

Department of Education and Training WA
Evaluation and Accountability Directorate

**Single Gender Classroom Trial
2006 – 2008**

Evaluation Report

July 2009



Contents

	Page
Executive Summary	4
List of Figures and Tables	6
Introduction	7
Background to the Single Gender Classroom Trial	8
What Previous Research Indicates	9
How the Evaluation was Conducted	12
Case Study Introduction	13
Case Study 1: Eastern Hills Senior High School	14
Part 1: Introduction	14
Part 2: Student Outcomes	16
Part 3: Significant Factors	20
Case Study 2: Hampton Senior High School	23
Part 1: Introduction	23
Part 2: Student Outcomes	25
Part 3: Significant Factors	30
Case Study 3: Mirrabooka Senior High School	34
Part 1: Introduction	34
Part 2: Student Outcomes	35
Part 3: Significant Factors	39
Case Study 4: Rockingham Senior High School	43
Part 1: Introduction	43
Part 2: Student Outcomes	45
Part 3: Significant Factors	48
Case Study 5: Yule Brook College	51
Part 1: Introduction	51
Part 2: Student Outcomes	53
Part 3: Significant Factors	55
Factors of Significance	58
References	67

Executive Summary

This is a summary of the evaluation report of the Single Gender Classroom Trial, conducted from 2006 to 2008.

Aims

The Trial aimed to:

- Provide an evidence base to inform the Department in relation to the conditions that support improved student learning in single gender classes;
- Explore school-level issues relating to single gender classes as an educational option for students; and
- Contribute to Departmental advice to the Minister for Education and Training on single gender classes as a potential future policy development.

Scope of the Trial

- The Single Gender Classroom Trial was conducted in five secondary schools from 2006 to 2008. The scope of involvement varied widely according to the following.

School	Learning Areas	Year Levels
Eastern Hills	English	Years 8 – 10
Hampton	ICT Dance	Year 8 Years 8 – 10 ¹
Mirrabooka	English, Mathematics, Science, Society and Environment	Years 8 and 9
Rockingham	English, Mathematics, Science, Society and Environment	Years 8 – 10
Yule Brook	English, Mathematics, Science, Society and Environment, Health and Physical Education	Years 8 - 10

Resourcing

- Funding was provided to each school for the duration of the Trial to support the implementation of school-based single gender programs and enable access to professional development by teachers. A budget of \$1.72 million was allocated to the project.

¹ The target group for Hampton was Years 8-10. However, the school also targeted PEAC students from Years 6 and 7 as a means of their preparation for enrolment in the school's Year 8-10 Dance program. Some students who were involved in the first two years of the Trial as Year 10 students remained enrolled in Dance classes in Years 11 and 12.

Evaluation Methodology

- An empowerment evaluation process was adopted to address the different monitoring and evaluation requirements of each school. A set of 'Agreed Measures' outlined the monitoring requirements for each school for each year of the Trial.

Findings

- There was no conclusive evidence in any school to indicate that single gender classrooms supported improved student outcomes.
- The perspective of some teachers was that single gender classrooms were beneficial for some sub-groups of students in some contexts.
- The success of the implementation of school-based single gender programs was influenced by three school factors and three teacher factors. School factors of: supportive leadership; a whole-school approach to implementation; and the provision of resources through funding and a flexible timetable, impacted positively on implementation. Teacher factors of: commitment and openness to change; participation in professional development; and the ability to modify approaches to pedagogy, impacted positively on implementation.

Issues

- There was a wide variation in the approaches taken by the participating schools.
- Schools were not provided with guidelines regarding the use of financial resources.
- Staff changes within schools impacted on the continuity of school-based single gender programs.
- Teachers' access to professional development varied widely according to school circumstances and staff changes within schools.

List of Figures and Tables

	Page
Figure 1: Eastern Hills 2006 MSE Girls Reading and Writing	16
Figure 2: Eastern Hills 2008 MSE Boys Reading and Writing	17
Figure 3: Hampton PEAC dance enrolments from 2006 to 2008	27
Figure 4: Hampton overall male dance enrolments from 2006 to 2008	27
Figure 5: Hampton academic dance outcomes	28
Figure 6: Mirrabooka Year 8 Boys MSE Investigating Scientifically 2006 and 2007	35
Figure 7: Mirrabooka Year 8 Girls MSE Investigating Scientifically 2006 and 2007	36
Figure 8: Rockingham MSE Year 8 Girls Writing 2006, 2007, 2008	45
Figure 9: Factors significant in the implementation of the Single Gender Classroom Trial	58
Figure 10: Enhancing and Inhibiting School Factors	59
Figure 11: Enhancing and Inhibiting Teacher Factors	59
Figure 12: Impact of enhancers and inhibitors upon implementation	66
Table 1: Eastern Hills student survey responses	18
Table 2: Hampton student survey responses	26
Table 3: Mirrabooka student survey responses	38
Table 4: Rockingham student survey responses	47
Table 5: Yule Brook student survey responses	54

Introduction

Instigated by the then Minister for Education and Training in 2005, the Single Gender Classroom Trial, or 'Trial' as it will be referred to throughout this report, was conducted in five secondary schools in Western Australia from 2006 to 2008. Each school was provided with financial resources to support its school-based single gender classroom programs and enable teachers to access a professional development program provided by the Department's Professional Learning Institute.

The single gender programs implemented in each school varied in scope but were confined to classrooms in Years 8, 9 and 10. In some schools, single gender programs were conducted in only one or two learning areas while in other schools, single gender programs operated in several learning areas. Concurrent with this, some programs targeted students in Year 8 only, while other programs targeted students in Years 8, 9 and 10.

This report provides an outline of the ways in which the Single Gender Classroom Trial was implemented in each school and discusses the effectiveness of each school-based program. In doing so, the report contributes to:

- Providing an evidence base to inform the Department in relation to the conditions that support improved student learning in single gender classes;
- Exploring school-level issues relating to single gender classes as an educational option for students; and
- Contributing to Departmental advice to the Minister for Education and Training on single gender classes as a potential future policy development.

This report of the evaluation of the Single Gender Classroom Trial begins with a background to the conduct of the initiative, an outline of recent research in the area of single gender classroom programs and their impact on student outcomes, and an outline of the methodology employed with this evaluation. It then presents a series of case studies of the schools' involvement in the Trial and concludes with a discussion of themes, identified as factors of significance, that emerged across schools from 2006 to 2008.

Background to the Single Gender Classroom Trial

In June 2005, the then Minister for Education and Training announced a proposal to trial single-gender classes in five Western Australian public secondary schools for a period of three years. The project was referred to as the Single Gender Classroom Trial.

Aims

The Trial had three general aims. These were to:

- Provide an evidence base to inform the Department in relation to the conditions that support improved student learning in single gender classes;
- Explore school-level issues relating to single gender classes as an educational option for students; and
- Contribute to Departmental advice to the Minister for Education and Training on single gender classes as a potential future policy development.

Participating Schools

Following the submission of expressions of interest, five schools were selected to participate in the Single Gender Classroom Trial which commenced in 2006 and concluded at the end of 2008.

The five schools selected were:

- Eastern Hills Senior High School;
- Hampton Senior High School;
- Mirrabooka Senior High School;
- Rockingham Senior High School; and
- Yule Brook College.

Resourcing

The task of coordinating the Trial was given to the Principal Consultant, Office of the Deputy Director General schools, who held overall responsibility for the management and coordination of the project, including the establishment of two groups of key stakeholders: The *Project Steering Committee* and the *Project Reference Group*. These groups were established to provide a forum for the discussion of initial and ongoing implementation issues and to ensure that schools were appropriately supported throughout the project. In addition, a project officer was appointed to the Evaluation and Accountability Directorate to assist with the evaluation and monitoring requirements of the project. The provision of professional development was managed by an officer at the Professional Learning Institute. Professional development was provided for two of the three years of the Trial.

Funding of \$100,000 was provided to each school in each year of the Trial to provide resources, human and non-human, to support the implementation of school-based single gender initiatives. A portion of the funding provided to schools was used to support the provision of a professional development program to teachers through the Professional Learning Institute. This program was designed to build the pedagogical capacity of teachers and support their participation in the Trial.

What Previous Research Indicates

Introduction

There is an abundance of research that investigates the benefits made available to students by the single-gender and coeducational schooling systems, but little research on single gender classes within a coeducational setting. There has been much debate surrounding which system is more effective in strengthening the outcomes, both academic and social, achieved by students. The purpose of this literature review is to give an overview of the main issues involved in the comparison of single-gender and coeducational education, and how these issues are represented in the literature. While single-gender and coeducational schooling has been a topic of research for several decades, the primary focus of this paper is upon the more recent sources available.

The literature reveals that there is a range of varied arguments in support of each system. Many discuss the benefits of coeducational schooling as a more accurate reflection of the 'real world' that students face once they graduate, where males and females mix in both work and social settings², yet there is also much in support of the unique learning environment of the single-gender classroom. This suggests that single-gender classes within coeducational schools may offer students 'the best of both worlds'.

The issues

Perhaps the most contentious of the key issues involved is the matter of academic achievement, since many researchers argue that any comparison of results between single-gender education and coeducation must take into account the influence of the students' background factors, particularly socioeconomic status (see, for instance, Thompson and Ungerleider 2004; Cresswell, Rowe and Withers 2002; Watterston 2001; Harker 2000; and Woodward, Fergusson and Horwood 1999).

Woodward, Fergusson and Horwood found compelling evidence in their 1999 study³ indicating that students enrolled in single-gender education achieve greater success across a range of academic measures, including senior secondary examinations, reading scores, retention, and employment. They claim that the potential exists for a fair amount of this success to be explained by differences in the students' academic, behavioural, social and family functioning. Notably, however, once these variables were controlled, it was *still* determined that both male and female children in single-gender education attained better academic outcomes than their coeducated peers.

OFSTED came to a similar conclusion after a large scale examination of test results in the United Kingdom⁴, asserting that the superior performance of students in single-gender schooling environments cannot be accounted for by socioeconomic factors, but appears instead to be a direct result of single-gender education itself (1998).

² See, for instance, Jackson and Smith 2000. This study combined a ten year investigation of two Australian secondary schools that had transformed from single-gender into coeducational over two years, and a two year exploration of an English coeducational secondary school that introduced single-gender classes.

³ This report is based on data obtained from a rigorous 18 year longitudinal study of a birth cohort of 657 New Zealand children.

⁴ OFSTED assessed results from 800 public schools of both types.

In comparison, a review by Thompson and Ungerleider of several studies summarised that “the majority... found no significant differences in academic achievement once prior achievement and socioeconomic factors were controlled” (2004: 11), and additionally, that the significance of socioeconomic factors in influencing achievement varied among differing cultural environments (Carpenter and Hayden, in Thompson and Ungerleider 2004). Harker also claims that no major disparities in outcomes occurred (2000)⁵.

For Watterston⁶, single-gender education significantly strengthened academic outcomes for girls (2001). More so than mixed-gender classes, single-gender settings have been found to “challenge girls’ traditional stereotypes and the gendered perceptions of certain subjects... [building] up girls’ confidence and self-esteem in non-traditional subjects” (Sukhnandan et al, in Warrington and Younger 2001: 341; see also Mael 1998).

In the case of male students, Watterston claims “it was difficult to determine whether... outcomes improved significantly above what would have normally been expected” (2001: para. 23). The success of boys in single-gender education has been the subject of some disagreement, and most of the debate revolves around the belief that coeducational classrooms better socialise boys by discouraging boisterous and antisocial behaviour (see, for example, Thompson and Ungerleider 2004; Yates 2004; and Jones and Thompson, in Mael 1998)⁷. Furthermore, Rowe (1988), and Parker and Rennie (1995) point out that for some boys a potentially threatening atmosphere exists in the single-gender classroom, meaning that they may be less willing to participate in learning activities, and reticent in group discussion. Boys themselves suggested that “more fights, more noise, and more cheating” occur in single-gender classes (Thompson and Ungerleider 2004). Alternatively, Watterston found in her study that “suspensions dropped from an exceedingly high 39 down to one in the first year of the trial... [and] discipline referrals improved exponentially” (2001: para. 23). Sukhnandan et al report that boys in single-gender classes “were less distracted and more willing to contribute during lessons and to take risks answering questions” (in Watterston 2001: para. 14). Similarly, single-gender environments “are seen as enabling teachers to motivate boys more effectively by focusing on approaches and issues which interest them more, and to establish classroom environments... more conducive to male learning [with] fewer distractions and sources of embarrassment” (Swan, in Warrington and Younger 2001: 342).

As the final report of the *Western Australian Single-Sex Education Pilot Project* discusses, a single-gender setting tends to impact positively on the attitudes of students (Parker and Rennie 1995), and it is well documented that improved student attitude and confidence are strongly linked to enhanced learning outcomes (Thompson and Ungerleider 2004; Warrington and Younger 2001; Parker and Rennie 1995; and Rowe 1988). Of interest is the finding in the final report of the *Western Australian Single-Sex Education Pilot Project* that the majority of students involved in this local trial favoured the single-gender environment above mixed-gender education (Parker and Rennie 1995).

⁵ Harker uses data from a longitudinal study of 37 schools in New Zealand, as well as the New Zealand Ministry of Education national database.

⁶ Watterston investigated three Western Australian public primary schools that implemented single-gender classes, interviewing teachers, parents and students.

⁷ However, Gorard et al argue that the data on boys’ underachievement can be easily misinterpreted depending on the method used to calculate the achievement gap between the sexes (in Thompson and Ungerleider 2004).

Rowe notes that many teachers reported improved working atmospheres in single-gender classrooms (1988), and other research also indicates that this environment allows each student, both male and female, to receive more individual teacher time (such as Warrington and Younger 2001; Parker and Rennie 1995). Perhaps this can be attributed in part to the fact that students usually seek assistance more often from classmates of the same sex (Spender, in Cresswell, Rowe and Withers 2002; and Nelson-Le Gall and DeCooke, in Rowe 1988) and are thus more cooperative in a single-gender learning environment.

A single-gender classroom may also provide both male and female students with the safe and supportive environment necessary for productive group discussion, since it is without the interruptive patterns of interaction that occur in coeducational situations (MCEETYA 1997). This certainly seems the case for girls in particular, who spoke of “less anxiety and more confidence” (Thompson and Ungerleider 2004: 13) when surrounded by peers of the same sex.

The learning environment in the classroom is strongly influenced by the skills of the teacher. The Parker and Rennie report found that “many teachers expanded their repertoire of teaching strategies as a result of participation in the [project]. The expanded repertoire involved, in most cases, what have become known as ‘gender-inclusive’ teaching strategies... [for instance,] teachers of all-boy classes developed strategies focused on more variety, structure and insistence on written and oral communication” (1995: 67). Above all, studies claim that the provision of high quality professional development is crucial to success when implementing single-gender education (such as Warrington and Younger 2001; Watterson 2001; and Parker and Rennie 1995).

More recent research (Wills 2007; Wills, Kilpatrick and Hutton 2006; Younger and Warrington 2006; Mulholland, Hansen and Kaminski 2004) reveals no conclusive evidence that single gender classes, alone, raise the achievement of students. Mulholland et al’s study is particularly significant because it was the study of a secondary school-based initiative in an Australian context that was designed to address the underachievement of Year 9 male students. Standardised tests administered to boys and girls before and after the conduct of the initiative indicated no significant achievements attributable to gender or class composition. While Gray and Wilson (2006) reported in their UK study of a single-gender program in a coeducational school that teachers believed boys’ academic performance and classroom behaviour deteriorated, this may be a reflection of ambivalence and a lack of commitment by teachers to teaching in a single-gender environment. Other authors (Will 2007; Wills, Kilpatrick and Hutton 2006; Younger and Warrington 2006) indicate that single gender classes, in some contexts, may have positive impacts upon students’ social and behavioural outcomes. In particular, some single-gender environments can positively influence the motivation and engagement of boys and girls, and can generate less vulnerability and a greater sense of inclusion than in some mixed gender classes (Younger and Warrington 2006).

Conclusion

This review of the relevant literature reveals a range of research into single gender classroom environments that is divided with respect to the positive impact that they have upon the learning outcomes of students. What is evident in the research is that single gender classrooms create an environment that may have some impact on students’ attitudes and behaviours that may have some subsequent impact upon their learning outcomes.

How the Evaluation was Conducted

A Case Study Approach

Because of the diverse nature of the single gender classroom initiatives implemented in each of the schools involved in the Trial, a case study approach to the evaluation was adopted. This approach enables the evaluation to examine the nature of single gender classroom approaches in a variety of contexts. In this evaluation, each of the five schools involved in the Trial is considered to be an individual case. The examination of the approaches taken by the schools in this Trial and the outcomes arising may or may not present similar themes. Importantly, the examination of case studies does not necessarily lead to the generalisability of findings. It does, though, provide insights about the implementation and outcomes of the Trial in different school contexts.

An Empowerment Evaluation Process

An empowerment evaluation process (Fetterman and Bowman 2002) was adopted to support the case study approach and to address the different monitoring and evaluation requirements of each school. Empowerment evaluation is a collaborative partnership that exists between the evaluator and the stakeholders, in which the stakeholders are not only involved in the evaluation process, but control it (Fetterman and Eiler 2001). Hence, the responsibilities for evaluation are shared and the process of evaluation is managed democratically through evaluators and stakeholders working together to finalise instruments and procedures. In this Trial, officers from Evaluation Branch met with staff from each school to determine a set of 'Agreed Measures' for each year of the Trial that were specific to each school. The 'Agreed Measures' outlined the range of data that was to be collected from each school during each year of the Trial. The empowerment evaluation process enabled the analysis of data to be supplied to each school during the period of the Trial as interim feedback. In doing so, this enabled schools to adjust their approaches, if necessary, and use the data for their own purposes.

Data Collection

A range of quantitative and qualitative data, specific to each school's program and outlined in the 'Agreed Measures' for each school, was collected and analysed in order to present a broad picture of the impact of the single gender program in each school. Collected data was designed to measure: students' academic, social and behavioural outcomes; and the perspectives of teachers, students and parents. Collected data was also designed to provide information about: approaches to teaching and learning utilised; organisation and structural alternatives employed; and professional learning strategies developed.

Quantitative data was collected through: MSE school release testing materials; WALNA and NAPLAN results; school-based assessments; Respecting and Valuing Others materials; Values Framework assessments; Behaviour Management in Schools (BMIS) records; and attendance information. The change from WALNA to NAPLAN assessments, in particular, part-way through the Trial posed a limitation regarding the extent to which those differing assessment results could be analysed and compared. Qualitative data was collected through: teacher interviews; de-identified information from teachers' journals; student surveys; and parent surveys.

Case Study Introduction

Each of the schools involved in the Single Gender Classroom Trial approached the implementation of the initiative in a different way, targeted different groups and sub-groups within the school, and used allocated financial resources in a different way. As such, each of the schools is considered to be a different 'case'.

The presentation of information outlined in the case study of each participating school is designed to address the three aims of the Trial:

- Provide an evidence base to inform the Department in relation to the conditions that support improved student learning in single gender classes;
- Explore school-level issues relating to single gender classes as an educational option for students; and
- Contribute to Departmental advice to the Minister for Education and Training on single gender classes as a potential future policy development.

The case studies that follow present information about each school in a similar format.

Each case study is presented in three parts:

- *Part 1* is the introduction and provides contextual information about the school, outlines the scope of student involvement in the Trial, and provides information about ways in which allocated funding was utilised.
- *Part 2* provides information about student outcomes from data collected between 2006 and 2008, the period of the school's participation in the Trial.
- *Part 3* provides qualitative information about significant factors that impacted on the success of the school's involvement in the Trial. In particular, the significant factors pertain to: conditions that supported student learning in single gender classrooms; and school-level issues relating to single gender classes as an educational option.

Case Study 1: Eastern Hills Senior High School

Part 1: Introduction

School Contextual background

Eastern Hills Senior High School is a secondary school with a staff of approximately 70 teachers and administrators and a student enrolment in Years 8 to 12 of just over 900. In recent years the student enrolment has been in excess of 1000. The school is a special interest music school and includes an Education Support Centre that caters for students with special needs. The school is located on the outer margin of the metropolitan area. It serves a large catchment area and most students live in small village communities or rural localities. The school operates a *lower school* program for Years 8 and 9 and a *senior school* program for Years 10, 11 and 12. This focuses on providing a structured transition from the lower school towards further education or employment through TEE, VET or common assessment framework (CAF) courses.

Scope of Single Gender Class Involvement

Prior to the commencement of the Trial, teachers were selected and classes were identified from the timetable grid, before any student placement into classes was made. Letters were sent to parents of all students informing them of the Trial and asking them to inform staff at the school if they had an objection to their children being placed in a single gender class. Staff at the school also held transition meetings with parents of Year 7 students conveying a similar message regarding the Single Gender Classroom Trial. There was strong interest from students to be involved in a single gender class and parents were keen and supportive of the initiative.

The school's involvement in the Trial occurred in the English learning area only, in Years 8, 9 and 10.

In **2006**, involvement of classes was as follows:

Year 8 – one all boys, one all girls, and four mixed gender classes.

Year 9 – one all boys, one all girls, and six mixed gender classes.

Year 10 – one all boys, one all girls, and four mixed gender classes.

In each year group, two of the mixed gender classes were academic extension classes.

In **2007**, involvement of classes was as follows:

Year 8 – one all girls, one all boys, and six mixed gender classes.

Year 9 – one all girls, one all boys, and four mixed gender classes.

Year 10 – one all girls, one all boys, and four mixed gender classes.

In each year group, two of the mixed gender classes were academic extension classes.

In **2008**, involvement of classes was as follows:

Year 8 – one all girls, one all boys, and six mixed gender classes.

Year 9 – one all girls, one all boys, and six mixed gender classes.

In each year group, two of the mixed gender classes were academic extension classes.

Teachers of single gender classes identified a number of key issues that they aimed to address during their involvement. These included:

- To explore different applications of the guiding principles provided in the Curriculum Framework;
- To investigate diverse teaching resources and methods applicable to boys only and girls only classes;
- To identify and introduce broader course content through classroom programs to suit the individual needs of single sex groups; and
- To address issues of student behaviour and attitudes towards learning in boys only and girls only classes.

Resourcing

A large proportion of the funds allocated to the school was spent on equipment and resources to broaden the availability of high-interest reading materials and technology for use in classrooms by boys and girls.

Part 2: Student Outcomes

Data Collection

A range of data was collected and analysed over three years to measure student outcomes. Data included: MSE results; Values Framework results; WALNA and NAPLAN results; attendance information; BMIS (Behaviour Management in Schools) information; teacher information through Action Learning Frameworks; Student Surveys; Parent Surveys; and in-depth teacher interview information. Some data sources were more meaningful to this evaluation than others.

Academic Outcomes

Academic outcome analysis was primarily based on MSE reading and writing data. The figures below depict the only areas in which statistical differences between single gender and mixed gender classes were evident.

In 2006 the only group to show statistically different variances was Year 10 girls in reading and writing. Figure 1 below shows that in both reading and writing, girls in the single gender classes performed at a higher level than the girls in the mixed gender classes on the MSE reading assessment task for level 5 and above and level 6 and above and on the MSE writing task for level 3 and above and level 4 and above. The arrows in Figure 1 indicate a statistically significant difference at the 95% confidence interval.

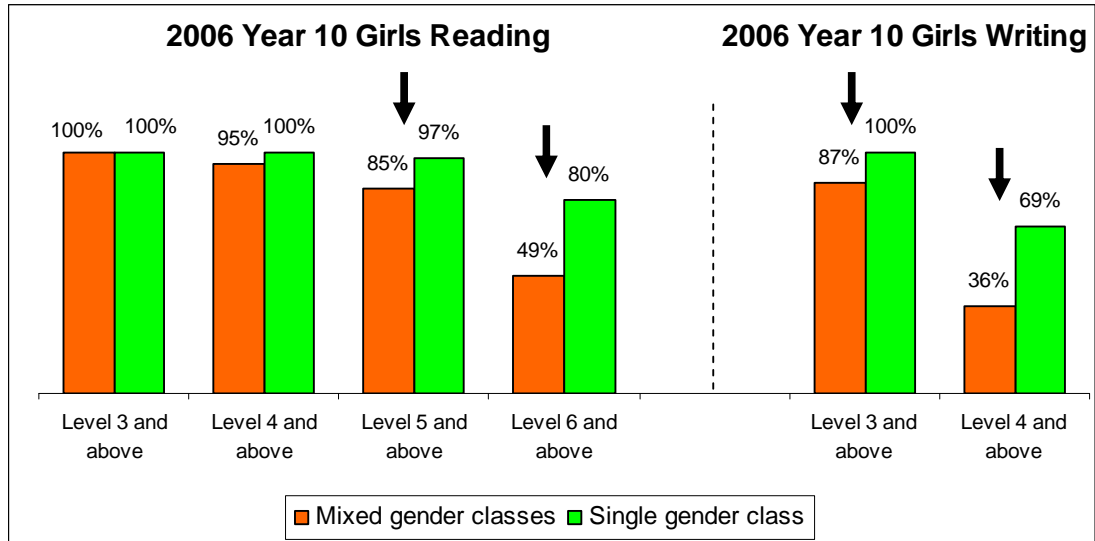


Figure 1: Eastern Hills 2006 MSE Girls Reading and Writing

In 2007, there were no statistically significant differences according to class type.

In 2008 the only group to show statistically different variances was Year 8 boys in reading and writing. Figure 2 below shows that in both reading and writing, boys in the mixed gender classes performed at a higher level than the boys in the single gender classes on the MSE reading and writing assessment tasks for levels 5 and

above only. The arrows in Figure 2 indicate a statistically significant difference at the 95% confidence interval.

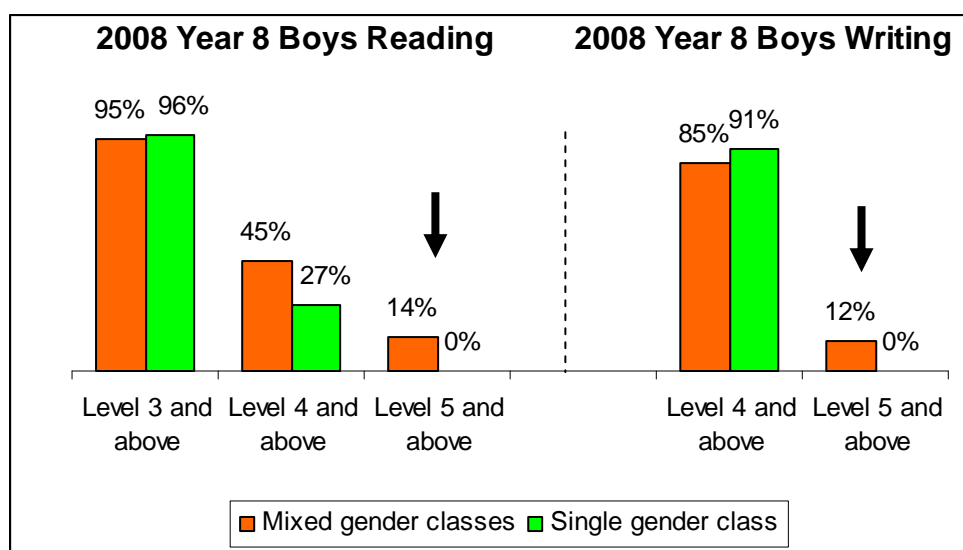


Figure 2: Eastern Hills 2008 MSE Boys Reading and Writing

In summary, the results from 2006 to 2008 in MSE reading and writing do not show any consistent trend.

This finding supports the perspectives of teachers regarding students' academic outcomes. While teachers observed that there was an improvement in the outcomes of students in single gender classes during the period of the Trial, it was not greater than the improvement shown by students in mixed gender classes. Teachers also noted that when students did demonstrate high achievement, they were moved into the academic extension class.

Behavioural Outcomes

Interview data at the conclusion of the Trial indicated that teachers held the perspective that student behaviour had generally improved within single gender classrooms. Teachers believed that students had responded well in the classroom and that behaviour in single gender English classes was generally better than student behaviour in classes in other learning areas.

Social Outcomes

Year 8 students were surveyed in 2006 and 2007 and Year 9 students were surveyed in 2007 and 2008 by Best Performance Pty Ltd about their knowledge, beliefs and behaviours in relation to the 32 single values that comprise the 5 core clusters of the Values Framework. While the sample sizes were too small to enable any statistically significant variances to be identified, some patterns were evident from an analysis of the data. In 2006, no consistent pattern in the performance of Year 8 boys or girls was evident. In 2007, girls in mixed gender classes in both Year 8 and Year 9 appeared to perform consistently higher on the survey than girls in

single gender classes. Year 8 boys in mixed gender classes tended to perform higher than boys in single gender classes, and no consistent pattern was evident in the performance of Year 9 boys. In 2008, Year 9 girls in mixed gender classes performed consistently higher than girls in single gender classes, while boys in single gender classes performed consistently higher than boys in mixed gender classes.

Teacher interview data at the conclusion of the Trial indicated a perception that social outcomes had improved for some sub-groups. For example, social connections were made in some classes to be more inclusive of boys on the outer of social groups.

Student Information

In 2006, 246 of 622 students (representing 40%) from Years 8, 9 and 10 completed a Student Survey. 22% of the population was in single gender classes, and 18% was in mixed gender classes. This Survey was not repeated during the period of the Trial. However, a pre-Trial survey in 2005 of 421 students provided some baseline data to enable comparisons to be made⁸ with students' perspectives in 2006. The observations shown in Table 1 are illustrative of students' perspectives about two classroom issues.

Question	Observation
<i>I enjoy being in a single gender/mixed gender class.</i>	There was no change to the total agreement ⁹ with this statement by students from 2005 to 2006, however there was a significant difference in students' agreement with this statement by class type. Agreement with this statement was given by 87% of students in mixed gender classes compared to only 50% of students in single gender classes.
<i>I feel safe and secure in a single gender/mixed gender class.</i>	There was an increase in students' overall total agreement with this statement from 2005 to 2006, however the increase was only evident in the students of the mixed gender classes. Agreement with this statement was given by 82% of students in mixed gender classes compared to 76% of students in single gender classes.

Table 1: Eastern Hills student survey responses

Parent Information

A parent survey was conducted in 2006, but not repeated during the period of the Trial.

In 2006, 45 of 162 parents (27%) with children in single gender classes in Years 8, 9 and 10 completed a Parent Survey. Of those 45 parents, 20 were parents of girls and 25 were parents of boys. Due to the low survey response rate, no conclusions can be drawn from the data.

⁸ The questions on the two surveys were similar although the 2005 Survey questions sought students' perspectives about their *school* while the 2006 Survey sought students' perspectives about their *class*. It is generally inadvisable to compare responses to questions that are not identical in wording.

⁹ 'Total agreement' was derived from the sum of the 'agree' and 'strongly agree' responses by students to the given statement.

Summary

- There was no consistent trend in students' academic outcomes.
- A greater proportion of students in mixed gender classes indicated that they enjoyed being in those classes than did students in single gender classes.

Part 3: Significant Factors

During the Trial, teachers provided significant qualitative data related to the aims of the project. Data were collected from Action Learning Frameworks maintained by teachers as part of the professional development provided by the Professional Learning Institute as well as through interviews that were conducted by Evaluation Branch at the conclusion.

Teacher data revealed two factors that were significant during the implementation of the single gender program at Eastern Hills. One of those factors supported the success of the program and was considered to be an *enhancer* while the other factor limited the success of the program and was considered to be an *inhibitor*. In the presentation of these factors below, the voices of teachers can be heard through the inclusion of pertinent quotes, displayed in italics, that exemplify the points raised.

Program Enhancers

Teachers

Staff identified the quality of the teacher as being the key factor that ensured the success of teaching students in single gender classrooms.

“The personality and quality of the teacher is most important.”

Teacher commitment to being involved in the Trial was deemed to be important, initially as well as during the three-year period of the Trial. One teacher, totally committed to being involved indicated that *“it was very tough in the first year”*. Another teacher indicated that her *“confidence in teaching single gender classes seems to be all over the place. Some lessons seem to go well, while others are a grind.”*

Teaching boys in a single class and girls in a single class necessitated teachers tailoring their teaching and learning strategies as well as tailoring their classroom management strategies to meet the needs of various groups. They undertook thorough planning with each gender in mind and tried a range of different teaching styles and activities. Especially with the boys only classes, teachers identified that they needed to be exceptionally organised and they found that highly-structured lessons were beneficial. The aspect of structure included things such as: planning a 60-minute period to include three activities; ‘chunking’ which involved the planning of distinct sections of structured work in lessons; keeping all class materials in student folders which remained in the classroom; and using negotiated learning with scaffolding.

“At the beginning of the boys’ lessons I give students a brief overview of the lesson and outline the purpose of the series of activities, linking them with previous learning experiences. I am very specific and whiteboard the 2-3 activities for the lesson. Students are encouraged to look at the board to remind them of the tasks. I stop the class after each chunk and we share questions and responses linking into the next phase of the lesson.”

With boys only classes and girls only classes, teachers indicated that choosing gender-specific subject matter to suit the interests of the classes was a useful strategy and the choice of reading and viewing material was specifically designed to

engage the interest of boys and girls and included materials such as comics and magazines.

With girls only classes, teachers employed some other strategies. These included: programmed themes of interest to girls; a negotiated curriculum; and open-ended lessons that encouraged discussion, idea development and cooperation.

Teachers adjusted their classroom management strategies in single gender classes by implementing rewards which were tailored to meet the needs of each group of students.

“I rewarded those that did well instead of punishing those that did the wrong thing.”

One teacher used games, sporting equipment, and outdoor activities as rewards in her Year 8 class. In her Year 9 class the rewards she offered included: time reading boys’ magazines on beanbags in the reading corner; computer time; and an incursion. Teachers also allowed ‘talk time’ in class as part of their classroom management strategy.

“If the class as a whole is working ‘on task’ I will allow some chatter. Relief teachers are not aware of this and, quite reasonably, will not allow it. This causes problems with the boys who feel restricted in a quiet environment.”

Some teachers used humour as a strategy, but they were mindful that any use of humour within the classroom needed to be respectful. They felt that ensuring the classroom was a safe and respectful environment was important to working with single gender classes.

“I make the classroom a very safe environment. There are no put-downs. Students are to show respect and be able to answer questions.”

At times, teachers modified their assessment strategies in single gender classes. This included the use of frequent, small assessment tasks with regular feedback as a lead up to the larger assessment task in boys only and girls only classes. Teachers also used more anecdotal information and assessed more frequently. In boys only classes, teachers found that allowing time for the completion of assessment tasks in class improved the completion and hand-in rate of student work.

Program Inhibitors

Lack of Whole-school Involvement

Teachers identified that the limitation of school involvement in the Trial to the English learning area may have had some impact upon the implementation and success of the initiative.

“We only did one subject. The results may have been different if we had single gender for more subjects. We couldn’t truly simulate a single gender education [here].”

As the Trial was only implemented in the English learning area, teachers were limited in their access to a professional support network.

“There was not a complete support network. We need role models.”

In addition to this, teachers identified that a lack of continuity in attending the professional development facilitated by the Professional Learning Institute inhibited their pedagogical growth and impacted upon the implementation of programs at a school level.

“There was no continuity of staff on the Professional Development Program. There was a different focus every time. It would have been more valuable with a continuity of staff attending the PD each and every time.”

The staff involved in the Trial recognised that because of its limited implementation within the school, *“other teachers may not support some of the strategies.”*

Sustainability of the Program

Single gender classes may be considered by the school in the future for some groups in some subject areas, such as Physical Education or Health Education, however it is not likely to be a mainstay within the school. If it is considered in the future, it is likely to be a consideration for classes in Years 8 and 9 only.

Conclusion

At the conclusion of the single gender classroom program at Eastern Hills Senior High School, there appears to be no conclusive evidence to indicate that participation in single gender classrooms had any significant impact on improving student outcomes. The perspective of teachers was that there may have been some benefits for some sub-groups, but very limited. It is questionable whether these perceived benefits can be sustained or transferred to other contexts.

The key factor impacting upon the successful implementation of strategies to support student learning in single gender classrooms at Eastern Hills Senior High School was identified as the teacher and the teacher’s pedagogical approach. Overall, teachers believed that no real benefits to students in the single gender classes were discernible and that to have any impact the school would need to operate with more single gender classes across other learning areas.

Case Study 2: Hampton Senior High School

Part 1: Introduction

Contextual background

Hampton Senior High School is a secondary school with a staff of approximately 60 teachers and administrators and a student enrolment in Years 8 to 12 of over 800. Approximately 10% of the student population is from non-English speaking backgrounds. The school is a Gifted and Talented Dance school and offers VET and TEE programs in Years 11 and 12. Although the buildings are 40 years old, the school has made information technology a priority in addition to a focus upon continual school facility upgrades.

Scope of Single Gender Class Involvement

The school's involvement in the Trial occurred in the subject areas of Information and Communication Technologies (ICT) and Dance.

a. ICT

The school's ICT participation coincided with Edith Cowan University's research project examining the low numbers of girls pursuing careers in ICT and chose to involve the entire Year 8 cohort only.

In **2006**, involvement of classes was as follows:

Year 8 – Two all boys, two all girls, and five mixed gender classes (one of which was a specialist class).

In **2007**, involvement of classes was as follows:

Year 8 – three all boys, three all girls, and two mixed gender classes (one of which was a specialist class).

In **2008**, involvement of classes was as follows:

Year 8 – three all boys, three all girls, and two mixed gender classes (one of which was a specialist class).

In ICT, teachers aimed to increase the participation of girls, especially, and to promote opportunity, motivation, interest and challenge for all students.

b. Dance

Since 2002, teachers in the Arts faculty have been examining the deconstruction of gender and gender stereotypes within the Arts curriculum and in the classroom. In 2003, a dance course was developed specifically for boys at the school. Teachers participating in the Trial aimed to create a performing arts program that targeted the participation levels of boys at Hampton and within the Swan Education District.

From **2006 to 2008**, Year 6 and 7 PEAC boys' classes operated each year with mixed gender classes operating from Years 8 to 12. In addition, boys from Years 9 to 12 dance classes were often withdrawn and taught as a separate group by male tutors.

Resourcing

Funds allocated to the school were spent on equipment and resources in both ICT and Dance. In ICT, funds were spent employing a team teacher. In Dance, funds were spent on employing male tutors, establishing a PEAC program, and on equipment.

Part 2: Student Outcomes

Data Collection

A range of data was collected and analysed over three years to measure student outcomes. Data included: ICT Learning Strand school assessments; school survey data; Dance school assessments; attendance information; BMIS (Behaviour Management in Schools) information; teacher information through Action Learning Frameworks; Student Surveys; Parent Surveys; and in-depth teacher interview information. Some data sources were more meaningful to this evaluation than others.

Student outcomes for ICT and Dance will be presented separately.

a. ICT

Academic Outcomes

Academic outcome data for ICT was derived from the analysis of school semester assessments of student achievement. In 2007, boys in single gender classes performed better than boys in mixed gender classes in Semester 1, but not in Semester 2. Girls in single gender classes performed better than girls in mixed gender classes in Semester 1 and Semester 2.

In 2008, boys in mixed gender classes performed better than boys in single gender classes in Semester 1 and Semester 2. Girls in mixed gender classes performed better than girls in single gender classes in Semester 1, with the performance of both groups of girls being the same in Semester 2.

In summary, the results do not show any consistent trend.

Behavioural Outcomes

Teachers' perspectives were that some sub-groups of boys, without the distraction of girls, reacted in anti-social ways to divert attention away from their own learning difficulties. Teachers have noticed that some low-ability girls behave in the same way. Having noticed these behaviours, teachers are now more mindful of addressing them.

Student Information

In 2006, 134 students (representing 72%) from Year 8 completed a Student Survey. Of that group, 68 (51%) were in single gender classes and 66 (49%) were in mixed gender classes. In 2007, 149 students (representing 77%) from Year 8 completed the same survey. Of that group, 97 (65%) were in single gender classes and 52 (35%) were in mixed gender classes. The Survey was not repeated in 2008, however a pre-Trial survey in 2005 of 341 students provided some baseline data to enable comparisons to be made¹⁰ with students' perspectives in 2006 and 2007. The

¹⁰ The questions on the surveys were similar although the 2005 Survey questions sought students' perspectives about their *school* while the 2006 and 2007 Surveys sought students' perspectives about

observations shown in table 2 are illustrative of students' perspectives about two classroom issues.

Question	Observation
<i>I enjoy being in a single gender/mixed gender class.</i>	Compared to the baseline data, there was a decline in the total agreement ¹¹ with this statement by students in single gender classes from 62% in 2005 to 42% in 2006 and to 48% in 2007. A decline in agreement with this statement was also evident among students in mixed gender classes from 2005 to 2006, but this trend was reversed in 2007.
<i>I feel safe and secure in a single gender/mixed gender class.</i>	From 2005 to 2006, there was a significant increase (from 65% to 77%) in students' total agreement with this statement, being due to an increase in agreement levels by students in mixed gender classes. From 2006 to 2007, though, there was a significant decrease in students' total agreement with this statement, back to similar levels evident in 2005.

Table 2: Hampton student survey responses

Parent Information

In 2008, Parent Surveys from 7 of 130 parents of children in single gender classes (representing 5%) and from 12 of 63 parents of children in mixed gender classes (representing 19%) were completed. Due to the very small sample size of completed surveys, no conclusions can be drawn from the data.

their *class*. It is generally inadvisable to compare responses to questions that are not identical in wording.

¹¹ 'Total agreement' was derived from the sum of the 'agree' and 'strongly agree' responses by students to the given statement.

b. Dance

Participation Outcomes

Over the period of the Trial, enrolments in significant areas increased. PEAC enrolments increased by 64% as shown in Figure 3 below.

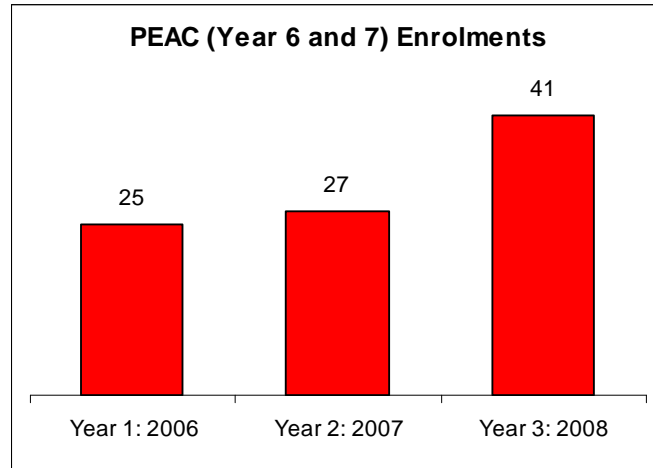


Figure 3: Hampton PEAC dance enrolments from 2006 to 2008

Upper school enrolments increased from zero to 5 students, which is significant. While enrolments declined in Years 9 and 10, overall enrolments of boys from Year 6 to Year 12 in Dance classes increased between 2006 and 2008 by 18.6%. The overall increase in enrolments is shown in Figure 4 below.

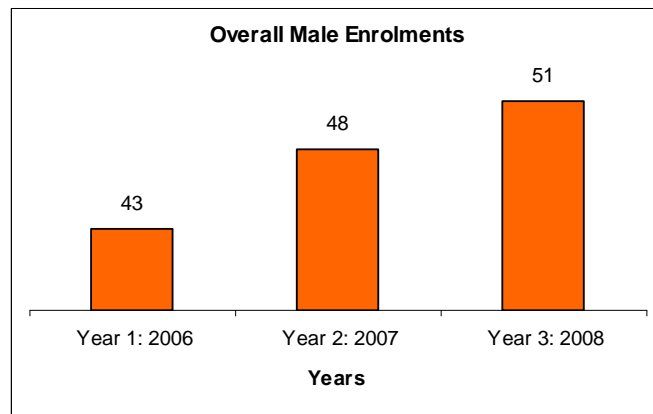
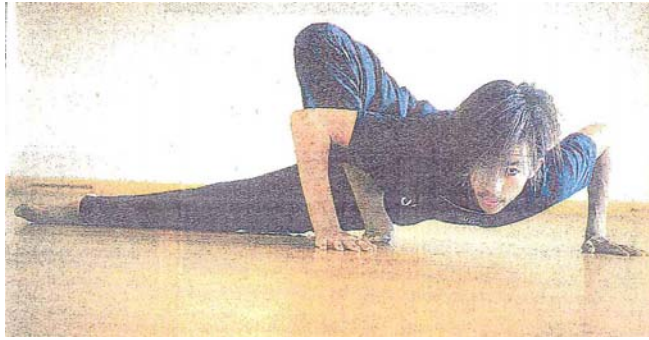


Figure 4: Hampton overall male dance enrolments from 2006 to 2008

“Did we achieve a major target in creating a performing arts program that targeted participation levels at Hampton and within the Swan region? Yes, we did.”

“To be able to demonstrate an extensive cultural change in a 3-year period, in retrospect, is an impossibility. A worthwhile opportunity? Absolutely.”



“How do you quantify the value of a Year 11 boy who has been part of the single gender project for 3 years who auditioned for WAAPA, Australia-wide, and received his letter of acceptance last week?” [November 2008]

Academic outcomes

“What value do you place on a program that teaches boys to be good men? What value do you place on a young man that was so hell bent on leaving school that he said, ‘Miss, if it wasn’t for Dance, I would have [left] months ago?’ He is the first boy in four generations [of his family] that has graduated. He wouldn’t have done that without a safe place.”

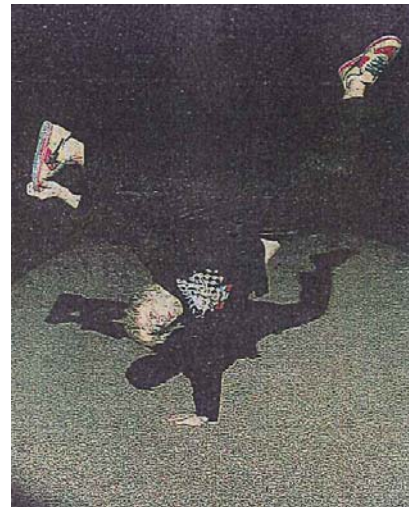


Figure 5: Hampton academic dance outcomes

Summary

- There was no consistent trend in students' ICT outcomes.
- Male enrolments in PEAC (Year 6 and 7) Dance classes increased.
- Male enrolments in Years 6 to 12 Dance classes increased.

Part 3: Significant Factors

During the Trial, teachers provided significant qualitative data related to the aims of the project. Data were collected from Action Learning Frameworks maintained by teachers as part of the professional development provided by the Professional Learning Institute as well as through interviews that were conducted by Evaluation Branch at the conclusion. Because the implementation of single gender classes proceeded separately and differently in the areas of ICT and Dance, the discussion that follows will be presented in two parts. The first section of the discussion will pertain only to ICT and the second section will pertain only to Dance.

a. ICT

Teacher data revealed two factors that were significant during the implementation of the single gender program in ICT at Hampton. Those factors supported the success of the program and were considered to be *enhancers*. In the presentation of these factors below, the voices of teachers can be heard through the inclusion of pertinent quotes, displayed in italics, that exemplify the points raised.

Program Enhancers

Teachers

Staff identified the quality of the teacher as the most important element impacting upon the successful implementation of single gender classroom initiatives.

“The teacher is the most important ingredient. Teachers must be able to meet challenges regardless of gender or mix.”

To meet the needs of groups of boys, groups of girls, and sub-groups within groups of boys and girls, teachers tailored their teaching strategies accordingly. Teachers perceived that boys and girls have different learning styles in ICT and they changed their teaching strategies accordingly. From the beginning of the Trial, ICT teachers used a variety of strategies and activities in their classrooms and observed varying degrees of success. Some of the effective strategies used included: Stepping Out literacy strategies; peer tutoring; and demonstrating new processes using a digital projector. Some strategies which were ineffective included: allowing students to choose their own desk in the classroom; and providing written instructions to students with poor literacy or low attention spans.

With boys’ classes, teachers found that some strategies worked effectively, such as: having highly structured lessons; using routines; simplifying instructions; and using more demonstration rather than teacher talk.

“I couldn’t talk for long. I needed to chunk information and only cover one skill at a time for boys. Some of their literacy is very poor. Boys need show-and-tell. With structured tasks, boys were able to undertake tasks without difficulty. I could then keep back those who needed help.”

With girls only classes, teachers identified that strategies that were effective with boys were also effective with girls. However, other strategies also worked effectively in girls’ classes, such as: ‘customising the curriculum’ by introducing gender-related contexts to lessons; and using less structured lessons at various times.

“Girls could have more information and process it through from start to finish.”

The single gender classes within the school highlighted the skills of some teachers in being able to transfer strategies to other contexts. Teachers transferred knowledge from previous teaching situations to their single gender classrooms as well as transferring knowledge from teaching in single gender classes to their other classes at Hampton.

“I was able with the boys to apply strategies that I knew worked from experience in my Physical Education background.”

“I am able now to transfer knowledge and strategies to other classes, including mixed gender classes and Year 11s.”

One teacher summed up his experience of teaching in single gender and mixed gender classes by noting that,

“I didn’t think there would be much difference at the beginning but it is evident that different ways of teaching work. Different strategies work better for girls and boys, but teaching is still teaching.”

Funding and Resources

Hampton’s involvement in the Trial provided staff with access to professional development and a range of resources through funding that was provided.

Some teachers indicated that the professional development facilitated by the Professional Learning Institute was helpful and saw the benefits of implementing various strategies presented during the workshops.

“Having funding provided access to professional development. Single gender PD highlighted strategies that could be used. Some are better with boys than with girls.”

Funding provided human and non-human resources that enhanced the implementation of the initiative within the school.

“Having funding gave us an extra teacher to help in team teaching and it enabled after school meetings through project payments. Funds were also used for hardware for students to use, thereby accessing new technology.”

b. Dance

Teacher data revealed three factors that were significant during the implementation of the single gender program in Dance at Hampton. Two of those factors supported the success of the program and were considered to be *enhancers* while the other factor limited the success of the program and was considered to be an *inhibitor*.

Program Enhancers

Teachers

In this school, the importance of the teacher in the area of Dance was highlighted. Teachers believed that utilising male role models as leaders in the classroom was important in boys' dance classes. Male tutors were employed by the school to teach boys' classes and conduct workshops for students. The perspective of teachers was that it was important to instil in students a respect for men who dance professionally, who are wage earners through working in the area of Dance, and who have similar backgrounds to the students themselves.

Funding and Resources

Funding provided human and non-human resources that helped to promote programs within the school and worked towards future sustainability of programs.

“Resources are needed to allow schools to implement specialised programs for boys and girls. This [funding from involvement in the Trial] has given us more specialist teachers and role models. Funds were [also] spent on resources for students, including filming of choreography.”

Program Inhibitors

Lack of Whole-School Involvement

Teachers identified the lack of whole-school implementation of the single gender initiative as being an inhibitor of its success.

“The biggest failure has been because it was not a whole of school effort. Gender needs to be deconstructed and the need was ignored elsewhere. A single gender approach was not fostered throughout the school.”

Sustainability of the Program

In ICT, the school intends to continue timetabling single gender classes for Year 8 students. In Dance, the school intends to continue with single gender classes. PEAC programs established through the Trial will continue through self-funding.

Conclusion

At the conclusion of the single gender ICT classroom program at Hampton Senior High School, there appears to be no conclusive evidence to indicate that participation in single gender classrooms had any significant impact on improving student outcomes. With regard to the Dance program at Hampton, there is evidence indicating that enrolments of boys increased and hence their access to Dance programs increased.

In ICT, the key factor impacting upon the successful implementation of strategies to address the education of students in single gender classrooms was identified as the

teacher and the teacher's ability to tailor his/her pedagogical approach to the group of students in the classroom. Similarly, in Dance the teacher, in the form of male tutors, also had an impact upon the increased participation of boys in school-based programs.

Case Study 3: Mirrabooka Senior High School

Part 1: Introduction

Contextual background

Mirrabooka Senior High School is a multi-cultural secondary school with a staff of approximately 50 teachers and administrators and a student enrolment in Years 8 to 12 of just over 600. Students represent over 55 different cultures and the school caters for recently arrived refugee families from Arab and African nations. The school also offers a range of specialist courses to cater for the diversity of the student population. The school is a computing specialist school and has had significant technology upgrades in recent years. In Years 11 and 12, the school offers comprehensive VET and TEE programs. The school has a commitment to quality and excellence, as well as diversity in meeting the needs of all students.

Scope of Single Gender Class Involvement

Single gender classes for Physical Education in Years 8 and 9 had been in operation at Mirrabooka prior to its inclusion in the Trial. The school's involvement in the Trial began in 2006 with classes in the learning areas of Science and Society and Environment for Years 8 and 9 and later expanded to include the English and Mathematics learning areas.

In **2006** (beginning Term 3), involvement of classes was as follows:

In Science and Society and Environment

Year 8 – two all boys, one all girls, and one mixed gender academic extension class.

Year 9 – one all boys, one all girls, and one mixed gender academic extension class.

In **2007**, involvement of classes was as follows:

In English, Mathematics, Science, and Society and Environment

Year 8 – two all boys, two all girls, and one mixed gender academic extension class.

In Mathematics, Science, and Society and Environment

Year 9 – two all boys, one all girls, and two mixed classes

In **2008**, involvement of classes was as follows:

In English, Mathematics, Science, and Society and Environment

Year 8 – two all boys, one all girls, and two mixed gender classes

In English, Mathematics, Science, and Society and Environment

Year 9 – two all boys, two all girls, and one mixed gender class

Resourcing

Funds allocated to the school were used to: provide professional development for staff; operate single gender transition camps for students; and purchase resources, especially literacy materials for the learning areas of Science and Society and Environment.

Part 2: Student Outcomes

Data Collection

A range of data was collected and analysed over three years to measure student outcomes. Data included: MSE results; School-based SIS Assessment Manager longitudinal data; attendance information; Respecting and Valuing Others results; BMIS (Behaviour Management in Schools) information; teacher information through Action Learning Frameworks; Student Surveys; Parent Surveys; and in-depth teacher interview information. Some data sources were more meaningful to this evaluation than others.

Academic Outcomes

Academic outcome analysis was primarily based on MSE data. MSE testing was conducted in 2006 and 2007 in the learning areas of Science and Society and Environment, in 2007 in English, and in 2007 and 2008 in Mathematics to reflect the roll-out of learning areas involved in the Trial.

Science MSE testing of Year 8 students in 2006 and 2007 in the life and living strand, energy and change strand, and investigating scientifically strand revealed consistent patterns about the performance of boys and girls. In each strand, in both years, girls in mixed gender classes outperformed girls in single gender classes, and boys in mixed gender classes outperformed boys in single gender classes. Significant differences were noted in each strand for both boys and girls. The following figures show boys' and girls' performance over two years in the investigating scientifically strand. Figure 6 shows that statistically significant variances occurred in 2006 at level 4 and above and in 2007 at level 5 and above and level 6 and above for boys. Figure 7 shows that statistically significant variances occurred for girls in 2006 at level 4 and above and level 5 and above and in 2007 for level 5 and above. The arrows in Figure 6 and Figure 7 indicate a statistically significant difference at the 95% confidence level.

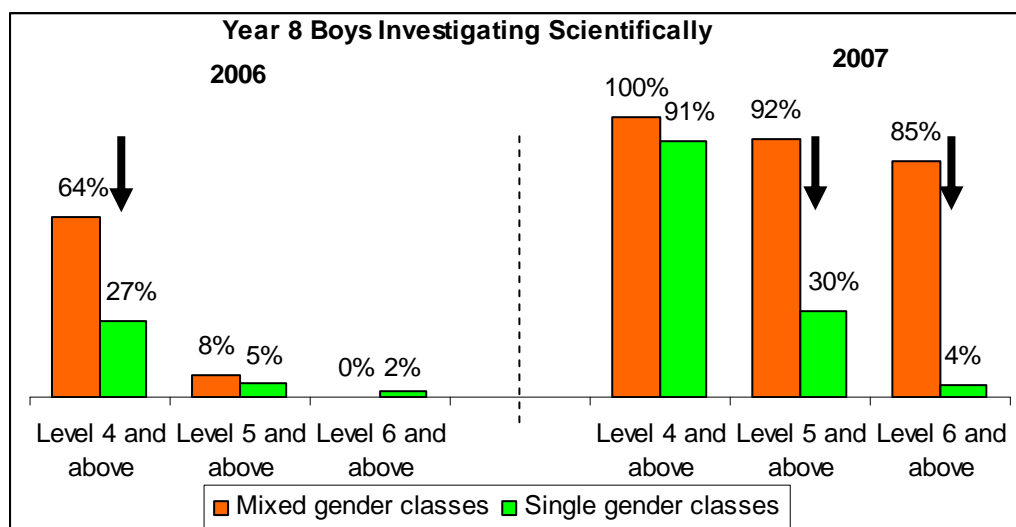


Figure 6: Mirrabooka Year 8 Boys MSE Investigating Scientifically 2006 and 2007

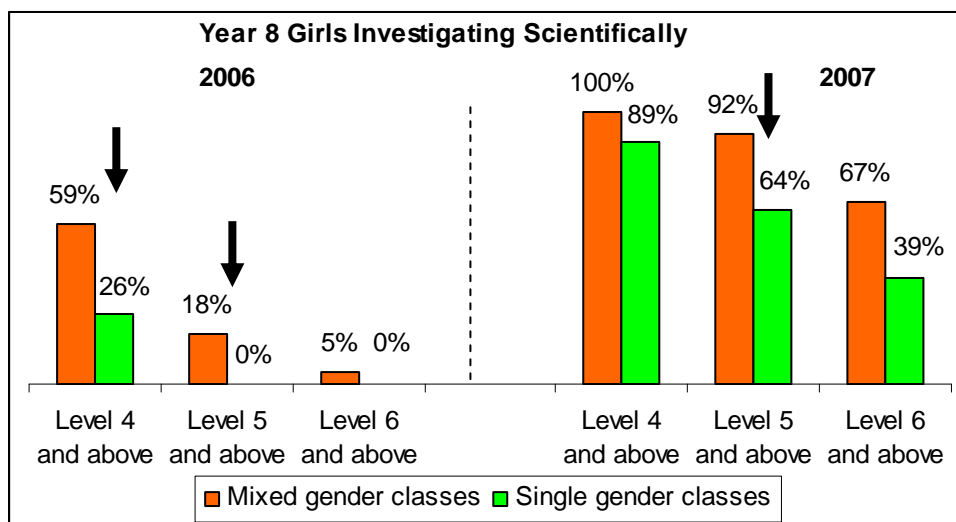


Figure 7: Mirrabooka Year 8 Girls MSE Investigating Scientifically 2006 and 2007

Society and Environment MSE testing of Year 8 students in 2006 and 2007 in the resources strand, place and space strand, and investigation, communication and participation strand revealed a consistent pattern for girls but not totally for boys. In each strand, in both years, girls in mixed gender classes outperformed girls in single gender classes showing statistically significant differences at various levels of student achievement. In 2006, boys in mixed gender classes performed better than boys in single gender classes in two of the three strands, while in 2007, boys in mixed gender classes performed better in all three strands than boys in single gender classes.

English MSE testing of Year 8 students in 2007 revealed consistent patterns for boys and girls. Reading results revealed that boys and girls in mixed gender classes performed better than boys and girls in single gender classes, showing statistically significant differences at level 3 and above, level 4 and above, and level 5 and above. English writing results showed that girls in mixed gender classes performed better than girls in single gender classes at level 4 and above, while boys in mixed gender classes performed better than boys in single gender classes at level 3 and above.

Mathematics MSE testing of Year 8 students in the number strand in 2007 and 2008 showed a consistent pattern for boys but not for girls. In 2007, both boys and girls in mixed gender classes performed better than boys and girls in single gender classes at level 3 and above, level 4 and above, and level 5 and above. In 2008, boys in mixed gender classes performed better than boys in single gender classes at level 4 and above only, but no statistically significant differences were evident in girls' results.

In addition to MSE testing, the school conducted its own analysis of student outcomes over three years through the School Information System (SIS) Assessment Manager program. In analysing school-based data, teachers concluded that student achievement is related more to the learning area, the teacher and his/her pedagogy, the teaching and learning activities occurring in the classroom, the assessment program, and the motivational and engagement environment in which the student works, than to the single gender environment.

Behavioural Outcomes

The perspectives of teachers were that there were improvements in behaviour with some students but not for all and that the mix of student personalities in classes often had an impact on class dynamics and associated behaviour issues. In some single gender classes, teachers reported better student behaviour in the classroom and little or no behaviour problems. In other single gender classes, teachers reported inappropriate behaviour amongst students in some of the girls only classes, poor behaviour in general by some students with low ability, and some elements of bullying of female students new to the school. Teachers also perceived that single gender classes had an impact on the engagement and participation of some students, but not for all. In some boys only and girls only classes, students had greater confidence, were more responsive and less inhibited in their contributions to classroom discussion. However, in other classes elements of conflict were present due to the mix of students.

Social Outcomes

A sample of 110, 125 and 70 students in 2006, 2007 and 2008, respectively, completed the Respecting and Valuing Others assessment, an instrument designed to assess students' social and moral reasoning and the development of values inherent in the Curriculum Framework. In addition, a pre-Trial survey in 2005 of 99 students provided some baseline data to enable comparisons to be made. Significant variances were noted between boys' performance and girls' performance in each year of the Trial. Both the boys and girls in the mixed gender classes performed better than the boys and girls in the single gender classes and, generally, girls performed better on the assessment in each year than boys.

Student Information

In 2006, 199 students from Years 8 and 9 completed a Student Survey. 56% of the students that completed surveys were in single gender classes, and 44% were in mixed gender classes. This Survey was not repeated during the period of the Trial. However, a pre-Trial survey in 2005 of 128 students provided some baseline data to enable some comparisons to be made¹² with students' perspectives in 2006. The observations shown in table 3 are illustrative of students' perspectives about two classroom issues.

¹² The questions on the two surveys were similar although the 2005 Survey questions sought students' perspectives about their *school* while the 2006 Survey sought students' perspectives about their *class*. Due to the nature of survey comparison, no conclusions can be drawn from the data.

Question	Observation
<i>I enjoy being in a single gender/mixed gender class.</i>	From 2005 to 2006, there was no significant change in students' total agreement ¹³ with this statement. However, in 2006 a significant difference was evident between class types. A greater proportion of students in mixed gender classes (84%) agreed with this statement than students in single gender classes (52%).
<i>I feel safe and secure in a single gender/mixed gender class.</i>	From 2005 to 2006, there was a significant increase (from 66% to 78%) in students' total agreement with this statement. This was entirely due to an increase in agreement with this statement by students in mixed gender classes (89%) whereas only 68% of students in single gender classes were in agreement.

Table 3: Mirrabooka student survey responses

Parent Information

In 2007, Parent Surveys were received from 14 parents of students in single gender classes and 5 parents of students in mixed gender classes. Given the small sample size of the survey responses, no conclusions with any statistical significance can be made.

Summary

- In English, Mathematics, Science, and Society and Environment, where statistically significant differences were evident, boys and girls in mixed gender classes generally performed better than boys and girls in single gender classes.
- Boys and girls in the mixed gender classes performed better on the Respecting and Valuing Others assessment than the boys and girls in the single gender classes.
- A greater proportion of students in mixed gender classes indicated that they enjoyed being in those classes than did students in single gender classes.

¹³ 'Total agreement' was derived from the sum of the 'agree' and 'strongly agree' responses by students to the given statement.

Part 3: Significant Factors

During the Trial, teachers provided significant qualitative data related to the aims of the project. Data were collected from Action Learning Frameworks maintained by teachers as part of the professional development provided by the Professional Learning Institute as well as through interviews that were conducted by Evaluation Branch at the conclusion.

Teacher data revealed four factors that were significant during the implementation of the single gender program at Mirrabooka. Two of those factors supported the success of the program and were considered to be *enhancers* while the other two factors limited the success of the program and were considered to be *inhibitors*. In the presentation of these factors below, the voices of teachers can be heard through the inclusion of pertinent quotes, displayed in italics, that exemplify the points raised.

Program Enhancers

Teachers

The most important factor that influenced the implementation of the initiative at Mirrabooka was the teacher.

“Some teachers were passionate and others not so. The most important thing is the teacher.”

Teachers who were committed to being involved, who varied their approaches and tailored their strategies to meet the needs of students in the classroom had a greater impact upon the implementation of the initiative than other teachers.

“It’s about teaching and learning strategies, professional development, and quality teaching.”

Teachers of boys only classes made a number of changes to their classroom practice and tailored their strategies to meet the learning and management needs of students. Changes included: adding structure to lessons; ‘chunking’ lessons; outlining the content of each lesson at the beginning; including competition; using technology; including activity work; using humour; and increasing the level of encouragement. Some strategies were more successful than others. The more successful strategies included: using competition-based activities that provided extrinsic motivation; small group/team class organisation; structure; and activity-based lessons with change and movement.

“If you stick with one activity students lose focus. It didn’t work. The lesson needs constant change. I used 20minutes/20 minutes/20 minutes timeframes in lessons with lab sessions in the second 20 minutes. This strategy worked well as boys have to move around. I also tried getting activities done in a competitive context, for example push-ups to measure heart rate.”

Humour was also used by some teachers as an effective tool for working with boys only classes.

"I used a sense of humour in class – 'blokey' – but I wouldn't do that with girls."

Teachers of girls only classes also made a number of changes to their classroom practice and tailored their strategies to meet the needs of girls. Changes to practice included: increasing time for discussion and group work; negotiating the curriculum; expanding the amount of practical work; allowing more time to work with ICT; using role plays and oral presentations; and incorporating female perspectives into the teaching and learning program.

"I used lessons with lots of hands on activity and gave girls more opportunity. They couldn't opt out except where other girls took over."

Some of the more effective strategies in girls' classes were those that involved: group work and discussion that allowed girls to forward their ideas; reflection about learning; and lessons with content reflective of girls' interests.

In both boys' and girls' classes, teachers used rewards and incentives as effective motivators and management tools.

"I set high standards for neat work and its display and gave marks for presentation in project work. I gave out lots of rewards such as gold passes, letters of commendation and smiley faces, although that only works for girls."

Funding

Funding that the school received for participating in the Trial was expended on professional development for teachers and programs for students. Both these aspects were considered by teachers to enhance the implementation of the initiative. At the commencement of the Trial, a proportion of the allocated budget funded a study trip to the eastern states where a small group of teachers viewed classroom practice in single gender classes in a range of schools.

The professional development experiences provided teachers with a repertoire of strategies and confidence to implement them.

"Teachers with the best success did the professional development and had more confidence."

With students, funding was used to involve boys in the Rock and Water Program.

"The Rock and Water program helped boys socialise more appropriately and this assisted them with their learning."

Program Inhibitors

Inflexibility of the Timetable

A high proportion of teachers believed that the inflexibility of the school's timetable was a key factor that inhibited the success of the Trial. Because gender was the basis for grouping, some students with challenging behaviours were grouped in the same single gender class and in other instances, students with wide-ranging abilities

were grouped together in the same single gender class. In addition to these situations, Mirrabooka has a significant multi-cultural population. All of these issues impacted upon the teacher in the single gender classroom.

“Lack of numbers at the school puts constraints on what can be done with single gender. There are other needs [here].”

Non-consultative Roll-out of Implementation

At Mirrabooka, teachers in two learning areas were involved in the Trial at its commencement and teachers in two other learning areas joined the Trial after a year. Those teachers who joined the Trial after a year, including teachers new to the school, had the perspective that this stage of the project's implementation was poorly managed. They cited a lack of consultation and a perceived lack of support as being significant.

The school's administration made the decision, after the first year, to broaden the involvement of classes and teachers in the Trial but did not prepare teachers for the situation of teaching single gender classes nor discuss the situation with them prior to proceeding.

“There was no consultation with teachers before deciding. We were told after the fact. There was not a choice.”

Teachers involved in the Trial after the first year held the perspective that their access to knowledge, professional development, funds, and other resources was limited and not supportive of them or their involvement in teaching single gender classes.

“There are a whole lot of issues [with our involvement]. We were not aware of what classes we had till the year commenced. It was sink or swim with little support. I considered quitting. I didn't know much about the Trial. The school had a core group of committee members that were heavily involved in the first year. Therefore it was hard in the second year when we became involved as there was no grounding [for us]. I had the impression that teachers would have PD so I didn't have a plan [of what to do in a single gender class].”

Sustainability of the Program

The school does not intend to continue operating single gender classes in English, Mathematics, Science, and Society and Environment after the conclusion of the Trial as it limits the placement of students into classes, within the constraints of the timetable. Prior to participation in the Trial, the school operated with single gender classes in Health and Physical Education and intends to continue this practice in the future. Single gender camps and activities outside of the classroom will also have the opportunity to continue.

Conclusion

At the conclusion of the single gender classroom program, staff at Mirrabooka Senior High School engaged in self reflection about the school's involvement in the Trial and

a school-based analysis of student data was undertaken. Teachers concluded that there were more significant influences upon students' academic outcomes than single gender classrooms, these being: the learning area; the teacher and his/her pedagogical approach; teaching and learning activities; assessments; and the motivation and engagement of the students. Staff identified that the most valuable gains through being involved in the Trial related to the opportunity that it provided for some educators to experience well researched and high quality professional development which provided them with a broader range of teaching strategies.

Case Study 4: Rockingham Senior High School

Part 1: Introduction

Contextual background

Rockingham Senior High School is a secondary school with a staff of approximately 70 teachers and administrators and a student enrolment in Years 8 to 12 of approximately 900. The school is acknowledged as the state's maritime specialist school and offers a cross-curricular Maritime Studies program. The school operates a structure with 3 sub-schools: Maritime Studies; Art/Humanities; and Science/Technology and Enterprise, which aim to provide an educational program that meets the needs of all students. A feature of the school is its strong Student Services and pastoral care team.

Scope of Single Gender Class Involvement

In the past, the school has examined ways of best accommodating the needs of boys and girls in classes as a consequence of student placement within sub-schools. Based on student and subject choice, placement in one sub-school tends to be mostly boys, placement in another sub-school tends to be mostly girls, and placement in the third sub-school tends to be mixed. The school's involvement in the Trial provided an opportunity for teachers to further explore teaching and learning issues in single gender classes and further refine their practices.

The school's involvement in the trial occurred in two sub-schools, while the third sub-school remained mixed gender. Initially, Years 8 and 9 classes participated in the trial but this later expanded to include Year 10 classes, in the areas of English, Mathematics and Information and Communication Technology (ICT).

In **2006**, involvement of classes was as follows:

In English and Mathematics

Year 8 – three all boys, one all girls, and five mixed gender classes.

Year 9 – one all boys, one all girls, and seven mixed gender classes.

In **2007**, involvement of classes was as follows:

In English and Mathematics

Year 8 – one all boys, one all girls, and seven mixed gender classes.

Year 9 – one all boys, one all girls, and eight mixed gender classes.

Year 10 – two all boys, and seven mixed gender classes.

In **2008**, involvement of classes was as follows:

In English and Mathematics

Year 8 – two all boys, one all girls, and three mixed gender classes.

Year 9 – one all girls, one all boys, and three mixed gender classes.

Year 10 – one all boys, one all girls, and five mixed gender classes.

In Science and Society and Environment

Year 8 – two all boys, one all girls, and three mixed gender classes.

Year 9 – one all girls, one all boys, and three mixed gender classes.

Year 10 – one all boys, one all girls, and five mixed gender classes.

Resourcing

Funds allocated to the school were used to provide additional staff and ensure that class sizes of single gender and mixed gender classes were comparable.

Part 2: Student Outcomes

Data Collection

A range of data was collected and analysed over three years to measure student outcomes. Data included: MSE results; Respecting and Valuing Others results; attendance information; BMIS (Behaviour Management in Schools) information; teacher information through Action Learning Frameworks; Student Surveys; and in-depth teacher interview information. Some data sources were more meaningful to this evaluation than others.

Academic Outcomes

MSE testing in English reading and writing and Mathematics working mathematically provided the main source of data for analysis.

Over three years, from 2006 to 2008, the English reading data is inconsistent and inconclusive. Year 8 girls performed significantly better in mixed gender classes than in single gender classes in 2006, but their performance showed no difference in subsequent years. Year 8 boys' performance was conflicting. A significant difference was evident in 2007 where boys in single gender classes outperformed boys in mixed gender classes at levels 3 and above and levels 4 and above. However, in 2008, the situation was the opposite where boys in mixed gender classes outperformed boys in single gender classes at levels 4 and above.

The English writing trend for Year 8 boys and girls was consistent over three years of testing. Girls in mixed gender classes outperformed girls in single gender classes consistently, but boys showed no difference in performance whether they were in a single gender class or a mixed gender class. Figure 8 below shows that girls in the mixed gender classes performed at a higher level than girls in the single gender classes at level 6 and above in 2006, level 4 and above in 2007 and level 5 and above in 2008. The arrows in Figure 8 indicate a statistically significant difference at the 95% confidence level.

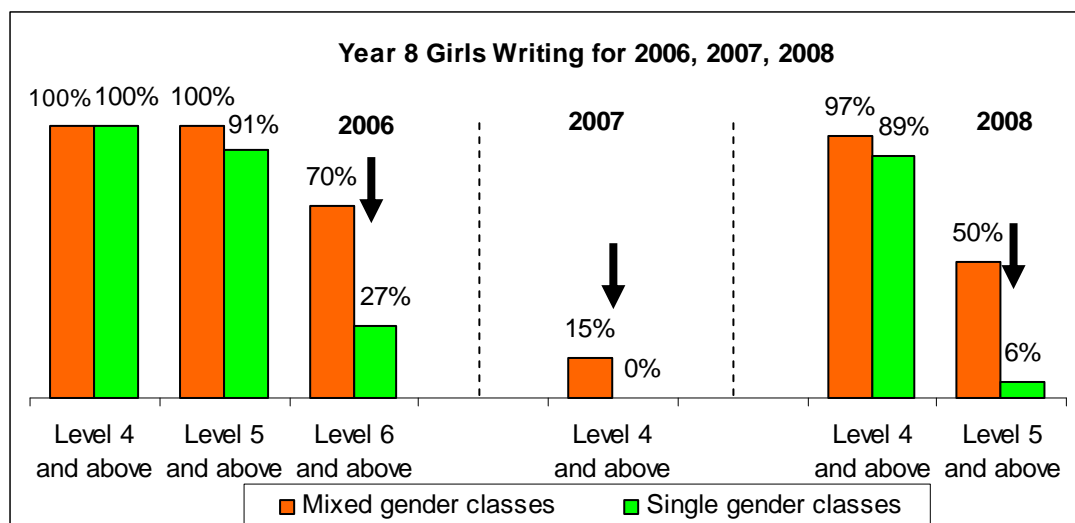


Figure 8: Rockingham MSE Year 8 Girls Writing for 2006, 2007, 2008

In Mathematics, the working mathematically data over three years is also inconclusive. Year 8 testing in 2006 revealed that boys in mixed gender classes outperformed boys in single gender classes, showing a significant difference at level 4 and above. In 2007, both boys and girls in mixed gender classes outperformed their counterparts in single gender classes, with significant differences noted at level 4 and above for boys and level 5 and above for girls. No trend, however, was evident in 2008. Testing of Year 10 students in 2008 revealed significant differences in girls' performance and boys' performance. Girls in mixed gender classes performed better than girls in single gender classes at level 4 and above and level 5 and above. For boys, though, the situation was the opposite. Boys in single gender classes performed better than boys in mixed gender classes, but only at level 3 and above.

In summary, the results from 2006 to 2008 in MSE reading, writing and working mathematically do not show any consistent trend. This finding supports the perspectives of teachers who indicated that they did not observe any identifiable difference between the academic performance of students in single gender classes and students in mixed gender classes.

Behavioural Outcomes

Teachers' perspectives were that, during the period of the Trial, there was a reduction in severe behaviour incidents. This was supported by a school-based analysis of BMIS data in 2006 and 2007 which revealed substantial reductions in the number of Year 8 and Year 9 students suspended from school and reductions in the number of days of suspensions for Year 8 and Year 9 students. While staff at the school acknowledged that other school factors had an impact on reductions in suspensions, they perceived that single gender classes had a considerable influence. With regard to general classroom behaviour, teachers held the view that behaviour had improved for some students, but not for all, and that there had been a general improvement in relationships.

Social Outcomes

A sample of 171, 144 and 74 students in 2006, 2007 and 2008, respectively, completed the Respecting and Valuing Others assessment, an instrument designed to assess students' social and moral reasoning and the development of values inherent in the Curriculum Framework. There was no consistent pattern of performance by boys or girls in either mixed gender classes or single gender classes across the three years. Generally, though, girls scored higher on the assessment instrument than boys, irrespective of the type of class they were in.

Student Information

In 2006, 157 students from Years 8 and 9 completed a Student Survey. This Survey was not repeated during the period of the Trial. However, a pre-Trial survey in 2005 of 342 students from Years 8, 9 and 10 provided some baseline data to enable comparisons to be made¹⁴ with students' perspectives in 2006. The observations

¹⁴ The questions on the two surveys were similar although the 2005 Survey questions sought students' perspectives about their *school* while the 2006 Survey sought students' perspectives about their *class*. It is generally inadvisable to compare responses to questions that are not identical in wording.

shown in table 4 are illustrative of students' perspectives about two classroom issues.

Question	Observation
<i>I enjoy being in a single gender/mixed gender class.</i>	From 2005 to 2006, there was no significant difference in students' total agreement ¹⁵ with this statement. However, when the responses of students in mixed gender classes were compared to those in single gender classes, a significant difference was apparent which was due to the responses of boys in single gender classes. In 2006, 81% of girls in single gender classes agreed with this statement compared to only 26% of boys in single gender classes.
<i>I feel safe and secure in a single gender/mixed gender class.</i>	From 2005 to 2006, there was a significant increase in students' total agreement with this statement. However, this was due to the responses of agreement by students in mixed gender classes (81%) compared to those in single gender classes (64%).

Table 4: Rockingham student survey responses

Summary

- There was no consistent trend in students' academic outcomes.
- School-based data indicates there was a reduction in severe behaviour incidents.
- Significantly more girls in single gender classes enjoy being in those classes than boys in single gender classes.

¹⁵ 'Total agreement' was derived from the sum of the 'agree' and 'strongly agree' responses by students to the given statement.

Part 3: Significant Factors

During the Trial, teachers provided significant qualitative data related to the aims of the project. Data were collected from Action Learning Frameworks maintained by teachers as part of the professional development provided by the Professional Learning Institute as well as through interviews that were conducted by Evaluation Branch at the conclusion.

Teacher data revealed three factors that were significant during the implementation of the single gender program at Rockingham. One of those factors supported the success of the program and was considered to be an *enhancer* while two factors limited the success of the program and were considered to be *inhibitors*. In the presentation of these factors below, the voices of teachers can be heard through the inclusion of pertinent quotes, displayed in italics, that exemplify the points raised.

Program Enhancers

Teachers

Teachers were significant to the Trial because of the ways in which they tailored their teaching strategies and classroom management strategies to meet the needs of groups and sub-groups of students in the classroom.

“Learning between boys and girls is different and there are ways of dealing with each group effectively. However, there doesn’t have to be difficult or major changes to suit the sexes.”

In teaching boys only classes, teachers employed strategies including: using short, structured and routine activities; using technology; and introducing gender-related lesson content.

“I provided structure and would break the lesson up into chunks. We would stay with a routine. For example, we would do spelling first.”

Cooperative strategies were also employed by one teacher with the boys’ classes he taught.

“I made use of group work – small groups using cooperative learning strategies. The boys felt more inclined to learn in that way with no girls.”

In teaching girls only classes, teachers used strategies similar to the strategies used by teachers in all boys’ classes. These strategies included: introducing cooperative approaches; planning structured lessons; and using gender-related content.

“With girls I used a cooperative approach, talking in groups, giving them a taste and letting go.”

In all boys’ classes as well as all girls’ classes, teachers employed similar classroom management strategies. Effective strategies included: having a consistent discipline policy; introducing structure; using seating plans; and giving rewards.

“I used a seating plan. I gave rewards for attention and recognised achievement. I maintained a belief that kids want to learn.”

With some classes, teachers saw the need to adapt and tailor their strategies to suit the needs of particular sub-groups.

“Behaviour management is slightly different when boys are present. You tend to talk more to the girls about the issues and reason with them. Often with boys you tend to lay down the law more and be tougher. However, this hasn’t worked with this group of girls due to individual personalities.”

Program Inhibitors

Insufficient Preparation of Teachers

Some teachers indicated that there was no consultation with them regarding the issue of teaching single gender classes.

“It wasn’t discussed. I was just given the classes and they happened to be boys.”

Teachers also indicated that access to professional development was either unavailable or not timely enough to support them with their participation in the Trial in its early stages.

“It would be more beneficial if the professional development was earlier. It came too late. The first session occurred in our second year. If it had been earlier, we could have made more program changes and had more interaction between interested teachers to share ideas from the start of the Trial.”

The inability to discuss single gender issues addressed through the professional development provided for staff in Trial schools and the subsequent inability to network with teachers from other Trial schools was compounded by other events occurring within the school at the same time.

“The Single Gender Trial has not been discussed in team meetings this year due to Union meetings. Therefore it is hard to gauge how [teaching single gender classes] is different from teaching other [mixed gender] classes.”

Inflexibility of the Timetable

Having single gender classes resulted in students with challenging behaviours being grouped together in some classes. Teachers indicated that the structure of the timetable resulted in the inability to separate some sub-groups of students with challenging behaviour.

“From a manager’s perspective there was a lack of flexibility of movement - some timetabling problems and the inability to split up students. The dynamics of mixed classes are beyond the teacher’s control if a boy enters.”

In one situation, the challenges of addressing behaviour issues in the classroom, stemming from the timetable structure, resulted in an ‘opting out’ of the Trial.

“The Year 9 class was very challenging and was changed back to mixed gender classes during the year.”

Sustainability of the Program

Because Rockingham’s single gender program is reliant upon funding, it is unlikely that single gender classes will continue to operate within the school after the conclusion of the Trial.

Conclusion

At the conclusion of the single gender classroom program at Rockingham Senior High School, there appears to be no conclusive evidence to indicate that participation in single gender classrooms had any significant impact on improving student outcomes. At the end of the Trial period, self reflection by staff at the school concluded that there were a number of factors, other than single gender classes, that have an impact upon student learning and outcomes. These factors are: the learning area; teacher proficiency, personality and pedagogical approach; the physical environment of the learning area; and the nature of the student cohort.

Case Study 5: Yule Brook College

Part 1: Introduction

Contextual background

Yule Brook College is a middle school with a staff of approximately 20 teachers and administrators and a student enrolment in Years 8 to 10 of approximately 200. The school was established in 2000 specifically to develop more effective ways of meeting the learning needs of young adolescents, and has developed a collaborative teaching and learning environment in which relationships and pastoral care are fostered. Teams of generalist teachers are responsible for teaching each year group and attempts are made to timetable the same teachers to teach the same group of students as it progresses through the school. The school has a large Indigenous male enrolment from their involvement with the Clontarf Football Academy.

The school's participation in this Trial occurred in the learning areas of English, Mathematics, Science, Society and Environment, and Health and Physical Education. During the period of the Trial, the school adopted the *Big Picture* approach to pedagogical change, and this became the predominant school improvement focus. Cooperative learning structures, restorative justice and single gender classroom practices were implemented under the umbrella of the *Big Picture* initiative.

Scope of Single Gender Class Involvement

From 2002 to 2004, the school was involved in a school-initiated single gender classroom trial that generated positive feedback from students and parents. Various issues had an impact on the school's operation in 2005, but the introduction of this Trial provided a stimulus for the school to re-introduce single-gender classes for a further period.

In **2006**, involvement of classes was as follows:

In English, Mathematics, Science and Society and Environment
Year 8 – three all boys, one all girls, and no mixed gender classes.
In Health and Physical Education
Year 8 – one all boys, and three mixed gender classes.

In **2007**, involvement of classes was as follows:

In English, Mathematics, Science and Society and Environment
Year 8 – two all boys, two all girls, and no mixed gender classes.
In Health and Physical Education
Year 8 – one all boys, one all girls class, and one mixed gender class.

In **2008**, involvement of classes was as follows:

In English, Mathematics, Science and Society and Environment

Year 8 – two all boys, one all girls, and no mixed gender classes.

Year 9 – one all boys, one all girls, and one mixed gender class.

Year 10 – three all boys, one all girls, and no mixed gender classes.

In Health and Physical Education

Year 8 – two all boys, one all girls, and no mixed gender classes.

Year 9 – three mixed gender class.

Year 10 – three all boys, one all girls, and no mixed gender classes.

Resourcing

A significant proportion of funds allocated to the school was spent on the provision of: a mentor teacher; professional development for teaching staff; and planning and review time for teachers.

Part 2: Student Outcomes

Data Collection

A range of data was collected and analysed over three years to measure student outcomes. Data included: MSE results; WALNA and NAPLAN results; attendance information; BMIS (Behaviour Management in Schools) information; teacher information through Action Learning Frameworks; Student Surveys; and in-depth teacher interview information. Some data sources were more meaningful to this evaluation than others.

Academic Outcomes

MSE testing provided the primary source of data for analysing students' academic outcomes. Because Yule Brook embraced a single gender environment fully in the learning areas of English, Mathematics, Science, and Society and Environment, this evaluation was unable to compare the performances of boys in single gender classes with boys in mixed gender classes, and girls in single gender classes with girls in mixed gender classes. Hence, it is only possible for this evaluation to compare the performances of boys with the performances of girls in the learning areas for which data was available.

In the English learning area, MSE testing in reading of Year 8 students in 2006, 2007 and 2008, and Year 10 students in 2008 revealed no significant differences. In writing, statistically significant differences at the 95% confidence level were noted in 2006 where girls outperformed boys at level 4 and above, and in 2007 where girls outperformed boys at level 3 and above. In 2008 no significant differences were noted.

In Mathematics, MSE testing in the working mathematically strand revealed no significant differences. However, in the number strand, statistically significant differences at the 95% confidence level were noted in 2007 where Year 8 boys outperformed Year 8 girls at level 5 and above and in 2008 where Year 8 boys outperformed Year 8 girls at level 4 and above. No significant differences were identified for Year 10 students in 2008.

In Health and Physical Education, MSE testing of Year 8 students in 2006, 2007 and 2008 identified a significant difference in 2007, only, where girls in mixed gender classes outperformed girls in single gender classes at level 3 and above.

The perspective of teachers, based on in-class assessments, was that student academic performance had improved during the period of the Trial. While they acknowledged that single gender classes had been beneficial for some sub-groups of boys and girls, they also indicated that it had not been beneficial for all. In particular, teachers perceived that the performance of some Indigenous students had improved significantly.

Behavioural Outcomes

Teachers' perspectives were that behaviour had improved for some students but not for all. School-based analysis of BMIS data revealed that during the period of the

Trial there had been a reduction in severe behaviour incidents. Consequently, the number of student suspensions had decreased. In some single gender classrooms, teachers reported that relationship building had been facilitated, interpersonal skills had improved and that students could contribute to class discussions without the need to be impressionable. In other single gender classrooms, though, especially when the group was small, behaviour and relationships were not as positive.

During the period of the Trial, the school received recognition from the wider community for its work in pastoral care. At the end of 2008, the school was awarded the Norm Hyde Award for excellence in pastoral care from the Australian Association for Pastoral Care.

Student Information

In 2006, 46 students in single gender classes completed a Student Survey. This Survey was not repeated during the period of the Trial. However, a pre-Trial survey in 2005 of 125 students provided some baseline data to enable comparisons¹⁶ to be made with students' perspectives in 2006. The observations shown in table 5 are illustrative of students' perspectives about two classroom issues.

Question	Observation
<i>I enjoy being in a single gender/mixed gender class.</i>	From 2005 to 2006, there was a significant decline in students' total agreement ¹⁷ with this statement. In 2005 74% of students were in agreement while in 2006 that proportion had dropped to 22%. This decline was evident in both boys' classes and girls' classes.
<i>I feel safe and secure in a single gender/mixed gender class.</i>	There was a significant decline from 2005 to 2006 (70% to 49%) in the total responses of agreement by students with this statement. The decline was amongst boys' responses of agreement (31%) rather than girls' responses of agreement (81%) with the statement.

Table 5: Yule Brook student survey responses

Summary

- There was no consistent trend in students' academic outcomes.
- School-based data indicates there was a reduction in severe behaviour incidents.
- There was a decline in girls and boys' agreement that they enjoyed being in single gender classes.

¹⁶ The questions on the two surveys were similar although the 2005 Survey questions sought students' perspectives about their *school* while the 2006 Survey sought students' perspectives about their *class*. It is generally inadvisable to compare responses to questions that are not identical in wording.

¹⁷ 'Total agreement' was derived from the sum of the 'agree' and 'strongly agree' responses by students to the given statement.

Part 3: Significant Factors

During the Trial, teachers provided significant qualitative data related to the aims of the project. Data were collected from Action Learning Frameworks maintained by teachers as part of the professional development provided by the Professional Learning Institute as well as through interviews that were conducted by Evaluation Branch at the conclusion.

Teacher data revealed three factors that were significant during the implementation of the single gender program at Yule Brook. Two of those factors supported the success of the program and were considered to be *enhancers*. The other factor limited the success of the program and was considered to be an *inhibitor*. In the presentation of these factors below, the voices of teachers can be heard through the inclusion of pertinent quotes, displayed in italics, that exemplify the points raised.

Program Enhancers

Teachers

Teachers believed that the successful implementation of this initiative in the classroom was dependent on the quality of the teacher and their teaching strategies.

“The teacher is more important than whether it’s a single gender or mixed class grouping.”

Particularly at Yule Brook, teachers believed that relationships with students were a key element in the success of their classroom programs, in two ways. First, they believed that establishing good relationships with students helped to support and strengthen their teaching programs during the period of the Trial. Second, they believed that participation in the Trial helped to further develop relationships with students.

“Build up strong pastoral care and relationships and you will then have a stronger teaching program.”

While some teachers used strategies that were effective in mixed gender groups, they also tailored their strategies to single gender classes because they believed that ‘reading the group’ was the important issue.

With all boys’ classes, teachers used a variety of strategies including: using goal setting, guidance and structure; expanding the use of practical activities; incorporating gender-related content; and using humour. Teachers indicated that boys needed more scaffolding and movement in lessons than girls.

“I had clearly defined goals. I used a scaffolding with a series of mini-lessons. I needed to ‘hold hands’ more for the boys.”

With all girls’ classes, teachers used a variety of strategies including: goal setting; and incorporating gender-related content.

"I used specific text types in the program, for example short stories and documentaries about females they could identify with. I could target material more specifically. However, girls got sick of having just girl issues which can be repetitive so I need to include variety."

Cooperative strategies through group work were also employed by one teacher with the boys' classes and girls' classes that she taught, however she noticed differences in the ways that she needed to tailor strategies to each group.

"I used cooperative strategies in pairs or with partners for boys and for girls. Larger groups (more than four) are better for boys, whereas partner activities worked for girls. Girls are competitive over individual work and were reluctant to share and work together. Boys prefer to work as groups and share the load."

Professional Development

Teachers believed that the quality of teaching was important to the successful implementation of the initiative and that this was supported by attendance at professional development sessions. The professional development was useful in itself but it also enabled teachers at Yule Brook to network with teachers from other schools.

"It was good to be part of the professional development last year. It gave me time to reflect and talk to staff at other schools. It was useful. The action learning was not as positive as meeting with other teachers."

The school's system of support that was in place nurtured teachers' pedagogical development.

"What worked was the mentoring of teachers by team leaders in respect of their quality of teaching."

Program Inhibitors

Involvement in Other Programs

During its period of involvement in the Single Gender Classroom Trial, the school implemented another initiative which became its main school improvement focus. In doing so, single gender classroom approaches remained part of the school's operations, but not as its predominant focus. As such, it is difficult to ascertain whether improvements in student outcomes are attributable to single gender practices or the implementation of other initiatives.

Sustainability of the Program

Single gender class structures are now embedded within the school's *Big Picture* improvement model and will be continuing regardless of further funding provisions.

Conclusion

At the conclusion of the Single Gender Classroom Trial period at Yule Brook College, there appears to be no conclusive evidence to indicate that participation in single gender classrooms had any significant impact on improving student outcomes. The perspective of teachers was that single gender classes may be beneficial for some students but not for others. The school's self-assessment is that it has made significant improvements with students but, due to the nature of other programs operating concurrently within the school, cannot attribute them necessarily to a single gender classroom environment.

Factors of Significance

Introduction

The analysis of data for each school provided no conclusive evidence during the period of the Trial to indicate that single gender classrooms supported improved student outcomes. The perspective of some teachers, though, was that single gender classrooms were beneficial for some sub-groups of students in some contexts.

The previously presented case studies of the participating schools in the Single Gender Classroom Trial have summarised the differing approaches made by each school to addressing single gender programs and have outlined the impact of those programs over a three-year period.

In addition to the analysis of student outcomes data, the analysis of qualitative data has revealed various factors that were significant in the implementation of the Trial in each school. These factors were apparent at a school level and at a teacher level, but varied from school to school. Not every factor was apparent in each school context. The significant **school factors** were: leadership; the implementation approach; and resources. The significant **teacher factors** were: personal qualities; professional development; and pedagogy. These factors are summarised in Figure 9.

School Factors	Teacher Factors
<ul style="list-style-type: none">• Leadership• Implementation approach• Resources	<ul style="list-style-type: none">• Personal qualities• Professional development• Pedagogy

Figure 9: Factors significant in the implementation of the Single Gender Classroom Trial

Positive aspects of each factor helped to enhance the implementation of the Trial in some schools and were considered to be **enhancers**. Negative or detracting aspects of each factor served to inhibit the implementation of the Trial in some schools and were considered to be **inhibitors**.

Enhancing and inhibiting aspects of each factor are summarised in Figure 10 and Figure 11.

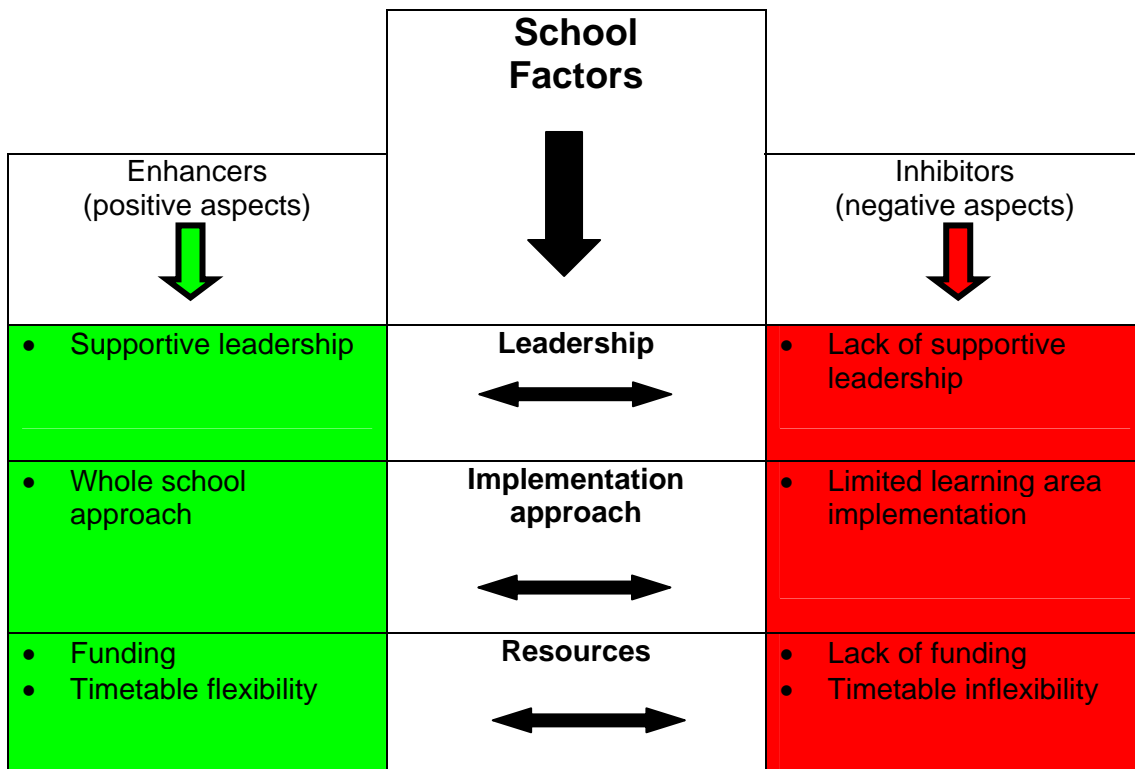


Figure 10: Enhancing and Inhibiting School Factors

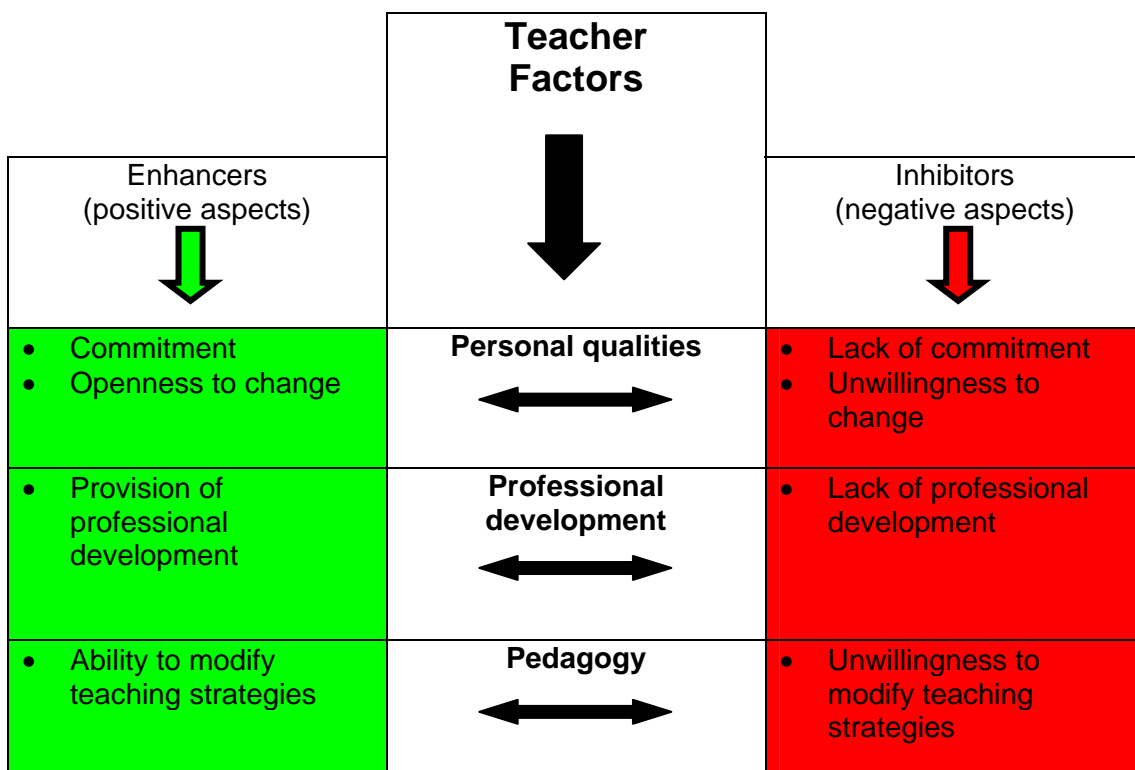


Figure 11: Enhancing and Inhibiting Teacher Factors

The following discussion will outline how each factor was significant in the implementation of the Trial. Because of the case study approach used in this evaluation, the observations are not generalisable to other contexts. However, they may be useful to other practitioners considering the implementation of their own school-based single gender programs.

School Factors

From the experiences of teachers in the schools involved, three school factors impacted on the implementation of the Single Gender Classroom Trial. Those factors were: leadership; the implementation approach; and resources.

Leadership

While supportive leadership was not a key enhancing factor for any specific Trial school, it was present as an underlying influence in a number of cases as impacting upon the Trial's successful implementation.

Supportive leadership was primarily exemplified by the principal's backing of the implementation of the initiative within the school. In general, programs supported by the principal have more opportunity for success than those which do not have the principal's support. Where the principal's support for initiatives is evident in a school, those initiatives tend to have a higher profile than those that do not and are, therefore, often seen by staff, students and parents as being important. In addition, the principal is in a powerful position in which he/she is able to promote initiatives that they support through publicity and, as such, encourage their success.

In this Trial, several principals promoted their schools' involvement to their parent body prior to its commencement. They demonstrated a proactive approach to informing the community of the initiative and asking parents to signify interest or objection to having their children in a single gender class. In doing so, these principals publicly demonstrated their support for their school's involvement in the Trial, and prepared parents and students as potential stakeholders.

One principal in this Trial demonstrated support for the implementation of the initiative in his school in a highly visible and 'hands on' manner by working in the classroom. He and his deputy chose to teach in an all boys' class for a significant part of the third year of the Trial, and provide a level of stability after two previous teachers of that class had left the employ of the Department. In doing so, the principal demonstrated to the school community that he supported the single gender initiative and wanted it to succeed. It is possible that, had the principal and deputy not taught in that particular class, it could have seen a progression of teachers throughout that year. Situations in which classes experience a number of teachers during a school year have the potential to impact upon students' learning as well as the workload of other school staff as well.

Generally, the extent to which the principal is supportive of the implementation of initiatives within the school also has some impact upon teacher commitment and morale. Teachers who are acknowledged and supported by the principal may demonstrate greater commitment to the ongoing implementation of an initiative if they believe that the principal values their contribution. Recognition by the principal is often valued by teachers as a reward for their work and involvement in school programs.

Implementation Approach

In this Trial, there was a variation in the extent to which schools adopted a 'whole school' approach. No school implemented single gender classes in every learning area in every year level and most schools operated with some mixed gender classes as well as some single gender classes.

Where teachers in more than one learning area were involved in teaching single gender classes, they contributed towards the presence of a 'critical mass' of teachers involved in the initiative. A 'critical mass' of teachers involved in the implementation of a project helps give it 'weight' through the reinforcement of strategies and the pursuit of improved outcomes. In Trial schools where single gender classes were operating in more than one learning area, teachers generally felt that there was sufficient support from other teachers in the school outside of their learning area for the implementation of the initiative. In those situations, teachers believed that other teachers in the school were supporting them by also addressing single gender issues and varying their strategies with students in the classroom. In general, teachers tend to be more committed to the implementation of an initiative when it is broad and approximates a whole-school approach rather than when it is narrower. In schools with limited learning area participation, teacher feedback indicated that this impacted on the effectiveness of the initiative.

In Trial schools in which there was implementation of single gender classes in more than one learning area, there were opportunities within the school for networking and discussion across learning areas. In some contexts, this opportunity was taken up and in others the opportunity was missed. Networking and discussion amongst teachers contributes to and supports their professional development. It enables them to share ideas, discuss the success or failure of classroom strategies, and facilitate reflection about pedagogy. Where a 'critical mass' of teachers in a school is involved in the implementation, it serves to contribute towards the creation of a 'community of practice' working towards a common goal.

In some schools involved in this Trial, participation occurred in only one or two learning areas and, in those schools, a 'critical mass' of teachers was not prevalent. Some teachers in those schools believed that this impacted on the effectiveness of the Trial. They felt a sense of isolation in being part of only a small group of teachers involved, and also felt that the strategies they were utilising in the classroom were not being reinforced by teachers in other learning areas.

Implementation of an initiative is generally more successful when it is planned and teacher consultation and commitment is garnered from the outset. In some instances in the Trial, the issue of teachers' involvement in teaching single gender classes was not discussed with them. In some instances, implementation of the initiative 'evolved' and varied from the original plan. Teachers are the key catalysts for the successful implementation of programs and initiatives so their commitment needs to be sought through discussion and preparation prior to their involvement.

Resources

The provision of resources generally provides the impetus for teachers in schools to 'do something differently'. All schools involved in the Trial were provided with funds over three years to support the implementation of their particular programs with each school outlaying its funds in different ways. The variety of resources that funds were

used to access included: additional teachers and tutors; professional development; student programs; technology; and classroom resources and equipment. Most teachers involved in the Trial felt the positive impact of the use of funds for single gender programs in various ways, however some teachers perceived that they did not benefit at all. Those teachers were generally ones who had not been involved with the Trial at the beginning and had begun teaching single gender classes after the initial year of implementation.

In some situations, the inflexibility of the timetable in some schools did not allow teachers to 'do something differently'. The grouping of students according to gender occasionally necessitated timetabling students with behavioural and social needs together in the same class. With mixed gender timetabling, it is often possible to separate such students by placing them in different classes. However, when single gender is the mechanism for grouping, separating particular students is difficult. In some instances, teachers spent time dealing with behaviour management issues to the detriment of attending to single gender teaching issues.

In some instances, the inflexibility of the school's timetable also resulted in classes having wide variations of student ability grouped together. In those situations, teachers believed that the learning outcomes of some sub-groups within the class may have been affected. They believed that grouping students according to gender and ability, rather than gender only, may have overcome this issue.

Teacher Factors

From the experiences of the schools involved, three teacher factors impacted on the implementation of the Single Gender Classroom Trial. Those factors were: personal qualities; professional development; and pedagogy.

Personal Qualities

In this Trial, staff in all of the schools involved identified the teacher as being singly important to the success of the implementation of the initiative. The foundation of their importance was measured by teachers' commitment to being involved in the Trial and their openness to change. Some teachers demonstrated total commitment to being involved in teaching single gender classes and held strong beliefs regarding its effectiveness and capacity to improve student outcomes for some sub-groups. In comparison, a few teachers held little commitment to involvement.

Teacher commitment is an aspect that can be influenced and enhanced by two elements within the school: leadership; and the implementation approach. Where teacher commitment prior to involvement in an initiative is lacking, a planned and measured implementation approach supported by strong leadership can have an impact on garnering teacher support and commitment.

A measured implementation approach is one that proceeds with the aim of having all or most teachers 'on board' and open to change, and leadership is important in guiding the approach. Getting teachers 'on board' may involve various processes including: fostering discussion; allowing time for preparation; providing resources; and providing support. The participation of some teachers in this Trial occurred when they examined their class lists for the year – not through any prior discussion or preparation. This situation allowed little time for teachers to prepare or develop a sense of commitment to their involvement. In addition, some teachers in some

schools perceived that they received little or no resourcing and little or no support during their time of involvement.

In comparison, other teachers in various Trial schools were committed to being involved. They had been part of the planning process within their schools, had been provided with resources or professional development, and felt supported by other staff, including members of the school administration team. Some schools had previously timetabled single gender classes in some subjects so teachers had a sense of preparation for broader implementation of single gender classes in other learning areas.

Professional Development

The opportunity was provided for teachers in each of the Trial schools to engage in professional development delivered by the Professional Learning Institute. The professional development consisted of a series of workshops and was intended to provide a degree of continuity for participants. Not all teachers, though, were able to access the professional development on offer, or in its entirety. In addition, teachers in one school accessed further professional development from various sources to enhance their knowledge of single gender classroom issues. In this Trial, the amount of professional development afforded to teachers involved in the Trial ranged from considerable to none.

This Trial has highlighted the important role that professional development plays in teacher preparation, commitment and involvement in the implementation of new initiatives. It has also highlighted the benefits of professional development that is more than a 'one off' and allows teachers time to reflect on information and reflect on their teaching practice. Those teachers who were involved in the professional development in the early stages of the Trial believed that it was beneficial in providing them with a range of pedagogical tools for participation in the Trial and they felt supported in the knowledge provided to work confidently in the classroom. Teachers provided with professional development generally feel supported to be involved in new initiatives. In this particular Trial, staff attending professional development sessions had the opportunity to meet teachers from other schools and engage in information sharing and networking. While not all teachers took advantage of this opportunity, some found it to be beneficial.

In some instances in this Trial, teachers had no access to professional development, or only limited access to professional development through attendance at one or two sessions. Those teachers with limited access to professional development were frustrated by what they perceived was a lack of continuity through not being able to attend consecutive sessions. Some teachers did not feel fully supported with knowledge and strategies. Those teachers with no access to professional development felt little support and some felt lacking in knowledge and preparation before they began teaching single gender classes. This may have impacted upon their confidence.

Where teachers participated in the series of professional development sessions offered, they gained confidence through the provision of a range of pedagogical tools and confidence to attempt to make a difference in the single gender classroom.

Pedagogy

Teachers in every school involved in this Trial identified the quality of teaching as being the greatest element of impact on the success of the implementation of single gender classroom practices. The quality of teaching involved teachers' ability to implement pedagogical and classroom management strategies in order to meet the needs of the students in their classes. It involved teachers using a repertoire of strategies, rather than a 'one size fits all' strategy, to promote learning and encourage the improvement of outcomes. In some instances, teachers identified and used strategies that 'work for boys' or 'work for girls'. However, in other instances, teachers identified strategies that 'did not work for this group of boys (or girls)'. What arose from the identification of such successful strategies was the ability of effective teachers to reflect upon their pedagogy, and modify their practice or implement other strategies to address student learning.

In instances where the grouping of students according to gender resulted in various students with behavioural or social needs being grouped together in the same class, effective teachers varied their classroom management strategies to improve behaviour and address social issues. As was the case with pedagogical strategies, teachers adapted their management strategies to meet the needs of the students within their classes, rather than adopt a 'one size fits all' approach.

While the Trial highlighted the issue that effective teachers have a repertoire of strategies that they vary, it also revealed instances in which teachers' effectiveness was tested when they were unable to tailor strategies to meet the needs of students in single gender classes.

A high quality of teacher pedagogy is the product of a range of factors that all have some influence. The afore-mentioned school factors and teacher factors all contribute to a teacher's capacity to deliver an effective and inclusive program in the classroom. The delivery of classroom programs is enhanced when teachers feel supported by school leaders, both tangibly through the provision of resources and intangibly through encouragement, to implement new school or classroom program. Similarly, the provision of professional development that aims to equip teachers with classroom strategies and encourages them to reflect on their practice serves to nurture and develop their expertise in the teaching and learning environment. Teacher improvement is a key element that contributes towards the pursuit and attainment of improved student outcomes.

Sustainability

The provision of funding to all Trial schools was a significant enabler that allowed schools to implement single gender programs for three years. Funding permitted the purchase of human and non-human resources that enabled schools to make changes and implement varying degrees of a single gender classroom environment.

The sustainability of a single gender classroom environment in Trial schools, though, cannot be dependent on continued additional funding and must be addressed within schools' existing resources. Involvement in the Trial by some schools has developed the sustainability of their single gender programs such that they are able to continue after funding ceases. Some of the factors contributing to program sustainability relate to:

- The creation of a single gender classroom environment that is supported by the ethos of the school and other programs operating within the school.
- The creation of a single gender classroom environment that involves a critical mass of teachers.
- Provision of professional development through this Trial to a critical mass of teachers who remain in the school and have the capacity to provide professional support to other teachers.
- The acquisition of resources through this Trial that need little maintenance or no replacement for several years and can be met by the school's budget.
- The creation of programs that are either self-funded or school-funded.
- Leadership that supports the continuation of a single gender classroom environment.

Conclusion

While the three-year Single Gender Classroom Trial has shed little light on whether single gender approaches have an impact on improving student outcomes, it has revealed meaningful information about factors which impacted on the successful implementation of programs at a school level. School factors of leadership, implementation approach, and resources, and teacher factors of personal qualities, professional development, and pedagogy were identified by teachers in the schools involved in this Trial as having significant importance in the successful implementation of school-based single gender programs. A school having positive aspects of school factors and teacher factors (enhancers) is likely to have the greatest opportunity for successful implementation. It's possible that a school having some negative aspects of school factors or teacher factors (inhibitors) will have limited opportunity for successful implementation, and a school with both school and teacher inhibitors will have the least opportunity for successful implementation. This is shown diagrammatically in Figure 12.

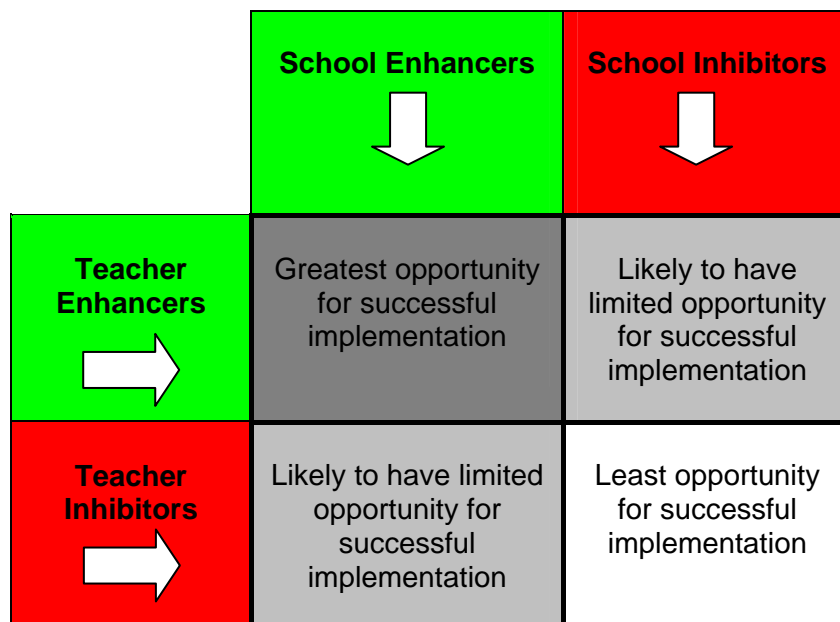


Figure 12: Impact of enhancers and inhibitors upon implementation

School leaders considering the implementation of single gender initiatives should consider ways of maximising the positive aspects of each school and teacher factor identified in this evaluation in order to maximise their own opportunities for success.

References

- Cresswell, J., K. Rowe and G. Withers 2002. *Boys in Education and Society*. Victoria: Australian Council for Educational Research.
- Fetterman, D. and C. Bowman 2002. Experiential education and empowerment evaluation: Mars rover educational program case example. *The Journal of Experiential Education* 25(2): 286-295.
- Fetterman, D. and M. Eiler 2001. *Empowerment Evaluation and Organizational Learning: A Path Toward Mainstreaming Evaluation*. St Louis Missouri: American Evaluation Association.
- Gray, C. and J. Wilson 2006. Teachers' experiences of a single-sex initiative in a co-education school. *Educational Studies* 32 (3): 285-298.
- Harker, R. 2000. Achievement, gender and the single-sex/coed debate. *British Journal of Sociology of Education* 21 (2): 203-218.
- Jackson, C. and I. D. Smith 2000. Poles apart? An exploration of single-sex and mixed-sex educational environments in Australia and England. *Educational Studies* 24 (4): 409-422.
- Mael, F. 1998. Single-sex and coeducational schooling: Relationships to socioemotional and academic development. *Review of Educational Research* 68 (2): 101-129.
- Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) 1997. *Gender Equity: A Framework for Australian Schools*. Canberra: Australian Capital Territory Department of Education and Training.
- Mulholland, J., P. Hansen and E. Kaminski 2004. Do single-gender classrooms in coeducational settings address boys' underachievement? An Australian study. *Educational Studies* 30 (1): 19-32.
- Office for Standards in Education (OFSTED) 1998. *Recent Research on Gender and Educational Performance*. Available online from <http://www.ofsted.gov.uk/publications/index.cfm>, accessed 20 November 2005.
- Parker, L. H. and L. J. Rennie 1995. *For the Sake of the Girls? Final Report of the Western Australian Single-Sex Education Pilot Project: 1993-1994*. Perth: Curtin University of Technology.
- Rowe, K. 1988. Single-sex and mixed-sex classes: The effects of class type on student achievement, confidence and participation in mathematics. *Australian Journal of Education* 32 (2): 180-202.
- Thompson, T. and C. Ungerleider 2004. *Single Sex Schooling: Final Report*. Available online from <http://www.cmec.ca/stats/singlegender.en.pdf>, accessed 20 November 2005.

- Warrington, M. and M. Younger 2001. Single-sex classes and equal opportunities for girls and boys: Perspectives through time from a mixed comprehensive school in England. *Oxford Review of Education* 27 (3): 339-356.
- Watterston, B. 2001. Practices and policies on single sex classes within coeducational schools. Paper presented at the Australian Association for Research in Education. Available online from <http://www.aare.edu.au/01pap/wat01270.htm>, accessed 20 November 2005.
- Wills, R. 2007. A new and different space in the primary school: single-gendered classes in coeducational schools. *Educational Studies* 33 (2): 129-143.
- Wills, R., S. Kilpatrick and B. Hutton 2006. Single-sex classes in coeducational schools. *British Journal of Sociology of Education* 27 (3): 277-291.
- Woodward, L.J., D. M. Fergusson and L.J. Horwood 1999. Effects of single-sex schooling on children's academic achievement. *Australian Journal of Education* 43 (2): 142-156.
- Yates, S. M. 2004. Aspirations, progress and perceptions of boys from a single sex school following the changeover to coeducation. *International Education Journal* 4 (4): 167-177.
- Younger, M.R. and M. Warrington 2006. Would Harry and Hermione have done better in single-sex classes? A review of single-sex teaching in coeducational secondary schools in the United Kingdom. *American Educational Research Journal* 43 (4): 579-620.