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Student perceptions of the classroom learning environments in single gender lower secondary English classes

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Abstract

The learning environments within seven lower secondary single
gender English classes in a Perth school were investigated. The
researchers hypothesised there would be differences between the
female and male class groups. Research methods included
administration of the Classroom Cultural Elements Questionnaire
(CCEQ) to each class. In previous studies, the CCEQ had solicited
significantly different responses from females and males in mixed
gender classes. A complementary qualitative examination of Year
Eight classes with observation, video-taping and interviewing students
was also conducted.

The CCEQ profiled student perceptions of eleven classroom
attributes. Data were subject to one-way analysis of variance and
effect size by class membership and gender. Of the eleven attributes,
six were statistically significantly different due to class membership,
but only two were statistically significantly different due to gender. The
qualitative investigation of the Year Eight classes revealed differences
in the teaching resources used in the male and female classes and
differences in the behaviour of the teachers and the students. The
study found that differences classroom learning environments
between single gender classes were only slightly related to the gender
of children in the respective classes.

Introduction

In recent years, attention has been drawn to the differences in the academic performance of
adolescent boys and girls. Although there is clear evidence (DETYA, 2000), that boys are
performing at a lower level than girls, there is less certainty about how this situation can be
redressed. Some educators believe the academic and social needs of boys and girls can be
more adequately met in single gender classes. There is considerable debate about gender
streaming and whether or not it is effective in ensuring long term improvement in the
learning of both genders.

This study sought to provide empirical evidence on the effect of gender streaming on the
classroom learning environment. Quantitative and qualitative research methods were
applied to investigate the learning environments in seven lower school English classes in a
coeducational secondary school.

Background

Single gender and coeducational secondary schools have coexisted in Western Australia
since the 1920's. More recently, attention has been given to the provision of single gender
classes within coeducational secondary schools. This was initially the result of concern
about the academic under-achievement of girls in mixed gender Mathematics and Science
classes and in the last decade, perceptions of adolescent boys being disadvantaged within
mixed gender classes. However, there is a paucity of research pertaining to the relatively
new phenomenon of gender-streamed classes within coeducational schools. Local empirical
research has been limited by the small number of local coeducational secondary schools

providing single gender classes. The precise number of such schools within the government and private educational systems is difficult to ascertain due to gender streaming of classes being largely 'experimental' and not formally identified as an established feature of school organisation. Following communication with local researchers and educational system officers, the researcher was able to locate only two coeducational secondary school in which gender streaming had been extensively implemented.

The school in which the research was conducted is a secondary coeducational school situated in the metropolitan area of Perth (Western Australia). In recent years, the school has undertaken gender streaming in certain lower secondary curriculum areas. Classes in the learning areas of English, Mathematics and Science were streamed by gender. The principal of the college was amenable to researching the outcomes of gender streaming within the school and welcomed investigation of the learning environment within the lower school single gender English classes.

Research Objectives

The purpose of the study was to investigate student perceptions of the learning environment in gender-streamed classes within the English learning area in one secondary school. Specifically:

1. Were there differences in the learning environment between single gender English classes?
2. Can similarities or dissimilarities in the classroom learning environment be attributed to gender?
3. What are the influences on the learning environment within single gender English classes?

Theoretical ORIENTATION

Coeducational and Single-sex Schooling

A review of the educational research conducted over the past twenty years reveals that the debate on coeducational versus single-sex schooling is one that shows no signs of disappearing. The advantages and disadvantages of both types of schooling for girls and boys continue to arouse considerable controversy in Australia and other countries. Is single-sex education more educationally effective than a coeducational setting? Alternatively, is the solution something quite different; a combination of coeducational environments and gender-streamed classes?

The idiosyncratic nature of current single-sex education in K-12 schools and classes makes it a less than ideal research subject. Single-sex education takes place at present in limited arenas and under widely varying conditions, comparisons are difficult to draw from site to site and findings are often subject to interpretation (Harker, 2000; Smith, 1997; Marsh 1988). As Harker's (2000) research shows, single-sex schools are often comprised of a more socially exclusive group of pupils whose prior achievement levels are often considerably higher than the pupils of a coeducational school. This makes comparisons difficult and ultimately the results of many studies are not reliable.

The issue of the social advantages of coeducational versus single-sex schools is historically significant. The most noteworthy research in this area was completed by the English psychologist Dale (1974) in a 26-year longitudinal study of English grammar schools. Dale's major emphasis was on the social effects of co-education. He concluded that "the average coeducational grammar school is a happier community for both staff and pupils than the

average single-sex school; it has been equally demonstrated that this happiness is not at the expense of academic progress" (Dale, 1974, p.273). In a more recent study, Marsh (1988) supported Dale's findings, arguing that coeducational high schools provide a more natural social environment to prepare adolescents for adulthood than do single-sex schools.

The Difficulty in Researching Single Gender Schooling

Australian research findings on the effects of both types of schooling are conflicting. Some research (Lillico, 1999; Mixell, 1989) claims that single-sex schooling does have its advantages. Mixell (1989, p.34) states that "in the areas of academic performance, sex stereotyping, and female educational success, the advantage is clearly given to single-sex schooling." However, the research of others (Ellis, 1968; Harker, 2000; Marsh, 1988; Smith, 1997), asserts there were no significant differences in the achievement or the self-concept of the students of both types of schools. In a recent federal report entitled *The Education of Boys*, the Department of Education, Training and Youth Affairs (DETYA, 2000) states that both boys and girls report more positive experiences of schooling in single-sex settings. However, it has been argued that the most important factor is the quality of teaching and the learning experiences in the classroom, rather than whether a school is single-sex or not. The Australian Research Council's ten year study into the impact of co-education has also critically questioned the myth that coeducational schools are "good" for boys and "bad" for girls (Smith, 1997). These conflicting research findings confirm the notion that research of this nature is often problematic.

Byrne (1993, p.182) argues that where evidence is provided, much of it is "unscholarly, or anecdotal, or based on small samples, or inconclusive". A major reason for the problematic nature of this type of research lies in the questionable reliability and validity of accurately measuring achievement within different school contexts. There is no one simple or inclusive standardised test to measure "academic achievement". Consequently much of the research in this area is highly opinionative and often inconclusive; the research literature is fraught with inconsistencies and methodological problems. Elwood (1995) warns of the inherent dangers in drawing simplistic conclusions from statistical data in this area and Whitelaw, Milosevic and Daniels (2000) warn against the adoption of pedagogical change as a result of such conclusions. The findings from much of the research must be interpreted with caution to avoid simplistic conclusions being drawn.

Gender Issues within the Classroom

Perhaps the biggest concern to have come out of the research undertaken in this area of gender-based education is the apparent under-achievement of boys. As reported in Lillico's study (1999), there has been a steady decline in boys' achievement over the last 10-15 years. This decline in achievement has been accompanied by a decline in appropriate behaviour, self-esteem and emotional growth. This observation is supported by many others in the field and over the past few years, has been well documented (Alloway & Gilbert, 1997; Blair and Sanford, 1999; Foster, 1999; Francis, 1999; Younger, Warrington & Williams, 1999). The under-achievement of boys has now become somewhat of a fashionable topic for educational debate and discussion in many countries.

During the 1970s and 1980s, the focus of work on gender published in the field of education was on girls' perceived under-achievement in Science and Mathematics. At this time, the boys were left unnoticed since they seemed to be thriving in these areas and were the ones who teachers responded to more readily and who often took up the most teacher-time (Warrington & Younger, 2000). Interestingly, at the same time as boys performed well in the areas where girls were struggling, they were dominating literacy remediation programs. At the time, this was not acknowledged. Today, the under-achievement of boys is at the

educational forefront and many countries, including Australia, are developing strategies to boost boys' performance particularly in the areas of literacy and numeracy. Recently, an Australian federal report stated:

> "It is important to recognise that identifying boys as a group at particular risk of under-achievement does not imply that all boys are failing to achieve satisfactorily. Nor does it mean that all members of other groups are achieving to their potential. However there is evidence that some boys are failing to achieve the results of which they are capable" (DETYA, 2000 p.3).

The report goes on to state that there is increasing concern for the poor levels of literacy amongst our boys. It is often claimed girls are more literate than boys of the same age (Alloway & Gilbert, 1997; Blair & Sanford, 1999; Francis, 1999). Failure to address these problems has ongoing consequences for both the underachievers and society as a whole (ERO, 2000). Other researchers are extremely straightforward in relation to their views on boys' and girls' achievement at school. As Kleinfeld (1998) explained:

> "The idea that 'schools short-change girls' is wrong and dangerously wrong. It is girls who get higher grades in school, who do better than boys on standardised tests of reading and writing, and who get higher in class rank and more school honours…In the view of elementary school students, the young people who sit in the classroom year after year and observe what is going on, both boys and girls agree: schools favour girls. Teachers think girls are smarter, like being around them more, and hold higher expectations for them" (Kleinfeld, 1998, p.1).

Concern about boys' relatively poor levels of school achievement in the area of literacy is not restricted to Australia. There is a global recognition of a need to develop initiatives and strategies to improve the literacy of boys. Studies from New Zealand, the United States and the United Kingdom have reported poor literacy performance from boys in comparison with girls (DETYA, 2000). It is well documented that the most reliable indicator of long-term educational outcomes is achievement of basic literacy and numeracy skills in the early years of schooling (Ainley, 1999; DEETYA, 1998).. The results from the 1996 *National School English Literacy Survey*(DETYA, 2000), indicate that males consistently perform at a lower level on literacy benchmarks in primary school compared with girls. This means that on the whole boys are likely to be among the bottom performers when it comes to literacy, a trend that does not cease upon entrance to secondary schooling. This is likely compounded by the new set of dynamics and of problems expereinced by children commencing secondary schooling. Perhaps literacy difficultiesin conjunction with other factors cause more boys than girls have a turbulent adolescence (DETYA, 2000). Taking into account Australian and overseas literature it would seem that there are key areas that need to be addressed in order to meet the needs of boys in schools today. Areas for consideration include: early intervention; support for students during the transition from primary to secondary schooling; socialisation of boys; behaviour management and role modeling; and teacher training in understanding and addressing different learning styles and needs of girls and boys (DETYA, 2000). Consideration of these factors could mean a less turbulent schooling experience for the boys and in coeducational classes, a less disruptive environment for the girls, who are ultimately affected by boys' behaviour in the classroom.

Research has consistently shown that the ambience of the classroom is heavily influenced by boys (Gilbert & Gilbert, 1998; Lillico, 1999; Younger et al., 1999). Many of the behaviours exhibited by boys in the classroom are socially inappropriate and continue to create problems in schools (Lillico, 1999). These behaviours range from minor classroom disturbances to acts of violence (Gilbert & Gilbert, 1998). Jackson and Salisbury (1996,

p.104) ask "how much teacher time, energy and school resources go into picking up the pieces after boys' routine, daily acts of vandalism, classroom disruption, bullying and harassment of girls and boys?" Their research shows, the majority of school truants are boys, the majority of suspensions are boys and attention-seeking behaviour all tend to come from boys. Boys are receiving more rebukes, and feel overwhelmingly that they are discriminated against because of the amount of negative attention they receive (Warrington & Younger, 2000). Australian research supports this, with the DETYA federal report (2000) stating that suspension and dropout rates are markedly higher for boys than girls. While all of these misbehaviours obviously disrupt the boys' own learning, the most disturbing research findings also indicate that these behaviours are impeding the learning of others (Francis 1999). In Warrington and Younger's study (2000), the girls interviewed in all the schools studied complained about the negative effects on their work caused by boys' disruptive behaviour. The MCEETYA report (1997) also confirms that dominant masculine practices taken up by groups of boys severely limits the options of girls.

> "Constant displays of physical power and aggression, the deliberately crude and offensive behaviours, and the disparaging comments about girls and their bodies, have the effect of placing girls in the position of being dominated, controlled, disparaged, powerless and silent" (MCEETYA, 1997 p.25).

While information on boys' lesser achievement in literacy has been available for some time, until recently boys, as a group, have not been seen as needing attention (Alloway & Gilbert, 1999).Interestingly, some researchers point out that we should not regard evidence of superior attainment on the part of the girls as constituting a problem; it should be seen as a cause for celebration and congratulation (Warrington & Younger, 1999). It seems odd that in this educational climate of grave concern for the boys that the outstanding achievements of the girls are going unnoticed. The successes of girls in the academic arena have been met with silence by media and government; the reaction has been defensive; the emphasis has been placed instead on the apparent academic failure of boys (Warrington & Younger, 2000). Therefore, while addressing the needs of the boys, educators must not neglect the girls. Solutions need to be found that allow for the advancement of both sexes in the classroom.

It is interesting to note that some researchers attribute the "under-achievement" of the boys to a number of external factors including the quality of the teaching or the learning environment, rather than to the boys' own intellect, potential or motivation (Warrington & Younger, 2000). Others, such as Cohen (1998, p.20) vigorously disagree, stating, "attributing boys' failure to a *method* has made it possible to explain away their poor results without implicating boys themselves". Elsewhere, other researchers (Younger et al., 1999) have emphasised that much of the discourse on this topic has been framed using the terms "boys" and "girls" as though they were homogenous groups, despite the fact that factors such as social class, sexuality and ethnicity are perhaps more important than gender in influencing academic achievement levels in schools. How do we boost the achievement level of the boys without hindering that of the girls? Is the answer single-sex classrooms, better remediation programs for the boys or perhaps something entirely different?

Single-sex classes that exist in a coeducational school are a relatively new phenomenon. Advocates of this approach predict that the sense of belonging and respect that girls will achieve in an all-female maths class will improve their confidence in the subject. Similarly, boys would be able to study different texts and discuss issues relevant to them in an all-boys class (California State Legislature, 1996; Carpenter & Hayden, 1987). As Buteyn's (1989) research highlights, girls in a coeducational setting tend to respond less in the classroom and therefore receive less of the teacher's time. Boys' assertiveness tends to get the teacher's attention and the interaction that takes place and the instruction given is often

geared to males meaning that boys often end up monopolising the classroom environment. It can be argued single-sex classes in a coeducational school would address this problem, while still allowing social interaction between the sexes. However, this idea, too, has evoked fierce critics. Some girls, who have experienced this type of gender separation, have expressed concern that this environment can create a false sense of security. Boys, too, do not always thrive in this type of environment. It is sometimes claimed that a boys-only environment can compound the least attractive aspects of boys' attitudes and behaviour (ERO, 1999). Teachers have also suggested that stereotyped views can be reinforced just as easily in single-sex as in coeducational classes (Leder & Forgasz, 1994). A report published by the American Association of University Women (AAUW, 1998) stated that the conditions of a good education needed to be examined, as separation is not the answer. The long-term impact of this type of education is not known and organisations like the AAUW are concerned that this movement encourages teachers and students to reinforce old sex-role stereotypes. The DETYA federal report (2000) suggests that there are indications that both boys and girls may benefit from single-sex schooling, but that this is not the most important factor impacting on educational outcomes. It is also important to remember that while academic achievement is important, performance in examinations and the like is only one indicator of achievement. Schools that achieve high examination results may do little to address the non-academic needs of students (ERO, 1999).

Conclusion

The study of gender issues in schooling has been limited by focus on comparative levels of boys' and girl's formal achievement rather than on long-term educational outcomes. Arguably, student values and attitudes towards self, role-construction and place in society are more important. Researching the phenomenon has been complicated by single gender classes predominantly existing in single gender schools, which renders gender comparison potentially invalid due to school-site contextual variables. With the advent of gender-streamed classes in secondary coeducational schools, it is possible to examine gender differences at the classroom level within single schools and within particular subject area faculties. The unit of analysis for examining gender effects in schooling shifts from the school level to the individual classroom. The criteria for this examination shifts from academic achievement to classroom learning environment attributes, particularly those of a socio-psychological nature.

methodology

Research Methods

The investigation was a 'complementarity' mixed -method study (Greene, Caracelli & Graham, 1989). Qualitative and quantitative methods were applied to "measure overlapping but also different facets of a phenomenon, yielding an enriched, elaborated understanding of the phenomenon" (Greene et al., 1989 p.258). A quantitative questionnaire was administered to students to profile the learning environments in seven single gender English classes across three years. Sampling was by convenience due to the need of teacher permission for entree. The resulting quantitative data were statistically analysed to compare the level of perceived presence of learning environment attributes between the classes and due to gender. Qualitative methods were concurrently applied. A stratified sample of six students from each of three Year Eight classes was interviewed with data being collected through interview records and audiotaping. In addition, these Year Eight classes were observed during two lessons and videotaped.

Theoretical Framework

In complementarity mixed-method investigations, it is important that a common paradigmatic framework is used to underpin all data collection methods. This enables triangulation of data on certain aspects of the phenomenon and convergence in overall findings. The scales of the quantitative survey and the interview schedule both needed to solicit information on similar constructs. The use of non-participant classroom observation and interviewing in this study was intended to complement the quantitative data and also enable investigation of emergent or unanticipated issues.

Following an examination of literature on gender in education and classroom learning environment research, a preliminary theoretical framework was proposed. This comprised five aspects of the classroom-learning environment anticipated to be pertinent to the research objectives of the study:

- Student values about education and learning;
- Peer relationships;
- The teacher;
- Parental involvement; and
- Educational outcomes

Results

Summary of Quantitative Results

The *Classroom Cultural Elements Questionnaire (CCEQ)* (Cavanagh, Dellar, Ellett & Rugutt, 2000) was administered to provide quantitative data. This instrument contains items concerning attributes of a collaborative classroom learning environment and has proven to be reliable and valid in previous studies (Cavanagh & Dellar, 2001; Cavanagh, Dellar & Sparrow, 2000). *CCEQ* scales, sample items, internal scale reliability and inter-scale correlation coefficients are presented in the Appendices 1 and 2. Table 1 (below) presents details of the classes surveyed.

Table 1

The sample

Class	Teacher	Class Gender	Year	Valid Surveys
1	A	Female	8	21
2	B	Male	8	28
3	C	Male	8	22
4	C	Female	10	22
5	C	Female	10	25

6	D	Male	10	14
7	E	Male	10	15
Totals	5		7	147

Following administration of the CCEQ in the seven classes, One-way Analysis of Variance (ANOVA) was conducted to ascertain where or not there were statistically significant differences between the classes for the eleven instrument scales. The eta^2 statistic was also calculated to measure the amount of variance due to membership of the class groups. The results of ANOVA by class group are presented Table 2 (next page). Scale mean scores were calculated for each of the eleven instrument scales for the seven classes. Each score was then divided by the respective number of items comprising the scale to produce a score within the same range as the four point Likert scale used in the instrument. Adjusted scale mean scores > 2.5 indicate an aggregated response level in the 'agree' range with < 2.5 indicating 'disagreement'.

Table 2

Analysis of variance by class group (N = 147)

Scale	Range of scale mean scores	F ratio	Sig	Eta^2
Student Values about Education	3.4 - 3.6	1.6	0.141	0.066
Student Values about Learning	2.9 - 3.1	0.5	0.817	0.021
Peer Support	2.4 - 3.0	4.5	0.000*	0.163
Teacher Caring	2.2 - 2.7	2.3	0.041*	0.090
Teacher Concern for Individuals	2.2 - 3.2	3.3	0.005*	0.124
Teacher Expectations of Behaviour	2.8 - 3.5	3.3	0.004*	0.129
Teacher Expectations of Learning	3.5 - 4.0	1.1	0.335	0.048
Teacher Student Collaboration	2.0 - 2.7	3.1	0.007*	0.119
Parental Involvement	2.1 - 2.6	2.1	0.062	0.083
Teacher to Parent Communication	1.9 - 2.7	4.2	0.001*	0.157
Educational Outcomes	2.0 - 2.8	2.6	0.018**	0.105

* Indicates statistically significant difference (Sig < 0.05)

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ANOVA by class group revealed statistically significant differences in *Peer Support*, *Teacher Caring*, *Teacher Concern for Individuals, Teacher Expectations of Behaviour*, *Teacher to Parent Communication* and *Educational Outcomes* between the seven classes. The high eta^2 values provide further evidence of this result. These findings indicate there were differences in the classroom learning environments of the particular sample of seven single gender classes. Of the seven attributes of the learning environment that varied, five concerned the teacher. Thus the differences are likely attributable to the influence of individual teachers upon the respective classroom environments. The lack of variance in *Teacher Expectations of Learning* suggests consistency in teacher and classroom emphasis on learning across the seven classes. The lack of variance in *Student Values about Education* and *Student Values about Learning* may be a consequence of influences external to the classroom.

Having ascertained there were differences between the learning environments in the single gender classes, determining whether or not these differences were attributable to gender required ANOVA by gender. The results of ANOVA by gender are presented in Table 3.

Table 3

Analysis of variance by gender (N = 147)

Scale	Scale mean score		F ratio	Sig	Eta^2
	Females N = 68	Males N = 79			
Student Values about Education	3.6	3.5	0.0	0.928	0.000
Student Values about Learning	3.1	3.0	0.5	0.458	0.004
Peer Support	2.9	2.7	7.7	0.006*	0.051
Teacher Caring	2.7	2.5	2.2	0.141	0.015
Teacher Concern for Individuals	3.0	2.7	4.5	0.035*	0.031
Teacher Expectations of Behaviour	3.2	3.2	0.0	0.919	0.000
Teacher Expectations of Learning	3.8	3.7	1.0	0.318	0.007
Teacher Student Collaboration	2.4	2.3	1.2	0.282	0.008
Parental Involvement	2.4	2.5	1.3	0.253	0.009
Teacher - Parent Communication	2.4	2.5	0.5	0.495	0.003
Educational Outcomes	2.7	2.6	0.9	0.343	0.006

* Indicates statistically significant difference (Sig < 0.05)

ANOVA by gender revealed that only the females' perceptions of *Peer Support* and *Teacher Concern for Individuals* were statistically significantly different from those of the males.

The quantitative results suggest the differences in the learning environments of the seven classes were generally not a consequence of the gender of the students. However, differences in *Peer Support* and *Teacher Concern for Individuals* were due to gender. This is not withstanding the low eta^2 values for these two classroom attributes. Whilst there were differences between the learning environments in the seven classes, these differences are relatively independent of the genders of the respective classes.

Note: Multivariate Analysis of Variance (MANOVA) was also conducted with class group as the factor and gender as the covariate and also with gender as the factor and class group as the covariate. MANOVA produced F ratios, significance levels and eta^2 values similar to those resulting from separate ANOVA by class group and gender as presented in Tables 2 and 3.

Summary of Interview Results

A total of 18 Year Eight students were interviewed, a stratified sample of six students from each of the three classes. The interview questions were formulated according to the theoretical framework. Five aspects of the learning environment were examined: student values about education and learning; peer relationships; the teacher; parental involvement; and educational outcomes. The interview schedule is presented in Appendix 3.

Student Values about Education and Learning

In general, both male and female respondents valued what was learned in class and affirmed the importance of the subject. However, a number of girls and boys questioned the usefulness and relevance of some aspects of the instructional program.

Peer Relationships

There were different perceptions of the relationships amongst peers between the girls and boys. Apart from the presence of cliques within the female classes, there was a high level of overt caring and support. In contrast, the boys still perceived peer support to be present, but placed lower value on this presence. Caring behaviour between males was less overt. Another difference between the genders concerned seeking assistance with class work. The girls preferred to seek the help of peers whereas the boys sought the assistance of the teacher. Tolerance towards disruptive peers was generally similar for both genders. When asked about single and mixed gender classes, the girls expressed a strong preference for gender streaming of classes whereas the boys had differing opinions.

The Teacher

All of the students recognised the expectations of the teacher to be influential on academic performance and application to work. Similarly, both girls and boys viewed their teachers as being supportive. However, the teacher's influence on providing a safe classroom environment was perceived differently. The girls' interpretation centred upon ensuring

positive social interaction whereas the boys viewed safety in terms of protection from physical harm.

Parental Involvement

The girls and boys differed in their views of parental involvement. Whilst both genders indicated their parents took an interest in their schooling and provided varying degrees of assistance with homework, the girls appeared less conscious of parental expectations. In contrast, the boys perceived their parents to be more interested in monitoring their academic progress and ensuring their success at school.

Educational Outcomes

Information obtained on the outcomes of the educational program concerned application to study, motivation to attend class and provision of new learning experiences. The girls provided general affirmation of these outcomes. The boys were less positive and many admitted they were not working to capacity and many did not value attending class. However, similar to the girls, the boys generally perceived their learning to be progressing.

Summary of Classroom Observation Results

The information from classroom observation and the videotapes provided an alternative view of the learning environments within each of the three classes. In reviewing the records, four major aspects of the learning environments were identified; use of gender-specific language; use of gender-specific resources; teacher classroom management, and peer support. Thus the structure of the classroom observation findings did not precisely correspond to the preliminary theoretical framework previously applied in data collection and analysis.

Gender Specific Language

It was observed that in one male class, the language used by the teacher was highly gendered. For example, *"You're a brave man"*. Gender-specific words or phrases were also used several times to address the male students; "*son*", *sir*", "*lads*", "*my boy*". The students seemed to respond to this and were very attentive to the teacher. The observation periods in this class revealed that this was very much a 'boys-only' classroom. The teacher of the female class also used a small amount of gender-specific language when demonstrating the use of simile in a poem. The example given to the class was, *"Pippa – you are as beautiful as a rose"*.

Gender-specific Resources

In all three classes, the use of gender-specific resources was quite noticeable. All of these classes were studying poetry, yet each teacher chose the poems to be studied to suit the gender of the class. In the female class, the poems were about such topics as dreams and the afterlife and the girls were writing limericks concerning things that may be considered feminine.

In one of the male classes, the poetry was of a masculine nature. The poems being studied were masculine as were the poems created by the students. In this, class the teacher introduced the students to a film documentary. Before screening the documentary, the teacher reminded the students of texts they had studied in the past. He spoke about "*Biggles*" and used phrases like "*tough guys*" and "*had him calling for his mother*."

Teacher Classroom Management

The difference in teacher classroom management was very noticeable between the three classes. Class One was a female class. The teacher had a very relaxed manner that seemed to work well with the girls. During the two observation periods, the majority of class time was taken up in informal class discussions, individual work and group work. There was minimal teacher-centred instruction. The roll was not called nor was there a formal dismissal. Upon hearing the bell, students simply left the room. Students were not required to raise their hands to speak but rather called out in an orderly manner. The teacher responded to this and answered the questions accordingly. Students were allowed out of their seats to borrow things from friends or to see the teacher at any time other than when the teacher was addressing the whole class. The teacher addressed the students in an informal, colloquial manner.

Class Two was a male class. As soon as students entered the room,teacher expectations of behaviour was apparent. Students were expected to be punctual; a late student was told to remain outside and wait for the teacher to explain his lateness. Once the students were seated, the roll was taken using the students' surnames. The students were then instructed to take their caps off and the lesson commenced. Both observation periods revealed that this was a highly structured environment. The class responded to this and was almost silent at all times. The students were seated in pairs and the teacher moved around the room constantly, asking questions of nearly every student. The teacher also provided the boys with praise and positive reinforcement, even when reprimanding them for talking or not paying attention.

This teacher was in control of the students and only had to say one thing, such as "*Quiet please*", and the class would instantly pay attention. Certain students at the back of the room consistently made some smart comments but these were ignored by the other students and by the teacher who glared at these students on occasion. Hands were always raised to answer questions and there was no movement around the room by the students. During both observation periods, the teaching methods were varied. There was some discussion and a lot of questioning by the teacher; some note-taking from the board; the viewing of a documentary accompanied by note-taking; and some lecturing by the teacher on the conventions of documentaries. The boys were compliant with the teacher's expectations. When the bell rang, they remained at their desks until formally dismissed by the teacher.

Class Three was a male class. The boys were quite unruly and very noisy. In the first period of observation, poetry recitals were being rehearsed in groups and in the second period the students performed in front of the class. Upon entry into the classroom, the boys did not move to there assigned seating. They sat on desks, pushed each other around and generally misbehaved. The teacher attempted to assume control by raising the volume of her voice above the loud chatter. Repeated requests for silence were ignored. After the teacher had completed recording attendance and the students sat at their desks, the majority of the students continued to laugh and make humorous comments. The teacher's level of voice was gain raised above that of the class. However, most students took no notice of her instructions until she threatened detention during recess. The students then settled down. Instructions were given about the poetry recital assessment and the students went to different areas in the classroom and outside the classroom to practice their recitation. The teacher divided time between the groups outside and inside of the classroom. However, after leaving the room, the students inside the room commenced to play-fight and displayed phusical behaviour. There was a lot of good-humoured swearing and name-calling. At the conclusion of the lesson, there was no formal dismissal or re-grouping of the students back into the classroom; as soon as the bell sounded, the students exited. The second observation of this class revealed a more organised approach by the teacher but the

students were still noisy and not under the teacher's control. The teacher again 'spoke-over' the noisy students and threatened them with detention to ensure cooperation. Following a check of attendance, she gave instructions concerning the lesson. The students were to recite the poems written in the previous lesson. The recitations began and although most students paid attention, there was a lot of other interaction between the students in the audience. This went unnoticed by the teacher. After each group's performance, the teacher provided positive feedback to encourage the students. During the performances, the more popular students within the class received the most attention from the audience; they were subject to ridicule and derogatory comments. This audience behaviour was ignored by the teacher. Quite a few groups incorporated 'break-dancing' into their routines and when one student displayed incompetence, he was subject to derisory laughter. The teacher responded, "*Sshhhh*" and said *"We're taking a little too long to pay attention".* The lesson continued in a disorderly manner and there was again no formal dismissal of the students at its conclusion.

The data from direct classroom observation and the videotapes recordings revealed major differences in teacher behaviour, particularly the strategies they applied to ensure student compliance with their expectations.

Peer Support

The existence of peer support was most evident in the female class. In this class, the students consistently helped each other and although some of the chatter was about matters not related to school, the students listened to each other and there was an absence of derisory and derogatory comments. When resources were distributed by the teacher, the students assumed responsibility of collection for classmates who were absent. One student called out, *"I'll take one for Melissa. She's away today".* The few disruptive students appeared conscious of class norms and exercised restraint in their behaviour

In Class Two (all-male) there was little evidence of peer support. This was due to the teacher dominating the students and a consequent lack of opportunities for the students to engage in peer interaction. However, when students were asked to read out their work or to answer a question, there was no shortage of volunteers. All of the students felt comfortable sharing their work with the class and there was no jeering or negative comments made by the other students when this occurred.

In Class Three (all-male) there was a lack of peer support. The boys were disinterested in the work done by classmates and exhibited self-centred behaviour. This was likely due to a lack of teacher control.

Discussion of Results

Interpretation of the quantitative, interview and observation results utilised a secondary analytic procedure to produce a 'conceptual description' of the phenomenon (Pitman & Maxwell, 1992). This resulted in the conceptual content of the overall data being classified into four areas; the teacher, the interaction between students, the instructional program and student learning, and the influence of parents upon the classroom learning environment.

The Teacher

Analysis of variance in the quantitative survey data by classroom group revealed statistically significant differences in the mean responses of each class group for some of the instrument scales. In particular, *teacher caring*, *teacher expectations of behaviour*, *teacher-student collaboration* and *teacher concern for individuals* were all statistically significantly different.

Teacher behaviour varied according to class group. This evidenced the influence the individual teacher on the classroom learning environment. However analysis of variance by gender revealed that only *Teacher Concern for Individuals* varied according to gender. Quantitative results suggest that although teacher behaviour is influential on the learning environment, it is relatively independent of class gender.

The interview results generally confirmed the survey findings on the influence of the teacher. Both girls and boys had similar perceptions of the support provided by their teachers. Perceptions of teacher caring and concern for individuals were also expressed by both genders but interpreted differently. The girls viewed teacher caring in terms of enabling a socially cohesive classroom environment whereas the boys viewed this in terms of an environment in which they were not subject to physical harm.

Teacher expectations of students affects how they interact with that student which in turn affects the student's achievement both in academic and non-academic arenas (Clarken, 1995; Feldman & Theiss, 1980). When interviewed both girls and boys were aware of their teachers having high expectations of the academic work and classroom behaviour. However, in one all-male classes, the teacher accepted the under-achievement and misbehaviour of certain boys. Whether or not this evidences a difference in teacher classroom management techniques in response to class gender is difficult to confirm. Perhaps teacher tolerance of non-compliant student behaviour only becomes evident in classes in which there are non-compliant students. The classroom observation results present a more incisive view of the effect of teacher expectations on student behaviour. The teachers of the female class and one of the male classes exercised considerable control over their students and this was reflected in an orderly classroom environment. The teacher of the other male class experienced difficulty in classroom management and the classroom was unruly with many of the boys not completing assigned tasks and misbehaving. This is consistent with previous research findings that a lack of expectations and control impacts quite significantly on the students (Clarken, 1995). The inconsistency between the observations of the teachers of the boys' classes suggests the difference in teacher expectations was not due to class gender but a consequence of differences between the teachers. The all-male classes appear to be more challenging to the classroom management capacity of the teacher.

The major implication of gender streaming for teachers is that different classroom management strategies are required between male and female classes. Irrespective of the reasons advocated for gender streaming, the success of the practice will be highly dependent upon the teachers of male classes being able to control the behaviour of groups of adolescent males.

Interaction between Students

Proponents of gender-streaming base much of their support for this practice on findings concerning differences in the interaction between students in mixed and single gender classes. The misbehaviour of boys in the classroom and the effect it has on girls has been widely researched and consistently shows that the ambience of the mixed classroom is heavily influenced by boys (Francis, 1999; Gilbert & Gilbert, 1998; Jackson & Salisbury, 1996; Lillico, 1999; Younger et al., 1999). Adolescent girls often feel uncomfortable and intimidated by the presence of boys (Warrington & Younger, 2000). Many girls simply opt out of the classroom dynamic when in a coeducational setting because it is easier to keep quiet and remain inconspicuous rather than risk the humiliation of saying the 'wrong thing' in front of boys (MCEETYA, 1997).

The importance of gender-specific peer interaction on the classroom learning environment was reflected in the empirical results of this study. Analysis of variance in the *CCEQ* data by both class group and gender revealed that students' perceptions of peer support varied across all seven classes and also varied between the genders. The interview results confirmed the survey findings. Many of the girls interviewed stated that the boys took up too much teacher-time and simply misbehaved too much. Although there was evidence of inter-personal tension in the female class, this was minor in comparison to that in mixed-gender classes.

While some boys were supportive of gender streaming, their opinions were mixed. Some thought it was 'stupid'; others thought everything would be the same if the girls were introduced into their classroom and a few thought it would be embarrassing to speak up in front of girls. Overall, the boys were less positive about the merits of gender streaming than the girls. This is consistent with previous research findings; girls are the ones who are primarily affected by boys' behaviour in the classroom (Warrington & Younger, 2000).

Interestingly, the majority of the boys interviewed thought that if in a mixed class, the girls would have a 'calming' effect over the boys. This suggests that these boys automatically accepted the old sex-role stereotype that girls are calm, nurturing and a moderating influence on group behaviour. This is one of the concerns held by the critics of gender-streaming. Stereotyped views can be reinforced just as easily in single-sex as in coeducational classes (Leder & Forgasz, 1994). Another concern is that boys do not always thrive in an all-male environment as this sometimes compounds the least attractive aspects of boys' attitudes and behaviours (ERO, 1999). This study provided evidence to support this assertion. In one of the all-male classes observed the all-male environment in combination with a lack of teacher classroom mangement brought out the worst in the boys' behaviours. This is surely a concerning aspect of gender streaming. For those boys who thrive on the misbehaviour of other boys, this type of environment is not conducive to developing socially acceptable behaviour.

The most pertinent point to emerge from this part of the investigation was that both emphatic dismissal and advocacy of gender-streaming are difficult to justify if the intention of streaming is improved socialisation of boys.

The Instructional Program and Student Learning

Analysis of the survey data revealed that student values about education and about learning were similar for the seven classes and both genders. This was reflected in the interview results. Although the girls and boys had differing reasons for valuing studying English, the majority of the students viewed the subject as an important part of their education. Analysis of survey data on educational outcomes showed this to vary across the seven classes surveyed but not according to gender. The interview data presented a similar view. However, although the majority of students interviewed perceived they were making progress in the subject, there were differing assessments of the degree of effort being applied. The majority of the girls considered they were working to capacity but there was a significant number of boys who admitted they could put more effort into studying English.

One of the more interesting findings of the qualitative investigation was the use of gender-specific resources particularly in the all-male classes. In the past English has been seen as a traditionally feminised subject making it somewhat unattractive to males. In one all-male class in particular, the use of gender-specific resources were made quite explicit by students who reported studying war and machines. This was confirmed by the observations. Even poetry, a feminised genre, was interpreted in a masculine manner by this teacher and the students. The key issue arising from this finding is the tension between presenting material

which is gender relevant to increase student motivation and avoiding reinforcement of gender stereotyping. Cameron (1995) stated that the curriculum, both informal and formal, needs attention when it comes to gender issues in our schools. The texts students study in combination with everyday occurrences at school constantly tell students what it is to be male or female in our society.

The observational data also evidenced the use of gender-specific language in several of the classes. This is cause for concern as it places emphasis on being either male or female, or conversely on not being male or not being female, rather than on recognising the attributes of the individual student.

Streaming students according to gender on assumption that different instructional programs can be designed applied to meet the disparate needs of boys and girls must be questioned. Short-term increases in motivation may well occur at the expense of reinforcement of gender stereotyping and lack of attention to the individual student irrespective of gender.

The Influence of Parents

The survey results on parental involvement indicated it did not vary between classes or genders. The interview results presented a more relevant and informative view.

Both girls and boys received varying levels of assistance from their parents with homework. The involvement of the girls' parents generally appeared to assume that assistance was needed but not necessarily essential. In contrast, many of the boys were conscious of parental expectations of their progress in English and their parents provided motivation and monitored their progress. This difference can be explained as parental confidence in the capacity of their child to assume responsibility for learning. The boys' parents were less confident about this capacity than were the parents of the girls. This is possibly another example of gender stereotyping with parents being more concerned with the educational outcomes of boys than girls. Alternatively, it could reflect parental responsivity in providing support for the child's education based upon perceived needs for support irrespective of the child's gender.

Teachers need to be aware of the influence of parents on their children and of the family influence on gender based role construction by children. Formalising gender differences through gender streaming at school may well reinforce differential parental values and beliefs about what is expected of boys and girls.

Conclusion

The review of literature on gender in schooling revealed opposing views on gender streaming at the school and classroom level. Notwithstanding the lack of unequivocal research findings on the matter, current moves towards gender streaming in coeducational schools provided the impetus for investigating the learning environments in gender streamed classes. There are ethical and pragmatic considerations in making decisions about class groupings based upon student gender and such decisions need to be informed by empirical research.

The study sought to examine the effect of gender streaming on the classroom learning environment. Restriction of the sample of classes investigated to students from one learning area in a single coeducational school was intended to reduce the number of contextual influences on the findings. Inclusion of complementary methods of data collection in the research design provided both a comprehensive and fine grain view of the phenomenon.

These mixed methods also provided a balance between researcher subjectivity and objectify which is required when investigating a complex and potentially contentious issue.

Five aspects of the learning environment were investigated: student values about education and learning; peer relationships; the teacher; parental involvement; and educational outcomes. Following synthesis of data from a quantitative survey, student interviews and non-participant classroom observation, four major elements of the classroom learning environment in the single gender classes examined were identified. These were: the teacher; the interaction between students; the instructional program and student learning; and the influence of parents upon the classroom learning environment.

The study revealed differences between the single gender classes investigated:

- Gender streamed classes required differing respective teacher classroom management techniques;
- Peer support and concern for classmates were more evident in the female than in the male classes;
- The instructional programs and resources were different between the male and female classes; and
- The students perceived their parents to have differing expectations of male and female children.

These five differences need to be placed within the perspective of the overall findings of the study, particularly the survey results from the seven classes. Whilst there were significant differences between many aspects of the classroom learning environments investigated, the majority of this differences where not gender specific. Gender streaming has led to classes having different learning environments but the majority of the differences are due to influences other than gender. Furthermore, those differences attributable to class gender and presumably the effect of gender streaming require scrutiny. These differences have the potential to reinforce gender stereotyping.

Quantitative and qualitative findings did not reveal significant differences in student perceptions of their *educational outcomes* due to gender, but the survey data revealed this did vary by class group. Gender streaming has led to students having differing perceptions of their *educational outcomes*, but these differences are due to influences other than gender.

In summation, comparative evaluation of the benefits and disadvantages to the teachers and students of this study has not provided sufficient evidence for justification of the practice of gender streaming English classes.

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Appendices

Appendix 1

CCEQ scales, number of items and sample items

Scale	Number of Items	Sample Item
Student Values about Education	7	I would like to become a well educated person.
Student Values about Learning	5	I feel in control of my own learning.
Peer Support	11	Our classroom is a happy place.
Teacher Caring	9	The teacher helps students with family problems
Teacher Concern for Individuals	14	The teacher makes us feel important.
Teacher Expectations of Learning	4	The teacher encourages us to produce our best work.
Teacher Expectations of Behaviour	6	The teacher expects us to dress properly.
Teacher Student Collaboration	11	Students set the deadlines with the teacher for completing work.
Parental Involvement	6	My parent(s) communicate with the teacher.
Teacher - Parent Communication	4	The teacher contacts my parent(s) if I don't complete work
Educational Outcomes	10	I am a successful student.
Total	87	

Appendix 2

CCEQ scale internal reliability and inter-scale correlation (N = 147)

Scale	Cronbach Alpha	Range of Inter-scale

	Reliability	Correlation Coefficients (Spearman, p<0.005)
Student Values about Education	0.81	0.08 - 0.57
Student Values about Learning	0.67	0.16 - 0.57
Peer Support	0.91	0.16 - 0.46
Teacher Caring	0.92	0.22 - 0.78
Teacher Concern for Individuals	0.95	0.23 - 0.78
Teacher Expectations of Learning	0.78	0.23 - 0.59
Teacher Expectations of Behaviour	0.90	0.06 - 0.35
Teacher Student Collaboration	0.84	0.06 - 0.61
Parental Involvement	0.82	0.09 - 0.48
Teacher Parent Communication	0.81	0.09 - 0.48
Educational Outcomes	0.91	0.40 - 0.59

Appendix 3

Interview Schedule

Student Values About Education and Learning

1. Do you think that what you learn in this class is important? If so, in what way?

2. Do you think that what you learn in this class will improve your future?

3. Are the things you learn in this class useful?

Peer Relationships

1. In this class, does everyone care about one another?

2. Do you feel free to speak in front of your peers in this class without others making fun of you? Would this change if you were in a mixed class group?

3. Do you talk about how you are going in this subject with others in this class? Why/why not?

4. Do you go to each other for help with your work?

5. Do you think that everyone in this class is capable of learning something?

6. How do you feel about those students who do not do the work?

The Teacher

1. Do you feel safe in this teacher's class? What do you mean by "safe"?

2. Does your teacher expect you to perform as well as you can? If so, why do you think this is?

3. Does your teacher encourage you? In what ways?

4. How does this make you feel about this class?

Parental Involvement

1. Are your parents interested in your progress in this subject?

2. Do your parents help you with your homework with this subject? Why/why not?

Educational Outcomes

1. In this class, do you work to the best of your ability?

2. Do you think you could put more effort into this class?

3. Do you look forward to this class?

4. Are you always learning new things in this class?