boys' educational attainment, may accord with broader goals of "social justice and equity" (Carrington, et al., 2008).

However, strategies to address boys' underachievement which focus on recruiting more male teachers can work to essentialise gender differences between male and female teachers, rather than challenging the constructed nature of gender stereotypes (Gill, 2005). Mills et al. (2004) comment on the failure of the Male Teachers Strategy of the Queensland State Government to address gender issues. The strategy recognises the low status of the teaching profession as being a contributing factor to the low numbers of male teachers and its solution is to frame it as a "masculine" occupation (Mills, et al., 2004). The strategy is a reaction to popular conceptions of male teachers as somehow abnormal, having either homosexual or paedophilic tendencies and consequently the teaching profession must be re-masculinised in order to attract men. As a result the strategy perpetuates a gender order which devalues activities associated with women, and subsequently incentivises the involvement of men in these activities rather than attributing more value to the profession as a whole (See also Skelton, 2002). Skelton notes that:

[I]n the 1980s, feminist educators...wrote of the need to increase the numbers of men teachers in primary schools as a means of breaking down sexual barriers in ways that would benefit both pupils and teachers...the argument was that pupils should see men working with young children to help eradicate the impression that teaching was 'women's work'/'child care' and simultaneously reduce the low status and poor promotion prospects accorded to teachers of this age group. (Skelton, 2002, p. 77)

In this instance recruiting male teachers is intended to raise the status of the profession as a whole, without devaluing the work of women within it, and normalize male participation in the profession. Strategies like the Queensland one may devalue the progress made by female teachers over the last few decades by disproportionately valuing the participation of men in the profession and failing to acknowledge that some practices typically associated with the "feminisation" of education may in fact be constitutive of good pedagogy. .

**Do male and female teachers teach boys and girls differently?**

There has been little research into the effect of male teachers on boys' gender development, but it has been shown that male teachers do not achieve better results with their male students than female teachers (Carrington & Skelton, 2003; Sokal, et al., 2007). Further, Sokal et al (2007) argue that the variation in responses to their intervention suggests that increasing the numbers of male teachers in schools is not necessarily an effective way to address boys' underperformance. Attempts to address the numerical disparity between female and male teachers enshrine femininity and masculinity in the female/male body. This is an unsophisticated way to deal with the gender gap in educational achievement, ignoring the diversity of masculinities and femininities and the other characteristics of teachers which may interact with gender (See Frosh, Phoenix, & Pattman, 2002; Skelton, 2002).

In terms of attitudes, pupils of female teachers had more positive attitudes to school, but this was not restricted to female students (Carrington, et al., 2008). Sokal et al's (2007) study while not indicating differential achievement for boys taught by a teacher of a particular gender, did demonstrate differential self-perception. Boys who worked with female research assistants developed more positive self-perceptions as readers, possibly as a consequence of receiving more praise (Sokal, et al., 2007). This highlights the complex and socially embedded effects of teacher's gender (Martino & Meyenn, 2002).

Both performance and affective factors need to be considered. Multidirectional affective factors can have a significant effect on boys' reading experiences. That is performance may be altered by "reciprocal interactions between teachers' and students' gendered behaviours and expectations" (Sokal, et al., 2007). More research needs to be done on these interactions, to explore whether different teaching methods are adopted depending on the teacher's gender, and if so whether these result in differential performance (Sokal, et al., 2007). Younger and Warrington (2002) found that there was no gender specific variation in teaching styles in their study:

There was no evidence, either, to support the notion that female teachers used different teaching styles to those of men, whether in the context of boys' or girls' classes; there were significant differences of teaching style, and some appeared to be more effective than others, with both girls and boys, but it would be a gross oversimplification to suggest that this was differentiated according to the sex of the teacher. (p.368)

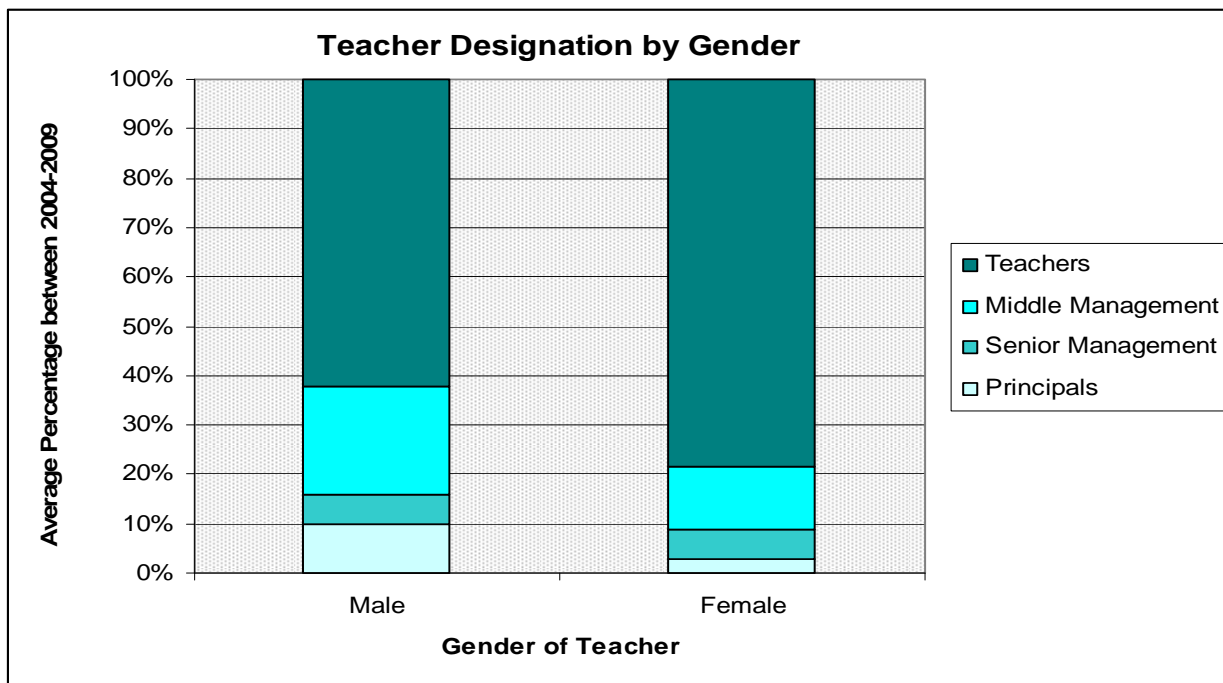
They found little evidence, in their study of achievement levels and classroom interactions where single-sex teaching was being implemented within a coeducational environment, to suggest that the gender of the teacher was an important influence on the students' behaviour (Mike Younger & Warrington, 2002).

Lahelma's study (2000) based on two sets of interviews conducted with students showed that characteristics which students thought desirable in a teacher were not particular to either gender. Teaching qualities, such as being able to maintain a disciplined classroom while being relaxed and friendly were appreciated, were considered more important than personal qualities (See also Hill & Rowe, 1996; A. Martin & Marsh, 2005; A. J. Martin, 2002). Another study commissioned by the Australian Government demonstrated that the teaching characteristics and practices identified by students to be effective did not correlate to a particular gender, gender itself was not identified by students as affecting their learning (Carrington, et al., 2008; Lingard, Martino, Mills, & Barr, 2002). Solak et al (2007) note some of their unexpected findings highlight that "differential responses to teaching

interventions can be attributed to many teacher-specific and context-specific factors besides teacher sex”. Where students are concerned with personal or emotional issues there was a slight preference for same-gender teacher (A. Martin & Marsh, 2005). This may be more relevant in the context of teacher as role model.

**Gendered organizational factors**

Notwithstanding the numerical dominance of female teachers in primary schools, Skelton argues that schools are typically managed under ‘masculine’ hierarchical models (2002). This is reflected in the disproportionate representation of male teachers as principals and in positions of management. Given the significant numerical disparity between male and female teachers the overrepresentation of men in management positions is noteworthy.



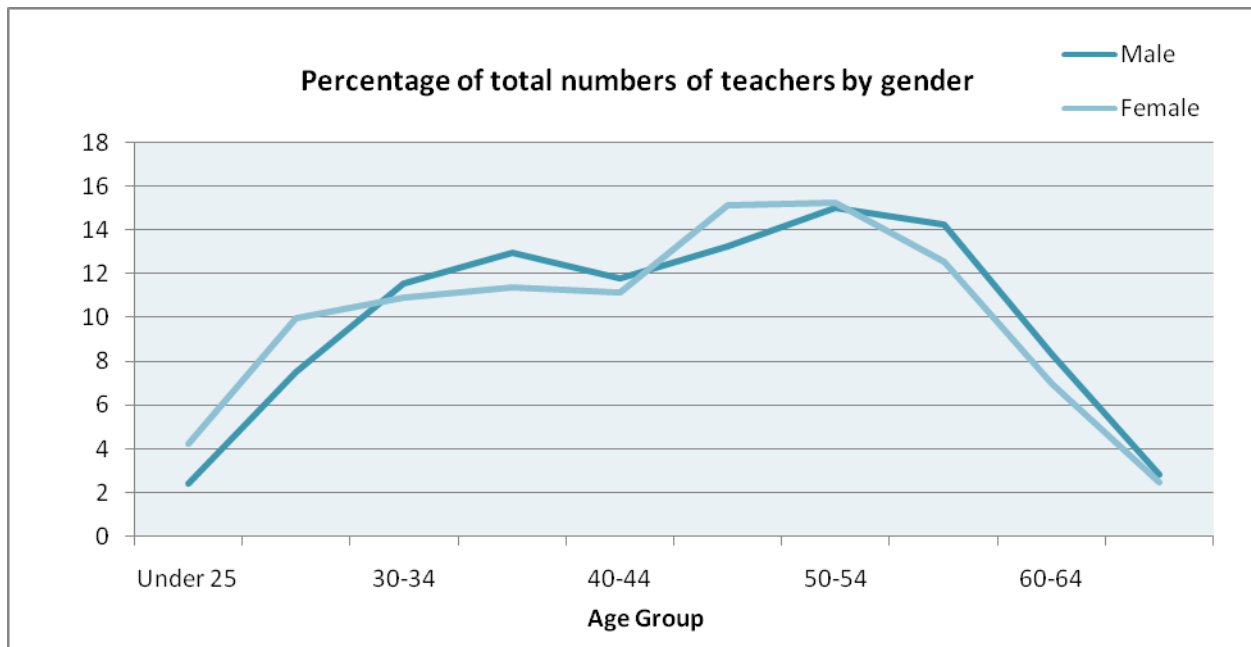
**Source: Ministry of Education. Demographic and Statistical Analysis Unit. 9 Feb. 2010.**

However, because there are significantly more female teachers overall, over three-quarters of teaching staff are female, numerically despite the above percentages there are now almost as many female principals as male and over half of management staff are female.

Females as Percentage of Total Staff				
Year	Principles	Managements	Teachers	Total
1999	34	58	77	71
2000	35	58	77	71
2001	37	60	77	71
2002	38	61	77	71
2003	40	61	77	72
2004	41	62	76	71
2005	42	62	76	71
2006	43	62	76	72
2007	43	63	76	72
2008	45	63	76	72

Source: Education Counts

Consequently, Skelton’s argument for the maintenance of “masculine” management models may be hard to sustain unless it is held that these models are perpetuated by predominantly female staff and management teams. Further, as the figure below indicates a higher percentage of male teachers are in the older age brackets, this may in part go towards explaining a higher number of males in management positions.



Source: Education Counts

The way in which schools are organised may also facilitate male and female teachers adopting different teaching styles. In many schools male teachers tend to teach subjects like physical education and

technical subjects in which they can often take a more relaxed attitude and ask for less homework to be done (Lahelma, 2000). Furthermore, these subjects are often taken by a higher number of male students, consequently more male teachers receive positive assessment from males. This does not necessarily indicate that boys hold more positive attitudes towards male teachers than girls, rather it reflects the fact that fewer girls take subjects with male teachers, and fewer women taught subjects which were conducive to popular teaching characteristics (Lahelma, 2000). Further research with larger sample sizes on the effects of school organisation on teaching styles is required in order to assess whether these factors may distort students' attitudes towards teachers along gender lines.

Dee (2007) has argued that gender dynamics between teachers and students have a significant impact on several educational outcomes; but gender distribution of teacher by subject in large part determines the impact of these gender dynamics. Dee argues (2007) that "gender interactions between students and teachers constitute a qualitatively important environmental determinant of the comparative educational outcomes of girls and boys." In a recent study Dee (2007) suggests that earlier studies which have not found any significant relationship between teacher gender and boys' academic achievement may not have accounted for the fact that there may be an unobserved propensity for lower achieving boys to be assigned male teachers, and higher achieving girls to be assigned female teachers. Dee also suggests similar propensities in relation to gender of teacher assigned to particular ability level of students in particular subjects; for example lower ability maths students assigned female maths teachers. Further, Dee (2007) argues that "the estimated effects of female teachers do appear to vary in a meaningful manner by subject"; female maths teachers being more likely to perceive their class as low achievers indicating this propensity to assign female teachers to lower ability maths classes.

Dee's analysis reflects the difficulty in distinguishing between various elements of the teaching and classroom environment which contribute to academic achievement – the interaction between subjective perceptions, organizational asymmetry and standardized measures of achievement.

### **Gendered perceptions and pedagogy**

Teacher perceptions of students may affect educational achievement. Analysis of the National Education Longitudinal Study (NELS) in the United States, while not revealing any significant impact on educational achievement by matching teachers with students by gender or ethnicity, did show that such matching influenced teachers' subjective assessments of their students (Carrington, et al., 2008). There is also evidence that students' performance was significantly lower in subjects in which the teacher perceived them negatively (Dee, 2005, 2007). Analysis of the NELS data indicate that race, ethnicity and gender do have a significant effect on how teachers perceive their students (Dee, 2005). When the teacher is of the opposite gender the probability of a student being perceived as inattentive, disruptive, or be reported not to complete homework is significantly higher (Dee, 2005, 2007). Cognitive process theories postulate that teachers inexplicitly manifest differing expectations of the academic potential of girls and boys, which have the potential to be self-fulfilling where students respond to these expectations (Dee, 2007). However, other studies suggest that teachers do not display systematic biases on the basis of gender (See Brophy, 1985; cited in Dee, 2007).

Regardless, the appropriate policy response to divergent teacher perception along gender lines would seem to be encouraging teachers to interact with students on a gender neutral basis allowing for and appreciating the expression of different masculinities and femininities, rather than reinforcing gendered predispositions by having only same-gender teacher-student interactions. Recognising the existence of multiple masculinities requires a complementary discourse over what types of masculinities are positive and which pedagogies encourage them (Mills, et al., 2004; Skelton, 2002). Teaching practices are fundamentally important to student achievement (Alton-Lee & Praat, 2000; Cuttance, 1998; Rowe & Rowe, 2002), but focusing on the gender of the teacher does not ensure the quality of teaching (Carrington, et al., 2008). The focus should be on recruiting, retaining, and providing professional development for high caliber teachers. While recruiting teachers to more accurately represent the demographics of students may have some benefits in terms of breaking down gender stereotypes surrounding the profession, policies aimed at raising the effectiveness of all teachers, and underpinned by an idea of “demographic neutrality of student –teacher relations” may be a better way to close achievement gaps (Dee, 2005).

### **Male Teachers as Role Models**

A significant element of the debate over the “feminization” of education is the concern about the lack of male role models in primary schools. The HORSCOEAT Inquiry postulated that demonstrations of appropriate male behaviour from men, rather than instruction of such from women, was more effective modelling ((HORSCOEAT), 2002; cited in Karoski, 2007). The gender imbalance is seen as exacerbating problems for those boys who do not have appropriate male role models within their own families (Karoski, 2007). Additionally, changes in labour market away from apprenticeships means that boys no longer had the same exposure to male role models (Karoski, 2007). These changes also have implications for behavioural problems, and, in some cases, unwillingness by boys to accept the authority of female teachers (Gorard, Rees, & Salisbury, 2001; Tinklin, Croxford, Ducklin, & Frame, 2001). As Karoski articulates (2007), boys socialised in terms of traditional masculinity “feel they can survive school only by acting and showing contempt for women and ridiculing any behaviour that is soft”.

Policy solutions focused on providing boys with more male role-models and authority figures on these bases validates the existence of such misogynistic attitudes. As Roger Openshaw has articulated in relation to the Te Kotahitanga programme, expectations that they should be able to counteract all other societal pressures place unreasonable demands on (male) teachers and schools (Openshaw, 2009). Providing support to boys to challenge stereotypical notions of masculinity, and not normalising the disruptive and unconstructive behaviour of male ( and female) students is an important, but difficult role for schools to play (Warrington, Younger, & Williams, 2000). Such notions are very deeply ingrained in society. In the educational context, challenging such notions requires male students to re-assess attitudes towards achievement, work, success and failure, image, gender and expression. To a certain extent these issues are beyond what schools are equipped to do in relation to the wider socialization of boys. A more realistic expectation would be that schools should critique the development of such attitudes within schools and cultivate a gender neutral environment which is inclusive of both male students and teachers – within the context of more extensive society-wide efforts to break down gender stereotypes.

These effects cannot be simply attributed to the absence of a father figure. the mere presence of a father does not remedy the lack of male role models in many boys' lives – “active fathering” is required (Karoski, 2007). Thus fathering does not necessarily attach itself to the male body. Findings as to the deleterious effects of fatherlessness should be treated with caution as there are multiple contributing factors, for example income, education and nature of the home environment which often converge in a negative manner on particular groups of boys (Karoski, 2007). Mills et al. (2004) explain that the argument that more male teachers are needed to act as role-models for boys effectively attributes boys' underperformance to the overrepresentation of women teachers/role-models in boys' lives. Such an approach glosses over the impact of class, ethnicity and race, which may elucidate *which* boys and *which* girls are underperforming (Mills, et al., 2004).

To the extent that the problematization of demographic feminisation of the teaching profession is premised on the idea that boys respond differently, and often negatively to female teachers and authority figures (leaving aside arguments about gendered pedagogies which are not directly correlative with the gender of the teacher) this problematization seems to accept this negative response as something natural rather than an expression of stereotypical attitudes towards women.

In order to critique the, often intuitively held, belief that boys should have male-teachers as role models Allen highlights the need to understand what we mean by role model (2000). He sets out three ways in which the concept of role modelling may be understood. First, as an *ethical template* a role model may set standards of acceptable behaviour in particular contexts; all teachers do this in performing their roles within the classroom and school. Second, a role model may be a *symbol of special achievement* who encourages a sense of self-belief based on some quality of recognisability, a degree of identification between the student and the role model. Third, *nurturing through involvement in mentoring, counselling and extra-curricular activities* may lead to one being conceived of as a role model (Allen, 2000). In terms of teacher's gender there is no reason why opposite gender teachers cannot perform these roles given that individuals have many identifying characteristics other than gender. It may be that in certain circumstances “same kind” teachers are more equipped for role-modelling “same-kind” students, but that is not to say that opposite gender teachers cannot equip themselves better, or that *all* “same-kind” teachers are in fact equipped to act as role-models for “same-kind” students. As Allen states (2000), “[d]iversification of faculty is not enough and general faculty will have to be encouraged to be responsive and respectful [to the needs of minority and “different-kind” students and staff].”

Skelton (2002) also challenges the presumption that only women can “‘do’ femininity” and only men can “‘display’ masculinity”. The assumption that same-gender teachers are best able to act as role-models attaches gender to the body rather than acknowledging the relational quality of gender interactions. In other words male students stand to gain from learning how to interact appropriately with female teachers as a constitutive element of their identity as a male; and teachers, the profession as a whole and schools stand to benefit from becoming responsive to the needs of “different-kind” students.

### III. BOYS ONLY – Implementing single-sex schooling to address the gender gap

#### **Girls a civilising presence or lightning rod for laddishness?**

Studies have found little pressure amongst girls not to work hard, whereas a real pressure on boys to maintain a “laid-back, macho image” to fit in with other boys (Warrington, et al., 2000). Such an image often involves attention-seeking behaviour, defying authority, and indifference to school work. Perceptions that girls raise academic achievement levels and enhance the schools image, and are thus a “desirable commodity” has informed the introduction of girl students to previously single-sex schools in New Zealand (Alton-Lee & Praat, 2000).

Other studies however argue that single-sex schools are better learning environments allowing better concentration, less distraction, and fewer behavioural problems (Van de Gaer, Pustjens, Van Damme, & De Munter, 2004; Mike Younger & Warrington, 2002). These studies argue further that there is a lack of evidence of sexist or macho behaviour in boys’ single-sex classes, and that these attitudes were more prevalent in mixed-sex classes (Mike Younger & Warrington, 2002).

Teacher perceptions of single-sex classes render an environment which is more conducive to learning and improves students’ self-esteem and confidence. Some teachers considered this to be a function of heterosexual masculinity responsive to the presence of girls which led to boys being more passive, less expressive in coeducational classes (Martino & Meyenn, 2002). It is argued that boys will be more comfortable to develop a good work ethic in single-sex classes, on the basis that when girls are present boys decline to work hard in order to cultivate a masculine/non-feminine “laddish image” (Gibb, Fergusson, & Horwood, 2008; Jackson, 2003; M. Younger & Warrington, 2005). On a quantitative analysis of classroom interactions it was evident from mixed classes that girls participated much more actively overall than boys. This may explain why in single-sex boys classes teachers asked more questions, than in single-sex girls classes, in order to encourage boys’ participation. These findings were confirmed by qualitative analysis. Teaching practices also reflected an assumption of the more active participation and higher expectations of girls than boys. Although boys were not usually disruptive, they were largely passive (Mike Younger & Warrington, 2002).

Some theorists argue that the construction of hegemonic masculinity in schools is generally considered to be oppositional to academic achievement (Frosh, et al., 2002; Jackson, 2003). Hegemonic masculinity, expressed in ideas of “laddishness”, is antithetical to the feminine (Jackson, 2003). Because of the gendered power relations at play in the expression of hegemonic masculinity, in which the female is constructed as the other, boys do not engage (or at least not fully) in activities deemed to be feminine (Jackson, 2003). Jackson argues that hegemonic masculinity or laddishness displayed in public rejection of academic pursuits can constitute a “self-worth protection strategy” (Jackson, 2003). Jackson (2003) bases her argument on Covington’s theory of self-worth protection.

Whether or not self-worth protection is rooted in hegemonic masculinity this theory seems to provide an important link between academic achievement and motivation. The theory postulates that self-worth in many societies is attached to academic achievement. The academic environment is a competitive one,

meaning that some will succeed and others fail. Consequently, some are motivated, in order to protect their self-worth, to avoid failure rather than being motivated to succeed. Where it may be impossible to avoid failure self-worth protection manifests itself in an attempt to avoid the *implications* of failure by withholding effort. The cause of failure can thus be attributed, not to incompetence, but disinterest. Jackson argues that appearing not to work constitutes one of the core aspects of “laddishness” (Jackson, 2003).

The extent to which schooling is focused on the product over the progress, in test scores for example, may cause students to define themselves in terms of their success or failure in testing. This according to Jackson’s study results in many boys, in particular, fearing failure and looking ‘stupid’ (Jackson, 2003). To address such fear some boys will engage in “self-handicapping strategies” which provide an excuse for non-achievement (Jackson, 2003). Boys may also cultivate an appearance of effortless achievement, this Jackson calls a “self-worth protection strategy”, in the case of failure this can be attributed to lack of effort (Jackson, 2003). This adds support to the discussion above about the importance of critiquing measures of success and how the existence and significance of the gender gap is assessed.

### **Single sex classes cultivating hegemonic masculinity or closing the gender gap?**

Some teachers have expressed perceptions that single-sex classes gave boys the chance to leave displays of masculinity at the door and feel more at ease in class. Some of the literature however points to evidence of hierarchical, hegemonic masculinities and the need amongst boys to prove how macho they are (Martino & Meyenn, 2002). Martino and Meyenn (2002) note the absence in these perceptions of any discussion of the homophobic, sexist, and misogynist attitudes underpinning the interaction between boys, where as other research has “in fact documented intra-hierarchical power relationships governed by homophobia and a denigration of the feminine in boys’ social relationships at school”. Martino and Meyenn (2002) further highlight how these perceptions evidence the “micro level and context specific effects of certain normalising assumptions driving the ways in which boys are constructed as particular kinds of subject” (See also: Lingard & Douglas, 1999). They argue that the manifestation of these assumptions in the adoption of same-sex education tends to be driven by moral panic and backlash politics which fail to address the root cause of the problem.

Arguments for single-sex classes based on the idea that they reduce the pressure for boys to display ‘peacock behaviour’ in front of girls do not ask why boys should *have to* show off at all (Kenway, Willis, Blackmore, & Rennie, 1998). As Jackson surmises “[i]f single-sex classes are to begin to challenge problematic male behaviour, they must include elements that encourage boys to reassess gender relations and challenge traditional notions of masculinity,” rather than curriculum-as-usual classes (Jackson, 2002). Some argue that single-sex classes allow boys to be taught by male teachers, who can become male role-models. However, Parry claims that this may reinforce such notions of masculinity, which may impact negatively on boys’ and girls’ education (Jackson, 2002; Kenway, et al., 1998; Parry, 1997; Mike Younger & Warrington, 2002). Some studies have noted that teachers reported the formation of poorly behaving groups of boys within single-sex classes, indicating perhaps that this environment cultivates pressures of masculinity and that coeducational schooling has greater potential to mitigate sexist practices than single-sex environments ( Harker, 2000; Van de Gaer, et al., 2004).

## Hardwired differences in learning styles?

Studies suggest boys do better in single-sex environments because teachers are able to create learning environments more appropriate to boys (Gibb, et al., 2008). This presupposes, however, essentialist differences between girls and boys learning styles. Sax (2005) claims that there are differences such as hearing, temperature perception, activity levels, and learning styles which indicate that same-sex schooling would benefit boys, without disadvantaging girls (Gibb, et al., 2008; L. Sax, 2005). Sax (2006) postulates that due to “hardwired” differences between the way girls and boys learn and a tendency within co-educational classrooms towards environments which advantages the way girls learn, boys needs are best accommodated in a single-sex environment. Sex differences in sensation and perception may affect the relative educational outcomes of girls and boys (Leonard Sax, 2006). He draws a link between the poor performance of boys in literacy and the way in which boys’ brains process emotions. He argues that unlike in girls, the activity related to negative emotions never migrates from the back of the brain to the cerebral cortex, the higher functioning part of the brain, impeding effective communication of such emotions (Leonard Sax, 2006). As a result boys struggle to genuinely write about what a particular book makes them feel, for example, and thus perform more poorly in literacy and writing. He states that due to these differences boys need teachers who understand how to teach boys, and who act on this understanding by, for example, talking more loudly, in short sentences, with direct commands. The implication being that it is much easier for teachers to create learning environments conducive to boys’ learning styles within single-sex schools. He further argues that the sympathetic nervous system, tuned to respond more acutely to the cold, predominates in boys (Leonard Sax, 2006). This, he concludes, is even more comprehensive evidence that single-sex classrooms would serve boys better. Despite arguments that high quality teaching can achieve learning styles which suit both boys and girls, Sax argues it is not possible to create classrooms which achieves two differing temperatures at the same time (Leonard Sax, 2006).

Warrington and Younger(2002) note<sup>1</sup> that although the gender disparity in educational achievement in their study mirrored the national statistics the improvement in achievement levels within each gender and overall are markedly better than national averages, “the school’s trends are similar to national trends, the extent of the improvements is markedly different” (Mike Younger & Warrington, 2002). Further, where as the improvement level of girls is growing at a faster rate than boys and thus the gender gap is growing at a national level, within the School’s context the rate of improvement in educational achievement between boys and girls is comparable (boys 70%; girls 70.4%) (Mike Younger & Warrington, 2002). This seems to indicate that how success is measured and the significance attributed to disparity in achievement under these measures needs to be critiqued. Measures of success solely focused on the results of standardised testing fail to reflect improvement in individual achievement.

Further these results would seem to suggest that the nature of these classrooms provide a better learning environment overall. It would be an oversimplification to attribute this solely to the single sex

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<sup>1</sup>Warrington and Younger’ findings result from a case study of a coeducational comprehensive school which has run single-sex classes for most subjects since opening in the early 1970s.

nature of the classroom, for example the fact that this school is engaging in this organizational strategy may suggest the implementation of more gender conscious pedagogies or qualitative difference in the school. Most importantly the fact that the gender gap itself was not narrowed indicates that single sex environments do not necessarily address the gender gap, or the societal factors which contribute to this disparity.

### **Subject based differences**

Other studies also note differing gender gaps and differing effects of single-sex environments on a subject basis. For example, Van de Gaer et al. note that while boys made more progress in language, but not maths in *co-educational classes*, girls made more progress in mathematics, but not language, in *single-sex schools*(2004). In terms of subject choice, Sax (2006) argues there is evidence to show that boys from single-sex educational backgrounds were more than twice as likely to study subjects normally considered “feminine”, such as art, music, a second language, than boys from coeducational schools.

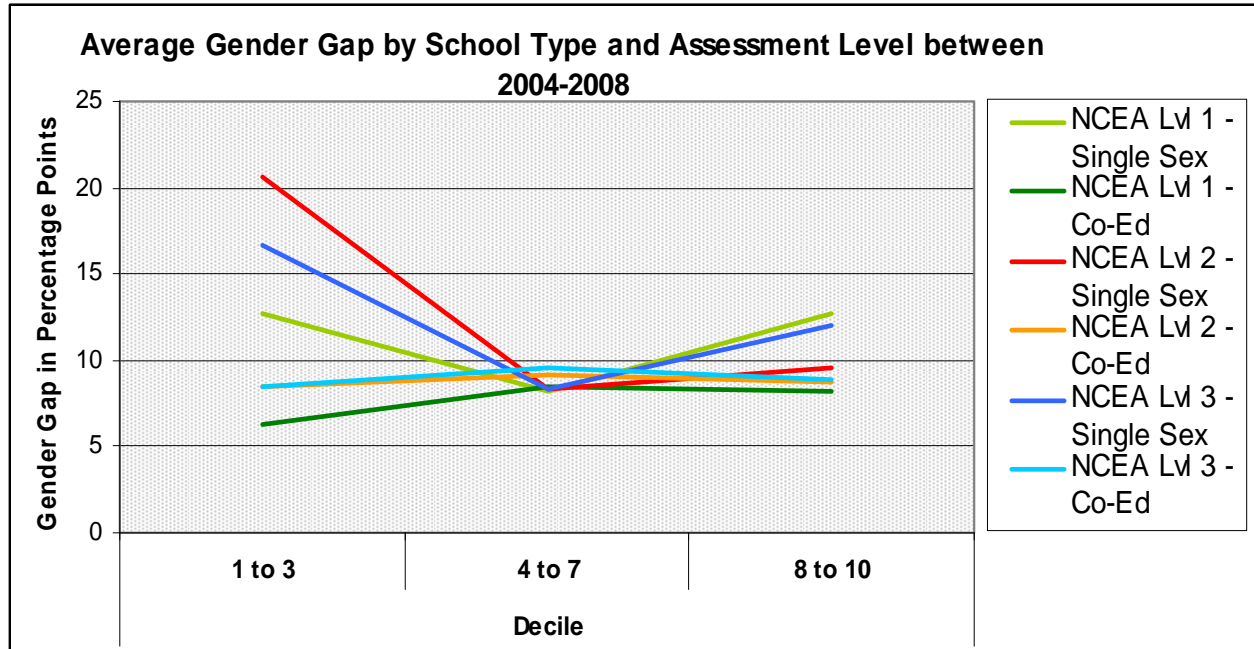
### **Insufficiency of Evidence**

There is a lack of conclusive evidence to support commonly held assumption that single-sex education is better than coeducational (Harker, 2000; H. Marsh & Rowe, 1996; Martino & Meyenn, 2002; McEwen, Knipe, & Gallagher, 1997; Rowan, Knobel, Bigum, & Lankshear, 2002; Shmurak, 1998). Gibb et al. (2008) point to a lack of studies which compare the size of the gender gap between single-sex and coeducational schools. Where studies have compared the effects of single-sex/coeducational schooling on the educational achievement of boys and girls the results have been somewhat contradictory, and have, by and large, failed to consider the effect of same-sex/coeducational schooling of educational achievement at tertiary level (Gibb, et al., 2008). The New Zealand Qualification Authority data on NCEA achievement standards allows for a comparison since 2004 to 2008 of the gender gap between single-sex and co-educational schools (New Zealand Qualifications Authority, 2010). Certainly the results from NCEA achievement standards seem to indicate that while students from single-sex schools are achieving at a higher level the gender gap is significantly larger than between students at co-educational schools.

Research as to whether single-sex/coeducational environments have an effect on the gender gap is conflicting (See, for example: Gibb, et al., 2008; H. W. Marsh, 1989; Wong, Lam, & Ho, 2002). Studies of educational gains in attending singles-sex/coeducational schools and the relationship between gender and school type do not indicate any significant difference between single-sex and coeducational schools in terms of the size of the gender gap (Gibb, et al., 2008; LePore & Warren, 1997; See for example: H. W. Marsh, 1989). Within a same-sex environment it appeared that educational achievement did not differ significantly between male and female students (Gibb, et al., 2008). However, single sex schooling did appear to advantage boys in terms of embarking on university study and attaining a university degree. Although, more research is required on the impact of gender disparity in schooling on participation and achievement at the tertiary level. However, these findings were based on data from the Christchurch Health and Development Study which followed a cohort of students born in 1977. More recent data on the performance of students assessed under NCEA from 2004 to 2008 seem to show that the gender gap

is in fact on average larger between single-sex schools than between boys and girls attending co-ed schools.

**What do NCEA results reveal about the gender gap?**



Source: New Zealand Qualifications Authority - <http://www.nzqa.govt.nz/ncea/index.html>.

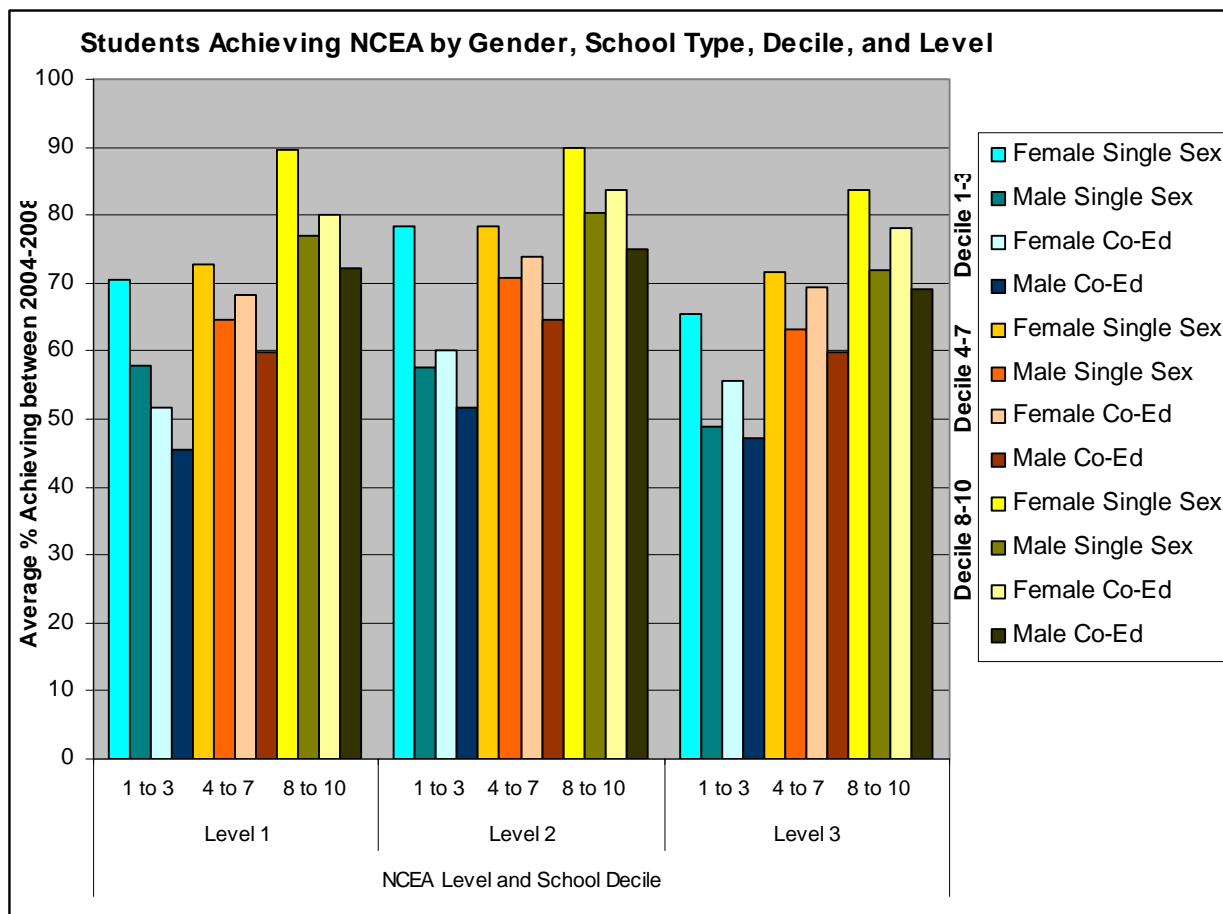
The above chart compares the gender gap in percentage points between single sex and co-educational schools at all three levels of NCEA and across the decile ranges. This gender gap difference between single-sex and co-educational schools is most striking in deciles 1-3, but does seem to converge in the mid deciles.<sup>2</sup> The overall achievement of boys is higher in single sex schools and in some cases higher than their female counterparts in co-ed schools; however the gender gap in the single sex context is much greater than in the co-educational context. In otherwords, students in single sex schools are performing better than same gender students at co-educational schools but the gender gap is being maintained between girls and boys attending single sex schools. When gender gap is compared in the

<sup>2</sup> School decile, as explained by the Ministry of Education report *Academic performance of first-year bachelors students at university*, “is a limited but useful variable in educational research...A school’s decile indicates the extent to which the school dras its students from low socioeconomic communities. Decile 1 schools are the 10% of schools wuth the highest proportion of students from low socioeconomic communtieis, whereas decile 10 schools are the 10% of schools with the lowest proportion of these students. A schools decile does not indicate the overall socioeconomic mix of the school. Deciles are used to provide funding to state and state integrated schools to enable them to overcome the barriers to learning faced by students from low socioeconomic communities...when analysing individual student data, each student from a school is given the decile rating of that school, even though any individual student may come from a different socioeconomic group.”, see (Engler, 2010)

context of overall achievement, and considering school decile a more complicated explanation indicated.

At Level One in decile 1-3 boys in single sex schools out perform girls in co-ed schools however the gender gap remains 6.4 percentage points higher in single sex than in co-educational schools. It seems on the face of it that single sex education is more conducive to higher educational achievement but the continuing gender gap would suggest that this is not a factor of the use of gender appropriate pedagogy but rather other characteristics of such schools, perhaps school culture, tradition, resources, religious affiliation, emphasis on academic performance over 'non-academic' activities/subjects. It may be that in terms of low decile schools these qualitative differences between single-sex and co-educational schools create a wider disparity than in mid decile schools, but once again do not necessarily implement a gender appropriate pedagogy. This may be to do with school selectivity and the perpetuation of gender regimes in more homogenous environments discussed below. Appendix II. displays the gender correlation in single sex schools between teacher gender and the gender of the school, apart from in private boys schools at the primary level teachers of the same gender as the students at single sex schools significantly outnumber other gender teachers . This exposes the difficulties in distinguishing the effects of school type, and whether these schools adopt a gender specific pedagogy, from the effect of teacher gender on the educational achievement of boys and girls within these schools. These statistics also pose important questions about the attractiveness of the working environment single sex boys schools provide for male teachers. Further, if these factors, school type and teacher gender, do in fact have an impact upon pedagogy and educational achievement it may be that this effect is cumulative and in trying to distinguish between the two we are failing to grasp the nature of this effect.

Arguments in favour of single-sex education as a panacea for boys' under achievement should be approached with caution given the lack of comprehensive evaluation of attempts to implement single-sex classes for this purpose. Theorists relying on evidence-based research argue that structural interventions, such as single-sex classes/schools, have a negligible effect on learning in that they are effectively preconditions, and consider gendered class organisation relatively insignificant compared to "class/teacher effects" (Rowe & Rowe, 2002; Mike Younger & Warrington, 2002). Certainly single sex classes alone do not necessarily improve educational outcomes for either girls or boys; and where overall improvement in academic achievement is established the same-sex nature of the classroom may



Source: New Zealand Qualifications Authority - <http://www.nzqa.govt.nz/ncea/index.html>.

not be the only contributing factor; “more attention needs to be directed to the particular effects of pedagogy and the normalising assumptions about gender that inform the implementation of curriculum in both single-sex and coeducational classes” (Martino & Meyenn, 2002).

### Pedagogy more important than class/school type

Inconclusive and often contradictory evidence as to the effect of single-sex/coeducational learning environments indicate the need for attention to be paid to the effect of teacher and pupil characteristics, such as differing teaching styles and whether they are appropriate to both boys and girls (Van de Gaer, et al., 2004). “[C]urriculum-as-usual” single-sex classes do not deal with the more fundamental issues of gender stereotypes which pervade educational achievement and the teaching profession (Jackson, 2002).

The most salient conclusion from evidence-based research on gender and education is that the quality of teaching and strategic professional development of teachers is what is of most significance (Alton-Lee & Praat, 2000; Cuttance, 1998; Rowe & Rowe, 2002). There has been a persistent gap in research on the relative educational achievement of boys and girls in terms of:

...the inherent nested or multilevel organizational structure of schooling with students grouped into classes and taught by particular teachers, despite mounting evidence for the importance of instructional effects at the class/teacher-level. (Rowe & Rowe, 2002)

The level at which solutions are directed is important (A. Martin & Marsh, 2005). Martin and Marsh's study (2005) showed that the major part of the variance in motivation and engagement was located at the individual student level, rather than the school or class level (See also: Sokal, et al., 2007). Further, Martino and Meyenn (2002; Tripp, 1994) emphasise the need to explore "micro level influences...and pedagogical practices" on social and educational development, and not solely structural influences, such as single-sex versus coeducational classes. This appears to be supported by evidence that although both boys and girls in single sex schools are achieving higher than those in co-educational schools the gender gap is generally more severe.

Martino and Meyenn (2002) argue that it is "teacher knowledge and normalising assumptions about boys that drive the pedagogy, irrespective of structural reform" (See also: R. Gilbert & Gilbert, 1998). The Te Kotahitanga programme discussed above comes from this premise of looking at deconstructing and developing teacher attitudes and pedagogies. In analysing the perceptions of teachers Martino and Meyenn (2002) note one teacher's critical pedagogy, based on an understanding of the socially constructed nature of gender, facilitates boys thinking about "their self-fashioning practices of masculinity irrespective of whether she is teaching a single-sex or a coeducational class". Initiatives which focus on teaching and learning behaviours, such as strategic professional development for teachers are more likely to have a significant effect on learning outcomes than structural reform (Martino & Meyenn, 2002; Rowan, et al., 2002; Rowe & Rowe, 2002). In other words, simply providing single-sex classes will not affect achievement levels if the teaching within the classroom stays the same. But as critics of the Te Kotahitanga programme have noted there are also limits to the pre-existing disparities which teachers and schools can mitigate.

Even Sax (2006) a strident advocate of single-sex schooling to address gender disparity in education proffers that simply placing boys and girls in single sex classrooms is not going to address gender differences in educational achievement, unless the teaching within these classrooms is tailored to address what he considers the "hardwired" differences in boys and girls' learning requirements that these classrooms were set up to address.

Given these perspectives it is concerning that studies reveal that few teachers in single-sex environments consciously alter their teaching to address differing learning needs of boys and girls (Mike Younger & Warrington, 2002). As Warrington and Younger argue "[t]he potential of the system will only be maximised when differential approaches to the teaching of boys' classes and girls' classes are systematically planned, and explicitly implemented, monitored and evaluated through time" (2002).

Single-sex education can work to create environments conducive to learning, but as noted above they also have potential to reinforce sex-role stereotypes (Jackson, 2002; Kenway, et al., 1998; Martino & Meyenn, 2002). To address these problematic gender stereotypes "[t]he content of what is taught, school ideologies about the relations between the sexes (irrespective of whether they are both present

or one sex is absent), the structure of classroom life and the sex of the teacher” all need to be taken into consideration (Arnot, 1984).

Some teachers’ perceptions evidence a pedagogy which uses the single-sex teaching environment to get students to deconstruct gendered assumptions, and which does not ring-fence the opposite sex as the problem (Martino & Meyenn, 2002). Martino and Meyenn argue, however, that even some of these perspectives appear to be underpinned by a particular understanding of boys within a discourse of “compulsory heterosexuality” (See also: Epstein & Johnson, 1998; Redman, 1996). There is a dearth of research into differing strategies to address gender disparity in educational achievement; their rationale, use, implementation, and success (Sukhnandan, Lee, & Kelleher, 2000). However, Sukhnandan et al. (2000) suggest that single-sex classes as a strategy involving the tailoring of teaching to boys or girls may work to reinforce differences without actually addressing areas where boys/girls may generally have difficulties; and to reinforce gender stereotypes about the way to teach boys/girls, rather than contemplate the diversity within genders; for example, the construction of *active* masculinity requiring a physical, rapid response approach to learning. These essentialising pedagogies are underpinned by conceptions of heterosexual masculinity, which are reinforced between boys, through the manifestation of homophobic attitudes, as opposed to between boys and girls (Collins, et al., 2000; Martino & Meyenn, 2002). As such these approaches overlook the relational aspect of gender identity, the importance of healthy attitudes in interactions with both genders as a core part of the individual’s development of their own gender identity.

### **School Selectivity and Prior Attainment**

The existence of a significant difference in educational achievement between single-sex and co-educational schools is contested (Harker, 2000; Jackson & Smith, 2000; Manger & Gjestad, 1997; H. Marsh & Rowe, 1996; Martino & Meyenn, 2002; McEwen, et al., 1997). There is great difficulty in distinguishing between other variables such as the influence of the teacher, pedagogy, and contextual factors (Martino & Meyenn, 2002; Mike Younger & Warrington, 2002). Looking at the differing gender gaps between single-sex and co-educational schools relative to school decile in NCEA achievement standards indicate that there may be qualitative differences in the nature of single sex schools in low decile and high decile schools, not present in the mid deciles, which have a significant impact on gender disparity. Also it may be that the overall higher achievement in single-sex schools, despite the continuing gender gap, might actually be a function of higher socio-economic status, private/church schooling, or having parents with higher levels of education, and that these school selection factors have not been properly controlled for (Gibb, et al., 2008).

Whether students attend a same-sex or coeducational school is a selective process (Gibb, et al., 2008). Assumptions about the superiority of single-sex schooling on popularity of particular public single-sex schools in urban centres lead to selection policies which distort the evidence as to the relative effectiveness of single-sex schooling (Harker, 2000). Where schools are oversubscribed due to popular perceptions that single-sex schools provide better learning environments selection policies must be implemented. Often these policies are based on academic ability which favour students with socio-economic and parental-education backgrounds which already indicate a propensity for high levels of

achievement. Consequently there is a need to control for ability mix between different types of schools (Harker, 2000). This methodological issue is evident in studies in many countries including New Zealand, Great Britain and Australia.

Some studies seem to show that gender has a relatively minor impact, compared to prior attainment, on pupil performance (Malacova, 2007). Multiple studies have reported an ultimate conclusion that after controlling for prior achievement and student background there is little evidence to support single-sex schooling as a means to improve educational achievement (Malacova, 2007; see p.3). The benefits of single-sex schooling appear to decline relative to increasing prior attainment. One explanation for this may be the ceiling effect, that is because of high level of initial achievement there is less room to improve (Malacova, 2007). Malacova's analysis (2007) seems to show that both for boys and girls the significance of single-sex schooling varies in relation to the selectiveness of the school and levels of prior attainment. If prior attainment is controlled for Malacova's analysis demonstrates that the effect of single-sex schooling depends of school type. Overall Malacova's study suggests that the differences between selective/non-selective nature of the school may be more significant in terms of levels of students' learning and development than differences between genders (Malacova, 2007).

Selectivity can result in homogenisation of schools and the perpetuation of gender regimes, particularly at the extremes of the decile range, which may be in part responsible for the gender gap in achievement (Alton-Lee & Praat, 2000). The market model in allowing parents to choose the school their children go to results in children of high socio-economic status bypassing their local schools. This results in greater polarisation between the socio economic status and ethnicity of schools (Alton-Lee & Praat, 2000). Alton-Lee and Praat (2000) argue that it is through this homogenisation that gendered regimes are perpetuated:

...gender regimes are more likely to be constructed in homogenous groups of students within social class and ethnic (within social class) strata. If school choice policies further polarise schooling by social class and ethnicity, gendered practices are likely also to become more polarised between social classes and within ethnic groups. While schools play such an active role in the stratification of the next generations, they are likely also to play a substantial role in the reproduction of particular kinds of social class-based gendered regimes. (p.31)

This may be one possible reason why the gender gap persists in the single sex environment despite increased overall achievement. As note previously, more research is needed into the nature of single-sex schools and whether they differ significantly from co-educational schools within the same decile. It may be that they nature of single-sex schools facilitates higher achievement but do not address the substantive causes of the gender gap, and this higher achievement may be curtailed to a certain extent in boys schools due to the continued and perhaps more concentrated pressure to adopt certain gendered behaviours.

The perpetuation of gender regimes more acutely through homogenous groups may also partly account for the converging of gender gaps in the middle deciles. The way in which decile ratings are attributed to schools means that in the middle deciles there may be more of a range of socio-economic classes and ethnicities leading to a more heterogeneous group and

consequently the manifestation of homogenous gendered behaviours may be less severe in single-sex boys schools in the mid deciles.

## **FINAL DISCUSSION**

Despite criticism that the gender gap is less significant than other forms of disparity within education this paper maintains that the existence of gender disparity across other demographic characteristics is indicative of pervasive social structures which work to enhance or impede learning on a gendered basis. The interaction within education of many different demographic characteristics contributes to the complexity of gathering and interpreting evidence, and ultimately in making policy. Consequently, this paper advocates a cautious approach to exploring the existence, causes, significance and possible solutions to the gender gap in educational achievement.

There are many contributing factors to gender disparity in education and seeing the teacher's gender or single-sex schools as the answer seems to problematise the teachers and students rather than looking to these many factors such as school culture, peer groups, class and cultural background, teacher characteristics and pedagogy, and social constructions of gender (Harker, 2000; Martino & Meyenn, 2002; Rowan, et al., 2002). It would be arbitrary to attach value to teachers because of their gender ignoring the pedagogical competence of many teachers irrespective of their gender. Further it would be an oversimplification to attribute gains made in educational achievement in single-sex environments to the presence of only students of the same sex, the cause for such difference does not derive solely from the students themselves (i.e. their gender), but rather important contributing factors such as teaching and school/classroom environment (Harker, 2000).

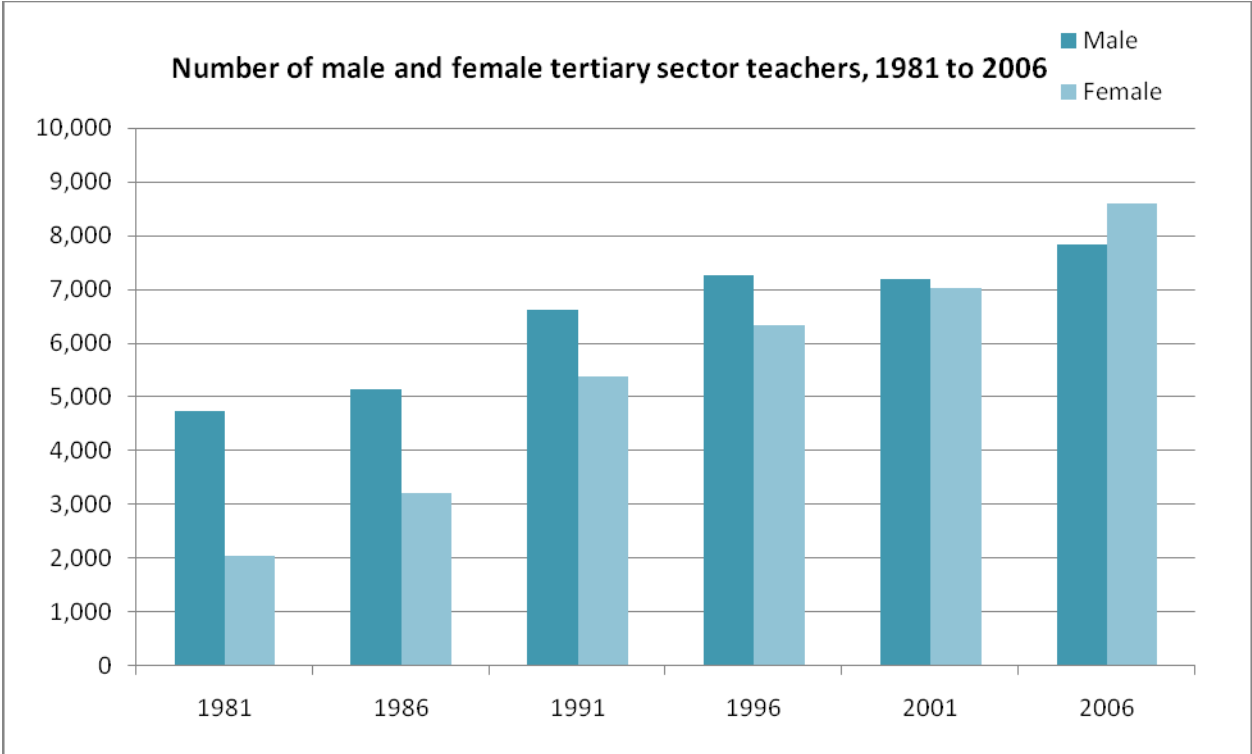
Teachers and schools have an important role to play in deconstructing social constructions of gender which disadvantage students on the basis of gender differences. Thus investment in professional development which equips teachers to support students in expressing a variety of masculinities and femininities which are conducive to educational achievement is required. Such investment also empowers and attributes value to the profession which may enhance the attractiveness of the profession to competent individuals of both genders. However, as noted there are limits to the capacity of educational practitioners and institutions to counteract the wider societal and background factors which impact upon educational achievement. There is an incoherency in our measures of success which for many students, both male and female, do not incentivise academic achievement. There are two ways in particular in which this occurs. First, the standardised measures of success within the education system do not accommodate different ways and rates of learning, do not acknowledge individual progress but only achievement relative to a generic standard, and thus do not give an accurate picture of the accomplishment and potential of individual students. Second, difference in achievement evidenced in these standardised indicators of educational achievement are converted into societal advantage or disadvantage in a complex and non-uniform manner. In part this incoherency could be dealt with by incorporating other measures of success, for example measures of individual progress. Yet the effect of this incoherent conversion of difference (reflected in standardized measures of success) into disadvantage on the development and expression of gender identity in attitudes and behaviours is a much wider societal issue. More complex measures of success in life beyond education would also be

useful incorporating a wider variety of indicators of success, such as ‘happiness’, mortality, quality of life etc (Smith, 2010).

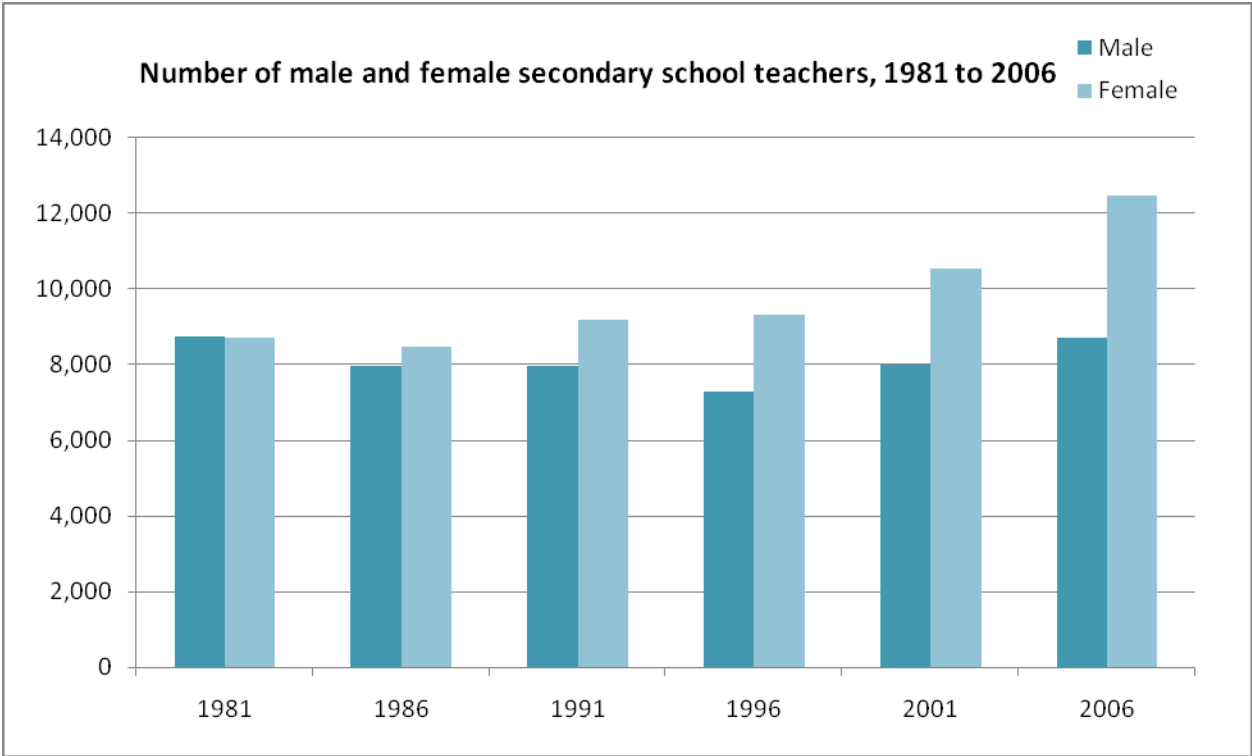
There is scope for further research in a few areas. There is a basic need for a more comprehensive comparison of the gender gap between single-sex and coeducational schools. Another related area is the qualitative differences between single-sex and co-educational schools in relation to decile to determine whether the relative nature of these school types differs across the decile spectrum. This might help elucidate the relative weight of factors contributing to the superior performance of students in single-sex schools in the extremes of the decile spectrum and not in the mid deciles. There is also scope for comprehensive research into the effect of the gender gap in primary and secondary school on representation and achievement at the tertiary level .

**Appendix I. Source: Statistics New Zealand Census 2006**

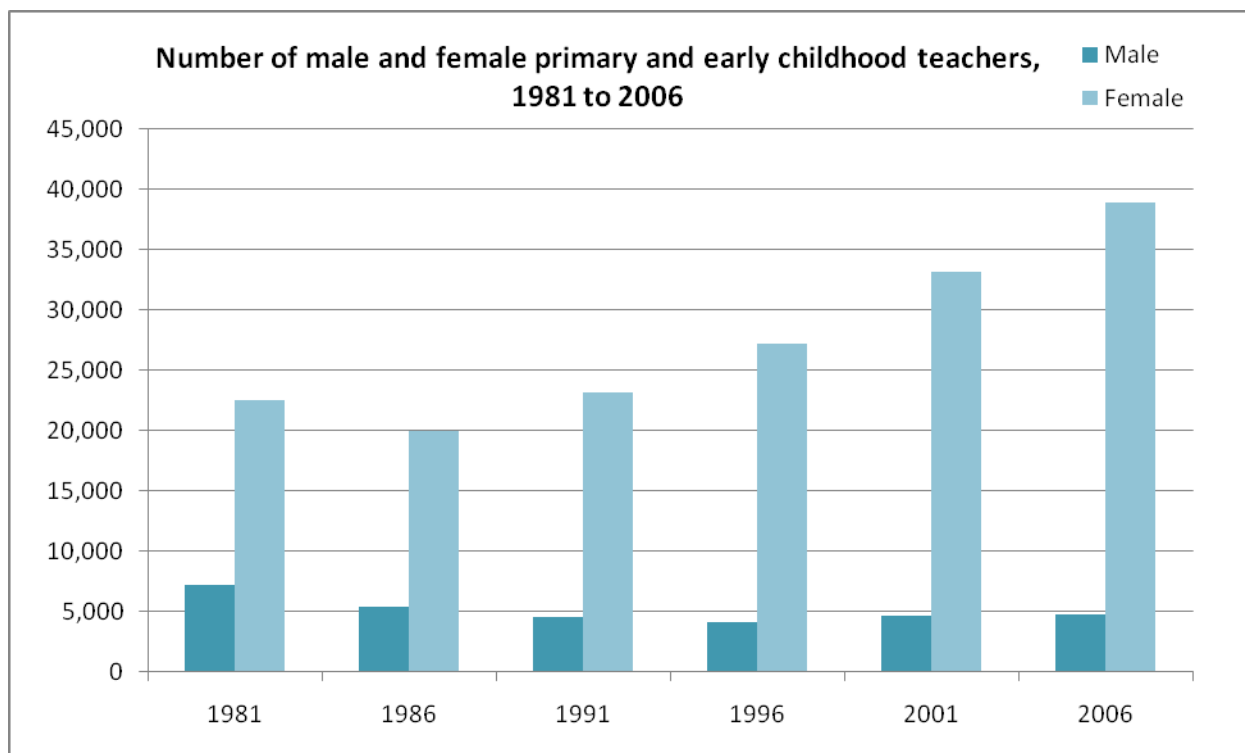
<b>Teaching Professionals</b>		<b>1981</b>	<b>1986</b>	<b>1991</b>	<b>1996</b>	<b>2001</b>	<b>2006</b>
<b>Tertiary</b>	<b>Male</b>	4,749	5,154	6,621	7,263	7,197	7,839
	<b>Female</b>	2,058	3,207	5,385	6,327	7,026	8,607
		<b>1981</b>	<b>1986</b>	<b>1991</b>	<b>1996</b>	<b>2001</b>	<b>2006</b>
<b>Secondary</b>	<b>Male</b>	8,739	7,953	7,968	7,275	7,998	8,724
	<b>Female</b>	8,721	8,478	9,177	9,330	10,530	12,459
		<b>1981</b>	<b>1986</b>	<b>1991</b>	<b>1996</b>	<b>2001</b>	<b>2006</b>
<b>Primary and Early Childhood</b>	<b>Male</b>	7,287	5,421	4,620	4,134	4,725	4,776
	<b>Female</b>	22,566	20,043	23,241	27,273	33,177	38,916



Source: Statistics New Zealand Census 2006



Source: Statistics New Zealand Census 2006



Source: Statistics New Zealand Census 2006

## Appendix II.

Full time equivalent numbers of State & State Integrated teachers at each school as at April 2007 and FTTE of Private teachers at each school as at March 2007

*Includes all teaching designations - principals, management, teachers, guidance, etc*

	Primary			
	Male	Female	Total	Female to male %
State & State Integrated single sex boys schools	0	0	0	
State & State Integrated single sex girls schools	0	8	8	100
State & State Integrated co-ed schools	4,503	19,380	23,883	81
Private single sex boys schools	72	101	173	58
Private single sex girls schools	3	46	49	94
Private co-ed schools	57	178	235	76

Source: Teacher Payroll Data Warehouse, Ministry of Education

	Composite (including correspondence school)			
	Male	Female	Total	Female to male %
State & State Integrated single sex boys schools	0	0	0	
State & State Integrated single sex girls schools	0	0	0	
State & State Integrated co-ed schools	777	1,451	2,228	65
State & State Integrated Primary Co-ed, Secondary Girls	5	34	39	87
Private single sex boys schools	66	38	104	36
Private single sex girls schools	60	475	535	89
Private co-ed schools	244	481	725	66

Source: Teacher Payroll Data Warehouse, Ministry of Education

	Secondary			
	Male	Female	Total	Female to male %
State & State Integrated single sex boys schools	1,934	758	2,692	28
State & State Integrated single sex girls schools	519	2,339	2,858	82
State & State Integrated co-ed schools	5,616	7,482	13,098	57
State & State Integrated Sen.Co-Ed, Jun.Boys	20	11	31	35
Private single sex boys schools	50	15	65	22
Private single sex girls schools	8	54	62	87
Private co-ed schools	237	218	455	48
Private Sen.Co-Ed, Jun.Boys	112	27	139	20

Source: Teacher Payroll Data Warehouse, Ministry of Education

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