Empirical Evidence on the Coeducational/Single-sex Schooling Debate: A Follow-up Study*

Ian D. Smith
School of Educational Psychology, Measurement and Technology
The University of Sydney

Introduction
In my paper (Smith, 1994) presented last year at the Australian Association for Research in Education conference in Newcastle, I reported the results of a five-year study of the transition to coeducation in two Sydney secondary schools. Student self-concept and achievement in English and mathematics were measured before, during and for three years after a boys' and an adjacent girls' secondary school became coeducational. Briefly, the major findings were that self-concept initially decreased in the coeducational classes, but subsequently rose to a level significantly higher than that recorded when the students were attending single-sex schools. Achievement scores in standardised English and mathematics tests administered to grade 10 students annually were stable across the five years of the study. In other words, average student achievement remained constant from year to year as the two schools changed from being single-sex to coeducational high schools. These trends contradicted the view that single-sex schools result in higher achievement for girls, while coeducational schools are better for boys in social and academic areas of the curriculum (Gilligan, 1982; Spender, 1982).

Despite these results, a majority of teachers at the two schools responded to a questionnaire survey by stating their belief that girls' achievement in mathematics, science and computer studies is higher at single-sex schools than at coeducational schools, while boys' achievement in English is superior at coeducational schools. Although the teachers believed that the students prefer and interact better in a coeducational school, they maintained that there are academic advantages for girls in a single-sex school and for boys in a coeducational school. The student and teacher responses were in agreement in terms of the social benefits of coeducational schooling, whereas there was a discrepancy between teacher perceptions and actual student achievement in English and mathematics, with no advantage found for either single-sex or coeducational school.

2. Follow-up Study
Ten years after the two schools became coeducational, student self-concept was found to be just as high as when it was last measured in 1985, two years after complete coeducation. It had remained significantly higher than it was before the coeducation process began. Furthermore, most dimensions of self-concept were significantly higher in 1993 than they were in 1982, just before coeducation occurred at the two schools. These trends are illustrated in Figure 1. Figures 2 and 3 show that the pattern of higher student self-concept after the transition to coeducation applied to both boys and girls.

3. Gender Differences in Self-concept
While there were some gender differences in the various dimensions of student self-concept measured in the 1993 follow-up testing, the only
two that were of psychological significance, rather than statistical significance, were appearance and honesty self-concept. Girls were typically more critical of their appearance than boys, with this dimension being the lowest rated by girls out of the 11 dimensions on which they rated their personal qualities and abilities. This finding reflects the strong gender-stereotyping of physical appearance in girls in Western societies by parents and peers from an early age. Excessively high expectations for achievement and social skills by parents has been linked with the eating disorder, anorexia nervosa, which is far more prevalent in girls than boys (Maloney and Kranz, 1991).

Self-concept of honesty, on the other hand, was higher in girls than boys. Girls were less likely than boys to say that statements such as "I sometimes tell lies to stay out of trouble" were true of them. This finding may reflect the greater emphasis of parental socialisation of honesty in girls than boys. This moral value has been socialised strongly in girls throughout the 200 years of European history in Australia, according to the feminist, Ann Summers (1994).

4. Enrolment Patterns at the Two Schools
Another indicator of the impact of coeducation at the two schools is the enrolment pattern from 1983 to 1993. 1983 was the year when grades 7, 9, and 11 became coeducational at both schools, with all grades at both schools being coeducational in 1984. As Figure 4 indicates, enrolments at the former girls' high school increased from 1983 to 1985, but have since declined apart from a temporary rise in 1989 and 1990 when an active advertising campaign was launched by the school administration. Figure 4 also shows that enrolments at the former boys' high school declined from 1986 to 1989, but have increased since 1990 when this school became an academically selective school for gifted students. No enrolment figures were available for this school for the period from 1983 to 1985.

It is difficult to interpret these enrolment patterns precisely because there were several factors influencing student enrolments at the two schools simultaneously. First, the population of the district served by the two schools is ageing, with fewer students of high school age living in the area. The two schools are located in an established, middle-class suburb of Sydney where there is little development of new housing. The high cost of housing forces most young families to move out to newer or cheaper suburbs. Nevertheless, in 1988 a government policy of de-zoning or open enrolment was implemented, where school principals were allowed to enrol students from any suburb of Sydney after giving preference to children of local residents. This change of policy appears to have led to a temporary increase in enrolment at the former girls' high school, but not at the former boys' school where the enrolment continued to fall until 1990 when the attraction of attending a selective high school for academically gifted students reversed this trend.
Figures 5 and 6 illustrate the enrolment patterns for girls and boys at the two schools. Figure 5 shows that the decline in enrolment at the former girls' high school was more rapid for girls than boys. Figure 6 demonstrates that the enrolment of girls at the former boys' high school has not reached the level of boys even after this school was declared an academically selective one. One possible reason for these two findings is that both schools compete for enrolments with a nearby girls' high school which has developed a reputation for high academic standards. Another reason is that some parents may prefer an all girls' school environment for their daughters.

5. Enrolment Patterns in School Subjects
In the core subjects of English and mathematics, enrolment data were available for the former girls' school but not for the former boys' school. Figures 7 and 8 indicate that enrolment in the more advanced courses declined for both these subjects in grades 11 and 12. There were fewer students undertaking 3-unit English and mathematics over the ten year period of the study. More students were enrolling in the less advanced English and mathematics courses which required fewer hours of lessons in preparation for the Higher School Certificate (HSC), which includes a public examination held at the end of grade 12. Two factors may be accounting for these trends. One is the increasing retention rate which occurred over the ten years of the study. This meant that a broader range of abilities was represented in the later cohort of students than earlier in the study, resulting in the less advanced courses becoming more attractive to these students. The second factor influencing the trend away from more advanced subjects was the presence of two nearby schools which were competing for the brighter students. An analysis of the achievement records at the former girls' high school found that HSC performance from 1990 to 1992 showed an increase in the number of grade 12 students performing in the lower half of the achievement distribution (see Figure 9).

6. Interviews with Principals, Teachers, Parents and Students
A total of 16 interviews was conducted and content analysed to provide qualitative information about the impact of coeducation on the two schools. The sample consisted of five principals or former principals, seven teachers or former teachers, two parents and two former students. The interview consisted of five open-ended questions: (1) "What do you know about the decision to change from being a single-sex school to become a coeducational school?"; (2) "How was the school prepared for the change?"; (3) "Can you tell me about what the transition was like?"; (4) "Would you consider the change to coeducation has been successful for girls?...for boys?...in what ways?"; (5) "The school profile has changed in some ways over the last ten years. How would you explain these changes?". The graphs of school enrolment patterns (i.e., Figures 4, 5 and 6) were shown at this point.

The impetus for the change apparently came from the parents. While it
was a political decision,"...it was prompted by the parent body". The reasons attributed to parents for wanting the change varied considerably, including that coeducation would be better for boys and that parents of both boys and girls would have children at the same school. In a coeducational school the girls would have a "civilising" effect on the boys. The general impression was that the major participants during the transition to coeducation were the school principals and the Department of Education. As one teacher stated, "there was a lot of school discussion about it, but I don't know that we had a lot of say in whether it was going coeducational or not. I think it was basically a political move anyway"

Comments about the preparation for the transition focussed on professional development for teachers, joint committee meetings, staffing changes and changes in the curriculum. Other comments referred to student orientation and the transition taking two years, student involvement in the change of school name, as well as subject choices. Particular comments were made about Industrial Arts and Home Science courses, for which building changes were made.

Experiences of the social interaction within the schools brought out strong feelings about the transition to coeducational schooling. The main feature was the gender imbalance, particularly in senior classes "...and those girls suffered a fair bit of unintended harassment". There was a perception that the grade 7s fitted in well and the grade 9s did eventually, but the older girls perceived that it was their school and they did not like the change.

Some of the adjustments involved discipline and student welfare. Other adjustments were to increased noise levels. As one teacher at the former girls' school said: "We all commented on the noise level, the noise was very intense, very loud". The increased noise was attributed to girls as well as boys.

Advantages and disadvantages of the transition to coeducation was generally portrayed from a male perspective. Many issues related to the beneficial influence of girls on boys. Other comments were made about the general increase in maturity and self confidence, and improved boy-girl relationships in the classroom and on field trips. More tangible benefits of coeducation were perceived to be the wider subject choices. One teacher said, "the influx of boys did push the Economics area more...and the boys in fact went into the areas of art and music". The general good feelings about coeducation were balanced against a sense of false expectations: "because the staff hadn't changed that much, most of the programmes were still the same".

When the principals and teachers were shown the declining enrolment patterns they commented on their implications for staffing. "It means it becomes very much harder, harder each year to do the timetable". Several explanations of the declining school enrolments took into account the changing local population and political decisions such as de-zoning in impacting on the change to coeducation. One teacher summed up the situation in the following words:

"Well, at the time, coeducation seemed to be the way all schools were going, that was across the State...the move for coeducation was The
Way...We were dealing with changing perceptions of the community. It's the political decisions that are now affecting it, so you wouldn't blame the change to coeducation for that."

7. Conclusion

The general conclusion is reached that coeducation occurred at the two schools relatively smoothly and with no disadvantaging effects on student achievement in grade 10 English and mathematics in the first four years after it occurred. In fact, student self-concept increased after a temporary decline in the transition year. This social benefit of coeducation was maintained ten years after the event. Nevertheless, there was a drift in enrolments away from the two schools, a trend which was reversed in one school when it was made a selective school for academically gifted students. This trend indicates that coeducation is just one of several factors which influence parents' and students' choices to attend a particular school. We are in an era when public, as well as private, schools compete with each other for students. Marketing of a school's strengths has become a vital strategy for attracting students, especially in districts with a declining population. To increase its attractiveness to students and parents, the former girls' high school has spent a considerable amount of money to add dance and drama facilities and to advertise itself as a centre of excellence in these fields. It is also introducing vocational subjects such as agriculture to increase its curriculum range and attractiveness. In the current, conservative climate of high youth unemployment, however, academic success is the main priority of parents and their children. This emphasis is reflected in the turnaround in enrolments at the school which is now academically selective. Eltis (1992) has commented that the current drive to promote excellence in specialist high schools contains serious implications for the comprehensive high school which aims at providing a general education catering for a broad range of student abilities and interests. Ten years after coeducation occurred in these two schools there have been many other policy changes at the schools. Despite these changes student self-concept remains buoyant. Whether this is the result of the two schools being coeducational it is impossible to say because of the interactive nature of the changes. The impact of specific educational policies becomes more difficult to isolate as the passage of time brings ever more change.

References